AUBURN
UNIVERSITY

SAMUEL GINN
COLLEGE OF ENGINEERING

DEPARTMENT OF CHEMICAL ENGINEERING

January 6, 2023

Search Committee – Dean, Samuel Ginn College of Engineering
Attention: Director, Breckenridge Partners

Dear Search Committee Members,

I am very pleased to submit my name and record for your consideration as the next Dean of the Samuel Ginn College of Engineering at Auburn University. It is a distinct honor to be considered for this position and I believe that my background and experience make me a strong candidate. As Chair of the Auburn University Department of Chemical Engineering, I have led our department through a period of significant growth while remaining firmly committed to a strong positive trajectory of our research and educational programs such that we have firmly established our performance metrics at a level that is competitive with the very best programs in the country. It is this level of aspiration that I would look forward to bringing to the Dean's role. We would accomplish these goals through clear strategic initiatives coupled with a steadfast commitment to ensuring that the necessary tactical elements are in place. Our success will hinge on ensuring that there is a high degree of buy-in from all constituents including our faculty, students, and alumni. This was certainly the case for my success in leading the Department of Chemical Engineering and I would truly relish the opportunity to continue the ascent of the Samuel Ginn College of Engineering along the upward trajectory that we have enjoyed for more than the last decade. I wish to play a leading role in ensuring that the Samuel Ginn College of Engineering reaches its full potential as an internationally recognized leader that is known for its exceptional student-centered experience, preeminence in research/scholarship and impact, as well as outstanding capacity for transforming lives through service and outreach. I am convinced that Auburn can be among the nation's preeminent engineering colleges and I would look forward to leading and facilitating our continued elevation.

I am fully committed to the clearly defined mission/vision for the Samuel Ginn College of Engineering along with the associated seven strategic goals set for achieving the elevated levels of excellence needed to execute this mission/vision. We have made significant advances towards all of these strategic goals in the past decade and it is vital that our next Dean maintains this positive momentum. I believe that I have established myself as an inspiring, effective, collaborative, responsive, and quality-focused leader with a demonstrated commitment to excellence and a strong record of both scholarly and administrative achievement. Moreover, I fully understand and embrace the unique culture and mission of Auburn University and believe that my record illustrates significant contributions towards our strategic goals and the fostering of this important culture of excellence. It has been very rewarding for me to establish a proven record of interdisciplinary collaboration, which will be required as Dean to forge alliances with stakeholders throughout the university and beyond. Furthermore, I have demonstrated sound financial management and budgeting skills as well as significant program development and fundraising/development abilities.

212 Ross Hall
Auburn, AL 36849

Telephone:
334-844-4827

Fax:
334-844-2063

eng.auburn.edu/chen

I consider myself to be a prudent and responsible steward of our department's resources, and through careful planning have been able to make strategic investments and take calculated risks while also being decisive when a reduction in resources might be required. A particular point of pride is my record as an effective faculty/staff recruiter and a valued mentor at all ranks. Having the ability to delegate, mentor, and develop leadership in others, is a characteristic that I have strategically leveraged to increase my effectiveness as department chair and something that I would thoroughly enjoy continuing as Dean. Moreover, making myself available/accessible to all stakeholders is always a priority and I am genuinely interested in building consensus, seeking council, and making informed decisions in an inclusive manner, while being willing to take responsible risks and to make decisions without complete or perfect information when a situation requires it. My service and contributions to a range of university committees demonstrates my ability to work closely with other administrators on matters impacting both the Samuel Ginn College of Engineering and the university as a whole. Finally, I am fully committed to continuing the growth and advancement of the educational and research programs in the Samuel Ginn College of Engineering to support the strategic goals of Auburn University, and I would be honored to represent our college and Auburn in local, national, and global settings. I would truly relish the opportunity to lead our college in its continued pursuit of being one of the top engineering colleges in the country. As Dean, I would work tirelessly to ensure that we execute a well-defined strategy to shape an even brighter future for our college in the areas of scholarly research, delivery of world-class educational programs at both undergraduate and graduate levels, recognition of faculty and student achievements, as well as the funding and support necessary to enable these endeavors.

It has been my privilege to serve as a member of the faculty of the Department of Chemical Engineering at Auburn University since January 2004 following the receipt of my Ph.D. from the Technical University of Denmark in December 2003. It should be noted that my connection to Auburn goes back further as I spent nine months here in 2001 as part of my doctoral studies and I also took leave of absence from my studies to serve the department as a visiting lecturer for the Fall 2002 and Spring 2003 semesters. I have established a strong record of scholarly productivity and academic achievement including more than 165 refereed publications and almost 450 invited talks and conference presentations. Ensuring that my colleagues, collaborators, students and I have sufficient support to pursue these scholarly activities has been of paramount importance and would continue to be a high priority as Dean. I have successfully secured more than $29M in extramural grants and contracts as PI or significant Co-PI from a wide range of federal and industrial sources. Having received several teaching and research awards/accolades in recognition of my efforts is something I take great pride in. This strong focus on scholarly research output and professional leadership has allowed me to establish a reputation as a leader in my research field. Additionally, I am a highly dedicated teacher/mentor and have worked hard to ensure that all of my students (both undergraduate and graduate) reach their full potential and I have been rewarded with an outpouring of support from my students for this commitment. I am particularly proud that my students have reached very high levels of achievement and recognition through their scholarly contributions including several graduate students who have pursued academic careers (all have been promoted to the rank of Professor). I have embraced and cherished my role as a professor of chemical engineering as one that fully integrates a strong commitment to instruction, research and service while expecting excellence from myself, my students and my colleagues. Embracing and recognizing that everyone has different strengths and passions, my goal and expectation as Dean would be to support/nurture a culture that ensures all members of the Samuel Ginn College of Engineering display and pursue aspirations of excellence in their scholarly/operational endeavors in support our mission and strategic goals.

A strong commitment to diversity, equity, and inclusion is critical for our continued success as everyone in our college (faculty, staff, and students) deserves to be treated with integrity and respect

and to be provided a supportive environment in which to reach their full potential. As Dean, I would be fully committed to fostering and supporting an inclusive institutional culture in the Samuel Ginn College of Engineering, where everyone feels welcomed, valued, respected, and engaged. During my time as Chair, I have been fortunate to serve as a frequent panelist in the Center for Inclusive Excellence and I have been an active participant in a number of DEI workshops both on campus and through professional societies, including Advocates and Allies, Safe Zone, among others. Moreover, I am proud that we have added several new faculty from underrepresented groups to our department including four women, two Hispanics, and one African-American, who are all outstanding role models for our students through their research and educational accomplishments. On a personal level, I am a proud member of the 100+ Women Strong and the Weatherby Society in the Samuel Ginn College of Engineering, where the latter is a result of having established an endowed scholarship to support underrepresented students in engineering.

For the past ten and a half years, it has been my distinct pleasure to serve as the Chair of the Department of Chemical Engineering at Auburn University. Providing strong leadership in directing and advocating for the research, educational and outreach activities within my department has been highly rewarding and I would look forward to parlaying this experience into continued success for the Samuel Ginn College of Engineering. I serve as the chief academic and financial officer of the department with responsibility for defining strategic goals and directions as well as the decision-making processes needed to carry out our missions. In a strategic effort to broaden our research capacity/portfolio as well as reinforce our traditional areas of strength, we targeted new and emerging research areas and established associated hiring goals. We also set ambitious performance goals including elevating our scholarly publication rate to an average of at least one refereed paper per graduate student per year, which compares very favorably to the very top programs. I am proud that we have achieved this for the past five years with more than 100 peer-reviewed papers published annually. These strategic efforts have proven highly successful and have resulted in our department being consistently ranked in the top 4 among SEC schools by *U.S. News & World Report* and achieving our two highest rankings ever – number 45 in 2015 (29 among publics) and number 48 (30 among publics) in 2022 out more than 160 chemical engineering programs. As we pursue our goal to be a top engineering college, it is imperative that we elevate our scholarly productivity to match the levels of the very best engineering colleges in the country. The first step towards being recognized as a top program is to perform like a top program.

It is my firm belief that the recruitment, mentoring, and retention of outstanding faculty members are critical components to success in an academic program and is an endeavor that I have been particularly passionate about during my time as Chair. Success in this area will be critical as we continue to move the college forward, and advocating for the needs of all our programs is something I would look forward to. During the past ten years, I have worked tirelessly to increase the size of my department's faculty by aggressively recruiting a total of fifteen new tenure-track faculty members as well as two lecturers and one part-time teaching faculty – all from the very best universities. Additionally, we welcomed two more faculty members following their reassignment after the closure of the Department of Polymer and Fiber Engineering. It should be noted that two of these positions were created and filled following a critical review of the department's needs and priorities. After having served as the acting director of the Alabama Center for Paper and Bioresource Engineering for eighteen months in 2014-2016, I decided to convert the director position from a non-tenure-track administrative position to a regular tenure-track faculty position, while providing some administrative support from the department. This has proven to be highly successful as our new director has significantly elevated the activities of the center in terms of funded scholarly research, education, and outreach. Similarly, I decided to eliminate our laboratory director position in favor of strategically redirecting these funds to hire an additional lecturer that could contribute more broadly to our teaching program. I am extremely pleased that both of these faculty were successfully tenured and/or

promoted in 2022. Moreover, I am exceedingly proud to have overseen a total of fifteen successful tenure and/or promotion cases during my time as Chair (all with unanimous support at all levels). In particular, I want to highlight that following two promotions in 2020, our department had the highest percentage of female full professors of any chemical engineering department in the US (all five female full professors were promoted to this rank during my time as chair). I am also very proud that both former PFEN faculty members were successfully promoted to the rank of professor after joining our department. In my opinion this speaks volumes about the collegial and supportive environment that we have established and continue to nurture. A collegial environment is critical for faculty (and staff) recruiting, growth, development, and retention. As Dean, I would want all members of the Samuel Ginn College of Engineering to feel engaged and appreciated, not just in their home department, but across the entire college. For example, a noteworthy component of our faculty hiring process is that while we rely on the subject matter experts to screen the applicants and identify the top candidates for interview, the entire faculty decides who we make offers to. This ensures that the entire faculty (including untenured faculty and lecturers) feel engaged in the decision on who we add to the family and that their opinion is valued and respected. I am proud that these new hires have brought significant national attention to our department through their receipt of prestigious awards including no less than three NIH R35 Young Investigator Awards (totaling $5.5M), the first DOE Young Investigator Award in the Samuel Ginn College of Engineering (and only the second at Auburn University), and selections to NAE/NAS Frontiers of Engineering/Science Symposia, to name a few. Over the past ten years, our faculty have been recognized with an impressive number of awards including five William F. Walker Teaching Awards, eleven Alumni Engineering Research Awards (three at junior level and eight at senior level), and three AU Creative Research and Scholarship Awards. Consistent with this, as Dean I would be firmly committed to ensuring that all faculty (and staff) members receive effective mentoring and development opportunities throughout their careers. As an example, as Chair I provided support for a total of 17 junior faculty (both Assistant Professors and Lecturers) to attend the 2017 and 2022 AIChE/ASEE Chemical Engineering Summer Schools to network with fellow junior faculty and learn about the latest teaching techniques in order for them to establish themselves as excellent instructors. Concomitantly, it is vitally important that high performing faculty members be recognized for their accomplishments and are provided the resources necessary to reach their fullest potential. I am very proud that eleven of our faculty currently hold named/endowed professorships in an effort to reward and retain the best and brightest. This must remain a high-priorty in the Samuel Ginn College Engineering so that we can ensure that we are able to recruit, reward, and retain the best and brightest faculty and I would look forward to leading our development efforts to bring the required resources to our college.

The Samuel Ginn College of Engineering attracts a large cohort of outstanding undergraduate students and have established an excellent reputation in this area. Our vision is to be the best student-centered engineering experience in America and we have made great strides towards this goal. It is imperative that we sustain high-quality undergraduate instructional programs at the frontier of engineering education to ensure the continued elevation of our college. We must endeavor to make an Auburn engineering education available to as many qualified students as possible, which can only be attained through aggressive recruiting campaigns, competitive scholarships, and outstanding teaching. Moreover, we should place particular emphasis on student retention/support as well as promoting undergraduate student achievement both inside and outside of the classroom, and I believe that the Dean of Engineering should continue to play an important role in upholding this standard. We should aspire to have all of our students engaged in impactful extra-curricular experiences, e.g. co-op, internship, undergraduate research, and/or study abroad opportunities among others. Undergraduate enrollment in the Department of Chemical Engineering has closely followed the national trend for at least the past twenty years with enrollment peaking at 692 students in 2015 compared to 237 in 2004. Consequently, one of our department's strategic goals during my first several years as Chair was to manage this explosive growth while maintaining very high

academic standards and simultaneously providing an excellent student experience. We expanded our staff support by adding an additional student services coordinator to ensure that we could continue to provide outstanding academic advising and also increased our academic programs administration support staff. Unfortunately, faculty hiring typically lags behind enrollment growth, and I am extremely proud of our faculty for how we handled these large enrollment numbers for several years. Thankfully, our department has been blessed with an outstanding group of undergraduate students with our average entering freshman ACT scores being above 30 for more than a decade. We have significantly increased our faculty size in the past five years, which we have leveraged by implementing several measures to enrich our student experience and success. For example, due to the increased bandwith, all of our classes (except the senior sequence) are now offered three times per year, which is very important for our co-op and transfer students, who might otherwise have had their graduation delayed due to course schedules. We introduced a new applied mathematics class to aid our students in their engineering application of differential equations and have begun offering our own version of the first thermodynamics class. These changes have been very positively received by our students and have allowed us to better distribute the subject matter across the curriculum as well as enrich several other courses with additional material. The addition of new faculty with expertise in emerging/contemporary research areas has allowed us to significantly expand our technical elective course offering to our students including: Pollution Prevention & Sustainability; Computational Systems Biology; Protein Engineering; Risk Management & Optimization; Integrated Biorefineries; Big Data Analytics & Machine Learning; and Additive Manufacturing of Soft Materials. Moreover, I led the development of our accelerated Bachelor-Masters program and also instituted an international unit operations summer program at the Technical University of Denmark to provide enrichment experiences for our students. Apart from the disruption caused by the COVID-19 pandemic, the program has been a great success with 32 total participants including 10 students spending four weeks in Denmark this past summer. Our undergraduate students have been highly competitive for a wide range of national awards including several Goldwater scholarships and honorable mentions along with several top finishes in national paper competitions. I take great pride in the fact that our department has maintained highly rigorous educational programs that allow students to achieve their full potential and that prepare them for meaningful and productive careers. Finally, I am proud to have successfully led the department through two national accreditation processes in 2016 and 2022, where we received the full six-year ABET accreditation in each case with no shortcomings and only strengths noted. Maintaining high-quality academic programs and associated rigorous assessment processes will ensure our future accreditation, and as Dean I would be fully committed to a culture of continuous improvement that will further guarantee the viability and vitality of all our academic programs.

The national reputation and ranking of an engineering college is largely driven by the performance of its graduate programs. As such, significant emphasis must continue to be placed on aggressively growing and maintaining well-funded, highly subscribed, and cutting-edge graduate programs with highly qualified graduate students from top institutions. Moreover, particular attention must be paid to ensure that appropriate human and capital resources are available to perform high-quality research so as to catalyze scholarship that has societal relevance and impact. I have led several efforts to promote the global recruitment of high-caliber Ph.D. students from leading institutions such that the Department of Chemical Engineering's enrollment of fully funded graduate students has remained steady between 80 and 100 for the past decade (approximately 80% Ph.D.). The competition for top-quality graduate student talent is more fierce than ever, and to recruit the best and brightest students, we need to offer them competitive stipends. Through the support of generous donors, the Samuel Ginn College of Engineering has established several graduate fellowship programs to add significant funding to the base stipend provided by the departments, however these fellowships are only able to support a small fraction of the graduate student population. I am extremely pleased that following a series of open discussions, our faculty unanimously supported a

proposal to aggressively increase our base graduate stipends (almost 30% over a two year period) such that our minimum Fall 2023 stipend will be $31K annually, which brings us to a nationally competitive level. Our department has granted an average of 18 graduate degrees annually during the past decade and these students have been highly recognized for their accomplishments and obtained excellent positions in both industry and academia. The future success of these graduates will have lasting impacts on the reputation of our department, college and university. I fully understand and appreciate that all engineering disciplines are different and I would look forward to working with each department to ensure that the appropriate programs are in place to enable them to recruit the best possible graduate students to continue elevating their research enterprise.

Increasing the national awareness of the quality of our programs has also been a high priority for me, which led us to our two highest ever rankings by *U.S. News & World Report* in 2015 and 2022, respectively. Part of this effort has been to maintain a vibrant departmental seminar program, where we bring in an average of ten external speakers each semester including department heads/chairs from peer and aspirational departments. All of these visitors consistently share their admiration for the breadth and depth of our research and education programs and our excellent future potential. Having also served in a leadership role in a number of national organizations has allowed me to promote our programs. These include having served as the Co-Chair of the Council for Chemical Research Department Heads Forum for several years, serving in all elected officer roles for the Computing and Systems Technology (CAST) division of the American Institute of Chemical Engineers, serving as a Trustee of the Computer Aids for Chemical Engineering (CACHE) Corporation, being part of the organizing committee for the SouthEast Chemical Engineering Chairs Forum, and invitations to serve on the departmental advisory boards at LSU and the University of Arkansas.

It is extremely important that our college continues to improve our competitiveness for extramural grant funding in order to support and grow our scholarly research activities. We have significantly increased our research enterprise over the past decade and it is vital that we continue on this strong upward trajectory. This is particularly critical given the national trends towards diminishing levels of state support for universities, and the decreasing funding rates of most federal granting agencies. As Dean, I would work to ensure continued success in this area through having clearly defined strategic initiatives, unique and innovative research programs, excellent grantsmanship, and a high degree of motivation towards this pursuit at all levels. The Samuel Ginn College of Engineering currently focuses on five strategic research areas: Advanced manufacturing and materials; Cybersecurity and intelligent systems; Energy and environment; Infrastructure and transportation; as well as Biomedical and health systems engineering. As Dean, I would look forward to working with our faculty and administration to ensure that we remain closely aligned with current and future federal/corporate funding opportunities. At the same time, we must be flexible and responsive such that we can pursue new emerging areas of strategic/national/global importance. We are fortunate to have a large number of corporate/government entitites in our state and region that represent key players in all of these areas. It is vital that we translate our scholarly expertise to provide engineering solutions to pressing regional/national/global challenges. A unique opportunity to leverage our position of strength is the new Auburn University Research and Innovation Campus in Huntsville, AL. The potential for conducting impactful contract research with government agencies/contractors in this fast-growing technology hub cannot be understated and will significantly elevate our reputation as a premier solution provider. I believe that I have demonstrated my strong commitment towards growing research capacity through the elevated performance of my department in terms of funded research over the past several years. According to the latest ASEE data, the Department of Chemical Engineering had research expenditures in 2021 of $8.2M (corresponding to $360K per tenure-track faculty member per year), a significant increase from $5.3M in 2020 and a doubling from $4.1M in 2019. It is important to note that a significant portion of these new research contracts are the result

of the aggressive hiring of new faculty starting in 2016, who are now hitting their stride in terms extramural research support and thus demonstrates the importance of continuing to grow our talented faculty and broadening our research capacity. I also believe that it is crucial for us to position ourselves to be competitive for large, cross-cutting center type grants. The federal funding trends are going towards interdisciplinary grand challenges and we must strategically position ourselves to collaborate across disciplinary boundaries if we are to secure these types of high-visibility, prestigious extramural programs. I would be delighted to lead these efforts within our college through structured planning and strategic investments (both shared facilities/infrastructure and personnel) in order to ensure that high-quality, competitive proposals/programs are developed in our areas of current and future strength. My track-record in this area includes having led the first-ever NSF IGERT program at Auburn University (a $3M program that provided full support for more than 30 Ph.D. students across five colleges); Co-PI on a USDA Coordinated Agricultural Project ($15M of which almost $5M came to Auburn), and more recently strategically positioning our department to becoming key partners in several federally funded Advanced Manufacturing Institutes, in particular two institutes funded by the Department of Energy (RAPID and CESMII), which have resulted in more than $10M in federal and costshare funding to our department over the past few years. Several of our projects were highlighted by DOE as particularly impactful and led to us being sought out as key contributors to the latest institute call from the Advanced Manufacturing Office. This illustrates our capacity to be highly competitive for these types of programs if properly positioned and vigorously pursued. Our challenge for the future is to build on our past success and set our sights on even larger opportunities like the attainment of Engineering Research Centers (ERC), Science and Technology Centers (STC), Materials Research Science and Engineering Centers (MRSEC), Energy Frontier Research Centers (EFRC), NIH Program Project/Centers, and similar large programs. There are tremendous opportunities for our entire faculty to participate in such initiatives and the opportunity as Dean to lead our college in the pursuit of these prestigious programs is highly attractive to me.

It is expected that state support for institutions of higher learning will continue to decline, which means that we will increasingly reliant on fundraising to support all our programs. While our college has had a tremendous track-record of success in the area of development/advancement over the past decade, I am convinced that the new Dean of Engineering will be expected to further strengthen Auburn's enviable alumni loyalty to secure substantial new funding that will be needed to reach the levels of programmatic excellence that we are committed to. I would look forward to the opportunity to advocate for our vision and associated needs, and to lead our development/advancement efforts to bring the necessary resources to our college. It has served me extremely well that Dean Roberts trusted me to be involved in a number of development initiatives from the beginning of my appointment as department chair. My numerous opportunities to engage our alumni in important development efforts have been tremendously enjoyable, and the resulting countless lasting relationships have been and continue to be profoundly rewarding to me personally. We have continued to increase our program's development portfolio including a new fully endowed chair and an annually supported named professorship. Additionally, numerous new named scholarships have been established and annual giving to the department has increased substantially during my time as chair. Moreover, I have had the pleasure of working closely with several alumni to attract almost $2M in private donations to name the McMillan Unit Operations Laboratory, the Corson Gallery, the Corson Conference Room, the Corson Department Chair Suite, the Pouncey Academic Advising Suite, the Monroe/Green Conference Room, the Monroe/Green Mezzanine, and the Martinez Study Room. Furthermore, I have secured the necessary support to replace the computers in the Uthlaut Computer Laboratory every three years. These experiences have allowed me to fully understand and appreciate the development enterprise as well as how as Dean I could strategically cultivate and steward the loyal philanthropic support of our alumni to take the college to new heights. Furthermore, it should be emphasized that the importance and impact of our relationships with our alumni base goes far beyond just fundraising. Their input, guidance and advice is vital as we continue shaping

the future of our college's instructional, research, and service/outreach programs. I have been extremely fortunate to work with an exceptional group of engaged alumni in the Department of Chemical Engineering Alumni Advisory Council, where we have increased the active membership of this distinguished group to more than 40 members, who provide meaningful guidance and evaluation of our programs on a semi-annual basis. We have also made a concerted effort to continue increasing the diversity of the council membership in terms of age, industry sector, gender, and ethnicity to better reflect our student population. Moreover, I have been very fortunate to be highly involved with the Auburn Engineering Alumni Council and have developed strong relationships with several members from all engineering disciplines who I believe will continue to be strong supporters of my efforts as we move our college forward.

The Samuel Ginn College of Engineering has been ascending in its national and international stature and reputation for the past decade. If afforded the privilege to serve Auburn University as Dean of Engineering, I would work tirelessly to build upon this great foundation to continue our upward trajectory towards our goal of being a top 25 college through an inclusive culture of excellence, innovation, collegiality, interdisciplinarity, and collaboration. I believe my scholarly and administrative background coupled with my steadfast commitment to Auburn makes me a strong candidate and it would be both an honor and a privilege to provide leadership to the Samuel Ginn College of Engineering that will continue to enhance our local, national, and international visibility and impact for the future. Our college is filled with big thinking engineers that embody the Auburn Creed with a spirit that is not afraid to design and create the future. Through our innovative education and impactful research, we will prepare our graduates with exceptional capabilities to create knowledge and provide engineering solutions for our region, the nation and the world. The Samuel Ginn College of Engineering has tremendous potential for greatness and we are poised to take the next big step and claim our rightful place among the very best engineering colleges and be recognized as a leader with a global reach for innovative research and student-centered education, and a first choice for outstanding students and faculty with a passion for all engineering.

I very much appreciate you taking the time to consider my application and I would be happy to provide any additional information that you require.

Sincerely,

Mario Richard Eden
Department Chair
Joe T. & Billie Carole McMillan Professor
Department of Chemical Engineering
Auburn University
Phone: (334) 844-2064
Email: edenmar@auburn.edu

DR. MARIO RICHARD EDEN

Department Chair
Joe T. & Billie Carole McMillan Professor
Department of Chemical Engineering, 210 Ross Hall
Auburn University, AL 36849-5127

Phone: (334) 844-2064
Fax: (334) 844-2063

E-mail: edenmar@auburn.edu

EDUCATION

2003 Ph.D., Chemical Engineering, Technical University of Denmark
1999 M.Sc., Chemical Engineering, Technical University of Denmark

EXPERIENCE

2012 – Present Department Chair, Department of Chemical Engineering, Auburn University
2012 – Present Professor, Department of Chemical Engineering, Auburn University
2014 – 2016 Acting Director, Alabama Center for Paper and Bioresource Engineering
2008 – 2012 Associate Professor, Department of Chemical Engineering, Auburn University
2004 – 2008 Assistant Professor, Department of Chemical Engineering, Auburn University

AREAS OF EXPERTISE & RESEARCH INTERESTS

- Process Systems Engineering (PSE) and Computer Aided Process Engineering (CAPE)
- Process Simulation, Design, Integration and Optimization
- Product and Molecular Synthesis/Design

SELECTED HONORS & AWARDS

2022 Top 25 Most Cited Papers (#6 and #17) since 2018 – Computers & Chemical Engineering Journal
2021 Award for Excellence and Service to the Computing and Systems Technology Division – AIChE
2020 Top 1% of Highly Cited Authors 2015-2020 in Industrial & Engineering Chemistry Research Journal
2019 Joe T. & Billie Carole McMillan Endowed Chair – Auburn University
2018 Outstanding Reviewer – Chemical Engineering & Processing
2017 Outstanding Reviewer – Comp. & Chem. Eng.; Fuel; Chem. Res. Design; J. Cleaner Production
2016 Outstanding Reviewer – Process Safety & Environmental Protection
2015 Creative Research and Scholarship Award – Auburn University
2015 17th Annual Johansen-Crosby Lecture – Michigan State University
2014 Computing and Systems Technology (CAST) Outstanding Young Researcher Award – AIChE
2014 William F. Walker Merit Teaching Award – College of Engineering, Auburn University
2014 Outstanding Faculty Member – Department of Chemical Engineering, Auburn University
2014 Excellence in Reviewing – Journal of Natural Gas Science and Engineering
2013 Excellence in Reviewing – Computers and Chemical Engineering Journal
2013 Outstanding Faculty Member – Department of Chemical Engineering, Auburn University
2012 Senior Faculty Research Award for Excellence – College of Engineering, Auburn University
2012 President's Outstanding Collaborative Units Award – Auburn University
2012 Excellence in Reviewing (Top 15 Reviewer) – Computers and Chemical Engineering Journal
2011 SGA Award for Outstanding Faculty Member in College of Engineering, Auburn University
2011 Fred H. Pumphrey Teaching Award for Excellence – College of Engineering, Auburn University
2011 Outstanding Faculty Member – Department of Chemical Engineering, Auburn University
2010 Joe T. & Billie Carole McMillan Endowed Professorship – Auburn University
2010 Selected for Frontiers of Engineering Education – National Academy of Engineering
2009 Best Faculty Contribution – Foundations of Computer-Aided Process Design (FOCAPD 2009)
2009 Fred H. Pumphrey Teaching Award for Excellence – College of Engineering, Auburn University
2009 SGA Award for Outstanding Faculty Member in College of Engineering, Auburn University
2009 Outstanding Faculty Member – Department of Chemical Engineering, Auburn University
2008 Mary & John H. Sanders Professorship – Department of Chemical Engineering, Auburn University
2007 William F. Walker Superior Teaching Award – College of Engineering, Auburn University
2006 Faculty Early Career Development (CAREER) Award – National Science Foundation
2006 Junior Faculty Research Award for Excellence – College of Engineering, Auburn University

PUBLICATIONS

Dr. Eden has published 3 edited books, 166 refereed papers/book chapters in leading chemical engineering and process systems engineering journals. His work has resulted in more than 442 presentations at national/international meetings, including 78 invited lectures. According to Google Scholar, his work has been cited 3,213 times resulting in an h-index of 31 and i10-index of 67.

GRANTS AND CONTRACTS

Dr. Eden has successfully secured over $29.3M in extramural funding as Principal Investigator or Co-Principal Investigator from the National Science Foundation (NSF), Department of Energy (DOE), Department of Defense (DOD), Department of Education (DOEd), Environmental Protection Agency (EPA), Department of Agriculture (USDA), and industrial sponsors like Evonik-Degussa.

SCIENTIFIC & PROFESSIONAL SOCIETY MEMBERSHIPS

2005 – Present Member – American Chemical Society
2004 – Present Member – American Society for Engineering Education
2009 – Present Senior Member – American Institute of Chemical Engineers (Member since 1999)
1999 – Present Member – Danish Society for Processing Technology
1999 – Present Member – Danish Society of Chemical Engineers
1999 – Present Member – Society of Danish Engineers

EXAMPLES OF INSTITUTIONAL & PROFESSIONAL SERVICE

2022 – Present External Evaluator – Cleveland State University Chemical and Biomedical Engineering
2022 – Present International Scientific Committee Member – ESCAPE-33
2022 – Present Elected Secretary – Computer Aids for Chemical Engineering Corporation (CACHE)
2022 – Present International Scientific Committee – World Congress of Chemical Engineering (WCCE-11)
2021 – Present Review Editor – Sustainable Chemical Process Design, Frontiers in Sustainability
2021 – Present International Programming Committee Member – FOCAPO-CPC 2023
2020 – Present Associate Editor – Discover Chemical Engineering Journal by Springer Nature
2020 – Present Delegate for Americas on Executive Committee of the International Organization of PSE
2019 – Present Expert Reviewer/Panelist – ExxonMobil Research Assessment
2019 – Present Member – Auburn University Professorship Selection Committee
2018 – Present Executive Committee – Process Systems Engineering Symposium Series
2017 – Present Board of Judges – Chemical Engineering Magazine Kirkpatrick Award
2017 – Present Editorial Board – Computers and Chemical Engineering Journal
2017 – Present Executive Committee – ICFMCE Conference Series
2017 – Present Conference Advisory Committee – ICFMCE Conference Series
2016 – Present Co-founder – PSE for SPEED (Sustainable Process Product Engineering, Evaluation and Design)
2016 – Present Editorial Board – Process Integration and Optimization for Sustainability
2016 – Present Member – Industrial Advisory Council, Dept. of Chemical Eng., Louisiana State University
2014 – Present Board of Trustees – Computer Aids for Chemical Engineering Corporation (CACHE)
2014 – Present Board of Directors – Auburn Pulp and Paper Foundation
2014 – Present Advisory Board Member – Centre of Sustainable Palm Oil Research, U. of Nottingham
2013 – Present Member – Industrial & Professional Advisory Council, Dept. of Chemical Eng., U. of Arkansas
2012 – Present Member – International Peer Review College, Danish Council for Strategic Research
2012 – Present Editorial Board Member – Journal of Engineering
2012 – Present Scientific Committee Member – POCER, University of Nottingham, Malaysia
2010 – Present International Technical Committee Member – Qatar Gas Processing Symposium
2007 – Present Editorial Board Member – Chemical Process and Product Modeling Journal
2022 – 2022 Search Committee Chair – Interim Dean Auburn University College of Engineering
2021 – 2022 Past Chair – Computing and Systems Technology (CAST) Division of AIChE
2021 – 2022 International Scientific Committee Member – ESCAPE-32
2021 – 2022 Topic Editor (Chemical Process Systems) – Processes Journal
2021 – 2021 Peer Evaluator – Department of Chemistry & Biochemistry, Auburn University
2021 – 2021 Panelist – AIChE CAST Academic Career Panel
2020 – 2022 International Program Committee Member – PSE 2022

2020 – 2021	Chair – Computing and Systems Technology (CAST) Division of AIChE
2020 – 2021	External Reviewer – NSF CISTAR Engineering Research Center
2020 – 2021	International Scientific Committee Member – ESCAPE-31
2020 – 2020	Scientific Committee Member – ICChE 2020, Bangladesh
2020 – 2020	Member – Search Committee for AU Engineering Associate Dean of Graduate Studies
2019 – 2021	External Evaluator – Wayne State University Chemical Engineering and Materials Science
2019 – 2020	1st Vice-Chair – Computing and Systems Technology (CAST) Division of AIChE
2018 – 2019	2nd Vice-Chair – Computing and Systems Technology (CAST) Division of AIChE
2018 – 2019	International Advisory Committee – SCPPE 2019
2018 – 2019	Scientific Committee – Int. Conf. on Technologies and Business Models for Circular Economy
2018 – 2019	Member – Search Committee for Auburn University Vice-President for Research
2018 – 2019	Member – Search Committee for Research Faculty in AU Bioenergy & Bioproducts Center
2016 – 2018	Conference Co-Chair – Process Systems Engineering (PSE 2018)
2016 – 2018	Advisory Board Member – KT Industrial Consortium, Technical University of Denmark
2016 – 2017	International Scientific Committee Member – 10th World Congress of Chemical Engineering
2016 – 2017	International Scientific Committee Member – ESCAPE-27
2015 – 2019	Editorial Board – Clean Technologies and Environmental Policy Journal
2015 – 2018	International Programming Committee – PSE 2018
2015 – 2017	International Technical Advisory Committee Member – FOCAPO-CPC 2017
2015 – 2016	Search Committee Chair – Associate Dean for Research, AU College of Engineering
2015 – 2016	Search Committee Member – Department of Chemistry & Biochemistry, Auburn University
2014 – 2016	Board of Directors – Friends of Auburn Pulp & Paper, Inc.
2014 – 2016	Search Committee Chair – Director of Alabama Center for Paper & Bioresource Engineering
2013 – 2020	Editorial Board Member – Frontiers in Energy Research: Process and Energy Systems Eng.
2013 – 2017	Director, Computing and Systems Technology (CAST) Division of AIChE
2013 – 2015	International Programming Committee Member – PSE-2015/ESCAPE-25
2013 – 2014	Member – International Expert Review Panel for Technical University of Denmark
2012 – 2017	Member – Council for Chemical Research
2012 – 2014	Search Committee Chair – Chair of AU Department of Polymer and Fiber Engineering
2012 – 2014	Conference Co-Chair – Foundations of Computer Aided Process Design (FOCAPD 2014)
2012 – 2013	Search Committee Member – Assistant Provost and Director of AU Honors College
2012 – 2013	International Scientific Committee Member – ESCAPE 23
2012 – 2012	Scientific Committee Member – Frontiers in Biorefining Conference
2012 – 2012	Search Committee Member – Assistant Director for Engineering Communications
2011 – 2018	Director, Auburn University NSF-IGERT on Integrated Biorefining
2011 – 2013	Chair – Auburn University Honors College Advisory Council
2011 – 2012	International Program Committee Member – PSE 2012
2011 – 2012	Graduate Program Chair – Department of Chemical Engineering, Auburn University
2010 – 2018	Member – International Energy Agency Annex IX Energy Efficient Separation Systems
2010 – 2012	Programming Chair – 2012 AIChE CAST Division 10A (Systems and Process Design)
2009 – 2016	Advisory Board Member – Computer Aided Process Engineering Center (CAPEC)
2008 – 2018	Awards Advisory Council – AIChE Sustainable Engineering Forum
2008 – 2018	Member – Auburn University Honors College Advisory Council
2007 – 2014	Member – Samuel Ginn College of Engineering Graduate Recruiting Committee
2006 – 2011	Member – AU CHEN Curriculum Accreditation Planning and Action Committee
2005 – 2013	Faculty Advisor – AU CHEN Omega Chi Epsilon Honor Society, Alpha Alpha Chapter
2004 – 2014	Member – AU CHEN Graduate Recruiting Committee (Chair 2005-2006, 2008-2011)

RESPONSIBILITIES AS DEPARTMENT CHAIR OF CHEMICAL ENGINEERING

- Chief Academic and Financial Officer of the department. Maintain day-to-day operations of the department, including oversight of space, teaching assignments, mentoring of new faculty, administration of budgets and grants, setting of strategic goals and directions, and tactical decision-making needed to carry out the position's responsibilities.
- Provide leadership in directing, supporting, and advocating for the research, educational and outreach activities within the department.

- Responsible for 24 tenured and tenure-track faculty (plus 1 in the President's Office), 3 full-time teaching faculty, 8 full-time staff members, 10 postdoctoral fellows and visiting scholars, close to 100 fully funded graduate students (81 Ph.D.), and almost 450 undergraduate students (both in-major and pre-chemical engineering students). In addition, the department is host to three research centers with Directors and staff.
- Budget oversight of approximately $12M annually, including an operating budget of ~$4.2M, annual research expenditures of ~$6.0M, and ~$1.0M in endowment earnings and gift contributions.
- Responsible for the hiring, promotion, and retention of high-quality faculty and staff.
- Responsible for accreditation and academic quality of each degree program (B.S., M.S., and Ph.D.)
- Represent the department to the college, university, alumni and external constituencies.

SELECTED ADMINISTRATIVE ACHIEVEMENTS

- Improved the department's *U.S. News & World Report* Graduate Program Ranking to its highest ever. The department was ranked #45 in 2015 among all institutions (#29 among public institutions). In the 2022 rankings the department was ranked #48 among all institutions (#30 among public institutions) This is up from a ranking of #69 in 2002.
- Enhanced the undergraduate enrollment in chemical engineering to its highest level ever with 692 in Fall 2015. This represented a 25% growth compared to Fall 2012. Average ACT scores for the incoming freshmen have been above 30 for more than 10 years in a row.
- Successfully added 17 tenure-track faculty members and 2 full-time instructors (lecturers) over the past 10 years along with a nationally recognized master teacher as visiting professor to continue providing our students a world-class undergraduate education experience.
- Overseen 15 tenure and/or promotion cases to successful outcome (all with unanimous votes at department, college, and university levels). In 2020, the department had the highest percentage of female full professors of any chemical engineering department in the US.
- Created an additional academic advisor position to maintain highest quality advising in light of significant enrollment growth (in 2004 the enrollment was 237).
- Created two additional academic program administrator positions to provide the highest level of support for the faculty and students.
- Significantly increased the membership of the department's Alumni Advisory Council. Established a fundraising committee of the alumni council that now contributes almost $100,000 in discretionary funds for the department.
- Successfully secured $750,000 in philanthropic support for renovation and upgrade of the Chemical Engineering Operations Laboratory.
- Successfully secured almost $2,000,000 in philanthropic support for an endowed chair, naming of the Corson Gallery, the Corson Conference Room, the Corson Department Chair Suite, the Monroe/Green Conference Room, the Monroe/Green Mezzanine, the Pouncey Student Services Suite among others.
- Initiated a "Leave a Legacy" campaign for the graduating seniors. The inaugural effort for the Class of 2015 resulted in pledges totaling $93,000 towards scholarships and renovation of the student lounge.
- Led the development of the campus-wide Pharmaceutical Engineering Cluster Hire Initiative that allowed the department to strengthen our research capacity in the biomedical/pharma areas.
- Established a departmental newsletter to reconnect with our alumni base. The inaugural issue was sent out to our more than 3000 alums in Spring 2015 in both electronic and hardcopy forms.
- Established an accelerated Bachelor's/Master's (ABM) Program in Chemical Engineering starting Summer 2021.
- Successfully led the department through the national accreditation process in 2016 as well as 2022 and the department was accredited by ABET for the maximum accreditation period of six years with only strengths noted and no shortcomings.

PHILANTHROPY

Dr. Eden and his wife Leeja established the Richard Eden Memorial Endowed Scholarship in the Department of Chemical Engineering at Auburn University in memory of his late father. Moreover, they recently established the Darrel Lee Ray Sr. Memorial Ever Auburn Endowed Scholarship in memory of Leeja's late father, which supports minority students in the Center for Inclusive Engineering Excellence in the Samuel Ginn College of Engineering at Auburn University. They are members of the Auburn University Samford Society and Foy Society (15 years) as well as the Ginn, Eagles and Weatherby Societies in the Samuel Ginn College of Engineering. Moreover, they are both members of the 100+ Women Strong of the Samuel Ginn College of Engineering and are also life-members of the Auburn University Alumni Association. Recently, they became Founding Donors of the AIChE Summer School for Chemical Engineering Faculty Endowment and are recognized as Sustainer Donors of the AIChE McKetta Lifetime Giving Society.

SCHOLARSHIP & RESEARCH ACTIVITIES

PUBLICATIONS

Books

1. **Eden M.R.**, Ierapetritou M.G., Towler G.P. (2018): "Computer-Aided Chemical Engineering Vol. 44: Proceedings of the 13th International Symposium on Process Systems Engineering (PSE 2018)", ISBN 978-0-444-64241-7, Elsevier.
2. Martin M., **Eden M.R.**, Chemmangattuvalappil N.G. (2016): "Computer-Aided Chemical Engineering Vol. 34: Tools for Chemical Product Design: From Consumer Products to Biomedicine", ISBN 978-0-444-63683-6, Elsevier.
3. **Eden M.R.**, Siirola J.D., Towler G.P. (2014): "Computer-Aided Chemical Engineering Vol. 34: Proceedings of the 8th International Conference on Foundations of Computer-Aided Process Design", ISBN 978-0-444-63433-7, Elsevier.

Book Chapters

1. Ng L.Y., Chemmangattuvalappil N.G., Dev V.A., **Eden M.R.** (2016): "Mathematical Principles of Chemical Product Design and Strategies", invited book chapter in *Tools for Chemical Product Design: From Consumer Products to Biomedicine*, Martin, Eden, Chemmangattuvalappil, Eds. ISBN 978-0-444-63683-6, Elsevier, pp. 3-44.
2. **Eden M.R.** (2016): "IGERT Program – Training New Researchers through Graduate Study", invited chapter in *Auburn Speaks: On Biofuels*.
3. Liu Z., **Eden M.R.** (2014): "Biorefinery Principles, Analysis and Design", invited chapter in *Sustainable Bioenergy Production*, L. Wang, Ed., CRC Press, ISBN 1466505524, chapter 22, pp. 447-476.
4. Gani R., **Eden M.R.**, Gundersen T., Georgiadis M.C., Woodley J.M., Lopez-Arenas T., Sales-Cruz M., Perez-Cisneros E.S., Solvason C.C., Chemmangattuvalappil N.G., Lutze P., Roughton B.C., Camarda K.V., Topp E.M. (2013): "Process Systems Engineering – 4. Process and Product Synthesis, Design and Analysis", invited chapter in *Ullmann's Encyclopedia of Industrial Chemistry*, R. Gani, K. Gernaey and G. Sin, Eds., Wiley (published online February 11, 2013). DOI: DOI: 10.1002/14356007.o22_o08.
5. Batsy D.R., Solvason C.C., Sammons N.E., Chambost V., Bilhartz D., **Eden M.R.**, El-Halwagi M.M., Stuart P.R. (2012): "Product Portfolio Selection and Process Design of the Forest Biorefinery", invited chapter in *Integrated Biorefineries: Design, Analysis, and Optimization*, P.R. Stuart and M.M. El-Halwagi, Eds., CRC Press, ISBN 9781439803462, pp. 3-35.
6. **Eden M.R.** (2007): "CAREER Proposal Writing – My Perspective and Experience", invited chapter in: *NSF CAREER Proposal Writing Tips*, Editor ZJ Pei, ISBN 978-1-4303-0697-9, pp. 43-47.

Refereed Papers

1. Deng Y., Cremaschi S., **Eden M.R.**, Avila C., Gao H., Mantilla I. (2022): "A Hybrid Modeling Approach to Estimate Liquid Entrainment Fraction and Its Uncertainty", Invited Paper, *Computers and Chemical Engineering*, DOI: 10.1016/j.compchemeng.2022.107796.
2. Gani R., Chen X., **Eden M.R.**, Mansouri S.S., Martin M.M., Mujtaba I.M., Padungwatanaroj O., Roh K., Ricardez-Sandoval L., Sugiyama H., Zhao J., Zondervan E. (2022): "Challenges and Opportunities for Process Systems Engineering in a Changed World", Invited Plenary Paper, *Computer Aided Chemical Engineering*, **49**, pp. 7-20.

3. Zhang J., Wang Q., Su Y., Jin S., Ren J., Shen W., **Eden M.R.** (2022): “An Accurate and Interpretable Deep Learning Model for Environmental Properties Prediction using Hybrid Molecular Representations”, *AIChE Journal*, DOI: 10.1002/aic.17634.
4. Xu S., Cremaschi S., **Eden M.R.**, Tula A.K. (2022): “Integrated Process Synthesis and Design of Intensified/Hybrid Processes”, *Computer Aided Chemical Engineering*, **51**, pp. 709-714.
5. Perez-Cisneros E., **Eden M.R.**, Gani R. (2022): “Rule-based Method for Retrofitting Conventional Processes with Integrated Units”, *Computer Aided Chemical Engineering*, **49**, pp. 715-720.
6. Xu S., Crump T., Cremaschi S., **Eden M.R.**, Tula A.K. (2022): “A Short-Cut Method for Synthesis of Solvent-based Separation Processes”, *Computer Aided Chemical Engineering*, **49**, pp. 151-156.
7. Mukta C.B., Rayaprolu N.R., Cremaschi S., **Eden M.R.**, Tatarchuk B.J. (2022): “Techno-Economic Study of Intensified Ethylene Oxide Production Using High Thermal Conductivity Microfibrous Entrapped Catalyst”, *Computer Aided Chemical Engineering*, **49**, pp. 697-702.
8. Mukta C.B., Cremaschi S., **Eden M.R.** (2022): “Operational Envelopes of Cost-effective Sour Gas Desulfurization Processes”, *Computer Aided Chemical Engineering*, **49**, pp.1009-1014.
9. Williams B., Otashu J., Leyland S., **Eden M.R.**, Cremaschi S. (2021): “PRESTO: Predictive REcommendation of Surrogate models to approximate and Optimize”, Invited Paper, *Chemical Engineering Science*, Danckwerts Digitization Special Issue, DOI: 10.1016/j.ces.2021.117360
10. Wen H., Su Y., Wang Z., Jin S., Ren J., Shen W., **Eden M.R.** (2021): “”A Systematic Modeling Methodology of Deep Neural Network-based Structure-Property Relationship for Rapid and Reliable Prediction on Flashpoints”, *AIChE Journal*, DOI: 10.1002/aic.17402
11. Xu S., Cremaschi S., **Eden M.R.**, Tula A.K. (2021): “Simulation-based Derivative-free Optimization for Hybrid Separation Design”, *Computer Aided Chemical Engineering* **50**, pp. 173-178.
12. Deng Y., Cremaschi S., **Eden M.R.**, Avila C., Gao H., Mantilla I. (2021): “A Hybrid Modeling Approach for Entrainment Fraction Predictions”, *Computer Aided Chemical Engineering*, **50**, pp. 555-560.
13. Chai S., Zhang L., Du J., Tula A.K., Gani R., **Eden M.R.** (2021): “A Versatile Modeling System for Integrated Chemical Product Design Problems”, *Computer Aided Chemical Engineering*, **50**, pp. 75-80.
14. Chai S., Zhang L., Du J., Tula A.K., Gani R., **Eden M.R.** (2021): “A Versatile Modeling Framework for Integrated Chemical Product Design”, Invited Paper for Special Issue Highlighting Highly Cited Authors, *Industrial & Engineering Chemistry Research*, **60(1)**, pp. 436-456.
15. Chemmangattuvalappil N.G., Ng D.K.S., Ng L.Y., Ooi J., Chong J.W., **Eden M.R.** (2020): “A Review of Process Systems Engineering (PSE) Tools for the Design of Ionic Liquids and Integrated Biorefineries”, *Processes*, **8**, 1678, DOI:10.3390/pr8121678.
16. Xu S., Deng Y., Webb K. Wright H., Dimick P.S., Cremaschi S., **Eden M.R.** (2020): “Sour Gas Sweetening Technologies for Distributed Resources – A Process Simulation Study”, *Computer Aided Chemical Engineering*, **48**, pp. 1483-1488.
17. Deng Y., Xu S., Webb K. Wright H., Dimick P.S., Cremaschi S., **Eden M.R.** (2020): “Sensitivity Analysis of Desulfurization Costs for Small-Scale Natural Gas Sweetening Units”, *Computer Aided Chemical Engineering*, **48**, pp. 973-978.
18. Shen W., Ren J., **Eden M.R.**, Jin S., Zhang X., Su Y. (2020): “Stakeholder-oriented Multi-Objective Process Optimization based on an Improved Genetic Algorithm”, *Computers & Chemical Engineering*, **132**. DOI: 10.1016/j.compchemeng.2019.106618
19. O’Connell J.P., Tula A.K., **Eden M.R.**, Gani R. (2019): “Lowering High Purity Product Costs by Retrofitting Distillation Columns with Membranes”, *Chemical Engineering Progress*, December Issue, pp. 41-49.

20. Tula A.K., **Eden M.R.**, Gani R. (2019): "Hybrid Method and Associated Tools for Synthesis of Sustainable Process Flowsheets", *Computers & Chemical Engineering*, **131**, 106572. DOI: 10.1016/j.compchemeng.2019.106572

21. Tula A.K., **Eden M.R.**, Gani R. (2020): "Computer-Aided Process Intensification: Challenges, Trends and Opportunities", Invited Perspective Paper, *AIChE Journal*, **66(1)**. DOI: 10.1002/aic.16819 (**Top 10% most downloaded paper**)

22. Su Y., Wang Z., Jin S., Shen W., Ren J., **Eden M.R.** (2019): "An Architecture of Deep Learning in QSPR Modeling for the Prediction of Critical Properties using Molecular Signatures", *AIChE Journal* (accepted 05/29/2019). DOI: 10.1002/aic.16678. Featured online in *Advances in Engineering* as part of the Chemical Engineering highlights: https://advanceseng.com/architecture-deep-learning-qspr-modeling-prediction-critical-properties-molecular-signatures/

23. Dev V.A., **Eden M.R.** (2019): "Formation Lithology Classification using Scalable Gradient Boosted Decision Trees", *Computers & Chemical Engineering*, **128**, pp. 392-404. DOI: 10.1016/j.compchemeng.2019.06.001 (**Top 25 most cited paper since 2018 – #6**)

24. **Eden M.R.**, Ierapetritou M.G., Towler G.P. (Editors) (2019): "Foreword", Virtual Special Issue of *Computers & Chemical Engineering*, total of 39 full-length peer-reviewed articles. https://www.sciencedirect.com/journal/computers-and-chemical-engineering/special-issue/103VN79FHZ3

25. Datta S., Dev V.A., **Eden M.R.** (2019): "Developing Non-linear Rate Constant QSPR using Decision Trees and Multi-Gene Genetic Programming", *Computers & Chemical Engineering*, **127**, pp. 150-157. DOI: 10.1016/j.compchemeng.2019.05.013

26. Dev V.A., **Eden M.R.** (2019): "Gradient Boosted Decision Trees for Lithology Classification", *Computer Aided Chemical Engineering*, **47**, pp. 113-118.

27. Tula A.K., **Eden M.R.**, Gani R. (2019): "Systematic Method and Tool for Sustainable Process Synthesis, Design, Analysis and Innovation", *Computer Aided Chemical Engineering*, **47**, pp. 385-390.

28. Tula A.K., **Eden M.R.**, Gani R. (2019): "ProCAFD: Computer-Aided Tool for Sustainable Process Synthesis, Intensification and Hybrid solutions", *Computer Aided Chemical Engineering*, **46**, pp. 1453-1458.

29. Tula A.K., **Eden M.R.**, Gani R. (2019): "Component based Development of Computer-Aided Tools for Different Applications", *Computer Aided Chemical Engineering*, **46**, pp. 1459-1464.

30. Vooradi R., Anne S.B., Tula A.K., **Eden M.R.**, Gani R. (2019): "Energy and CO_2 Management: for Chemical and Related Industries: Issues, Opportunities and Challenges", *BMC Chemical Engineering*, **1(7)**, DOI: 10.1186/s42480-019-0008-6.

31. Liu Q., Zhang L., Liu L., Du J., Tula A.K., **Eden M.R.**, Gani R. (2019): "OptCAMD: An Optimization-Based Framework and Tool for Molecular and Mixture Product Design", *Computers & Chemical Engineering,* **124**, pp. 285-301. DOI: 10.1016/j.compchemeng.2019.01.006 (**Top 25 most cited paper since 2018 – #17**)

32. Datta S., Dev V.A., **Eden M.R.** (2018): "Using Correlation Based Adaptive LASSO Algorithm to Develop QSPR of Antitumor Agents for DNA-Drug Binding Prediction", Invited Paper, *Computers & Chemical Engineering*, **122**, pp. 258-264. DOI: 10.1016/j.compchemeng.2018.08.039

33. Tula A.K., **Eden M.R.**, Gani R. (2018): "Time for a New Class of Methods and Computer Aided Tools to Address the Challenges Facing Us?", *Chemical Engineering Transactions*, **70**, pp. 7-12.

34. Vooradi R., Patnaikuni V.S., Tula A.K., Anne S.B., **Eden M.R.**, Gani R. (2018): "Hybrid Separation Scheme for Azeotropic Mixtures – Sustainable Design Methodology", *Chemical Engineering Transactions*, **69**, pp. 637-642.

35. Garg N., Tula A.K., **Eden M.R.**, Kontogeorgis G.M., Woodley J.M., Gani R. (2018): "Hybrid Schemes for Intensified Chemical and Biochemical Process Alternatives", *Chemical Engineering Transactions*, **69**, pp. 517-522.

36. Tula A.K., **Eden M.R.**, Gani R. (2018): "Hybrid Method/Tool for Sustainable Process Synthesis, Design, Analysis, and Improvement", *Computer Aided Chemical Engineering*, **44**, pp. 475-480.
37. Davis S.E., Cremaschi S., **Eden M.R.** (2018): "Efficient Surrogate Model Development: Impact of Sample Size and Underlying Model Dimensions", *Computer Aided Chemical Engineering*, **44**, pp. 979-984.
38. Datta S., Dev V.A., **Eden M.R.** (2018): "Developing Non-linear Rate Constant QSPR using Decision Trees and Multi-Gene Genetic Programming", *Computer Aided Chemical Engineering*, **44**, pp. 2473-2478.
39. Dev V.A., **Eden M.R.** (2018): "Evaluating the Boosting Approach to Machine Learning for Formation Lithology Classification", *Computer Aided Chemical Engineering*, **44**, pp. 1465-1470.
40. Kalakul S., Zhang L., Choudhury H.A., Elbashir N., **Eden M.R.**, Gani R. (2018): "ProCAPD – A Computer-Aided Model-Based Tool for Chemical Product Design and Analysis", *Computer Aided Chemical Engineering*, **44**, pp. 469-474.
41. Sengupta D., Huang Y., Davidson C.I., Edgar T.F., **Eden M.R.**, El-Halwagi M.M. (2018): "Sustainable Manufacturing Education Modules for Senior Undergraduate or Graduate Engineering Curriculum", *Computer Aided Chemical Engineering*, **44**, pp. 1657-1662.
42. Kalakul S., Zhang L., Fang Z., Choudhury H.A., Intikhab S., Elbashir N., **Eden M.R.**, Gani R. (2018): "Computer Aided Chemical Product Design – ProCAPD & Tailor-made Blended Products", Invited Paper, *Computers & Chemical Engineering*, Special Issue Commemorating Professor Chris Floudas, **116**, pp. 37-55.
43. Sadhwani N., Adhikari S., **Eden M.R.**, Li P. (2017): "Aspen Plus Simulation to Predict Steady State Performance of Biomass-CO_2 Gasification in a Fluidized Bed Gasifier", *Bioenergy, Bioproducts & Biorefining*, **12(3)**, pp. 327-330.
44. Hada S., Herring R.H., **Eden M.R.** (2017): "Mixture Formulation through Multivariate Statistical Analysis of Process Data in Property Cluster Space", Invited Paper, *Computers & Chemical Engineering*, Special Issue: *Rafiqul Gani Festschrift*, **107**, pp. 26-36.
45. Kalakul S., **Eden M.R.**, Gani R. (2017): "The Chemical Product Simulator – ProCAPD", *Computer Aided Chemical Engineering*, **40**, pp. 979-984.
46. Tula A.K., Gani R., **Eden M.R.** (2017): "New Method and Software for Computer-Aided Flowsheet Design and Analysis", *Computer Aided Chemical Engineering*, **40**, pp. 649-654.
47. Davis S.E., Cremaschi S., **Eden M.R.** (2017): "Efficient Surrogate Model Development: Optimum Model Form Based on Input Function Characteristics", *Computer Aided Chemical Engineering*, **40**, pp. 457-462.
48. Datta S., Dev V.A., **Eden M.R.** (2017): "Developing QSPR for Predicting DNA Drug Binding Affinity of 9-Anilinoacridine Derivatives Using Correlation-Based Adaptive LASSO Algorithm", *Computer Aided Chemical Engineering*, **40**, pp. 2767-2772.
49. Dev V.A., Datta S., Chemmangattuvalappil N.G., **Eden M.R.** (2017): "Comparison of Tree Based Ensemble Machine Learning Methods for Prediction of Rate Constant of Diels-Alder Reaction", *Computer Aided Chemical Engineering*, **40**, pp. 997-1002.
50. Li P., Sadhwani N., Yuan Z., **Eden M.R.** (2017): "Process Simulation and Economic Analysis of Producing Liquid Transportation Fuels from Biomass", *Computer Aided Chemical Engineering*, **40**, pp. 2515-2520.
51. Sadhwani N., Li P., **Eden M.R.**, Adhikari S. (2017): "Process Modeling of Fluidized Bed Biomass-CO_2 Gasification using ASPEN Plus", *Computer Aided Chemical Engineering*, **40**, pp. 2509-2514.
52. Datta S., Dev V.A., **Eden M.R.** (2017): "Hybrid Genetic Algorithm-Decision Tree Approach for Rate Constant Prediction Using Structures of Reactants and Solvent for Diels-Alder Reaction", Invited paper, *Computers & Chemical Engineering,* **106**, pp. 690-698.

53. Tula A.K., Babi D.K., Bottlaender J., **Eden M.R.**, Gani R. (2017): "A Computer-Aided Tool for Sustainable Process Synthesis-Intensification", Invited paper, *Computers & Chemical Engineering,* Special Issue on Process Intensification, **105**, pp. 74-95.

54. Yuan Z., **Eden M.R.** (2016): "Superstructure Optimization of Integrated Fast Pyrolysis-Gasification for Production of Liquid Fuels and Propylene", Invited Paper, Tribute to Founders: Roger Sargent – Process Systems Engineering*, AIChE Journal*, **62(9)**, pp. 3155-3176.

55. Sadhwani N., Adhikari S., **Eden M.R.** (2016): "Southern Pines Char Gasification with CO_2 - Kinetics and Effect of Alkali and Alkaline Earth Metals", *Fuel Processing Technology*, **150**, pp. 64-70.

56. Sengupta D., Huang Y., Davidson C.I., Edgar T.F., **Eden M.R.**, El-Halwagi M.M. (2016): "Using Module-based Learning Methods to Introduce Sustainable Manufacturing in Engineering Curriculum", *International Journal of Sustainability in Higher Education*, **18(3)**, pp. 307-328.

57. Sadhwani N., Adhikari S., **Eden M.R.** (2016): "Biomass Gasification using Carbon Dioxide: Effect of Temperature, CO_2/C Ratio and the Study of Reactions Influencing the Process", *I&EC Research*, **55(10)**, pp. 2883-2891.

58. Datta S., Dev V.A., **Eden M.R.** (2016): "Relating Reaction Rate Constant to Structures of Reactants and Solvent Using a Hybrid GA-DT Approach", *Computer Aided Chemical Engineering*, **38**, pp. 2049-2054.

59. Davis S.E., Herring R.H., **Eden M.R.** (2016): "Reverse Design of Ionic Liquids for the Absorption of CO_2", *Computer Aided Chemical Engineering*, **38**, pp. 1117-1122.

60. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2016): "Multi-Objective Computer-Aided Molecular Design of Reactants and Products", *Computer Aided Chemical Engineering*, **38**, pp. 2055-2060.

61. Li P., Yuan Z., **Eden M.R.** (2016): "A Comparative Study of Fischer-Tropsch Synthesis for Liquid Transportation Fuels Production from Biomass", *Computer Aided Chemical Engineering*, **38**, pp. 2025-2030.

62. Yuan Z., **Eden M.R.** (2016): "Integrated Biorefinery Scheme Design for the Co-production of Premium Quality Liquid Fuels and Propylene", *Computer Aided Chemical Engineering*, **38**, pp. 2001-2006.

63. Yuan Z., **Eden M.R.**, Gani R. (2016): "Toward the Development and Deployment of Large-Scale Carbon Dioxide Capture and Conversion Processes", Invited paper, *I&EC Research*, **55(12)**, pp. 3383-3419. Selected to be featured in ACS Editors' Choice.

64. Yuan Z., **Eden M.R.** (2015): "Recent Advances in Optimal Design of Thermochemical Conversion of Biomass to Chemicals and Liquid Fuels", Invited paper, *Current Opinion in Chemical Engineering*, **10**, pp. 70-76.

65. **Eden M.R.**, Siirola J.D., Towler G.P. (Editors) (2015): "Foreword", Special Issue of *Computers & Chemical Engineering*, **81**, pp. 1-388, total of 29 full-length peer-reviewed articles.

66. Herring R.H., **Eden M.R.** (2015): "Evolutionary Algorithm for De Novo Molecular Design with Multi-Dimensional Constraints", Invited paper, *Computers & Chemical Engineering*, **83**, pp. 267-277.

67. Hada S., Herring R.H., Davis S.E., **Eden M.R.** (2015): "Multivariate Characterization, Modeling, and Design of Ionic Liquid Molecules", Invited paper, *Computers & Chemical Engineering*, **81**, pp. 310-322.

68. Tula A.K., **Eden M.R.**, Gani R. (2015): "Process Synthesis, Design and Analysis using Process-Group Contribution Method", Invited paper, *Computers & Chemical Engineering*, **81**, pp. 245-259.

69. Datta S., Herring R.H., **Eden M.R.** (2015): "Data Mining and Regression Algorithms for the Development of a QSPR Model Relating Solvent Structure and Ibuprofen Crystal Morphology", *Computer Aided Chemical Engineering*, **37**, pp. 1439-1444.

70. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2015): "Designing Reactants and Products with Properties Dependent on Both Structures", *Computer Aided Chemical Engineering*, **37**, pp. 1445-1450.

71. Herring R.H., **Eden M.R.** (2015): "Evolutionary Algorithm for De Novo Molecular Design Considering Multi-Dimensional Constraints", *Computer Aided Chemical Engineering*, **37**, pp. 1433-1438.

72. Yuan Z., Wang P., **Eden M.R.** (2015): "Systematic Control Structure Evaluation of Two-Stage-Riser Fluidized Catalytic Pyrolysis Processes", *Computer Aided Chemical Engineering*, **37**, pp. 1721-1726.

73. Yuan Z., Wang P., Yang C., **Eden M.R.** (2015): "Systematic Control Structure Evaluation of Two-Stage-Riser Catalytic Pyrolysis Process", *Chemical Engineering Science*, **126**, pp. 309-328.

74. Hada S., Solvason C.C., **Eden M.R.** (2014): "Characterization-Based Molecular Design of Biofuel Additives Using Chemometric and Property Clustering Techniques", *Frontiers in Energy Research* **2(20)**, DOI: 10.3389/fenrg.2014.00020.

75. Tula A.K., **Eden M.R.**, Gani R. (2014): "Process Synthesis, Design and Analysis using Process-Group Contribution Method", *Computer Aided Chemical Engineering*, **34**, pp. 453-458.

76. Herring R.H., **Eden M.R.** (2014): "Graph-Based Genetic Algorithm for De Novo Molecular Design", *Computer Aided Chemical Engineering*, **34**, pp. 327-332.

77. Haser J.C., Herring R.H., Datta S., **Eden M.R.** (2014): "Development of QSPR Model Relating Solvent Structure to Crystal Morphology", *Computer Aided Chemical Engineering*, **34**, pp. 321-326.

78. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2014): "Reactant Structure Generation by Signature Descriptors and Real Coded Genetic Algorithm", *Computer Aided Chemical Engineering*, **34**, pp. 291-296.

79. Davis S.E., Hada S., Herring R.H., **Eden M.R.** (2014): "Characterization Based Reverse Design of Ionic Liquids", *Computer Aided Chemical Engineering*, **34**, pp.285-290.

80. Herring R.H., **Eden M.R.** (2014): "De Novo Molecular Design using a Graph-Based Genetic Algorithm Approach", *Computer Aided Chemical Engineering,* **33**, pp. 7-12.

81. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2014): "Structure Generation of Candidate Reactants using Signature Descriptors", *Computer Aided Chemical Engineering,* **33**, pp. 151-156.

82. Xu R., Zhang S., Stewart C., Durham E., **Eden M.R.**, Roberts C.B. (2014): "Effect of Reaction Conditions on Supercritical Hexanes Mediated Higher Alcohol Synthesis over a Cu-Co-Zn Catalyst", *AIChE Journal*, **60**, pp. 1786-1796.

83. Herring R.H., Haser J.C., Hada S., **Eden M.R.** (2013): "Structure Based Design of Non-Peptide Mimetics", *Computer Aided Chemical Engineering*, **32**, pp. 175-180.

84. Hada S., Herring R.H., **Eden M.R.** (2013): "Design of Ionic Liquids using Property Clustering and Decomposition Techniques", *Computer Aided Chemical Engineering*, **32**, pp. 955-960.

85. Sadhwani N., Liu Z., **Eden M.R.**, Adhikari S. (2013): "Simulation, Analysis and Assessment of CO_2 Enhanced Biomass Gasification", *Computer Aided Chemical Engineering*, **32**, pp. 421-426.

86. Chemmangattuvalappil N.G., **Eden M.R.** (2013): "A Novel Methodology for Property Based Molecular Design using Multiple Topological Indices", *Industrial & Engineering Chemistry Research*, **52(22)**, pp. 7090-7103.

87. Durham E., Xu R., Zhang S., **Eden M.R.**, Roberts C.B. (2013): "Supercritical Adiabatic Reactor for Fischer-Tropsch Synthesis", *Industrial & Engineering Chemistry Research*, **52(9)**, pp. 3133-3136.

88. Hada S., Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): "Optimization of Product Formulation through Multivariate Statistical Analysis", *Computer Aided Chemical Engineering*, **31B**, pp. 1361-1365.

89. Herring R.H., Namikis R., Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): "Molecular Design using Three-Dimensional Signature Descriptors", *Computer Aided Chemical Engineering*, **31A**, pp. 225-229.

90. Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): "Signature Descriptors for Process and Molecular Design in Reactive Systems", *Computer Aided Chemical Engineering*, **31B**, pp. 1356-1360.

91. Herring R.H., Namikis R., Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): "Incorporating Topographical Characteristics in Molecular Signature Descriptors", *Computer Aided Chemical Engineering*, **30A**, pp. 497-501.

92. Hada S., Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): "Product and Mixture Design in Latent Variable Space by Chemometric Techniques", *Computer Aided Chemical Engineering*, **30A**, pp. 147-151.

93. Durham E., Zhang S., Xu R., **Eden M.R.**, Roberts C.B. (2012): "Novel Adiabatic Reactor Design for Supercritical Fischer-Tropsch Synthesis", *Computer Aided Chemical Engineering*, **30B**, pp. 1098-1102.

94. Bommareddy S., Chemmangattuvalappil N.G., **Eden M.R.** (2012): "An Integrated Framework for Flowsheet Synthesis and Molecular Design", *Computer Aided Chemical Engineering*, **30A**, pp. 662-666.

95. Saunders S.R., **Eden M.R.**, Roberts C.B. (2011): "Modeling the Precipitation of Polydisperse Nanoparticles using a Total Interaction Energy Model", *Journal of Physical Chemistry C*, **115(11)**, pp. 4603-4610.

96. Bommareddy S., **Eden M.R.**, Gani R. (2011): "Computer Aided Flowsheet Design using Group Contribution Methods", *Computer Aided Chemical Engineering*, **29A**, pp. 321-325.

97. Yuan W., Vaughan G.C., Roberts C.B., **Eden M.R.** (2011): "Modeling and Optimization of Supercritical Phase Fischer-Tropsch Synthesis", *Computer Aided Chemical Engineering*, **29B**, pp. 1929-1933.

98. Bacik D.B., Yuan W., Roberts C.B., **Eden M.R.** (2011): "Systems Analysis of Benign Hydrogen Peroxide Synthesis in Supercritical CO_2", *Computer Aided Chemical Engineering*, **29A**, pp. 387-391.

99. Hada S., Solvason C.C., **Eden M.R.** (2011): "Molecular Design of Biofuel Additives for Optimization of Fuel Characteristics", *Computer Aided Chemical Engineering*, **29B**, pp. 1633-1637.

100. Odjo A.O., Sammons Jr. N.E., Yuan W., Marcilla A., **Eden M.R.**, Caballero J.A. (2011): "A Disjunctive-Genetic Programming Approach to Synthesis of Process Networks", *Industrial & Engineering Chemistry Research*, **50(10)**, pp. 6213-6228.

101. Tay D.H.S., Ng D.K.S., Sammons Jr. N.E., **Eden M.R.** (2011): "Fuzzy Optimization Approach for Optimal Integrated Biorefinery Product Allocation", *Industrial & Engineering Chemistry Research*, **50(3)**, pp. 1652-1665.

102. Aksoy B., Cullinan H.T., Webster D., Gue K., Sukumaran S., Sammons Jr. N.E., **Eden M.R.** (2011): "Woody Biomass and Mill Waste Utilization Opportunities in Alabama – Transportation Cost Minimization, Optimum Facility Location, Economic Feasibility and Impacts", *Environmental Progress & Sustainable Energy*, **30(4)**, pp. 720–732.

103. Bommareddy S., Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2010): "An Algebraic Approach for Simultaneous Solution of Process and Molecular Design Problems", *Brazilian Journal of Chemical Engineering*, **27(3)**, pp. 441-450.

104. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2010): "Reverse Problem Formulation Approach to Molecular Design using Property Operators based on Signature Descriptors", *Computers & Chemical Engineering*, **34(12)**, pp. 2062-2071.

105. Bommareddy S., Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2010): "Simultaneous Solution of Process and Molecular Design Problems using an Algebraic Approach", *Computers & Chemical Engineering*, **34(9)**, pp. 1481-1486.

106. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2010): "Molecular Signature Descriptors for Integrated Flowsheet and Molecular Design", *Computer Aided Chemical Engineering*, **28**, pp. 1267-1272.

107. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2010): "Multi-Scale Chemical Product Design using the Reverse Problem Formulation", *Computer Aided Chemical Engineering*, **28**, pp. 1285-1290.

108. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2010): "Combined Property Clustering and GC+ Techniques for Process and Product Design", *Computers & Chemical Engineering*, **34(5)**, pp. 582-591.

109. Sammons Jr. N.E., Yuan W., Bommareddy S., **Eden M.R.**, Aksoy B., Cullinan H.T. (2009): "A Systematic Framework to Calculate Economic Value and Environmental Impact of Biorefining Technology", *Computer Aided Chemical Engineering*, **27**, pp. 2007-2012.

110. Yuan W., Odjo A.O., Sammons Jr. N.E., Caballero J.A., **Eden M.R.** (2009): "Process Structure Optimization using a Hybrid Disjunctive-Genetic Programming Approach", *Computer Aided Chemical Engineering*, **27**, pp. 669-674.

111. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): "Incorporating Molecular Signature Descriptors in Reverse Problem Formulations", *Computer Aided Chemical Engineering*, **27**, pp. 73-78.

112. Solvason C.C., Chemmangattuvalappil N.G., Bommareddy S., **Eden M.R.** (2009): "Decomposition Techniques for Multi-Scale Structured Product Design: Subspace Optimization", *Computer Aided Chemical Engineering*, **27**, pp. 1089-1094.

113. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): "Novel Molecular Design Technique using Property Operators based on Signature Descriptors", *Computer Aided Chemical Engineering*, **27**, pp. 897-902.

114. Bommareddy S., Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2009): "Simultaneous Solution of Process and Molecular Design Problems using an Algebraic Approach", *Computer Aided Chemical Engineering*, **27**, pp. 1095-1100.

115. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): "Decomposition Techniques for Molecular Synthesis and Structured Product Design", *Computer Aided Chemical Engineering*, **26**, pp. 153-158.

116. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2009): "Property Based Product Design using Combined Property Clustering and GC+ Techniques", *Computer Aided Chemical Engineering*, **26**, pp. 237-242.

117. Sammons Jr. N.E., Yuan W., Bommareddy S., **Eden M.R.**, Aksoy B., Cullinan H.T. (2009): "Systematic Approach to Evaluate Economic and Environmental Impact of Biorefineries", *Computer Aided Chemical Engineering*, **26**, pp. 1135-1140.

118. Stuart P., **Eden M.R.**, El-Halwagi M.M., Froyd J., Mahalec V., Moscosa M., Milan P.M., Picon-Nunez M. (2009): "Web-Based Modules for Product and Process Design", *Design for Energy & the Environment*, pp. 505-516, Taylor and Francis.

119. Seay J.R., **Eden M.R.** (2009): "Incorporating Sustainability and Environmental Impact Assessment into Capstone Design Projects", *Design for Energy & the Environment*, pp. 689-698, Taylor and Francis.

120. Yuan W., Odjo A., Sammons Jr. N.E., Caballero J., **Eden M.R.** (2009): "Process Optimization using a Hybrid Disjunctive-Genetic Programming Approach", *Design for Energy & the Environment*, pp. 767-776, Taylor and Francis.

121. Bommareddy S., Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2009): "Simultaneous Consideration of Process and Product Design Problems using an Algebraic Property Based Approach", *Design for Energy & the Environment*, pp. 851-860, Taylor and Francis.

122. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): "A Systematic Methodology for Molecular Synthesis using Combined Property Clustering and GC+Methods", *Design for Energy & the Environment*, pp. 757-766, Taylor and Francis.

123. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): "Multi-Scale Product Design using Property Clustering and Decomposition Techniques", *Design for Energy & the Environment*, pp. 861-870, Taylor and Francis.

124. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): "A Systematic Method for Integrating Product Attributes and Molecular Synthesis", *Computers & Chemical Engineering* **33(5)**, pp. 977-991.

125. Seay J.R., **Eden M.R.** (2009): "Incorporating Environmental Impact Assessment into Conceptual Process Design: A Case Study Example", *Environmental Progress & Sustainable Energy* **28(1)**, pp. 30-37.

126. Solvason C.C., Chemmangattuvalappil N.G., Eljack F.T., **Eden M.R.** (2009): "Efficient Visual Mixture Design of Experiments using Property Clustering Techniques", *Industrial & Engineering Chemistry Research* **48(4)**, pp. 2245-2256.

127. Chemmangattuvalappil N.G., Eljack F.T., Solvason C.C., **Eden M.R.** (2009): "A Novel Algorithm for Molecular Synthesis Using Enhanced Property Operators", *Computers & Chemical Engineering* **33(3)**, pp. 636-643.

128. Aksoy B., Cullinan H.T., Sammons Jr. N.E., **Eden M.R.** (2008): "Identification of Optimal Poultry Litter Biorefinery Location in Alabama through Minimization of Feedstock Transportation Cost", *Environmental Progress*, **27(4)**, pp. 515-523.

129. Eljack F.T., **Eden M.R.** (2008): "A Visual Approach to Molecular Design using Property Clusters and Group Contribution", *Computers & Chemical Engineering* **32(12)**, pp. 3002-3010.

130. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2008): "Optimal Biorefinery Product Allocation by Combining Process and Economic Modeling", *Chemical Engineering Research & Design*, **86(7)**, pp. 800-808.

131. Eljack F.T., Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2008): "A Property Based Approach for Simultaneous Process and Molecular Design", *Chinese Journal of Chemical Engineering* **16(3)**, pp. 424-434.

132. Seay J.R., **Eden M.R.** (2008): "Incorporating Risk Assessment and Inherently Safer Design Practices into Chemical Engineering Education", *Chemical Engineering Education* **42(3)**, pp. 141-146. **Note:** Reprinted with permission in Computer Aids for Chemical Engineering (CACHE) Summer 2011 Newsletter.

133. Solvason C.C., Eljack F.T., Chemmangattuvalappil N.G., **Eden M.R.** (2008): "Visual Mixture Design Using Property Clustering", *Computer Aided Chemical Engineering* **25**, Paper 442 (CD Volume).

134. Seay J.R., Werhan H., **Eden M.R.**, D'Alessandro R.N., Thomas T., Redlingshoefer H., Weckbecker C., Huthmacher K. (2008): "Integrating Laboratory Experiments with Process Simulation for Reactor Optimization", *Computer Aided Chemical Engineering* **25**, Paper 168 (CD Volume).

135. Chemmangattuvalappil N.G., Solvason C.C., Eljack F.T., **Eden M.R.** (2008): "Enhanced Algebraic Property Clustering Technique for Molecular Synthesis", *Computer Aided Chemical Engineering* **25**, Paper 386 (CD Volume).

136. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2008): "A Systematic Framework for Biorefinery Production Optimization", *Computer Aided Chemical Engineering* **25**, pp. 1077-1082.

137. Yuan W., Sammons Jr. N.E., McGlocklin K.H., **Eden M.R.** (2008): "Economic Analysis and Process Integration of Hydrogen Production Strategies", *Computer Aided Chemical Engineering* **25**, pp. 1083-1088.

138. Seay J.R., **Eden M.R.** (2008): "Challenges of Implementing A Joint Industrial – Academic Research Project as Part of a Non-Traditional Industrial Ph.D. Dissertation", *Chemical Engineering Education* **42(2)**, pp. 112-116.

139. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2007): "A Flexible Framework for Optimal Biorefinery Product Allocation", *Environmental Progress* **26(4)**, pp. 349-354.

140. Wilder J.L., Hanks R.M., McGlocklin K.H., Sammons Jr. N.E., **Eden M.R.**, Tatarchuk B.J. (2007): "Process Integration under Size Constraints: Logistical Fuels for Mobile Applications", *Computer Aided Chemical Engineering* **24**, pp. 1059-1064.

141. Eljack F.T., Solvason C.C., **Eden M.R.** (2007): "An Algebraic Property Clustering Technique for Molecular Design", *Computer Aided Chemical Engineering* **24**, T2-326 (CD Volume).

142. Seay J.R., **Eden M.R.**, D'Alessandro R.N., Thomas T., Redlingshoefer H., Weckbecker C., Huthmacher K. (2007): "Integration of Process Modeling with Laboratory Experiments in Conceptual Design: Bio-based Glycerol Dehydration Case Study", *Computer Aided Chemical Engineering* **24**, pp. 485-490.

143. Kazantzi V., Qin X., El-Halwagi M.M., Eljack F.T., **Eden M.R.** (2007): "Simultaneous Process and Molecular Design through Property Clustering Techniques – A Visualization Tool", *Industrial & Engineering Chemistry Research* **46(10)**, pp. 3400-3409.

144. Eljack F.T., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2007): "Simultaneous Solution of Process and Molecular Design Problems via Group Contribution and Property Clustering Techniques", *AIChE Journal* **53(5)**, pp. 1232-1239.

145. Eljack F.T., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2006): "Property Clustering and Group Contribution for Process and Molecular Design", *Computer Aided Chemical Engineering* **21A**, pp. 907-912.

146. Sammons Jr. N.E., **Eden M.R.**, Cullinan H.T., Perine L., Connor E. (2006): "A Flexible Framework for Optimal Biorefinery Product Allocation", *Computer Aided Chemical Engineering* **21B**, pp. 2057-2062.

147. Seay J.R., **Eden M.R.**, D'Alessandro R.N., Weckbecker C. (2006): "Sustainable Production of Industrial Chemical Products from Bioresources", *Computer Aided Chemical Engineering* **21A**, pp. 961-966.

148. Eljack F.T., Abdelhady A.F., **Eden M.R.**, Gabriel F.B., Qin X., El-Halwagi M.M. (2005): "Targeting Optimum Resource Allocation using Reverse Problem Formulations and Property Clustering Techniques", *Computers & Chemical Engineering* **29(11-12)**, pp. 2304-2317.

149. Eljack F.T., Cummings R.M., Abdelhady A.F., **Eden M.R.**, Tatarchuk B.J. (2005): "Process Integration and Optimization of Logistical Fuels Processing for Hydrogen Production", *Computer Aided Chemical Engineering* **20B**, pp. 1609-1614.

150. Mole T.L., **Eden M.R.**, Burch T.E., Tarrer A.R. (2005): "A Systematic Approach for Optimal Synthesis of Polymeric Films for Radioactive Decontamination and Waste Reduction", *Computer Aided Chemical Engineering* **20B**, pp. 1615-1620.

151. El-Halwagi M.M., Glasgow I.M., **Eden M.R.**, Qin X. (2004): "Property Integration: Componentless Design Techniques and Visualization Tools", *AIChE Journal* **50(8)**, pp. 1854-1869.

152. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2004): "A Novel Framework for Simultaneous Separation Process and Product Design", *Chemical Engineering & Processing* **43**, pp. 595-608.

153. **Eden M.R.**, Jørgensen S.B., Gani R. (2003): "A New Modeling Approach for Future Challenges in Process and Product Design", *Computer Aided Chemical Engineering* **14**, pp. 101-106.

154. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2003): ”Reverse Problem Formulation based Techniques for Process and Product Design”, *Computer Aided Chemical Engineering* **15A**, pp. 451-456.

155. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2003): ”Property Cluster based Visual Technique for Synthesis and Design of Formulations”, *Computer Aided Chemical Engineering* **15B**, pp. 1175-1180.

156. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2002): ”Property Integration – A New Approach for Simultaneous Solution of Process and Molecular Design Problems”, *Computer Aided Chemical Engineering* **10**, 79-84.

157. **Eden M.R.**, Gani R., Jørgensen S.B. (2002): ”A Holistic Design Methodology”, *Journal of Danish Chemistry* **83(12)**, pp. 29-32.

158. **Eden M.R.**, Gani R., Jørgensen S.B. (2002): ”Development of Sustainable Chemical Products and Processes”, *Journal of Danish Chemistry* **83(10)**, pp. 34-37.

159. **Eden M.R.**, Koggersbøl A., Hallager L., Jørgensen S.B. (2000): “Dynamics and Control During Startup of Heat-integrated Distillation Column”, *Computers & Chemical Engineering* **24**, pp. 1091-1097.

160. Jørgensen S.B., Gani R., Jonsson G., **Eden M.R.** (1999): “Development of Alternative Energy Efficient Separation Processes”, *Journal of Danish Chemistry* **80(11)**, pp. 44-47.

Proceedings Papers

1. Deng Y., **Eden M.R.**, Cheng S., Gao H., Cremaschi S. (2023): “A Gaussian Process embedded Feature Selection Method based on Automatic Relevance Determination”, *Proceedings of FOCAPO/CPC 2023*, (accepted).

2. **Eden M.R.**, Seider W.D. (2016): “CACHE Design Task Force Update”, *CACHE News*, Winter 2016.

3. **Eden M.R.**, Siirola J.D., Towler G.P. (2015): “Report on 8th International Conference on Foundations of Computer Aided Process Design (FOCAPD 2014)”, *CACHE News*, Winter 2015.

4. Dev V.A., Namikis R., Chemmangattuvalappil N.G., **Eden M.R.** (2013): “Molecular Synthesis of Candidate Reactant Structures Using Signature Descriptors”, *Proceedings of 6th International Symposium on Process Systems Engineering (PSE-ASIA)*, Kuala Lumpur, Malaysia.

5. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2010): “Integrated Process and Molecular Design using Molecular Property Operators based on Signature Descriptors”, *Proceedings of 2nd International Symposium on Sustainable Chemical Product and Process Engineering (SCPPE-2)*, Hangzhou, China.

6. Tay, D.H.S., Sammons Jr. N.E., Ng D.K.S., **Eden M.R.** (2010): “Fuzzy Optimization Approach for Optimal Integrated Biorefinery Product Allocation”, *Proceedings of 5th International Symposium on Process Systems Engineering (PSE-ASIA)*, Singapore.

7. Odjo A.O., Sammons Jr. N.E., Marcilla A., **Eden M.R.**, Caballero J. (2008): “A Disjunctive-Genetic Programming Approach to Synthesis of Process Networks”, *Proceedings of 18th International Congress of Chemical and Process Engineering (CHISA)*, Prague, Czech Republic.

8. **Eden M.R.**, Liang B., Hesketh R.P. (2008): ”SCPPE 2007 – Workshop on Sustainability Education”, *AIChE Sustainable Engineering Forum Newsletter* **2(1)**, pp. 9-10.

9. Seay J.R., **Eden M.R.** (2008): “Sustainable Engineering in the Capstone Design Course at Auburn University”, *AIChE Sustainable Engineering Forum Newsletter* **2(1)**, pp. 7-9.

10. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2008): “A Systematic Framework for Biorefinery Product Allocation”, *Proceedings of Foundations of Computer-Aided Process Operations (FOCAPO)*, pp. 233-236, Boston, MA.

11. Seay J.R., **Eden M.R.** (2007): “Sustainable Engineering in Capstone Design Projects through Industrial Collaboration”, *Proceedings of 1st International Symposium on Sustainable Chemical Product and Process Engineering (SCPPE)*, Guangzhou, China.
12. Eljack F.T., Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2007): “A Property Based Approach for Simultaneous Process and Molecular Design”, *Proceedings of 1st International Symposium on Sustainable Chemical Product and Process Engineering (SCPPE)*, Guangzhou, China.
13. Eljack F.T., Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2007): “A Property Based Design Approach for Simultaneous Optimization of Product and Process Needs”, *Proceedings of 6th European Congress of Chemical Engineering*, Copenhagen, Denmark.
14. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2007): “Optimal Biorefinery Resource Utilization by Combining Process and Economic Modeling”, *Proceedings of 6th European Congress of Chemical Engineering*, Copenhagen, Denmark.
15. Solvason C.C., Eljack F.T., **Eden M.R.** (2007): “Integrating Mixture Design within the Property Clustering Framework”, *Proceedings of 6th European Congress of Chemical Engineering*, Copenhagen, Denmark.
16. McGlocklin K.H., Sammons Jr. N.E., Yuan W., Wilder J.L., **Eden M.R.** (2007): “Systematic Framework for Economic Evaluation of Hydrogen Production Strategies”, *Preprints Am. Chem. Soc.*, *Div. Fuel Chem.* **52(2)** pp. 465-466.
17. Eljack F.T., Abdelhady A.F., **Eden M.R.**, Gabriel F.B., Qin X., El-Halwagi M.M. (2005): “Targeting Optimum Resource Allocation using Reverse Problem Formulations and Property Clustering Techniques”, *Proceedings of Symposium of Modeling Complex Processes*, College Station, Texas.
18. **Eden M.R.**, Gani R. (2002): ”Computer Aided Process/Product Design – Issues, Needs and Solution Approaches”, *Proceedings of WWDU 2002*, Berchtesgaden, Germany, 2002.
19. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2002): “A New Component-Free Approach for Simultaneous Process and Product Design through Property Integration”, *Proceedings of 15th International Congress of Chemical and Process Engineering (CHISA)*, Prague, Czech Republic.
20. **Eden M.R.**, Jørgensen S B., Gani R., El-Halwagi M.M. (2002): ”A Novel Framework for Simultaneous Separation Process and Product Design”, *Proceedings of International Conference on Distillation and Absorption 2002*, Baden-Baden, Germany.
21. **Eden M.R.**, Andersen T.R. (2000): "Computer Aided Process Engineering for Process Integration and Design", *Proceedings of Scandinavian Simulation Society (SIMS) 2000*, Lyngby, Denmark.
22. Andersen T.R., **Eden M.R.** (2000): "Computer Aided Process Engineering for Operational Analysis and Control Design", *Proceedings of Scandinavian Simulation Society (SIMS) 2000*, Lyngby, Denmark.

Submitted Manuscripts

1. Xu S., Cremaschi S., **Eden M.R.**, Tula A.K. (2023): “Simultaneous Selection and Optimization of Reaction Pathways and Downstream Separation Network”, *Computer Aided Chemical Engineering* (submitted 12/08/2022).
2. Mukta C.B., Cremaschi S., **Eden M.R.** (2023): “A Novel Approach for Cost-Effective and Sustainable Capacity Expansion utilizing Process Intensification in Chemical Process Industries”, *Computer Aided Chemical Engineering* (submitted 12/08/2022).
3. Li Y., Ren J., **Eden M.R.**, Shen W. (2023): “An Interpretable Architecture of Light Attention-Convolution-Gate Recurrent Unit Neural Network for Highly Accurate Modeling Actual Chemical Dynamic Process”, *AIChE Journal* (submitted 12/04/2022).

4. Zhou Z., **Eden M.R.**, Shen W. (2022): "Treat Molecular Linear Notations as Sentences: Accurate Quantitative Structure-Property Relationship Modelling via a Natural Language Processing Approach", *Industrial & Engineering Chemistry Research* (submitted 11/10/2022).
5. Zhang J., Wang Q., **Eden M.R.**, Shen W. (2022): "A Deep Learning-based Architecture Integrating the Hierarchical Molecular Generative Model Towards Purposively and Effectively Inverse Green Solvent Design", *Chemical Engineering Science* (submitted 09/19/2022).
6. Xu S., Cremaschi S., **Eden M.R.**, Tula A.K. (2023): "An Integrated Framework for Sustainable Process Design by Hybrid and Intensified Equipment", *Computers & Chemical Engineering* (in revision – final version to be submitted by 01/10/2023).

PRESENTATIONS

Invited Seminars and Lectures

1. Xu S., Tula A.K., Cremaschi S., **Eden M.R.**, (2022): Identification of Sustainable Processes through an Integrated Process Synthesis Framework", ***CAST Plenary Session***, Paper 47d, AIChE Annual Meeting, Phoenix, AZ.
2. Seider W.D., Lewin D.R., **Eden M.R.**, Zondervan E., Mujtaba I.M., Sungnoen B., Gani R. (2022) "Teaching of Chemical Process Design – What should be the contents?", **Invited Panelist**, PSE for SPEED Summer Webinar Series.
3. Gani R., Chen X., **Eden M.R.**, Mansouri S.S., Martin M.M., Mujtaba I.M., Padungwatanaroj O., Roh K., Ricardez-Sandoval L., Sugiyama H., Zhao J., Zondervan E. (2022): "Challenges and Opportunities for Process Systems Engineering in a Changed World", ***Invited Plenary Lecture***, PSE 2021+, Kyoto, Japan.
4. **Eden M.R.** (2021): "Design of Process Operations and Equipment using the Reverse Design Approach", ***Invited Lecture***, PSE for SPEED Summer Webinar Series.
5. **Eden M.R.**, Xu S., Deng Y., Mukta C.B., Minor K., Wright H., Cremaschi S., Tatarchuk B.J., Dimick P.S. (2021): "Process Intensification for Scalable Desulfurization of Biogas", ***Invited Lecture***, 6th ProBioRefine Workshop, Technical University of Denmark, Kgs. Lyngby, Denmark.
6. **Eden M.R.** (2021): "Computer Aided Methods/Tools for Multi-Scale Chemical Process and Product Design", ***Invited Seminar***, Department of Chemical Engineering, University of Guanajuato, Mexico.
7. **Eden M.R.** (2021): "Computer Aided Methods/Tools for Multi-Scale Chemical Process and Product Design", ***Invited Seminar***, Department of Chemical and Biomolecular Engineering, University of Connecticut.
8. **Eden M.R.** (2019): "Next Generation Software Tools for Chemical Process and Product Design", ***Invited Lecture in Honor of Professor Rafiqul Gani's 65th Birthday***, Paper 463f, AIChE Annual Meeting, Orlando, FL.
9. **Eden M.R.** (2019): "Computer Aided Methods/Tools for Multi-Scale Chemical Process and Product Design", ***Invited Seminar***, Department of Chemical and Petroleum Engineering, Swanson School of Engineering, University of Pittsburgh.
10. **Eden M.R.** (2019); "Process Design", ***Invited Panel Discussant***, Foundations of Process Analytics and Machine Learning (FOPAM), Raleigh, NC.
11. **Eden M.R.** (2019): "Next Generation Software Tools for Chemical Process and Product Design", ***Invited Plenary Lecture***, 9th International Conference on Foundations of Computer-Aided Process Design (FOCAPD 2019), Copper Mountain, CO.
12. **Eden M.R.** (2019): "Computer Aided Methods/Tools for Sustainable Chemical Process and Product Design", ***Invited Keynote Lecture***, 5th International Conference on Sustainable Chemical Product and Process Engineering (SCPPE 2019), Tianjin, China.

13. Tula A.K., **Eden M.R.**, Gani R. (2019): ”Component Based Development of Computer-Aided Tools for Different Applications”, ***Invited Keynote Lecture***, 29th European Symposium on Computer Aided Process Engineering (ESCAPE-29), Eindhoven, The Netherlands.
14. **Eden M.R.** (2019): “Computer Aided Methods/Tools for Sustainable Chemical Process and Product Design”, ***Invited Keynote Lecture***, 6th International Conference on Water, Energy and Environment (ICWEE 2019), Sharjah, United Arab Emirates.
15. **Eden M.R.** (2019): “Computer Aided Methods/Tools for Multi-Scale Chemical Process and Product Design”, ***Invited Seminar***, Department of Chemical and Biomolecular Engineering, University of Notre Dame.
16. **Eden M.R.** (2019): “Developing Customized Component-based Computer-Aided Tools for Specific Applications”, ***Invited Plenary Lecture***, 2nd Process Systems Engineering (PSE) – State of the Art Workshop, Puerto Vallarta, Mexico.
17. **Eden M.R.** (2019): “Computer-Aided Tools for Process/Product Synthesis and Design”, ***Invited Plenary Lecture***, 2nd Process Systems Engineering (PSE) – State of the Art Workshop, Puerto Vallarta, Mexico.
18. Tula A.K, **Eden M.R.**, Gani R. (2018): “Component Based Development of Computer-Aided Tools for Different Applications”, ***Invited Keynote Lecture***, 2nd International Conference on Functional Materials and Chemical Engineering (ICFMCE), Abu Dhabi, United Arab Emirates.
19. Tula A.K., **Eden M.R.**, Gani R. (2018): “Time for a New Class of Methods and Computer Aided Tools to Address the Challenges Facing Us?”, ***Invited Keynote Lecture***, 21st Conference on Process Integration, Modelling and Optimisation for Energy Saving and Pollution Reduction (PRES 2018), Prague, Czech Republic.
20. **Eden M.R.** (2018): “Computer Aided Methods/Tools for Sustainable Multi-Scale Chemical Process and Product Design”, ***Invited Seminar***, Sustainability@Wayne Seminar Series, Wayne State University.
21. **Eden M.R.** (2018): “Computer Aided Methods/Tools for Multi-Scale Chemical Process and Product Design”, ***Invited Seminar***, Charles D. Davidson School of Chemical Engineering, Purdue University.
22. Cremaschi S., Davis S.E., **Eden M.R.** (2018): “Optimization using Surrogate Models – Which Surrogate Model?”, ***Invited Lecture***, The Institute for Operations Research and Management Science (INFORMS) Optimization Society Meeting, Denver, CO.
23. **Eden M.R.** (2017): “Computer Aided Methods/Tools for Multi-Scale Chemical Process and Product Design”, ***Invited Seminar***, Department of Chemical and Biomedical Engineering, West Virginia University.
24. **Eden M.R.** (2017):”Next Generation Computer-Aided Tools for Chemical Process and Product Design”, ***Invited Keynote Lecture***, International Conference on Functional Materials and Chemical Engineering (ICFMCE), Dubai, United Arab Emirates.
25. Tula A.K., Gani R., **Eden M.R.** (2017): “New Method and Software for Computer-Aided Flowsheet Design and Analysis”, ***Invited Keynote Lecture***, 27th European Symposium on Computer Aided Process Engineering (ESCAPE-27), Barcelona, Spain.
26. **Eden M.R.** (2017): “Next Generation Software Tools”, ***Invited Lecture***, Process Systems Engineering (PSE) – State of the Art Workshop, Cox’s Bazar, Bangladesh.
27. **Eden M.R.** (2017): “Multi-Scale Chemical Product Design”, ***Invited Lecture***, Process Systems Engineering (PSE) – State of the Art Workshop, Cox’s Bazar, Bangladesh.
28. **Eden M.R.** (2016): “Process Systems Engineering Methods for Multi-Scale Chemical Process and Product Design”, ***Invited Seminar***, Department of Chemical Engineering, Carnegie Mellon University.

29. **Eden M.R.** (2016): "Multi-Scale Chemical Process and Product Design using Process Systems Engineering Methods", ***Invited Keynote Lecture***, 4th International Conference on Sustainable Chemical Product and Process Engineering (SCPPE 2016), Nanjing, China.
30. **Eden M.R.** (2016): "Gas-To-Liquids (GTL) Technologies for Production of Fuels and Chemicals from Lignocellulosic Biomass", ***Invited Keynote Lecture***, CAPE Forum 2016, Sion, Switzerland.
31. **Eden M.R.** (2016): "Process Systems Engineering Methods for Multi-Scale Chemical Process and Product Design", ***Invited Seminar***, Department of Chemical and Biomolecular Engineering, Tulane University.
32. **Eden M.R.** (2015): "Auburn University Biorefining Research – An Update on Current Activities", ***Invited Lecture***, 2nd ProBioRefine Workshop, Universiti Teknologi Malaysia, Johor Bahru, Malaysia.
33. **Eden M.R.** (2015): "Biorefinery Funding in USA – An Overview of Upcoming Opportunities", ***Invited Lecture***, 2nd ProBioRefine Workshop, Universiti Teknologi Malaysia, Johor Bahru, Malaysia.
34. **Eden M.R.** (2015): "Process Systems Engineering Methods for Multi-Scale Chemical Process and Product Design", ***Invited Seminar***, Department of Chemical and Biological Engineering, Northwestern University.
35. **Eden M.R.** (2015): "Process Systems Engineering Methods for Multi-Scale Chemical Process and Product Design", ***Invited Seminar***, Department of Chemical Engineering, McMaster University, Canada.
36. Xu R., Roe D., Stewart C., **Eden M.R.**, Roberts C.B. (2015): "Production of Fuels and Chemicals from Biomass in an Integrated Biorefinery: Opportunities for Process Integration through Tunable Solvent Systems", ***Invited Plenary Lecture***, 2nd Asia-Pacific Symposium on Process Intensification and Sustainability (APSPIS), Sydney, Australia.
37. Davis S.E., Herring R.H., Roberts C.B., **Eden M.R.** (2015): "Process Systems Engineering Approaches to Multi-Scale Chemical Product Design", ***Invited Keynote Lecture***, Process Systems Engineering (PSE) 2015 & 25th European Symposium on Computer Aided Process Engineering (ESCAPE-25), Copenhagen, Denmark.
38. **Eden M.R.** (2015): "Multi-Scale Process Systems Engineering Methods for Integrated Chemical Process and Product Design", 17th Johansen-Crosby Lecture, ***Invited Lecture***, Department of Chemical and Materials Engineering, Michigan State University.
39. **Eden M.R.** (2015): "The Auburn University IGERT Project: From Proposal Development to Implementation – Lessons Learned", 17th Johansen-Crosby Lecture, ***Invited Lecture***, Department of Chemical and Materials Engineering, Michigan State University.
40. **Eden M.R.**, Roberts C.B, Taylor S.E. (2014): "Fuels and Chemicals from Lignocellulosic Biomass via Thermochemical Conversion and Gas-To-Liquids (GTL) Technologies", ***Invited Lecture***, 1st ProBioRefine Workshop, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea.
41. Tula A.K, Babi D.K., Gani R., **Eden M.R.** (2014): "Multi-Scale Approaches for Process Synthesis and Intensification", ***Invited Lecture***, NSF Process Intensification Workshop, Arlington, VA.
42. Herring R.H., **Eden M.R.** (2014): "De Novo Molecular Design using a Graph-Based Genetic Algorithm Approach", ***Invited Keynote Lecture***, 24th European Symposium on Computer Aided Process Engineering (ESCAPE-24), Budapest, Hungary.
43. **Eden M.R.** (2014): "Multi-scale Process Systems Engineering Approaches to Sustainable Chemical Product Design", ***Invited Seminar***, Dave C. Swalm School of Chemical Engineering, Mississippi State University.
44. **Eden M.R.** (2014): "From DTU to AU - How Danish Chemical Engineering Led to Golden Opportunities in America", ***Invited Lecture***, Department of Chemical and Biochemical Engineering, Technical University of Denmark.

45. **Eden M.R.** (2013): "Multi-scale Process Systems Engineering Approaches to Sustainable Chemical Product Design", ***Invited Seminar***, Department of Chemical and Materials Engineering, University of Kentucky.

46. **Eden M.R.** (2013): "Sustainable Chemical Product Design by Multi-Scale Process Systems Engineering Approaches", ***Invited Lecture***, Frontiers in Multiscale Systems Engineering, Korea Advanced Institute of Science and Technology (KAIST) PSE Conference, Daejeon, South Korea.

47. **Eden M.R.**, Roberts C.B., Taylor S.E. (2013): "Production of Transportation Fuels and High Value Co-Products from Biomass via Thermochemical Conversion and Gas-To-Liquids (GTL) Technologies", ***Invited Lecture***, 9th World Congress of Chemical Engineering (WCCE-9), Seoul, South Korea.

48. **Eden M.R.**, Roberts C.B., Taylor S.E. (2013): "Transportation Fuels and High Value Co-Products from Biomass via Thermochemical Conversion and Gas-To-Liquids (GTL) Technologies", ***Invited Keynote Lecture***, 3rd International Conference on Sustainable Chemical Product and Process Engineering (SCPPE), Dalian, China.

49. **Eden M.R.**, Roberts C.B., Taylor S.E. (2013): "Liquid Transportation Fuels and High Value Co-Products from Integrated Biomass Fractionation, Gasification and Advanced Catalytic Conversion", ***Invited Lecture***, Inaugural Southeastern Conference (SEC) Academic Symposium, Atlanta, GA.

50. **Eden M.R.** (2012): "Process Systems Engineering Approaches to Sustainable Chemical Product Design", ***Sustainability Plenary Session***, AIChE Annual Meeting, Pittsburgh, PA.

51. **Eden M.R.** (2012): "From Fuels to Pharmaceuticals – Multi-Scale Process Systems Engineering Approaches", ***Invited Lecture*****,** Computer Aided Process Engineering Center (CAPEC-PROCESS) Annual Meeting, Copenhagen, Denmark.

52. **Eden M.R.**, Roberts C.B., Taylor S.E., Gallagher T., Tian H. (2012): "Multi- and Inter-disciplinary Project Development – Lessons Learned the Hard Way", ***Invited Workshop***, Auburn University Research Week.

53. **Eden M.R.** (2011): "Novel Methods for Integrated Process and Product Design", ***Invited Lecture***, 6th Sino-US Joint Conference of Chemical Engineering, Beijing, China.

54. **Eden M.R.** (2011): "Integrated Methods for Chemical Process/Product Design and Optimization", ***Invited Seminar***, Department of Chemical and Biomolecular Engineering, Clemson University.

55. **Eden M.R.** (2011): "Computer Aided Flowsheet Design using Group Contribution Methods", ***Invited Lecture***, Computer Aided Process Engineering Center (CAPEC-PROCESS) Annual Meeting, Snekkersten, Denmark.

56. **Eden M.R.**, Roberts C.B., Taylor S.E. (2011): "Production of Transportation Fuels and High Value Co-Products through Integrated Biomass Fractionation, Gasification and Advanced Catalytic Conversion", ***Invited Lecture***, 2nd International Congress on Sustainability Science and Engineering, Tucson, AZ.

57. **Eden M.R.** (2010): "Multimedia Instructional Tools & Integrated Industrial Projects in Capstone Design Sequence", ***Invited Poster***, National Academy of Engineering Frontiers of Engineering Education (FOEE) Symposium, Irvine, CA.

58. **Eden M.R.**, Roberts C.B., Adhikari S., Taylor S.E. (2010): "Co-Production of High Value Oxygenates and Olefins through Integrated Biomass Fractionation, Gasification and Advanced Catalytic Conversion", ***Invited Lecture***, Frontiers in Biorefining: Biobased Products from Renewable Carbon, St. Simons Island, GA.

59. **Eden M.R.** (2010): "New Approaches to Evaluation of Economic and Environmental Impact of Biorefineries", ***Invited Plenary Lecture***, 5th Mississippi State University Biofuels Conference, Jackson, MS.

60. **Eden M.R.** (2010): "Integrated Process and Molecular Design using Property Clustering and Decomposition Techniques", ***Invited Seminar***, Process Systems Engineering Institute, Department of Chemical Engineering, Tsinghua University, China.

61. **Eden M.R.** (2010): "Process and Molecular Design using Property Clustering and Decomposition Techniques", ***Invited Seminar***, Department of Chemical and Life Science Engineering, Virginia Commonwealth University.

62. **Eden M.R.** (2010): "Property Based Techniques for Process and Product Design", ***Invited Seminar***, Department of Chemical and Biomolecular Engineering, Georgia Institute of Technology.

63. **Eden M.R.** (2009): "Integrated Chemical Process and Product Design using Property Clustering and Decomposition Techniques", ***Invited Seminar***, Department of Chemical and Biomolecular Engineering, Vanderbilt University.

64. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): "Incorporating Molecular Signature Descriptors in Reverse Problem Formulations", ***Invited Keynote Lecture***, 10th International Symposium on Process Systems Engineering, Salvador, Brazil.

65. **Eden M.R.** (2009): "Multi-Scale Product Design using Property Clustering and Decomposition Techniques", ***Invited Lecture***, Retirement reception honoring the achievements of Professor Sten Bay Jørgensen, Department of Chemical and Biochemical Engineering, Technical University of Denmark

66. **Eden M.R.**, Solvason C.C., Chemmangattuvalappil N.G. (2008): "Systematic Methods for Integrating Mixture Design and Molecular Synthesis", ***Invited Seminar***, Air Force Research Laboratory, Wright-Patterson AFB, Dayton, OH.

67. **Eden M.R.**, Seay J.R. (2008): "Industry – Academia Partnerships, A Joint Research Project between Auburn University and Evonik Industries", ***Invited Lecture***, North American Evonik Meets Science Conference, Washington, DC.

68. **Eden M.R.**, Sammons Jr. N.E., Yuan W., Cullinan H.T., Aksoy B. (2008): "Modeling and Optimization of Biorefineries", ***Invited Seminar***, Pan American Advanced Studies Institute (PASI) Program on Emerging Trends in Process Systems Engineering, Mar Del Plata, Argentina.

69. **Eden M.R.** (2008): "A Systematic Method for Integrating Mixture Design and Molecular Synthesis", ***Invited Lecture***, Computer Aided Process Engineering Center (CAPEC) Annual Meeting.

70. **Eden M.R.** (2007): "Property Based Techniques for Integrated Process and Molecular Design", ***Invited Seminar***, Department of Chemical and Biomolecular Engineering, University of Notre Dame.

71. **Eden M.R.** (2007): "Property Clustering Methods for Integrated Process and Molecular Design", ***Invited Seminar***, Department of Chemical Engineering, Tennessee Tech University.

72. **Eden M.R.** (2007): "Preparing a Successful Career Development Plan – My Perspective and Experience", ***Invited Lecture***, NSF CAREER Proposal Writing Workshop, Honolulu and Hilo, HI.

73. **Eden M.R.** (2006): "From DTU to AU – Danish Chemical Engineering Education Leads to Golden Opportunities in America", ***Invited Plenary Lecture***, 2nd Danish Chemical Engineering Conference.

74. Eljack F.T., Solvason C.C., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2006): "Process and Molecular Design: A Simultaneous Approach", ***CAST Plenary Session***, Paper 222d, AIChE Annual Meeting 2006, San Francisco, CA.

75. **Eden M.R.** (2006): "Property Based Techniques for Integrated Process and Molecular Design", ***Invited Seminar***, Department of Chemical and Petroleum Engineering, University of Kansas.

76. **Eden M.R.** (2006): "CAREER Proposal Writing", New Faculty Forum, AIChE Annual Meeting 2006, San Francisco, CA.

77. **Eden M.R.** (2005): "Biorefinery System Integration and Value Proposition Issues", ***Invited Plenary Lecture***, Forest Products Techno-Business Forum, Georgia Institute of Technology

78. **Eden M.R.** (2004): "Property Based Techniques for Targeted Design of Processes and Products", ***Invited Seminar***, Hunter Henry Lecture Series, Mississippi State University.

Conference Presentations

1. Deng Y., Cremaschi S., **Eden M.R.**, Gao H., Cheng S. (2022): "A Hybrid Model Feature Relevance Analysis for First-Principle Model Refinement Suggestions", Paper 11a, AIChE Annual Meeting, Phoenix, AZ.
2. Kuprasertwong N., Padungwatanaroj, Khan E.A., **Eden M.R.**, Gani R. (2022): "Systematic Chemicals-Based Product Development, Analysis and Chemical Substitution", Paper 359b, AIChE Annual Meeting, Phoenix, AZ.
3. Mukta C.B., Cremaschi S., **Eden M.R.**, Tatarchuk B.J., Dimick P.S. (2022): "A Study on Capacity Expansion Scenarios of Intensified Ethylene Oxide Process", Paper 503c, AIChE Annual Meeting, Phoenix, AZ.
4. Padungwatanaroj O., Kogncharoenkitkul J., Promphan R., **Eden M.R.**, Gani R. (2022): "An Integrated Set of Methods, Algorithms and Software Components for Sustainable Process Design", Paper 659b, AIChE Annual Meeting, Phoenix, AZ.
5. Perez-Cisneros E., **Eden M.R.**, Gani R. (2022): "Rule-based Method for Retrofitting Conventional Processes with Integrated Units", PSE 2021+, Kyoto, Japan.
6. Xu S., Crump T., Cremaschi S., **Eden M.R.**, Tula A.K. (2022): "A Short-Cut Method for Synthesis of Solvent-based Separation Processes", PSE 2021+, Kyoto, Japan.
7. Mukta C.B., Rayaprolu N.R., Cremaschi S., **Eden M.R.**, Tatarchuk B.J. (2022): "Techno-Economic Study of Intensified Ethylene Oxide Production Using High Thermal Conductivity Microfibrous Entrapped Catalyst", PSE 2021+, Kyoto, Japan.
8. Mukta C.B., Cremaschi S., **Eden M.R.** (2022): "Operational Envelopes of Cost-effective Sour Gas Desulfurization Processes", PSE 2021+, Kyoto, Japan.
9. Xu S., Cremaschi S., **Eden M.R.**, Tula A.K. (2022): "Integrated Process Synthesis and Design of Intensified/Hybrid Processes", 32nd European Symposium on Computer Aided Process Engineering (ESCAPE-32), Toulouse, France.
10. **Eden M.R.** (2021): "CAST Update", Paper 62a, AIChE Annual Meeting, Boston, MA.
11. Crump T., Xu S., Cremaschi S., **Eden M.R.** (2021): "Validation of a Fast Solvent Evaluation and Selection Model for Extractive Distillation", AIChE Annual Meeting, Boston, MA. ***3rd Place Award for Best Poster in Computing and Process Control***.
12. Xu S., Tula A.K., Cremaschi S., **Eden M.R.** (2021): "A Short-Cut Method for Synthesis of Solvent-Based Separations", Paper 106d, AIChE Annual Meeting, Boston, MA.
13. Mukta C.B., Cremaschi S., **Eden M.R.**, Tatarchuk B.J., Dimick P.S. (2021): "Process Intensification of Ethylene Oxide Process using Microfibrous Entrapped Catalyst" Paper 443c, AIChE Annual Meeting, Boston, MA.
14. Deng Y., Cremaschi S., **Eden M.R.**, Gao H., Cheng S. (2021): "A Hybrid Model Feature Relevance Analysis for Mechanistic Model Refinement Suggestions", Paper 415e, AIChE Annual Meeting, Boston, MA.
15. Xu S., Cremaschi S., **Eden M.R.**, Tula A.K. (2021): "Simulation-based Derivative-free Optimization for Hybrid Separation Design", 31st European Symposium on Computer Aided Process Engineering (ESCAPE-31), Istanbul, Turkey (Virtual).
16. Deng Y., Cremaschi S., **Eden M.R.**, Avila C., Gao H., Mantilla I. (2021): "A Hybrid Modeling Approach for Entrainment Fraction Predictions", 31st European Symposium on Computer Aided Process Engineering (ESCAPE-31), Istanbul, Turkey (Virtual).
17. Chai S., Zhang L., Du J., Tula A.K., Gani R., **Eden M.R.** (2021): "A Versatile Modeling System for Integrated Chemical Product Design Problems", 31st European Symposium on Computer Aided Process Engineering (ESCAPE-31), Istanbul, Turkey (Virtual).

18. Xu S., Tula A.K., Cremaschi S., **Eden M.R.** (2020): “Simulation-Based Derivative-Free Optimization for Hybrid Separation Design”, Paper 686b, AIChE Annual Meeting, San Francisco, CA (Virtual).
19. Mukta C.B., Xu S., Deng Y., Cremaschi S., **Eden M.R.**, Tatarchuk B.J., Webb K., Wright H., Dimick P.S. (2020): “Cost-Effective Technology Identification & Uncertainty Quantification of Stranded Sour Gas Desulfurization Processes”, Paper 205c, AIChE Annual Meeting, San Francisco, CA (Virtual).
20. Deng Y., Xu S., Webb K. Wright H., Dimick P.S., Cremaschi S., **Eden M.R.** (2020): “Sensitivity Analysis of Desulfurization Costs for Small-Scale Natural Gas Sweetening Units”, 30th European Symposium on Computer Aided Process Engineering (ESCAPE-30), Milan, Italy (Virtual).
21. Xu S., Deng Y., Webb K. Wright H., Dimick P.S., Cremaschi S., **Eden M.R.** (2020): “Sour Gas Sweetening Technologies for Distributed Resources – A Process Simulation Study”, 30th European Symposium on Computer Aided Process Engineering (ESCAPE-30), Milan, Italy (Virtual).
22. Tian Y., Demirel S.E., Li J., Avraamidou S., Tula A.K., **Eden M.R.**, Hasan M.M.F., Gani R., Pistikopoulos E.N. (2019): “Towards a Unified Strategy and Prototype Software Platform for the Synthesis of Operable and Sustainable Process Intensification Systems”, Paper 41g, AIChE Annual Meeting, Orlando, FL.
23. Tula A.K., Wang J., **Eden M.R.**, Chen X., Gani R. (2019): “A Toolbox for Integrated Process Design, Control and Analysis”, Paper 41h, AIChE Annual Meeting, Orlando, FL.
24. Xu S., Deng Y., Cremaschi S., **Eden M.R.**, Webb K., Wright H., Dimick P.S. (2019): “Process Simulation Study of Sour Gas Sweetening Technologies for Distributed Resources”, Paper 92c, AIChE Annual Meeting, Orlando, FL.
25. Tula A.K., Xu S., Cremaschi S., **Eden M.R.**, Gani R. (2019): “Synthesis of Efficient Retrofit Designs using ProCAFD”, Paper 112a, AIChE Annual Meeting, Orlando, FL.
26. Zhang L., Mao H., Tula A.K., **Eden M.R.**, Gani R. (2019): “ProCAPD: A Smart Tool for Computer-Aided Chemical Product Design”, Paper 295e, AIChE Annual Meeting, Orlando, FL.
27. Deng Y., Xu S., Cremaschi S., **Eden M.R.**, Webb K., Wright H., Dimick P.S. (2019): “Sensitivity of Desulfurization Cost for Small-Scale Natural Gas Sweetening Units”, Paper 357b, AIChE Annual Meeting, Orlando, FL.
28. Demirel S.E., Iyer S.S., Li J., Tula A.K., **Eden M.R.**, Gani R., Hasan M.M.F. (2019): “Synthesis of Optimal Hybrid Separation Processes”, Paper 441f, AIChE Annual Meeting, Orlando, FL.
29. Dev V.A., **Eden M.R.** (2019): “Gradient Boosted Decision Trees for Lithology Classification”, 9th International Conference on Foundations of Computer-Aided Process Design (FOCAPD)”, Copper Mountain, CO.
30. Tula A.K., **Eden M.R.**, Gani R. (2019): “Systematic Method and Tool for Sustainable Process Synthesis, Design, Analysis and Innovation”, 9th International Conference on Foundations of Computer-Aided Process Design (FOCAPD)”, Copper Mountain, CO.
31. Tula A.K., **Eden M.R.**, Gani R. (2019): ”ProCAFD: Computer-aided Tool for Sustainable Process Synthesis, Intensification and Hybrid solutions”, 29th European Symposium on Computer Aided Process Engineering (ESCAPE-29), Eindhoven, The Netherlands.
32. Tula A.K., **Eden M.R.**, Gani R., Chen X. (2018): “Component Based Development of Application Specific Computer-Aided Tools”, Paper 51d, AIChE Annual Meeting, Pittsburgh, PA.
33. Tula A.K., **Eden M.R.**, Gani R. (2018): “Computer-Aided Tools for Process and Product Design”, Paper 185q, AIChE Annual Meeting, Pittsburgh, PA.
34. Tula A.K., **Eden M.R.**, Venkatasubramanian V., Gani R. (2018): “ProCAFD: A Computer-Aided Tool for Sustainable Process Synthesis, Design, Analysis, and Improvement”, Paper 421f, AIChE Annual Meeting, Pittsburgh, PA.
35. Datta S., **Eden M.R.** (2018): “QSAR Study of Combretastatin-like Chalcones As Cancer Cell Growth Inhibitors Using Linear and Non-Linear Machine Learning Approaches”, Paper 429d, AIChE Annual Meeting, Pittsburgh, PA.

36. Garg N., Tula A.K., **Eden M.R.**, Kontogeorgis G.M., Woodley J.M., Gani R. (2018): "Hybrid Schemes for Intensified Chemical and Biochemical Process Alternatives", Distillation & Absorption 2018, Florence, Italy.
37. Vooradi R., Patnaikuni V.S., Tula A.K., Anne S.B., **Eden M.R.**, Gani R. (2018): "Hybrid Separation Scheme for Azeotropic Mixtures – Sustainable Design Methodology", Distillation & Absorption 2018, Florence, Italy.
38. Tula A.K., **Eden M.R.**, Gani R. (2018): "Hybrid Method/Tool for Sustainable Process Synthesis, Design, Analysis, and Improvement", 13th International Symposium on Process Systems Engineering (PSE 2018), San Diego, CA.
39. Davis S.E., Cremaschi S., **Eden M.R.** (2018): "Efficient Surrogate Model Development: Impact of Sample Size and Underlying Model Dimensions", 13th International Symposium on Process Systems Engineering (PSE 2018), San Diego, CA.
40. Datta S., Dev V.A., **Eden M.R.** (2018): "Developing Non-linear Rate Constant QSPR using Decision Trees and Multi-Gene Genetic Programming", 13th International Symposium on Process Systems Engineering (PSE 2018), San Diego, CA.
41. Dev V.A., **Eden M.R.** (2018): "Evaluating the Boosting Approach to Machine Learning for Formation Lithology Classification", 13th International Symposium on Process Systems Engineering (PSE 2018), San Diego, CA.
42. Kalakul S., Zhang L., Choudhury H.A., Elbashir N., **Eden M.R.**, Gani R. (2018): "ProCAPD – A Computer-Aided Model-Based Tool for Chemical Product Design and Analysis", 13th International Symposium on Process Systems Engineering (PSE 2018), San Diego, CA.
43. Sengupta D., Huang Y., Davidson C.I., Edgar T.F., **Eden M.R.**, El-Halwagi M.M. (2018): "Sustainable Manufacturing Education Modules for Senior Undergraduate or Graduate Engineering Curriculum", 13th International Symposium on Process Systems Engineering (PSE 2018), San Diego, CA.
44. Kalakul S., **Eden M.R.**, Gani R. (2017): "A Novel Computer-Aided Model-Based Tool for Chemical Product Design", Paper 180b, AIChE Annual Meeting, Minneapolis, MN.
45. Datta S., **Eden M.R.** (2017): "Controller Design for CSTR Process Output Using a Combination of GA, PSO, Fuzzy and PID Algorithms for Quick Rejection of Process Disturbances", Paper 188e, AIChE Annual Meeting, Minneapolis, MN.
46. Sengupta D., Huang Y., Edgar T.F., Davidson C., **Eden M.R.**, El-Halwagi M.M. (2017): "SMART-CN Education Modules for Senior Undergraduate or Graduate Engineering Curriculum", Paper 219f, AIChE Annual Meeting, Minneapolis, MN.
47. Davis S.E., Cremaschi S., **Eden M.R.** (2017): "Comparison of Machine Learning Approaches for Process Model Development from Big Data", Paper 255a, AIChE Annual Meeting, Minneapolis, MN.
48. Tula A.K., **Eden M.R.**, Gani R. (2017): "ProCAFD – A Tool for Generating Sustainable Hybrid Process Flowsheets", Paper 585aa, AIChE Annual Meeting, Minneapolis, MN.
49. Kalakul S., **Eden M.R.**, Gani R. (2017): "Chemical Product Design using a Novel Computer-Aided Model-Based Tool", Paper 585w, AIChE Annual Meeting, Minneapolis, MN.
50. Tula A.K., **Eden M.R.**, Gani R. (2017): "Generation of Sustainable Hybrid Process Flowsheets using ProCAFD", Paper 666f, AIChE Annual Meeting, Minneapolis, MN.
51. Kalakul S., **Eden M.R.**, Gani R. (2017): "The Chemical Product Simulator – ProCAPD", 27th European Symposium on Computer Aided Process Engineering (ESCAPE-27), Barcelona, Spain.
52. Davis S.E., Cremaschi S., **Eden M.R.** (2017): "Efficient Surrogate Model Development: Optimum Model Form Based on Input Function Characteristics", 27th European Symposium on Computer Aided Process Engineering (ESCAPE-27), Barcelona, Spain.

53. Datta S., Dev V.A., **Eden M.R.** (2017): "Developing QSPR for Predicting DNA Drug Binding Affinity of 9-Anilinoacridine Derivatives Using Correlation-Based Adaptive LASSO Algorithm", 27th European Symposium on Computer Aided Process Engineering (ESCAPE-27), Barcelona, Spain.

54. Dev V.A., Datta S., Chemmangattuvalappil N.G., **Eden M.R.** (2017): "Comparison of Tree Based Ensemble Machine Learning Methods for Prediction of Rate Constant of Diels-Alder Reaction", 27th European Symposium on Computer Aided Process Engineering (ESCAPE-27), Barcelona, Spain.

55. Li P., Sadhwani N., Yuan Z., **Eden M.R.** (2017): "Process Simulation and Economic Analysis of Producing Liquid Transportation Fuels from Biomass", 27th European Symposium on Computer Aided Process Engineering (ESCAPE-27), Barcelona, Spain.

56. Sadhwani N., Li P., **Eden M.R.**, Adhikari S. (2017): "Process Modeling of Fluidized Bed Biomass-CO_2 Gasification using ASPEN Plus", 27th European Symposium on Computer Aided Process Engineering (ESCAPE-27), Barcelona, Spain.

57. Li P., Yuan Z., **Eden M.R.** (2016): "Process Simulation and Economic Analysis of Producing Liquid Transportation Fuels from Biomass", Paper 106b, AIChE Annual Meeting, San Francisco, CA.

58. Sengupta D., Huang Y., Davidson C., Edgar T.F., **Eden M.R.**, El-Halwagi M.M. (2016): "Tutorial on the SMART-CN Education Modules for Incorporation in the Advanced Undergraduate or Graduate Engineering Curriculum", Paper 217g, AIChE Annual Meeting, San Francisco, CA.

59. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2016): "Reaction Rate Constant Evaluation through Structure-Property Relationships Involving Reactant Structures and Ionic Liquids", Paper 253bv, AIChE Annual Meeting, San Francisco, CA.

60. Datta S., **Eden M.R.** (2016): "Computational Search for Magnetic Nanoparticles to Eradicate Cancer Cells Using the Hyperthermia Approach", Paper 253z, AIChE Annual Meeting, San Francisco, CA.

61. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2016): "Developing Structure-Property Relationships Between Reactant Structures, Ionic Liquids, and Reaction Rate Constant", Paper 310a, AIChE Annual Meeting, San Francisco, CA.

62. Davis S.E., **Eden M.R.** (2016): "Reverse Design of Ionic Liquids for CO_2 Absorption", Paper 310b, AIChE Annual Meeting, San Francisco, CA.

63. Datta S., **Eden M.R.** (2016): "Identification of Magnetic Nanoparticles to Eradicate Cancer Cells Using the Hyperthermia Approach – a Computational Search Approach", Paper 383g, AIChE Annual Meeting, San Francisco, CA.

64. Sadhwani N., Adhikari S., **Eden M.R.** (2016): "Process Modeling of Fluidized Bed Biomass-CO_2 Gasification Using Aspen Plus", Paper 440e, AIChE Annual Meeting, San Francisco, CA.

65. Yuan Z., **Eden M.R.** (2016): "Integrated Thermochemical Process for Optimal Co-Production of Liquid Fuels and Chemicals", Paper 471e, AIChE Annual Meeting, San Francisco, CA.

66. Davis S.E., **Eden M.R.** (2016): "Characterization Based Design of Ionic Liquids for CO_2 Absorption", Paper 619aw, AIChE Annual Meeting, San Francisco, CA.

67. Yuan Z., **Eden M.R.** (2016): "Superstructure Optimization of Integrated Thermochemical Process for Co-Producing Liquid Fuels and Chemicals", Paper 636d, AIChE Annual Meeting, San Francisco, CA.

68. Sadhwani N., Adhikari S., **Eden M.R.** (2016): "Conversion of Carbon Dioxide and Biomass for Fuels and Chemicals Precursor through Gasification", ACS Annual Meeting, Philadelphia, PA.

69. Li P., Sadhwani N., Yuan Z., Roberts C.R., **Eden M.R.** (2016): "Biorefinery Process Modeling and Optimization", IBSS Annual Meeting, Oak Ridge, TN.

70. Li P., Yuan Z., **Eden M.R.** (2016): "A Comparative Study of Fischer-Tropsch Synthesis for Liquid Transportation Fuels from Biomass", IBSS Annual Meeting, Oak Ridge, TN.

71. Sadhwani N., Adhikari S., **Eden M.R.** (2016): "Biomass Gasification and the Effects of Alkali and Alkaline Earth Metals on CO_2 Gasification Kinetics", IBSS Annual Meeting, Oak Ridge, TN.
72. Datta S., Dev V.A., **Eden M.R.** (2016): "Relating Reaction Rate Constant to Structures of Reactants and Solvent Using a Hybrid GA-DT Approach", 26th European Symposium on Computer Aided Process Engineering (ESCAPE-26), Portoroz, Slovenia.
73. Davis S.E., Herring R.H., **Eden M.R.** (2016): "Reverse Design of Ionic Liquids for the Absorption of CO_2", 26th European Symposium on Computer Aided Process Engineering (ESCAPE-26), Portoroz, Slovenia.
74. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2016): "Multi-Objective Computer-Aided Molecular Design of Reactants and Products", 26th European Symposium on Computer Aided Process Engineering (ESCAPE-26), Portoroz, Slovenia.
75. Li P., Yuan Z., **Eden M.R.** (2016): "A Comparative Study of Fischer-Tropsch Synthesis for Liquid Transportation Fuels Production from Biomass", 26th European Symposium on Computer Aided Process Engineering (ESCAPE-26), Portoroz, Slovenia.
76. Yuan Z., **Eden M.R.** (2016): "Integrated Biorefinery Scheme Design for the Co-production of Premium Quality Liquid Fuels and Propylene", 26th European Symposium on Computer Aided Process Engineering (ESCAPE-26), Portoroz, Slovenia.
77. Sadhwani N., Adhikari S., **Eden M.R.** (2016): "CO_2 Enhanced Gasification of Biomass Char: Catalytic Effects of Na, K, Ca, and Mg", Alabama EPSCoR Science & Technology Open House, Montgomery, AL.
78. Li P., Yuan Z., **Eden M.R.** (2016): "Process Design and Simulation for Producing Liquid Fuels from Biomass", Alabama EPSCoR Science & Technology Open House, Montgomery, AL.
79. Yuan Z., Lousada B., Li P., **Eden M.R.** (2015): "Systematic Design and Synthesis of Integrated Multi-Product Biorefinery Processes", Paper 639e, AIChE Annual Meeting, Salt Lake City, UT.
80. Li P., Yuan Z., **Eden M.R.**, Lousada B. (2015): "Process Design and Simulation of Producing Liquids Fuels and Chemicals from Biomass", Paper 625k, AIChE Annual Meeting, Salt Lake City, UT.
81. Lousada B., Li P., Yuan Z., **Eden M.R.** (2015): "Process Design and Simulation of Methanol and Olefins Production from Biomass", Paper 625i, AIChE Annual Meeting, Salt Lake City, UT.
82. Sadhwani N., **Eden M.R.**, Adhikari S. (2015): "Catalytic Effects of Na, K, Ca, and Mg on 'CO_2 Enhanced Gasification of Biomass Char", Paper 615c, AIChE Annual Meeting, Salt Lake City, UT.
83. Sengupta D., Huang Y., Edgar T.F., **Eden M.R.**, Davidson C.I., El-Halwagi M.M. (2015): "Progress on the SMART-CN Education Modules for Engineering Curriculum", Paper 454f, AIChE Annual Meeting, Salt Lake City, UT.
84. Davis S.E., Herring III R.H., **Eden M.R.** (2015): "Ionic Liquids for CO_2 Absorption – A Reverse Design Approach", Paper 426e, AIChE Annual Meeting, Salt Lake City, UT.
85. Sadhwani N., **Eden M.R.**, Adhikari S. (2015): 'CO_2 Enhanced Gasification of Biomass Char – Catalytic Effects of Na, K, Ca, and Mg", Paper 424e, AIChE Annual Meeting, Salt Lake City, UT.
86. Datta S., Herring III R.H., **Eden M.R.** (2015): "QNPR (Quantitative Nanostructure Property Relationship) Study for Describing Optical Properties of Plasmon Nanomaterials Using 3D Descriptors", Paper 247aj, AIChE Annual Meeting, Salt Lake City, UT.
87. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2015): "Molecular Design of Reactants and Products – A Multi-Objective Approach", Paper 245q, AIChE Annual Meeting, Salt Lake City, UT.
88. Davis S.E., Herring III R.H., **Eden M.R.** (2015): "Reverse Design of Ionic Liquids for CO_2 Absorption", Paper 235a, AIChE Annual Meeting, Salt Lake City, UT.
89. Yuan Z., Li P., Lousada B., **Eden M.R.** (2015): "Integrated Thermochemical Process Design for Co-Producing Liquid Fuels and Propylene", Paper 198e, AIChE Annual Meeting, Salt Lake City, UT.

90. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.**, (2015): "Multi Objective Molecular Design of Reactants and Products", Paper 173g, AIChE Annual Meeting, Salt Lake City, UT.
91. Tula A.K, **Eden M.R.**, Gani R. (2015): "PROCAFD: Computer Aided Tool for Synthesis-Design & Analysis of Chemical Process Flowsheet", Paper 169h, AIChE Annual Meeting, Salt Lake City, UT.
92. Datta S., **Eden M.R.** (2015): "Computational Search for Vibrational Nanoparticles to Eradicate Cancer Cells: Hyperthermia Approach", Graduate Engineering Research Showcase, Auburn University, AL.
93. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2015): "Multi-Objective Molecular Design of Reactants and Products", Graduate Engineering Research Showcase, Auburn University, AL.
94. Lousada B., Yuan Z., **Eden M.R.** (2015): "Fuel Production through Direct and Indirect Biomass Gasification", Graduate Engineering Research Showcase, Auburn University, AL.
95. Li P., Yuan Z., **Eden M.R.** (2015): "Process Design and Simulation of Producing Liquid Fuels from Biomass", Graduate Engineering Research Showcase, Auburn University, AL.
96. Li P., Yuan Z., **Eden M.R.** (2015): "Process Design and Simulation of Producing Liquid Fuels and Chemicals from Biomass", Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) Annual Meeting, Auburn, AL.
97. Lousada B., Yuan Z., **Eden M.R.** (2015): "Process Design and Simulation of Methanol and Olefins Production from Biomass", Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) Annual Meeting, Auburn, AL.
98. Yuan Z., Li P., Lousada B., **Eden M.R.** (2015): "Systematic Design and Synthesis of Integrated Multi-Product Biorefinery Processes", Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) Annual Meeting, Auburn, AL.
99. Sadhwani N., **Eden M.R.**, Adhikari S., Wang Z. (2015): "CO_2 Gasification of Southern Pine Char: Kinetics and Catalytic Effect of Metals", Southeastern Partnership for Integrated Biomass Supply Systems (IBSS) Annual Meeting, Auburn, AL.
100. Datta S., Herring R.H., **Eden M.R.** (2015): "Data Mining and Regression Algorithms for the Development of a QSPR Model Relating Solvent Structure and Ibuprofen Crystal Morphology", Process Systems Engineering (PSE) 2015 & 25th European Symposium on Computer Aided Process Engineering (ESCAPE-25), Copenhagen, Denmark.
101. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2015): "Designing Reactants and Products with Properties Dependent on Both Structures", Process Systems Engineering (PSE) 2015 & 25th European Symposium on Computer Aided Process Engineering (ESCAPE-25), Copenhagen, Denmark.
102. Herring R.H., **Eden M.R.** (2015): "Evolutionary Algorithm for De Novo Molecular Design Considering Multi-Dimensional Constraints", Process Systems Engineering (PSE) 2015 & 25th European Symposium on Computer Aided Process Engineering (ESCAPE-25), Copenhagen, Denmark.
103. Yuan Z., Wang P., **Eden M.R.** (2015): "Systematic Control Structure Evaluation of Two-Stage-Riser Fluidized Catalytic Pyrolysis Processes", Process Systems Engineering (PSE) 2015 & 25th European Symposium on Computer Aided Process Engineering (ESCAPE-25), Copenhagen, Denmark.
104. Tula A.K., **Eden M.R.**, Gani R. (2015): "Method for Innovative Synthesis-Design of Chemical Process Flowsheets", Process Systems Engineering (PSE) 2015 & 25th European Symposium on Computer Aided Process Engineering (ESCAPE-25), Copenhagen, Denmark.
105. Sengupta D., Huang Y., Edgar T.F., Davidson C.I., **Eden M.R.**, El-Halwagi M.M. (2015): "Development of the SMART-RCN Modules Education Modules for Engineering Curriculum", ASEE-GSW Conference, San Antonio, TX.

106. Sengupta D., Huang Y., Edgar T.F., Davidson C.I., **Eden M.R.**, El-Halwagi M.M. (2015): "Development of the SMART-RCN Modules for Integrating Sustainability Education in Engineering Curriculum", AIChE Spring Meeting, Austin, TX.

107. Sadhwani N., **Eden M.R.**, Adhikari S. (2015): "Chemistry and Kinetics of Biomass Gasification using Carbon Dioxide", Sun Grant Regional Conference, Auburn, AL.

108. Li P., Yuan Z., **Eden M.R.** (2015): "Conceptual Design of an Integrated Biorefinery Process for Producing Chemicals and Liquid Transportation Fuels", Sun Grant Regional Conference, Auburn, AL.

109. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2014): "Signature Descriptors for Structure Generation of Optimal Reactants and Products", Paper 569e, AIChE Annual Meeting, Atlanta, GA.

110. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2014): "Structure Generation of Optimal Reactants and Products using Signature Descriptors", Paper 524d, AIChE Annual Meeting, Atlanta, GA.

111. Datta S., Herring R.H., **Eden M.R.** (2014): "3D Molecular Descriptors Relating Solvent Structure to Crystal Morphology: An Efficiency Study of PCA, GA and ANN Algorithms in QSPR Model Development", Paper 569g, AIChE Annual Meeting, Atlanta, GA.

112. Herring R.H., Li P., **Eden M.R.** (2014): "De Novo Molecular Design with Graph-Based Evolutionary Algorithm Considering Multi-Dimensional Constraints", Paper 569l, AIChE Annual Meeting, Atlanta, GA.

113. Herring R.H., Li P., **Eden M.R.** (2014): "Graph-Based Evolutionary Algorithm for De Novo Molecular Design Under Multi-Dimensional Constraints", Paper 223an, AIChE Annual Meeting, Atlanta, GA.

114. Datta S., Herring R.H., **Eden M.R.** (2014): "Development of QSPR Model Using 3D Molecular Descriptors Relating Solvent Structure to Crystal Morphology: An Efficiency Study of PCA, GA and Ann Algorithms", Paper 219d, AIChE Annual Meeting, Atlanta, GA.

115. Sadhwani N., **Eden M.R.**, Adhikari S. (2014): "Chemistry and Kinetics of Biomass Gasification using Carbon Dioxide", AIChE Annual Meeting, Atlanta, GA.

116. **Eden M.R.**, Roberts C.B., Taylor S.E., Adhikari S. (2014): "Fuel and Oxygenate Co-Products from Biomass Fractionation and Advanced Catalytic Conversion Processes", USDA-AFRI Sustainable Bioenergy Project Director's Meeting, Arlington, VA.

117. Sadhwani N., **Eden M.R.**, Adhikari S. (2014): "Chemistry and Kinetics of Biomass Gasification using Carbon Dioxide", NSF EPSCoR Science & Technology Open House, Tuskegee, AL.

118. Sadhwani N., **Eden M.R.**, Adhikari S. (2014): "Biomass Gasification Using Carbon Dioxide: Chemistry and Effect of Temperature", Graduate Engineering Research Showcase, Auburn University, AL.

119. Datta S., Haser J.C., Herring R.H., **Eden M.R.** (2014): "Development of QSPR Model using 3D Molecular Descriptors Relating Solvent Structure to Crystal Morphology: A Study of Efficiency of PCA, GA and ANN Algorithms in Combination with Structure Optimization", Graduate Engineering Research Showcase, Auburn University, AL.

120. Tula A.K., **Eden M.R.**, Gani R. (2014): "Process Synthesis, Design and Analysis using Process-Group Contribution Method", 8th International Conference on Foundations of Computer-Aided Process Design (FOCAPD 2014), Cle Elum, WA.

121. Herring R.H., **Eden M.R.** (2014): "Graph-Based Genetic Algorithm for De Novo Molecular Design", 8th International Conference on Foundations of Computer-Aided Process Design (FOCAPD 2014), Cle Elum, WA.

122. Haser J.C., Herring R.H., Datta S., **Eden M.R.** (2014): "Development of QSPR Model Relating Solvent Structure to Crystal Morphology", 8th International Conference on Foundations of Computer-Aided Process Design (FOCAPD 2014), Cle Elum, WA.

123. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2014): "Reactant Structure Generation by Signature Descriptors and Real Coded Genetic Algorithm", 8th International Conference on Foundations of Computer-Aided Process Design (FOCAPD 2014), Cle Elum, WA.
124. Davis S.E., Hada S., Herring R.H., **Eden M.R.** (2014): "Characterization Based Reverse Design of Ionic Liquids", 8th International Conference on Foundations of Computer-Aided Process Design (FOCAPD 2014), Cle Elum, WA.
125. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2014): "Structure Generation of Candidate Reactants Using Signature Descriptors", 24th European Symposium on Computer Aided Process Engineering (ESCAPE-24), Budapest, Hungary.
126. Sadhwani N., **Eden M.R.**, Adhikari S. (2014): "Biomass Gasification by Carbon Dioxide: Chemistry and Process Modeling", Alabama EPSCoR Annual Meeting, Montgomery, AL.
127. Hada S., Davis S., Herring R.H., **Eden M.R.** (2013): "Multivariate Characterization, Modeling, and Design of Ionic Liquids", Paper 201b, AIChE Annual Meeting, San Francisco, CA.
128. Haser J.C, Herring R.H., **Eden M.R.** (2013): "Describing Crystal Morphology by 2D/3D Molecular Descriptors", Paper 203ag, AIChE Annual Meeting, San Francisco, CA.
129. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2013): "Utilization of Molecular Signature Descriptors for the Generation of Candidate Reactant Structures", Paper 203ah, AIChE Annual Meeting, San Francisco, CA.
130. Hada S., Davis S., Herring R.H., **Eden M.R.** (2013): "Ionic Liquid Design by Multivariate Characterization and Modeling", Paper 214x, AIChE Annual Meeting, San Francisco, CA.
131. Haser J.C, Herring R.H., **Eden M.R.** (2013): "Developing a QSAR Relating Solvent Structure to Crystal Morphology using 2D & 3D Molecular Descriptors", Paper 269e, AIChE Annual Meeting, San Francisco, CA.
132. Sadhwani N., **Eden M.R.**, Adhikari S. (2013): "Biomass Gasification using Carbon Dioxide: Chemistry and Process Modeling", Paper 277a, AIChE Annual Meeting, San Francisco, CA.
133. Herring R.H., **Eden M.R.** (2013): "Utilization of Multi-Dimensional Characterization in Virtual High-Throughput Screening", Paper 419e, AIChE Annual Meeting, San Francisco, CA.
134. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2013): "Generation of Candidate Reactant Structures Using Signature Descriptors", Paper 419f, AIChE Annual Meeting, San Francisco, CA.
135. Herring R.H., **Eden M.R.** (2013): "Virtual High-Throughput Screening by Multi-Dimensional Characterization Techniques", Paper 586z, AIChE Annual Meeting, San Francisco, CA.
136. Sadhwani N., **Eden M.R.**, Adhikari S. (2013): "Chemistry and Process Modeling of Biomass Gasification using Carbon Dioxide", Paper 587ar, AIChE Annual Meeting, San Francisco, CA.
137. Haser J.C., Herring R.H., **Eden M.R.** (2013): "Crystallization Solvent Design Using 2D/3D Molecular Descriptors", 9th World Congress of Chemical Engineering (WCCE-9), Seoul, South Korea.
138. Dev V.A., Namikis R., Chemmangattuvalappil N.G., **Eden M.R.** (2013): "Molecular Synthesis of Candidate Reactant Structures Using Signature Descriptors", 6th International Symposium on Process Systems Engineering (PSE-ASIA), Kuala Lumpur, Malaysia.
139. Hada S., Herring R.H., **Eden M.R.** (2013): "Design of Ionic Liquids using Property Clustering and Decomposition Techniques", 23rd European Symposium on Computer Aided Process Engineering (ESCAPE-23), Lappeenranta, Finland.
140. Sadhwani N., Liu Z., **Eden M.R.**, Adhikari S. (2013): "Simulation, Analysis and Assessment of CO_2 Enhanced Biomass Gasification", 23rd European Symposium on Computer Aided Process Engineering (ESCAPE-23), Lappeenranta, Finland.
141. Herring R.H., Haser J.C., Hada S., **Eden M.R.** (2013): "Structure Based Design of Non-Peptide Mimetics", 23rd European Symposium on Computer Aided Process Engineering (ESCAPE-23), Lappeenranta, Finland.

142. Herring R.H., **Eden M.R.** (2013): "Computer-Aided Molecular Design", Auburn University Graduate Scholars Symposium, Auburn, AL.

143. Haser J.C., Herring R.H., Hada S., **Eden M.R.** (2013): "Crystallization Solvent Design using 2D/3D Molecular Descriptors", Auburn University Graduate Scholars Symposium, Auburn, AL.

144. Haser J.C., Herring R.H., Hada S., Chemmangattuvalappil N.G., **Eden M.R.** (2012): "Systematic Incorporation of 2D, 3D and Electrostatic Characterization in Molecular Design", Paper 604c, AIChE Annual Meeting, Pittsburgh, PA.

145. Chemmangattuvalappil N.G., Dev V., **Eden M.R.** (2012): "A Molecular Signature Based Approach for the Design of Reactive Systems", Paper 604j, AIChE Annual Meeting, Pittsburgh, PA.

146. Hada S., Herring R.H., Haser J.C., Chemmangattuvalappil N.G., **Eden M.R.** (2012): "Optimization of Product Formulations using Multivariate Analysis and Property Clustering", Paper 604b, AIChE Annual Meeting, Pittsburgh, PA.

147. Hada S., Herring R.H., Haser J.C., Chemmangattuvalappil N.G., **Eden M.R.** (2012): "Multivariate Analysis of Process Data for Product Formulation Optimization in Property Cluster Space", Paper 544b, AIChE Annual Meeting, Pittsburgh, PA.

148. Sadhwani N., Adhikari S., **Eden M.R.** (2012): "Effect of Temperature and Oxidizing Medium on Tar Formation in Southern Pine Gasification", Paper 383e, AIChE Annual Meeting, Pittsburgh, PA.

149. Hada S., Herring R.H., Haser J.C., **Eden M.R.** (2012): "Data-Drive Optimization of Product Blends using Multivariate Property Clustering Techniques", Paper 176e, AIChE Annual Meeting, Pittsburgh, PA.

150. Herring R.H., Hada S., Haser J.C., Chemmangattuvalappil N.G., **Eden M.R.** (2012): "Molecular Design with Simultaneous Topological, Topographical and Electrostatic Characterization", Paper 176a, AIChE Annual Meeting, Pittsburgh, PA.

151. Chemmangattuvalappil N.G., Dev V., **Eden M.R.** (2012): "Novel Molecular Design Techniques for the Design of Systems involving Chemical Reactions", Paper 64a, AIChE Annual Meeting, Pittsburgh, PA.

152. Hada S., **Eden M.R.** (2012): "Chemical Product Design using Chemometric Technique in Property Cluster Space", Paper 3w, AIChE Annual Meeting, Pittsburgh, PA.

153. Haser J.C., Herring R.H., **Eden M.R.** (2012): "Crystallization Solvent Design using 3D Molecular Descriptors", Auburn University Engineering Research Showcase, Auburn, AL.

154. Herring R.H., Hada S., Haser J.C., **Eden M.R.** (2012): "Computer-Aided Molecular Design with Topological and Topographical Descriptors", Auburn University Engineering Research Showcase, Auburn, AL. ***Overall 3rd Place Award***.

155. Hada S., Herring R.H., **Eden M.R.** (2012): "Product Design through Multivariate Statistical Analysis in Property Clustering Framework", Auburn University Engineering Research Showcase, Auburn, AL.

156. Dev V.A., Chemmangattuvalappil N.G., **Eden M.R.** (2012): "Novel Molecular Design Techniques using Signature Descriptors with Particular Emphasis on Reactive Systems", Auburn University Engineering Research Showcase, Auburn, AL.

157. Hada S., Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): "Optimization of Product Formulation through Multivariate Statistical Analysis", 11th International Symposium on Process Systems Engineering (PSE-2012), Singapore, Singapore.

158. Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): "Signature Descriptors for Process and Molecular Design in Reactive Systems", 11th International Symposium on Process Systems Engineering (PSE-2012), Singapore, Singapore.

159. Herring R.H., Namikis R., Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): "Molecular Design using Three-Dimensional Signature Descriptors", 11th International Symposium on Process Systems Engineering (PSE-2012), Singapore, Singapore.

160. Herring R.H., Namikis R., Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): “Incorporating Topographical Characteristics in Molecular Signature Descriptors”, ESCAPE-22, London, United Kingdom.
161. Hada S., Chemmangattuvalappil N.G., Roberts C.B., **Eden M.R.** (2012): “Product and Mixture Design in Latent Variable Space by Chemometric Techniques”, ESCAPE-22, London, United Kingdom.
162. Durham E., Zhang S., Xu R., **Eden M.R.**, Roberts C.B. (2012): “Novel Adiabatic Reactor Design for Supercritical Fischer-Tropsch Synthesis”, ESCAPE-22, London, United Kingdom.
163. Bommareddy S., Chemmangattuvalappil N.G., **Eden M.R.** (2012): “An Integrated Framework for Flowsheet Synthesis and Molecular Design”, ESCAPE-22, London, United Kingdom.
164. **Eden M.R.**, Roberts C.B., Taylor S.E., Adhikari S. (2011): “Fuel and Oxygenate Co-Products from Biomass Fractionation and Advanced Catalytic Conversion Processes”, National Institute of Food & Agriculture, Sustainable Bioenergy Project Director’s Meeting, Washington, DC.
165. Durham J.E., **Eden M.R.**, Roberts C.B. (2011): “Supercritical Adiabatic Reactor for Fischer-Tropsch Synthesis”, Paper 265e, AIChE Annual Meeting, Minneapolis, MN.
166. Hada S., Solvason C.C., **Eden M.R.** (2011): “Characterization Based Molecular Design of Biofuel Additives for Feedstock Flexibility”, Paper 620x, AIChE Annual Meeting, Minneapolis, MN.
167. Hada S., Solvason C.C., **Eden M.R.** (2011): “Systematic Molecular Design of Biofuel Additives using Hybrid Characterization and Group Contribution Based Techniques”, Paper 767c, AIChE Annual Meeting, Minneapolis, MN.
168. Hada S., Solvason C.C., **Eden M.R.** (2011): “Design of Biofuel Additives using Chemometric Modeling and Molecular Design Techniques”, Paper 519f, AIChE Annual Meeting, Minneapolis, MN.
169. Bommareddy S., **Eden M.R.** (2011): “Group Contribution Based Process Synthesis and Design”, Paper 620y, AIChE Annual Meeting, Minneapolis, MN.
170. Bommareddy S., **Eden M.R.** (2011): “Computer Aided Flowsheet Design using a Group Contribution based Approach”, Paper 330d, AIChE Annual Meeting, Minneapolis, MN.
171. Chemmangattuvalappil N.G., **Eden M.R.** (2011): “A Property Based Approach for Simultaneous Process and Molecular Design”, Paper 3ae, AIChE Annual Meeting, Minneapolis, MN.
172. Bommareddy S., **Eden M.R.**, Gani R. (2011): “Computer Aided Flowsheet Design using Group Contribution Methods”, ESCAPE-21, Chalkidiki, Greece.
173. Yuan W., Vaughan G.C., Roberts C.B., **Eden M.R.** (2011): “Modeling and Optimization of Supercritical Phase Fischer-Tropsch Synthesis”, ESCAPE-21, Chalkidiki, Greece.
174. Bacik D.B., Yuan W., Roberts C.B., **Eden M.R.** (2011): “Systems Analysis of Benign Hydrogen Peroxide Synthesis in Supercritical CO_2”, ESCAPE-21, Chalkidiki, Greece.
175. Hada S., Solvason C.C., **Eden M.R.** (2011): “Molecular Design of Biofuel Additives for Optimization of Fuel Characteristics”, ESCAPE-21, Chalkidiki, Greece.
176. Durham J.E., **Eden M.R.**, Roberts C.B. (2011): "Reactor Design for Supercritical Fischer-Tropsch", AIChE Spring Meeting, Chicago, IL.
177. Chemmangattuvalappil N.G., **Eden M.R.** (2010): "A Property Based Approach for Simultaneous Process and Molecular Design", Paper 4aq, AIChE Annual Meeting, Salt Lake City, UT.
178. Solvason C.C., **Eden M.R.** (2010): "Multiscale Chemical Product Design using the Reverse Problem Formulation", Paper 4au, AIChE Annual Meeting, Salt Lake City, UT.
179. Bommareddy S., Chemmangattuvalappil N.G., **Eden M.R.** (2010): "A Systematic Framework for Simultaneous Product and Flowsheet Design", Paper 133e, AIChE Annual Meeting, Salt Lake City, UT.

180. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2010): "Characterization Based Chemical Product Design for the Nanoscale", Paper 241b, AIChE Annual Meeting, Salt Lake City, UT.

181. Hada S., Solvason C.C., **Eden M.R.** (2010): "Design of Biofuel Additives using Molecular Design Techniques", Paper 238d, AIChE Annual Meeting, Salt Lake City, UT.

182. Aksoy B., Cullinan H.T., Webster D., Gue K., **Eden M.R.**, Sammons Jr. N.E., Sukumaran S. (2010): "Woody Biomass and Mill Waste Utilization Opportunities in Alabama - Transportation Cost Minimization, Optimum Facility Location, Economic Feasibility and Impact", Paper 276b, AIChE Annual Meeting, Salt Lake City, UT.

183. Yuan W., **Eden M.R.** (2010): "Modeling of Fischer-Tropsch Fuels Production from Polygeneration Facilities", Paper 443c, AIChE Annual Meeting, Salt Lake City, UT.

184. Hada S., Solvason C.C., **Eden M.R.** (2010): "Molecular Design of Biofuel Additives for Feedstock Flexibility", Paper 375aa, AIChE Annual Meeting, Salt Lake City, UT.

185. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2010): "Integrated Process and Molecular Design for Reactive Systems", Paper 375j, AIChE Annual Meeting, Salt Lake City, UT.

186. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2010): "A Property Based Approach to Molecular Design in Reactive Systems", Paper 375s, AIChE Annual Meeting, Salt Lake City, UT.

187. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2010): "Multiscale Chemical Product Design using Chemometric Techniques in a Reverse Problem Formulation", Paper 375t, AIChE Annual Meeting, Salt Lake City, UT.

188. Yuan W., **Eden M.R.** (2010): "Process Modeling and Integration of Fischer-Tropsch Fuels Production Strategies", Paper 375w, AIChE Annual Meeting, Salt Lake City, UT.

189. Bommareddy S., Chemmangattuvalappil N.G., **Eden M.R.** (2010): "Property Based Methods for Flowsheet and Molecular Synthesis", Paper 375y, AIChE Annual Meeting, Salt Lake City, UT.

190. Tay, D.H.S., Sammons Jr. N.E., Ng D.K.S., **Eden M.R.** (2010): “Fuzzy Optimization Approach for Optimal Integrated Biorefinery Product Allocation”, 5th International Symposium on Design, Operation and Control of Chemical Processes (PSE-ASIA).

191. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2010): “Multi-Scale Chemical Product Design using the Reverse Problem Formulation”, ESCAPE-20, Ischia, Italy

192. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2010): “Molecular Signature Descriptors for Integrated Flowsheet and Molecular Design”, ESCAPE-20, Ischia, Italy.

193. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2010): “Integrated Process and Molecular Design using Molecular Property Operators based on Signature Descriptors”, 2nd International Symposium on Sustainable Chemical Product and Process Engineering, Hangzhou, China.

194. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2009): “A Systematic Framework to Determine Economic Potential and Environmental Impact of Polygeneration Facilities”, Paper 635b, AIChE Annual Meeting, Nashville, TN.

195. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2009): “A Framework to Determine Economic Potential and Environmental Impact of Sustainable Polygeneration Facilities”, Paper 490ag, AIChE Annual Meeting, Nashville, TN.

196. Yuan W., Sammons Jr. N.E., **Eden M.R.** (2009): “Modeling and Optimization of Fischer-Tropsch Synthesis Processes” Paper 238b, AIChE Annual Meeting, Nashville, TN.

197. Bommareddy S., Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2009): ”Simultaneous Process and Product Design using a Property Based Algebraic Approach”, Paper 491l, AIChE Annual Meeting, Nashville, TN.

198. Bommareddy S., Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2009): ”An Algebraic Approach for Solving Molecular Design Problems using Higher Order Property Operators”, Paper 463d, AIChE Annual Meeting, Nashville, TN.

199. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): ”Integrated Flowsheet and Molecular Design using Molecular Signature Descriptors”, Paper 491m, AIChE Annual Meeting, Nashville, TN.

200. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): ”Integrated Process and Molecular Design using Molecular Property Operators based on Signature Descriptors”, Paper 463e, AIChE Annual Meeting, Nashville, TN.

201. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): ”Utilizing the Reverse Problem Formulation for Multi-Scale Chemical Product Design”, Paper 491n, AIChE Annual Meeting, Nashville, TN.

202. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): ”Multi-Scale Chemical Product Design using Property Clustering and Decomposition Techniques”, Paper 573a, AIChE Annual Meeting, Nashville, TN.

203. Yuan W., Odjo A.O., Sammons Jr. N.E., Caballero J., **Eden M.R.** (2009): “Process Structure Optimization using a Hybrid Disjunctive-Genetic Programming Approach”, 10th International Symposium on Process Systems Engineering, Salvador, Brazil.

204. Sammons Jr. N.E., Yuan W., Bommareddy S., **Eden M.R.**, Aksoy B., Cullinan H.T. (2009): “A Systematic Framework to Calculate Economic Value and Environmental Impact of Biorefining Technology”, 10th International Symposium on Process Systems Engineering, Salvador, Brazil.

205. Solvason C.C., Chemmangattuvalappil N.G., Bommareddy S., **Eden M.R.** (2009): “Decomposition Techniques for Multi-Scale Structured Product Design: Subspace Optimization”, 10th International Symposium on Process Systems Engineering, Salvador, Brazil.

206. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): “Novel Molecular Design Technique using Property Operators based on Signature Descriptors”, 10th International Symposium on Process Systems Engineering, Salvador, Brazil.

207. Bommareddy S., Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2009): “Simultaneous Solution of Process and Molecular Design Problems using an Algebraic Approach”, 10th International Symposium on Process Systems Engineering, Salvador, Brazil.

208. Yuan, W., Sammons Jr. N.E., **Eden M.R.** (2009): “A Systematic Framework for Economic and Environmental Evaluation of Fuels Production Strategies”, Consortium for Fossil Fuel Science Annual Meeting, Pittsburgh, PA.

209. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): “Multi-Scale Product Design using Property Clustering and Decomposition Techniques”, Foundations of Computer Aided Process Design (FOCAPD), Breckenridge, CO. ***Award for Best Student Contribution***.

210. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): “A Systematic Methodology for Molecular Synthesis using Combined Property Clustering and GC+Methods”, Foundations of Computer Aided Process Design (FOCAPD), Breckenridge, CO.

211. Stuart P., **Eden M.R.**, El-Halwagi M.M., Froyd J., Mahalec V., Moscosa M., Milan P.M., Picon-Nunez M. (2009): “Web-Based Modules for Product and Process Design”, Foundations of Computer Aided Process Design (FOCAPD), Breckenridge, CO.

212. Seay J.R., **Eden M.R.** (2009): “Incorporating Sustainability and Environmental Impact Assessment into Capstone Design Projects”, Foundations of Computer Aided Process Design (FOCAPD), Breckenridge, CO.

213. Yuan W., Odjo A., Sammons Jr. N.E., Caballero J., **Eden M.R.** (2009): “Process Optimization using a Hybrid Disjunctive-Genetic Programming Approach”, Foundations of Computer Aided Process Design (FOCAPD), Breckenridge, CO.

214. Bommareddy S., Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2009): "Simultaneous Consideration of Process and Product Design Problems using an Algebraic Property Based Approach", Foundations of Computer Aided Process Design (FOCAPD), Breckenridge, CO.
215. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): "Decomposition Techniques for Molecular Synthesis and Structured Product Design", ESCAPE-19, Krakow, Poland.
216. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2009): "Property Based Product Design using Combined Property Clustering and GC+ Techniques", ESCAPE-19, Krakow, Poland.
217. Sammons Jr. N.E., Yuan W., Bommareddy S., **Eden M.R.**, Aksoy B., Cullinan H.T. (2009): "Systematic Approach to Evaluate Economic and Environmental Impact of Biorefineries", ESCAPE-19, Krakow, Poland.
218. Seay J.R., Sammons Jr. N.E., **Eden M.R.** (2009): "Incorporating Potential Environmental Impacts into Conceptual Process Design", AIChE Spring Meeting 2009, Tampa, FL.
219. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2009): "A Framework to Determine Economic Potential and Environmental Impact of Biorefineries", AIChE Spring Meeting 2009, Tampa, FL.
220. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2008): "A Systematic Method for Integrating Product Attributes and Molecular Synthesis", AIChE Annual Meeting 2008, Philadelphia, PA.
221. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2008): "Structured Excipient Design using Property Clustering and Decomposition Techniques", AIChE Annual Meeting 2008, Philadelphia, PA.
222. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2008): "Structured Product Design using Combined Property Clustering and Decomposition Techniques", AIChE Annual Meeting 2008, Philadelphia, PA.
223. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2008): "Systematic Integration of Product Attributes and Molecular Synthesis", AIChE Annual Meeting 2008, Philadelphia, PA.
224. Eljack F.T., **Eden M.R.** (2008): "Incorporating Inherent Safety Principles in Design via Property Design Platform", AIChE Annual Meeting 2008, Philadelphia, PA.
225. Eljack F.T., **Eden M.R.** (2008): "Preliminary Study on the Inclusion of Inherent Safety Principles using Property Design Framework", AIChE Annual Meeting 2008, Philadelphia, PA.
226. Seay J.R., **Eden M.R.** (2008): "Use of Distance Learning Tools as Part of a Long Distance Non-Traditional Industrial PhD", AIChE Annual Meeting 2008, Philadelphia, PA.
227. Seay J.R., **Eden M.R.** (2008): "Developing Capstone Design Projects that include Sustainability, Environmental Impact and Life Cycle Assessments", AIChE Annual Meeting 2008, Philadelphia, PA.
228. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2008): "Combined Property Clustering and GC+ Techniques for Process and Product Design", AIChE Annual Meeting 2008, Philadelphia, PA.
229. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2008): "A Novel Approach to Process and Product Design Using Molecular Signature", AIChE Annual Meeting 2008, Philadelphia, PA.
230. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2008): "A Molecular Signature Technique for Process and Product Design", AIChE Annual Meeting 2008, Philadelphia, PA.
231. Sammons Jr. N.E., Yuan W., Bommareddy S., **Eden M.R.**, Aksoy B., Cullinan H.T. (2008): "Economic Analysis of Optimal Biomass Utilization in an Integrated Biorefinery", AIChE Annual Meeting 2008, Philadelphia, PA.

232. Sammons Jr. N.E., Yuan W., Bommareddy S., **Eden M.R.**, Aksoy B., Cullinan H.T. (2008): "Optimal Allocation of Carbon Resources in an Integrated Biorefinery", AIChE Annual Meeting 2008, Philadelphia, PA.

233. Sammons Jr. N.E., Yuan W., Bommareddy S., **Eden M.R.**, Aksoy B., Cullinan H.T. (2008): "Biorefinery Product Allocation using a Flexible Optimization Framework", AIChE Annual Meeting 2008, Philadelphia, PA.

234. Yuan W., Bommareddy S., Sammons Jr. N.E., **Eden M.R.** (2008): "Economic and Environmental Analysis of Hydrogen Production Strategies", AIChE Annual Meeting 2008, Philadelphia, PA.

235. Yuan W., Bommareddy S., Sammons Jr. N.E., **Eden M.R.** (2008): "Process Integration and Optimization of Hydrogen Production Strategies", AIChE Annual Meeting 2008, Philadelphia, PA.

236. Jernigan R.J., **Eden M.R.**, Seay J.R. (2008): " Developing Sustainable Chemical Processes to Utilize Waste Crude Biodiesel-Derived Glycerol", AIChE Annual Meeting 2008, Philadelphia, PA.

237. Yuan W., Bommareddy S., Sammons Jr. N.E., **Eden M.R.** (2008): "Performance Evaluation of Coal and Biomass Based Fuel Production Strategies", Consortium for Fossil Fuel Science Annual Meeting, Pittsburgh, PA.

238. Sammons Jr. N.E., **Eden M.R.** (2008): "Simulation and Optimization of CFFS Military Fuels Production Methods", Consortium for Fossil Fuel Science Annual Meeting, Pittsburgh, PA.

239. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2008): "Combined Property Clustering and GC+ Techniques for Molecular Synthesis", ACS National Meeting, Philadelphia, PA.

240. Odjo A.O., Sammons Jr. N.E., Marcilla A., **Eden M.R.**, Caballero J. (2008): "A Disjunctive-Genetic Programming Approach to Synthesis of Process Networks", 18th International Congress of Chemical and Process Engineering (CHISA), Prague, Czech Republic.

241. Sammons Jr. N.E, Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2008): "A Systematic Framework for Biorefinery Product Allocation", FOCAPO 2008, Boston, MA.

242. Solvason C.C., Eljack F.T., Chemmangattuvalappil N.G., **Eden M.R.** (2008): "Visual Mixture Design Using Property Clustering", ESCAPE-18, Lyon, France.

243. Seay J.R., Werhan H., **Eden M.R.**, D'Alessandro R.N., Thomas T., Redlingshoefer H., Weckbecker C., Huthmacher K. (2008): "Integrating Laboratory Experiments with Process Simulation for Reactor Optimization", ESCAPE-18, Lyon, France.

244. Chemmangattuvalappil N.G., Solvason C.C., Eljack F.T., **Eden M.R.** (2008): "Enhanced Algebraic Property Clustering Technique for Molecular Synthesis", ESCAPE-18, Lyon, France.

245. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2008): "A Systematic Framework for Biorefinery Production Optimization", ESCAPE-18, Lyon, France.

246. Yuan W., Sammons Jr. N.E., McGlocklin K.H., **Eden M.R.** (2008): "Economic Analysis and Process Integration of Hydrogen Production Strategies", ESCAPE-18, Lyon, France.

247. Seay J.R., **Eden M.R.**, D'Alessandro R.N., Thomas T., Weckbecker C., Huthmacher K., Redlingshoefer H. (2008): "Development of an Economically Viable Process for Dehydration of Biobased Glycerol", AIChE Spring Meeting 2008, New Orleans, LA.

248. Aksoy B., Cullinan H.T., Sammons Jr. N.E., **Eden M.R.** (2008): "Identification of Optimal Poultry Litter Biorefinery Location in Alabama through Minimization of Feedstock Transportation Cost", AIChE Spring Meeting 2008, New Orleans, LA.

249. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2008): "Optimal Utilization of Biomass Inputs in an Integrated Biorefinery", Auburn University Graduate Student Research Forum, Auburn, AL.

250. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2008): "Combined Property Clustering and GC+ Techniques for Process and Product Design", Auburn University Graduate Student Research Forum, Auburn, AL.

251. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2008): "A Systematic Method for Integrating Product Attributes and Molecular Synthesis". Auburn University Graduate Student Research Forum, Auburn, AL.
252. Yuan W., Sammons Jr. N.E., McGlocklin K.H., **Eden M.R.** (2008): "Economic Analysis and Process Integration of Hydrogen Production Strategies", Auburn University Graduate Student Research Forum, Auburn, AL.
253. Seay J.R., **Eden M.R.** (2007): "Incorporating Risk Assessment And Inherently Safe Design Into Process Design Education", Paper 23b, AIChE Annual Meeting 2007, Salt Lake City, UT.
254. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2007): "Property Clustering Techniques for Mixture Design", Paper 140h, AIChE Annual Meeting 2007, Salt Lake City, UT.
255. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2007): "Molecular Design Using Enhanced Property Clustering Techniques", Paper 140h, AIChE Annual Meeting 2007, Salt Lake City, UT.
256. Seay J.R., **Eden M.R.** (2007): "Integration of Sustainability and Environmental Impact Assessment into Computer Aided Process Engineering", Paper 165b, AIChE Annual Meeting 2007, Salt Lake City, UT.
257. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2007): "Integrating Mixture Design within the Property Clustering Framework", Paper 309e, AIChE Annual Meeting 2007, Salt Lake City, UT.
258. Seay J.R., **Eden M.R.** (2007): "Including Sustainability and Environmental Impact Assessment into Process Design Education: a Case Study Example", Paper 381a, AIChE Annual Meeting 2007, Salt Lake City, UT.
259. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2007): "Enhanced Property Clustering Techniques For Molecular Synthesis", Paper 496b, AIChE Annual Meeting 2007, Salt Lake City, UT.
260. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2007): "A Flexible Framework For Optimal Biorefinery Product Allocation", Paper 511n, AIChE Annual Meeting 2007, Salt Lake City, UT.
261. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2007): "Optimal Utilization Of Biomass Inputs In An Integrated Biorefinery", Paper 634c, AIChE Annual Meeting 2007, Salt Lake City, UT.
262. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2007): "A Framework for Optimal Utilization of Biomass Inputs in An Integrated Biorefinery", Paper 650b, AIChE Annual Meeting 2007, Salt Lake City, UT.
263. Seay J.R., **Eden M.R.** (2007): "Sustainable Engineering in Capstone Design Projects through Industrial Collaboration", 1st International Symposium on Sustainable Chemical Product and Process Engineering, Ghuangzhou, China.
264. Eljack F.T., Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2007): "A Property Based Approach for Simultaneous Process and Molecular Design", 1st International Symposium on Sustainable Chemical Product and Process Engineering, Ghuangzhou, China.
265. Solvason C.C., Eljack F.T., **Eden M.R.** (2007): "Integrating Mixture Design within the Property Clustering Framework", 6th European Congress of Chemical Engineering, Copenhagen, Denmark.
266. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Aksoy B., Cullinan H.T. (2007): "Optimal Biorefinery Resource Utilization by Combining Process and Economic Modeling", 6th European Congress of Chemical Engineering, Copenhagen, Denmark.
267. Eljack F.T., Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2007): "A Property Based Design Approach for Simultaneous Optimization of Product and Process Needs", 6th European Congress of Chemical Engineering, Copenhagen, Denmark.

268. McGlocklin K.H., Sammons Jr. N.E., Yuan W., Wilder J.L., **Eden M.R.** (2007): “Systematic Framework for Economic Evaluation of Hydrogen Production Strategies”, ACS National Meeting, Boston, MA.

269. Sammons N.E., Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2007): ”A Flexible Framework for Optimal Biorefinery Product Allocation”, Auburn University Graduate Student Research Forum, Auburn, AL.

270. Solvason C.C., Eljack F.T., Chemmangattuvalappil N.G., **Eden M.R.** (2007): “Property Based Experimental Design”, Auburn University Graduate Student Research Forum, Auburn, AL.

271. Wilder J.L., Hanks R.M., McGlocklin K.H., **Eden M.R.**, Tatarchuk B.J. (2007): “A Study of Integration Potentials in Various Reformer Strategies for Logistical Fuels Processing”, AIChE Southern Regional Student Conference, Columbia, SC. ***Voted as 3rd place presentation in section***.

272. Wilder J.L., Hanks R.M., McGlocklin K.H., **Eden M.R.**, Tatarchuk B.J. (2007): “A Study of Integration Potentials in Various Reformer Strategies for Logistical Fuels Processing”, AIChE Southern Regional Student Conference, Columbia, SC.

273. Wilder J.L., Hanks R.M., McGlocklin K.H., **Eden M.R.**, Tatarchuk B.J. (2007): “A Study of Integration Potentials in Various Reformer Strategies for Logistical Fuels Processing”, Auburn University Undergraduate Research Forum.

274. Wilder J.L., Hanks R.M., McGlocklin K.H., **Eden M.R.**, Tatarchuk B.J. (2007): “A Study of Integration Potentials in Various Reformer Strategies for Logistical Fuels Processing”, National Conference on Undergraduate Research, Dominican University of California.

275. McGlocklin K.H., Sammons Jr. N.E., Wilder J.L., Yuan W., **Eden M.R.** (2007): “Economic Evaluation of Hydrogen Production Schemes through Process Simulation, Integration and Optimization”, Consortium for Fossil Fuel Science Annual Meeting, Lexington, KY.

276. Seay J.R., **Eden M.R.**, D’Alessandro R.N., Thomas T., Redlingshoefer H., Weckbecker C., Huthmacher K. (2007): “Integration of Process Modeling with Laboratory Experiments in Conceptual Design: Bio-based Glycerol Dehydration Case Study”, ESCAPE-17, Bucharest, Romania.

277. Eljack F.T., Solvason C.C., **Eden M.R.** (2007): “An Algebraic Property Clustering Technique for Molecular Design”, ESCAPE-17, Bucharest, Romania.

278. Wilder J.L., Hanks R.M., McGlocklin K.H., Sammons Jr N.E., **Eden M.R.**, Tatarchuk B.J. (2007): “Process Integration under Size Constraints: Logistical Fuels for Mobile Applications”, ESCAPE-17, Bucharest, Romania.

279. Sammons Jr. N.E., Cullinan H.T., **Eden M.R.** (2006): “A Flexible Framework for Optimal Biorefinery Product Allocation”, Pacific Rim Summit on Industrial Biotechnology and Bioenergy, Honolulu, HI.

280. Cummings R.M., **Eden M.R.** (2006): “Process Integration and Optimization of Logistical Fuels Processing for Hydrogen Production”, Auburn University Undergraduate Research Forum, Auburn, AL.

281. Sammons N.E., **Eden M.R.**, Cullinan H.T. (2006): ”A Flexible Framework for Optimal Biorefinery Product Allocation”, Auburn University Graduate Student Research Forum, Auburn, AL. ***Best poster award***.

282. Eljack F.T., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2006): “Group Contribution and Property Clustering for Simultaneous Process and Molecular Design”, Auburn University Graduate Student Research Forum, Auburn, AL.

283. Cummings R.M., **Eden M.R.** (2006): “Comparing Minimum Utility Requirements of Various Reforming Techniques and Multiple Fuel Sources for Hydrogen Production”, Southern Regional AIChE Student Meeting, Starkville, MS.

284. Cummings R.M., **Eden M.R.**, Tatarchuk, B.J. (2006): “Comparing Minimum Utility Requirements of Various Reforming Techniques and Multiple Fuel Sources for Hydrogen Production”, Southern Regional AIChE Student Meeting, Starkville, MS. ***Best poster award***.

285. Cummings R.M., McGlocklin K.H., Wilder J.L., **Eden M.R.** (2006): “Process Integration under Size Constraints: Fuels Processing of Logistic Fuels for Mobile Applications”, 6th Annual Logistic Fuel Processing Conference, Panama City Beach, FL.

286. Eljack F.T., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2006): “Property Clustering and Group Contribution for Process and Molecular Design”, PSE 2006/ESCAPE-16, Garmisch-Partenkirchen, Germany.

287. Sammons Jr. N.E., **Eden M.R.**, Cullinan H.T., Perine L., Connor E. (2006): “A Flexible Framework for Optimal Biorefinery Product Allocation”, PSE 2006/ESCAPE-16, Garmisch-Partenkirchen, Germany.

288. Seay J.R., **Eden M.R.**, D’Alessandro R.N., Weckbecker C. (2006): “Sustainable Production of Industrial Chemical Products from Bioresources”, PSE 2006/ESCAPE-16, Garmisch-Partenkirchen, Germany.

289. Sammons Jr. N.E., **Eden M.R.**, Cullinan H.T., Aksoy B. (2006): “A Flexible Framework for Optimal Biorefinery Product Allocation”, Energy Solutions from Alabama Natural Resources.

290. Aksoy B., Hanna J., Gue K., Gibson B., Cullinan H.T., **Eden M.R.**, Sammons Jr. N.E. (2006): “Road Map to Optimization of the Biomass Supply System for Biorefineries in Alabama”, Energy Solutions from Alabama Natural Resources.

291. **Eden M.R.** (2006): “Alternative Fuels – A Comprehensive Research Program in the Department of Chemical Engineering at Auburn University”, Energy Solutions from Alabama Natural Resources.

292. Solvason C.C., Eljack F.T., **Eden M.R.** (2006): “Property Clustering Techniques for Experimental Design”, Paper 174c, AIChE Annual Meeting 2006, San Francisco, CA.

293. Eljack F.T., Solvason C.C., **Eden M.R.** (2006): “A Systematic Property Clustering Approach to Molecular Design”, Paper 174f, AIChE Annual Meeting 2006, San Francisco, CA.

294. Solvason C.C., Eljack F.T., **Eden M.R.** (2006): “Property Based Experimental Design”, Paper 303n, AIChE Annual Meeting 2006, San Francisco, CA.

295. Eljack F.T., Solvason C.C., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2006): “Property Clusters and Group Contribution for Simultaneous Process and Molecular Design”, Paper 303o, AIChE Annual Meeting 2006, San Francisco, CA.

296. Wilder J.L., Hanks R.M., McGlocklin K.H., **Eden M.R.**, Tatarchuk B.J. (2006): “A Study of Integration Potentials in Various Reformer Strategies for Logistical Fuels Processing”, Paper 277i, AIChE Annual Meeting 2006, San Francisco, CA.

297. Sammons Jr. N.E., **Eden M.R.**, Aksoy B., Cullinan H.T. (2006): ”Selection of Optimal Biorefinery Products and Production Pathways”, Paper 299ac, AIChE Annual Meeting 2006, San Francisco, CA.

298. Eljack F.T., Solvason C.C., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2006): “Property Based Approach for Integrated Process and Molecular Design”, Paper 349a, AIChE Annual Meeting 2006, San Francisco, CA.

299. Wilder J.L., Hanks R.M., McGlocklin K.H., **Eden M.R.**, Tatarchuk B.J. (2006): “Integration Potential in Different Reformer Strategies for Logistical Fuels Processing”, Paper 498d, AIChE Annual Meeting 2006, San Francisco, CA.

300. Seay J.R., **Eden M.R.**, D’Alessandro R.N., Riemenschneider H., Thomas T., Bartels K., Huthmacher K., Weckbecker C., Redlingshoefer H. (2006): “Challenges of Implementing a Joint Industrial - Academic Research Project as Part of a Non-Traditional Industrial Phd. Dissertation”, Paper 538b, AIChE Annual Meeting 2006, San Francisco, CA.

301. Seay J.R., **Eden M.R.**, D'Alessandro R.N., Thomas T., Bartels K., Redlingshoefer H., Weckbecker C. (2006): "Development of a Process for Manufacturing Industrially Important Chemical Products from Sustainable, Bio-Based Glycerol", Paper 565f, AIChE Annual Meeting 2006, San Francisco, CA.

302. Sammons Jr. N.E., **Eden M.R.**, Aksoy B., Cullinan H.T. (2006): "Optimal Biorefinery Resource Utilization by Combining Process and Economic Modeling", Paper 595d, AIChE Annual Meeting 2006, San Francisco, CA.

303. Sammons Jr. N.E., **Eden M.R.**, Aksoy B., Cullinan H.T. (2006): "Robust and Flexible Framework for Optimization of Biorefinery Production", Paper 648d, AIChE Annual Meeting 2006, San Francisco, CA.

304. Eljack F.T., Solvason C.C., **Eden M.R.** (2006): "A Novel, Systematic Method for Visual Molecular Design", Paper 676b, AIChE Annual Meeting 2006, San Francisco, CA.

305. McGlocklin K.H., Sammons Jr. N.E., Cummings R.M., Wilder J.L., **Eden M.R.** (2006): "Economic Evaluation of Hydrogen Production Schemes through Process Simulation, Integration and Optimization", Consortium for Fossil Fuel Science Annual Meeting, Glade Springs Resort.

306. Eljack F.T., Abdelhady A.F., **Eden M.R.** (2005): "Visualization Techniques for Formulation Synthesis using Property Clustering", Symposium on Modeling Complex Processes, Texas A&M University.

307. Cummings R.M., Eljack F.T., **Eden M.R.**, Tatarchuk B.J. (2005): "Process Integration and Optimization of Logistical Fuels Processing for Hydrogen Production", Symposium on Modeling Complex Processes, Texas A&M University.

308. Eljack F.T., Abdelhady A.F., **Eden M.R.**, Gabriel F., Qin X., El-Halwagi M.M. (2005): "Targeting Optimum Resource Allocation Using Reverse Problem Formulations and Property Clustering Techniques", Symposium on Modeling Complex Processes, Texas A&M University.

309. Cummings R.M., **Eden M.R.** (2005): "Process Integration and Optimization of Logistical Fuels Processing for Hydrogen Production", Southern Regional AIChE Student Meeting, New Orleans. ***Voted as 3rd place presentation in section***.

310. **Eden M.R.** (2005): "A Process Integration and Optimization Based Framework for Co-Product Allocation in Hydrogen Polygeneration Plants", Consortium for Fossil Fuel Science Annual Meeting, Stonewall Resort.

311. Eljack F.T., Cummings R.M., Abdelhady A.F., **Eden M.R.**, Tatarchuk B.J. (2005): "Process Integration and Optimization of Logistical Fuels Processing for Hydrogen Production", ESCAPE-15, Barcelona, Spain.

312. Mole T.L., **Eden M.R.**, Burch T.E., Tarrer A.R. (2005): "A Systematic Approach for Optimal Synthesis of Polymeric Films for Radioactive Decontamination and Waste Reduction", ESCAPE-15, Barcelona, Spain.

313. Cummings R.M., Abdelhady A.F., McGlocklin K.H., **Eden M.R.**, Tatarchuk B.J. (2005): "Comparing Minimum Utility Requirements of Various Reforming Techniques and Multiple Fuel Sources for Hydrogen Production", AIChE National Student Conference 2005, Cincinnati, OH. ***Best poster in Fuels and Petrochemicals Division***.

314. Cummings R.M., Abdelhady A.F., McGlocklin K.H., **Eden M.R.**, Tatarchuk B.J. (2005): "Comparing Minimum Utility Requirements of Various Reforming Techniques and Multiple Fuel Sources for H_2 Production", Paper 146e, AIChE Annual Meeting 2005, Cincinnati, OH.

315. Eljack F.T., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2005): "Visual Solution of Process and Molecular Design Problems by Combining Group Contribution and Property Clustering Techniques", Paper 520g, AIChE Annual Meeting 2005, Cincinnati, OH.

316. Eljack F.T., **Eden M.R.**, Kazantzi V., El-Halwagi M.M. (2005): "Combining Group Contribution and Property Clustering Techniques for Visual Solution of Process and Molecular Design Problems",

Paper 242r, AIChE Annual Meeting 2005, Cincinnati, OH. ***CAST Directors' Award for Best poster***.

317. McGlocklin K.H., Cummings R.M., Abdelhady A.F., **Eden M.R.**, Tatarchuk B.J. (2005): "A Study of Integration Potentials in Different Reformer Strategies for Logistical Fuels Processing", Paper 321a, AIChE Annual Meeting 2005, Cincinnati, OH.
318. Sammons Jr. N.E., Cullinan H.T., **Eden M.R.** (2005): "A Framework for Optimal Utilization of Biomass Inputs in an Integrated Biorefinery", Paper 571a, AIChE Annual Meeting 2005, Cincinnati, OH.
319. Sammons Jr. N.E., Cullinan H.T., **Eden M.R.** (2005): "A Flexible Framework for Optimal Biorefinery Product Allocation", Paper 242f, AIChE Annual Meeting 2005, Cincinnati, OH.
320. Seay J.R., **Eden M.R.**, Weckbecker C., D'Alessandro R.N. (2005): "Process Integration Analysis of Sustainable Production of a Fine Chemical Intermediate from Bioresources", Paper 571b, AIChE Annual Meeting 2005, Cincinnati, OH.
321. Seay J.R., **Eden M.R.**, Weckbecker C., D'Alessandro R.N. (2005): "Retrofit of a Fine Chemical Intermediate Production Process to Utilize Renewable, Bio-Based Feedstocks", Paper 134a, AIChE Annual Meeting 2005, Cincinnati, OH.
322. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2004): "Reverse Problem Formulation based Techniques for Process and Product Design", PSE-2003, Kunming, China.
323. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2004): "Property Cluster based Visual Technique for Synthesis and Design of Formulations", PSE-2003, Kunming, China.
324. Cummings R.M., Eljack F.T., **Eden M.R.** (2004): "Process Integration and Optimization of Logistical Fuels Processing for H_2 Production", AU Undergraduate Research Forum.
325. Eljack F.T., Abdelhady A.F., **Eden M.R.** (2004): "Visualization Techniques for Formulation Synthesis using Property Clustering Techniques", Paper 402a, AIChE Annual Meeting 2004, Austin, TX, USA.
326. Eljack F.T., Abdelhady A.F., **Eden M.R.**, Gabriel F., Qin X., El-Halwagi M.M. (2004): "Reverse Problem Formulations and Property Clustering Techniques for Targeting Optimum Resource Allocation", Paper 403t, AIChE Annual Meeting 2004, Austin, TX, USA.
327. Eljack F.T., Cummings R.M., Abdelhady A.F., **Eden M.R.**, Tatarchuk B.J. (2004): "Process Integration and Optimization of Logistical Fuels Processing for Hydrogen Production", Paper 23f, AIChE Annual Meeting 2004, Austin, TX, USA.
328. Eljack F.T., Cummings R.M., Abdelhady A.F., **Eden M.R.**, Tatarchuk B.J. (2004): "Optimization of Logistical Fuels Processing for Hydrogen Production Using Process Integration Techniques", Paper 393b, AIChE Annual Meeting 2004, Austin, TX, USA.
329. Sammons Jr. N.E., **Eden M.R.** (2004): "Complexity of Biorefinery Product Allocation", Agenda 2020 Technology Alliance, Chief Technology Officer Meeting, Auburn University.
330. Sammons Jr. N.E., **Eden M.R.** (2004): "Biorefinery Product Allocation through a Process Integration and Optimization Based Framework", Agenda 2020 Technology Alliance, Chief Technology Officer Meeting, Auburn University.
331. **Eden M.R.** (2003): "PI and CAPE – Highlights of Process and Tools Integration Activities in CAPEC", IEA – CPBIS Meeting on Process Integration Collaboration, Institute of Paper Science and Technology, Georgia Institute of Technology, January, 2003.
332. **Eden M.R.** (2003): "Property Based Design – Solving Formulation Design Problems through Property Clusters", CAPEC Annual Meeting, Technical University of Denmark, May 2003. ***Voted by external, industrial and academic participants as "Best Presentation"***.
333. **Eden M.R.** (2003): "Property Based Process and Product Design – Clustering Techniques and Visualization Tools", CAPEC Annual Meeting, Technical University of Denmark, May 2003. ***Voted by external, industrial and academic participants as "Top 2 Poster"***.

334. **Eden M.R.**, Jørgensen S.B., Gani R. (2003): ”A New Modeling Approach for Future Challenges in Process and Product Design”, ESCAPE-13, Lappeenranta University of Technology, Finland.

335. **Eden M.R.**, Gani R., Jørgensen S.B. (2002): ”Targeted Development of Sustainable Technology with low CO_2 Emissions”, Danish Engineering Society Conference on Separation and Deposit of CO_2 from Powerplants, Copenhagen, Denmark.

336. **Eden M.R.** (2002): “Composition Free Design – Illustration Through a Case Study”, CAPEC Annual Meeting 2002, Comwell Hotel, Snekkersten, Denmark.

337. **Eden M.R.** (2002): “Property Based Design – Property Clustering Design Techniques and Reverse Problem Formulations”, CAPEC Annual Meeting 2002, Comwell Hotel, Snekkersten, Denmark. ***Voted by external, industrial and academic participants as “Top 2 Poster”***.

338. **Eden M.R.** (2002): “Product Design Technology – An Introduction to CAMD and its Application to Solving Process/Product Design Problems”, CAPEC Industrial Day, Technical University of Denmark.

339. Gani R., **Eden M.R.** (2002): “Computer Aided Process/Product Design: Issues, Needs and Solution Approaches”, WWDU 2002, 6th International Scientific Conference on Work With Display Units, Berchtesgaden, Germany.

340. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2002): ”Property Integration – A New Approach for Simultaneous Solution of Process and Molecular Design Problems”, ESCAPE-12, The Hague, The Netherlands.

341. **Eden M.R.**, Jørgensen S.B., Gani R., El-Halwagi M.M. (2002): ”A New Component-Free Approach for Simultaneous Process and Product Design through Property Integration”, 15th International Congress of Chemical and Process Engineering, Prague, Czech Republic.

342. **Eden M.R.**, Jørgensen S B., Gani R., El-Halwagi M.M. (2002): ”A Novel Framework for Simultaneous Separation Process and Product Design”, International Conference on Distillation and Absorption, Baden Baden, Germany.

343. Glasgow I.M., **Eden M.R.**, El-Halwagi M.M. (2002): ”Property Integration using Visualization Tools”, 3rd International Symposium on Process Integration, Vancouver, Canada.

344. **Eden M.R.**, Hostrup M., Kang J.W, Morejon J.M., Jørgensen S.B., Gani R. (2002): ”ICAS: Integrated Computer Aided System for Education”, AIChE Annual Meeting 2002, Indianapolis IN, USA.

345. **Eden M.R.**, Jørgensen S.B., Gani R., Glasgow I.M., El-Halwagi M.M. (2002): ”Identifying Process and Product Synthesis Targets by Reverse Problem Formulation Techniques”, AIChE Annual Meeting 2002, Indianapolis IN, USA.

346. **Eden M.R.**, Jørgensen S.B., Gani R. (2002): ”A Novel Technique for Process Model Reduction”, AIChE Annual Meeting 2002, Indianapolis IN, USA.

347. **Eden M.R.** (2002): “Reverse Problem Formulations and Property Clustering Techniques”, Nordic Energy Research Program Annual Meeting 2002, Oslo, Norway.

348. **Eden M.R.** (2002): “From PI to AU – How Process Integration can provide Golden Opportunities”, Process Integration Seminar Series, Nordic Energy Research Program Annual Meeting 2002, Oslo, Norway.

349. **Eden M.R.**, Jørgensen S.B., Gani R. (2001): ”Component and Composition Free Design”, CAPEC Annual Meeting 2001, Technical University of Denmark. ***Voted by external, industrial and academic participants as “Best Poster”***.

350. **Eden M.R.** (2001): “Property Clusters for Integrated Process and Product Design”, Nordic Energy Research Program Annual Meeting 2001, Helsinki, Finland.

351. **Eden M.R.**, Harper P.M., Jørgensen S.B., Gani R., Glasgow I.M., El-Halwagi M.M. (2001): ”Using Property Clusters for the Integration of Process and Product Design”, 2nd International Symposium on Process Integration, Halifax, Canada. ***Voted by the audience as “Best of Session”***.

352. Glasgow I.M., **Eden M.R.**, El-Halwagi M.M., Shelley M.D., Krishnagopalan G. (2001): ”Componentless Integration of Resource Conservation in Papermaking”, 2nd International Symposium on Process Integration, Halifax, Canada.
353. **Eden M.R.**, Harper P.M., Jørgensen S.B., Gani R., Glasgow I.M., El-Halwagi M.M. (2001): ”Functionality Tracking for the Integration of Process and Product Design”, AIChE Annual Meeting 2001, Reno NV, USA.
354. Glasgow I.M., **Eden M.R.**, Shelley M.D., Krishnagopalan G., El-Halwagi M.M. (2001): “Property Integration for Process Optimization”, AIChE Annual Meeting 2001, Reno NV, USA.
355. **Eden M.R.** (2000): “Simultaneous Synthesis of Mass and Heat Exchange Networks”, CAPEC Annual Meeting 2000, DFDS Crown of Scandinavia, Denmark.
356. **Eden M.R.** (2000): “Effects of Process Integration on Distillation Column Startup”, Process Systems Engineering (PSE) 2000, Keystone CO, USA.
357. **Eden M.R.** (2000): “Allocation of Mass and Energy through Process Integration”, Nordic Energy Research Program Annual Meeting 2000, Dragør, Denmark.
358. **Eden M.R.**, Andersen T.R. (2000): "Computer Aided Process Engineering for Process Integration and Design", SIMS 2000, Lyngby, Denmark.
359. Andersen T.R., **Eden M.R.** (2000): "Computer Aided Process Engineering for Operational Analysis and Control Design", SIMS 2000, Lyngby, Denmark.
360. **Eden M.R.**, Jørgensen S.B. (2000): “Process Integration from a Design Perspective – Illustrated by a Case of Mass Integration”, Process Integration in the Design of Energy Systems, Dragør, Denmark.
361. Bek-Pedersen E., Gani R., **Eden M.R.**, Jørgensen S.B. (1999): ”A Driving Force Based Visual Technique for Separation Process Synthesis”, AIChE Annual Meeting 1999, Dallas TX, USA.
362. **Eden M.R.** (1999): “Alternative Methods for Energy Efficient Separation Processes”, CAPEC Annual Meeting 1999, Technical University of Denmark.
363. **Eden M.R.** (1999): “Petlyuk Columns for Ternary Separations”, CAPEC Annual Meeting 1999, Technical University of Denmark.
364. **Eden M.R.** (1999): “Dynamics and Control during Startup of Heat-Integrated Distillation Plant”, CAPEC Annual Meeting 1999, Technical University of Denmark.

GRANTS AND CONTRACTS

Grants and Contracts RECEIVED

1. *A Novel Biotechnology That Converts Agricultural and Municipal Waste into Bioplastics*, Alabama Research and Development Enhancement Fund (ARDEF) program under the Alabama Department of Economic and Community Affairs (ADECA), PI: Q.P. He, Co-PIs: **M.R. Eden**, J. Wang, $294,008, 10/01/2021 – 09/30/2022.
2. *Auburn University Doctoral Fellowships in Chemical Engineering*, Department of Education (GAANN), PI: J. Wang, Co-PIs: **M.R. Eden**, W.R. Ashurst, S. Cremaschi, Q.P. He, C.A. Kieslich, R.J. Pantazes, $759,792 (includes $153,000 in costshare), 10/01/2021 – 09/30/2024.
3. *Smart Manufacturing of Pulp and Paper: Advanced Machine Learning Enabled Multi-Objective Control for Energy Efficient Operation of Brownstock Washing*, DOE-CESMII. PI: Z. Jiang, Co-PI: **M.R. Eden**, $825,143 (includes $416,212 in costshare), 11/01/2020 – 04/31/2022.
4. *IoT-Enabled Manufacturing Testbeds for Democratizing Smart Manufacturing Knowledge, Technology and Innovation*, DOE-CESMII, PI: Q.P. He, Co-PI: **M.R. Eden**, $281,934 (includes $141,935 in costshare), 02/01/2021 – 01/31/2022.
5. *Modular Catalytic Partial Oxidation Reactors using Microstructured Catalyst Structures with Combined High Thermal Conductivity and Flame Extinction Capacity to Enhance Process Safety Margins and Enable High Per Pass Conversion and High Selectivity of Non-Diluted Reactants*, DOE-RAPID. This project is primed by Auburn University with IntraMicron and University of South Carolina as partners. The following information is for the AU part only. PI: B.J. Tatarchuk, Co-PI: **M.R. Eden**, $3,606,137 (includes $2,420,854 in costshare), 01/01/2019 – 06/30/2022.
6. *GAANN - Auburn University Doctoral Fellowships in Chemical Engineering*, Department of Education. PI/PD: J. Wang, Co-PD: **M.R. Eden**, $447,750, 10/01/2018 – 09/30/2021.
7. *Microfibrous Entrapped Sorbents for High Throughput Modular Process Intensified Gas Separation and Ion Exchange,* DOE-RAPID. This project is primed by IntraMicron (PI: P. Dimick) with Auburn University being a partner. The following information is for the AU part only. PI: B.J. Tatarchuk, Co-PI: **M.R. Eden**, $3,127,719 (includes $2,084,592 in costshare), 09/01/2018 – 12/31/2021.
8. *Modular Catalytic Desulfurization Units for Sour Gas Sweetening,* DOE-RAPID. This project is primed by IntraMicron (PI: P. Dimick) with Auburn University being a partner. The following information is for the AU part only. PI: B.J. Tatarchuk, Co-PI: **M.R. Eden**, $841,088 (includes $560,725 in costshare), 09/01/2018 – 06/30/2020.
9. *SYNOPSIS – Synthesis of Operable Process Intensification Systems,* DOE-RAPID. This project is primed by Texas A&M University (PI: E.N. Pistikopoulos) with Auburn University being a partner. The following information is for the AU part only. PI: **M.R. Eden**, $1,416,161 (includes $957,009 in costshare), 09/01/2018 – 06/30/2022.
10. *PSE 2018*, NSF, PI: **M.R. Eden**, Co-PI: M. Ierapetritou, $40,000, 05/01/2018 – 04/30/2019.
11. *Process Synthesis and Optimization of Biomass to Liquid Transportation Fuels*, Alabama EPSCoR Graduate Research Scholars Program, Award Fellow: P. Li, Advisor: **M.R. Eden**, $25,000, 08/15/2015 – 08/15/2016.
12. *PSE2015/ESCAPE25*, NSF, PI: **M.R. Eden**, Co-PI: L. Achenie (Virginia Tech), $36,000, 02/15/2015 – 02/14/2016.
13. *Scale-up Wipe Cleaning*, Kimberly-Clark, PI: **M.R. Eden**, $13,606, 01/26/2015 – 02/17/2015.
14. *Physical and Optical Property Evaluation of Wheat Straw Pulp*, PureVision Technology Inc., PI: **M.R. Eden**, $20,761, 11/01/2014 – 10/31/2015.
15. *Foundations of Computer-Aided Process Design (FOCAPD 2014)*, NSF, PI: **M.R. Eden**, $40,000, 05/01/2014 – 11/01/2014.

16. *Modeling for the Development of Novel Pharmaceutical Products from Palm Oil Based Biomass*, Ministry of Science Technology and Innovation (Malaysia), PI: N.G. Chemmangattuvalappil (University of Nottingham), Co-PIs: D.K.S. Ng (University of Nottingham), **M.R. Eden**, RM 172,000 (~$56,000), 01/01/2014 – 12/31/2015.
17. *Conversion of Carbon Dioxide and Biomass for Fuels and Chemicals Precursor: Experimental and Modeling Approach*, Alabama EPSCoR Graduate Research Scholars Program, Award Fellow: N. Sadhwani, Advisor: **M.R. Eden**, $75,000, 08/15/2013 – 08/15/2016.
18. *IGERT: Integrated Biorefining for Sustainable Production of Fuels and Chemicals*, National Science Foundation (NSF-IGERT), PI: **M.R. Eden**, Co-PIs: C.B. Roberts, S. Taylor, P.K. Raju, T. Gallagher, $3,000,000, 08/15/2011 – 07/31/2018. **Note:** This is the first ever NSF-IGERT program awarded to Auburn University. IGERT is the National Science Foundation's flagship interdisciplinary training program for educating U.S. Ph.D. scientists and engineers. This program will provide funding for a total of 35 Ph.D. students across the Auburn University campus.
19. *Sustainable Manufacturing Advances in Research and Technology (SMART) Coordination Network*, NSF-RCN-SEES, PI: Y. Huang (Wayne State University), Co-PIs: **M.R. Eden**, T.F. Edgar (University of Texas – Austin), C. Davidson (Syracuse University), M.M. El-Halwagi (Texas A&M University). $721,800, 01/01/2012 – 12/31/2017. **Note**: This project is managed through the CACHE Corporation (Computer Aids for Chemical Engineering), a not-for-profit organization.
20. *Biomass Gasification Research*, Electric Power Research Institute (EPRI), PI: S. Adhikari, Co-PIs: O. Fasina, S. Taylor, **M.R. Eden**, C.B. Roberts, $374,995, 08/01/2011 – 12/31/2013. Portion for Dr. Eden's part of the project: $96,559.
21. *Southeastern Partnership for Integrated Biomass Supply Systems (IBSS)*, USDA-AFRI, PI: T. Rials (U. Tennessee), Lead PI for Auburn: S.E. Taylor, $15,008,000 (Total amount for AU: $4,519,000) 01/01/2012 – 12/31/2017. **Note:** This project is a major center grant proposal led by U. Tennessee. **M.R. Eden**, C.B. Roberts and S. Adhikari are the lead investigators on the conversion task and associated education, extension and outreach efforts. The total budget for the conversion task at AU is $1,115,379. The budget split among the individual departments is still to be determined. The budget allocation for the first two years for Eden and Roberts is $328,450.
22. *Fuel and Oxygenate Co-Products From Biomass Fractionation and Advanced Catalytic Conversion Processes*, USDA-AFRI, PI: **M.R. Eden**, Co-PIs: C.B. Roberts, S. Taylor, S. Adhikari, $1,000,000, 01/01/2011 – 12/31/2015.
23. *Biomass to Liquid Fuels and Electrical Power*, Department of Energy Award No. DE-EE003115, PI: S. Taylor, Co-PIs: **M.R. Eden**, C. Roberts, $1,500,000, 06/01/2011 – 05/31/2014. Portion for Dr. Eden's part of the project: $451,709.
24. *Integrated Biorefinery Optimization through Biomass Fractionation, Gasification and Advanced Catalytic Conversion Processes*, Southeastern Sun Grant Regional Grants Program, PI: **M.R. Eden**, Co-PIs: C.B. Roberts, S.E. Taylor, S. Adhikari, $250,000, 02/01/2010 – 01/31/2013.
25. *Systems Based Approaches for Conversion of Biomass to Bioenergy and Bioproducts*, Department of Energy Award No. DE-EE0000418, PI: S. Taylor, Co-PIs: **M.R. Eden**, C. Roberts, $951,500, 07/01/2009 – 09/01/2011. Portion for Dr. Eden's part of the project: $204,530.
26. *Multi-Scale Chemical Product Design using Systems Methodologies*, Alabama EPSCoR Graduate Research Scholars Program, Award Fellow: C.C. Solvason, Advisor: **M.R. Eden**, $25,000, 08/15/2009 – 08/15/2010.
27. *North American Mobility Program - PD001: Distance Learning Modules in Product and Process Design*, Department of Education, PI: **M.R. Eden**, $60,000, 03/01/2008 – 08/31/2012. **Note**: This project is part of a major research/education program led by Texas A&M University. As part of this project, several student exchanges have taken place between Auburn University and the other partner universities in the program. Two of Dr. Eden's graduate students spent two months at Ecolé Polytechnique Montreal during Summer 2009, while a Canadian student spent all Summer 2009 in Auburn. During Spring 2010 a student from Universidad San Luis Potosi in Mexico visited Dr. Eden's

lab for three months and finally a second student from Montreal is spending Summer 2010 in Dr. Eden's lab along with a student from McMaster University.

28. *Performance Evaluation of Coal and Biomass-Based Fuel Production Strategies*, Department of Energy – Consortium for Fossil Fuel Science (CFFS), PI: **M.R. Eden**, $205,189, 03/01/2008 – 06/30/2012. **Note**: This project is part of a major research program led by University of Kentucky. Auburn's share of the project amounts to $578,600 of the total budget of $2,915,000.
29. *Economic Potential Evaluation of Kerosene as a Single Battlefield Fuel*, Department of Defense – Consortium for Fossil Fuel Science (CFFS), PI: **M.R. Eden**, $172,234, 07/01/2007 – 09/30/2011. **Note**: This project is part of a major research program led by University of Kentucky. Auburn's share of the project amounts to $606,630 of the total budget of $4,044,200.
30. *CAREER: Targeted Approaches for Integrated Process and Product Design*, National Science Foundation, PI: **M.R. Eden**, $400,000, 03/01/2006 – 02/28/2011.
31. *Allocation of Biomass Derived Products for Optimal Economic and Environmental Performance*, Environmental Protection Agency – Science to Achieve Results, Award Fellow: N.E. Sammons Jr, Advisor: **M.R. Eden**, $111,000, 09/01/2006 – 08/31/2009. **Note**: Norman Sammons was a Ph.D student under Dr. Eden's supervision, and as a result of his research proposal he was awarded this prestigious fellowship (only 100 are awarded in science and engineering nationally each year). The award includes $60,000 in stipend, $36,000 for tuition and fees, and $15,000 for project expenses under the auspices of Dr. Eden.
32. *Auburn Chemical Engineering GAANN Program*, US Department of Education, PI: R.P. Chambers, Co-PIs: C.W. Curtis, V.A. Davis, S.R. Duke, **M.R. Eden**, $506,688, 08/01/2006 – 07/31/2011.
33. *Production of Gasoline, Diesel and Aviation Fuels from Biomass Using a Gas-to-Liquids Approach*, Alabama Department of Agriculture and Industries, PI: C.B. Roberts, Co-PI: **M.R. Eden**, $80,000, 01/01/2008 – 09/30/2011. Portion for Dr. Eden's part of the project: $35,000.
34. *Tunable Fischer-Tropsch Synthesis for Production of Transportation Fuels from Biomass Derived Synthesis Gas*, Auburn University Center for Biofuels and Bioproducts, PI: C.B. Roberts, Co-PI: **M.R. Eden**, $75,479, 09/01/2007 – 08/31/2010. Portion for Dr. Eden's part of the project: $34,379.
35. *Biorefining in the Agricultural Sector – Producing Fuels from Poultry Litter*, Alabama Agricultural Experiment Station, PI: **M.R. Eden**, Co-PIs: H.T. Cullinan, C.B. Roberts, $120,000, 10/01/2005 – 03/01/2007.
36. *Producing Fuels and Chemicals from Municipal Waste Resources*, Masada Resource Group LLC, PI: H.T. Cullinan, Co-PIs: **M.R. Eden**, G. Krishnagopalan, Y.Y. Lee, C.B. Roberts, $1,000,000, 03/01/2007 – 02/28/2008. Portion for Dr. Eden's part of the project: $200,000.
37. *Process Integration and Optimization Based Framework for Co-Product Allocation in H_2 Polygeneration Plants*, Department of Energy – Consortium for Fossil Fuel Science (CFFS), PI: **M.R. Eden**, $148,813, 07/01/2005 – 06/30/2008. **Note**: This project is part of a major research program led by University of Kentucky. Auburn's share of the project amounts to $1,074,000 of the total budget of $6,317,647. Dr. Eden has received $95,627 of the $569,074 received to date by Auburn.
38. *Biorefinery Product Allocation through a Process Integration and Optimization Based Framework*, Auburn University Competitive Research Grant Program, PI: **M.R. Eden**, $9,600, 05/01/2005 – 05/01/2006.
39. *Design and Analysis of Acrolein Production by Catalytic Dehydration of Glycerin*, Degussa Corporation – Feed Additives Division, PI: **M.R. Eden**, $45,000, 06/01/2005 – 05/31/2007. **Note**: Project also included salary and tuition as well as equipment and travel expenses for one graduate student paid directly by Degussa Corporation (tuition ($15,045/yr) and assistantship ($21,000/yr)), this amounts to $72,090. The total budget is thus $117,090.
40. *Design and Analysis of Acrolein Production by Catalytic Dehydration of Glycerin*, Degussa Corporation – Feed Additives Division, PI: **M.R. Eden**, $25,000, 06/01/2007 – 05/01/2008. **Note**: Degussa extended the project in acknowledgement of the significant results. The project still includes salary as well as equipment and travel expenses for one graduate student paid directly by Degussa

Corporation (tuition ($15,045/yr) and assistantship ($21,000/yr)), this amounts to $36,045. The total budget for this project is thus $61,045.

41. *Systems Engineering Approach to Optimization of Logistical Fuels Processing for H_2 Production*, US Army – Space Missile Defense Command. PI: **M.R. Eden**, $63,684, 09/01/2004 – 08/31/2006. **Note**: This project is part of an integrated research program led by the Center for Microfibrous Materials Manufacturing (CM^3) with a total budget of $5,304,834.
42. *Simulation and Optimization of H_2 Production through Logistical Fuels Processing*, Auburn University Undergraduate Research Fellowship, Award Fellow: J.L. Wilder, Mentor: **M.R. Eden**, $6,000, 06/01/2006 – 05/31/2007.
43. *Simulation and Optimization of H_2 Production through Logistical Fuels Processing*, Auburn University Undergraduate Research Fellowship, Award Fellow: R.M. Cummings, Mentor: **M.R. Eden**, $12,000, 06/01/2004 – 05/31/2006.

Grants and Contracts APPLIED FOR AND AWAITING DECISION

1. *Biocarbon Catalytic Methane & Natural Gas Decomposition: The Cost-Effective Way to Produce Carbon Neutral/Negative Hydrogen from our Nation's Abundant Natural Gas Resources*, Department of Energy, PI: S. Adhikari, Co-PIs: **M.R. Eden**, H. Jahromi, S. Cremaschi, L. Lipp, J. Regnery, $1,437,949 (plus $369,889 in costshare), 08/01/2023-07/31/2025.
2. *IUSE/PFE: RED Innovation: Improving problem-solving and representation in engineering through reform of assessment practices*, NSF, PI: **M.R. Eden**, Co-PI: E.W. Burkholder, $1,985,230, 08/16/2023-08/15/2028.

MENTORING & TEACHING ACTIVITIES

POSTDOCTORAL RESEARCHERS & VISITING SCHOLARS HOSTED

- Dr. Anjan Tula, Postdoctoral Fellow, Spring 2017 – Summer 2019
- Dr. Vikrant Dev, Postdoctoral Fellow, January 2018 – Summer 2019
- Dr. Shounak Datta, Postdoctoral Fellow, December 2018 – Spring 2019
- Luis Torres Morales, Visiting Scholar from Universidad de Celaya, Mexico, Fall 2018
- Dr. Sawitree Kalakul, Postdoctoral Fellow, Spring 2017 – December 2017
- Dr. Zhihong Yuan, Postdoctoral Fellow, Fall 2014 – Fall 2016
- Dr. Robert Herring, Postdoctoral Fellow, Fall 2014 – Summer 2015
- Dr. Zheng Liu, Postdoctoral Fellow, Spring 2012 – Spring 2013
- Dr. Andrew O. Odjo, Visiting Scholar from University of Alicante, Spain, 2007
- Daniel Perez-Linares, Visiting Scholar from Ecóle Polytechnique Montreal, Canada, Summer 2009
- Sandra Luz Acosta, Visiting Scholar from Universidada San Luis Potosi, Mexico, Spring 2010
- Dieudonne R. Batsy, Visiting Scholar from Ecóle Polytechnique Montreal, Canada, Summer 2010
- Marwan Abbas, Visiting Scholar from McMaster University, Canada, Summer 2010
- Ivonne Cerón Salazar, Visiting Scholar from Universidad Nacional Colombia Manizales, Fall 2012
- Lee Siu Hoong, Visiting Scholar from Monash University, Malaysia, Fall 2012
- Rex Lip Ng, Visiting Scholar from University of Nottingham, Malaysia, Fall 2012

FORMER GRADUATE STUDENTS (Dr. Eden served as Major Professor)

1. Shounak Datta, Ph.D., "*Machine Learning Algorithms for QSPR/QSAR Development Involving High-Dimensional Data*", December 2018. Following graduation, Dr. Datta accepted a position as Postdoctoral Fellow at the University of Florida and is now Data Scientist at Change Healthcare.

2. Sarah E. Davis, Ph.D., "*Data Driven Methods for Chemical Process and Product Synthesis and Design*", December 2018. Dr. Davis was co-advised with Dr. Selen Cremaschi. Following graduation, Dr. Davis accepted a position as Manager of Engineering for ONE Gas in Tulsa, OK.

3. Vikrant A. Dev, Ph.D., "*Towards the Computer-Aided Molecular Design of Reactants and Products*", December 2017. Dr. Dev was co-advised with Dr. Nishanth Chemmangattuvalappil at the University of Nottingham – Malaysia. He was the recipient of the 2016-2017 Harry Merriwether Fellowship, which is the top award for Ph.D. students at Auburn University. Following graduation, Dr. Dev accepted a position with Rockwell Automation.

4. Pengcheng Li, M.S., "*Process Design and Simulation of Producing Liquid Transportation Fuels from Biomass*", May 2017. Mr. Li was a recipient of a 2015-2016 Alabama EPSCoR Graduate Research Scholarship. Mr. Li is currently pursuing a Ph.D. at Ulm University in Germany.

5. Narendra Sadhwani, Ph.D., "*Conversion of Carbon Dioxide and Biomass for Fuels and Chemicals Precursor through Gasification: Experimental and Modeling Approach*", May 2017. Dr. Sadhwani was co-advised with Dr. Sushil Adhikari in Biosystems Engineering. Dr. Sadhwani was a recipient of a 2013-2016 Alabama EPSCoR Graduate Research Scholarship. Dr. Sadhwani was the winner of the 2014 Auburn University Three Minute Thesis (3T) Competition and was the recipient of the 2015 Frederick & Charlene Kam Outstanding International Graduate Student of the Year Award. Following graduation, Dr. Sadhwani accepted a position with Baxter International in Opelika, AL.

6. Bernardo Lousada, M.S., "*Process Design and Simulation of Propylene and Methanol Production through Direct and Indirect Biomass Gasification*", August 2016. Following graduation, Mr. Lousada accepted a position with Pierre Fabre Group in Brazil.

7. Gregory C. Vaughan, M.S., "*Equilibrium Modeling of Coal and Biomass Gasification*", August 2015. Following graduation, Mr. Vaughan accepted a position with Ascend Performance Materials.

8. Robert H. Herring III, Ph.D., "*Computer-Aided Molecular Design with Multi-Dimensional Characterization*", December 2014. Dr. Herring was a NSF-IGERT trainee and has accepted a

postdoctoral research position at Auburn University. Dr. Herring was selected for the 2014-2015 Auburn University Distinguished Outstanding Doctoral Student Award. Following graduation, Dr. Herring accepted a position as Senior Innovation Analyst with Georgia-Pacific.

9. Susilpa Bommareddy, Ph.D., "*Integrated Framework for Process and Product Synthesis/Design*", December 2013. Dr. Bommareddy is the recipient of the 2012-2013 Harry Merriwether Fellowship, which is the top award for Ph.D. students at Auburn University. Following graduation, Dr. Bommareddy accepted a position with Sim2TheMax as Dynamic Simulation Developer for the VMGSim simulation software.

10. Subin Hada, Ph.D., "*Chemical Product Formulation through Multivariate Characterization, Modeling, and Design in Property Cluster Space*", August 2013. Dr. Hada was selected as one of only 44 US and South American graduate students to receive an all-expenses paid trip to attend the 2011 PASI workshop in Angra dos Reis, Brazil. Dr. Hada is the recipient of the 2013 Auburn University President's Award for Outstanding Graduate Student, which recognizes one graduate student for outstanding scholarship, leadership, citizenship, character and professional ability. It is the highest honor bestowed by the Auburn University Graduate School. Following graduation, Dr. Hada accepted a position with Evonik Industries in Mobile, AL.

11. J. Colin Haser, M.S., "*Development of a Quantitative Structure–Activity Relationship (QSAR) Model relating Solvent Structure to Ibuprofen Crystal Morphology using 2D and 3D Molecular Descriptors*", August 2013. Mr. Haser was selected as one of only ten Auburn University Outstanding Master's Students for 2012-2013. Following graduation, Mr. Haser accepted a position with Syngenta.

12. Charles C. Solvason, Ph.D., "*Integrated Multiscale Chemical Product Design using Property Clustering and Decomposition Techniques in a Reverse Problem Formulation*", December 2011. Dr. Solvason was selected as one of only 25 US graduate students to receive an all-expenses paid trip to attend the 2008 PASI workshop in Mar del Plata, Argentina. Dr. Solvason was selected as an Auburn University Distinguished Outstanding Doctoral Student for 2008-2009 and is the recipient of the 2009-2010 Harry Merriwether Fellowship, which is the top award for Ph.D. students at Auburn University. Dr. Solvason was awarded First Prize for Best Student Contribution at the 2009 Foundation of Computer-Aided Process Design (FOCAPD) conference. Dr. Solvason was also a recipient of the 2009-2010 Alabama EPSCoR Graduate Research Scholarship. Dr. Solvason was a three-time recipient of the McLeod Outstanding Graduate Student Teaching Award, which is the highest teaching distinction given by the Department of Chemical Engineering. Following graduation, Dr. Solvason accepted a position as Development Engineer with Bryan Research & Engineering in College Station, TX.

13. Wei Yuan, Ph.D., "*Modeling and Optimization of Novel Fuel Production Strategies*", December 2011. Dr. Yuan was selected as the 2011 Outstanding International Graduate Student for the Department of Chemical Engineering. Following graduation, Dr. Yuan accepted a position with Shell in Houston, TX.

14. Sarah Davis, M.Ch.E., Non-Thesis option offered via distance education, December 2011. Following graduation, Mrs. Davis enrolled in the chemical engineering Ph.D. program at Auburn University.

15. Diana K. Lushington, M.Ch.E., Non-Thesis option, December 2011. Following graduation, Ms. Lushington pursued a Ph.D. degree.

16. Nishanth G. Chemmangattuvalappil, Ph.D., "*A Systematic Property Based Approach for Molecular Synthesis using Higher Order Molecular Groups and Molecular Descriptors*", December 2010. Dr. Chemmangattuvalappil was the recipient of the 2010-2011 Harry Merriwether Fellowship, which is the top award for Ph.D. students at Auburn University. After appointments as postdoctoral researcher at the University of Pittsburgh and Auburn University, Dr. Chemmangattuvalappil accepted a faculty position at the University of Nottingham, Malaysia and has recently been promoted to Full Professor of Chemical and Environmental Engineering.

17. Norman E. Sammons Jr., Ph.D., "*A Framework for Optimal Biomass-based Polygeneration Facility Product Allocation*", December 2009. Dr. Sammons was the recipient of the prestigious EPA STAR Fellowship. Dr. Sammons was selected as one of only 25 US graduate students to receive an all-

expense paid trip to attend the 2006 PASI workshop in Iguazu Falls, Argentina. Dr. Sammons was selected as an Auburn University Distinguished Outstanding Doctoral Student for 2007-2008 and was the recipient of the 2008-2009 Harry Merriwether Fellowship, which is the top award for Ph.D. students at Auburn University. Following graduation, Dr. Sammons accepted a position as process engineer with Codexis in San Francisco, CA.

18. Jeffrey R. Seay, Ph.D., "*A Methodology for Integrating Process Design Elements with Laboratory Experiments*", May 2008. Dr. Seay was an industrial Ph.D. student sponsored by Evonik Degussa in Theodore, AL and is now a Professor of Chemical Engineering at University of Kentucky, Paducah.
19. Fadwa T. Eljack, Ph.D., "*A Property Based Approach to Integrated Process and Molecular Design*", May 2007. Dr. Eljack is now a Professor of Chemical Engineering at Qatar University.
20. Kristin H. McGlocklin, M.S., "*Process Integration and Optimization of Various Hydrogen Production Schemes*", December 2006. Following graduation, Ms. McGlocklin accepted a position as product engineer with 3M Corporation in Decatur, AL.

FORMER GRADUATE STUDENTS (Dr. Eden served as Committee Member)

1. Anna Dell'Angelo, Ph.D., "*Emissions to Methanol Process via Sulfidric Acid Splitting: Multiscale In-silico Process Development and Pilot-scale Validation*", May 2022. This student completed her Ph.D. with Professor Flavio Manenti at Politecnico di Milano in Milan, Italy.
2. Mikkel Arnø, Ph.D., "*At-bit LWD estimation, lithology classification, and pressure control using machine learning*", 2021. This student completed his Ph.D. in Engineering Cybernetics with Professor Ole Morten Aamo at NTNU in Trondheim, Norway.
3. Jangwon Lee, Ph.D., "*Hybrid Machine Learning Techniques for Manufacturing and Beyond*", August 2021.
4. Iman Hassani, Ph.D., "*Engineered Colorectal Cancer Tissues Employing Patient-derived Cells for Recapitulating the Tumor Microenvironment*", December 2020.
5. Zuo Zeng, Ph.D., "*Models and Solution Approaches for Large-scale Multistage Stochastic Programs with Endogenous or/and Exogenous Uncertainty*", December 2020.
6. Abhinav Sannidhi, Ph.D., "*Magnetic Particle Characterization and Quantification of Endocytosis Mechanisms of Cultured Mammalian Cells by Magnetic Cytometry*", December 2020.
7. Andre Furtado Amaral, Ph.D., "*Multiscale Design, Integration & Optimization of Biorefineries for the Production of Liquid Fuels*", October 2019. This student is completing his Ph.D. with Professor Flavio Manenti at Politecnico di Milano in Milan, Italy.
8. Yeseul Choi, M.S., "*Thermochemical properties calculation of silicon-based energy materials and kinetic reaction mechanism*", August 2019.
9. Ayse Dilan Celebi, Ph.D., "*Methodology for identification of integrated biorefineries - A computer tool for decision making*", June 2019. This student completed her Ph.D. with Professor Francois Marechal at EPFL in Lausanne, Switzerland.
10. Devarshi Shah, Ph.D. "*Big Data Analytics and Its Applications in Soft Sensor for Smart Manufacturing*", May 2019.
11. Farshad Amiri, M.S:, "*Fault Detection in Pressure Swing Adsorption Systems*", May 2019
12. Shu Fang, Ph.D., "*Mixing, Mass Transfer and Cell Production in a Continuous Bioreactor*", August 2018.
13. Wei Dai, Ph.D. "*A Data-Mining Framework for Uncertainty Analysis in Pipeline Erosion Modeling*", August 2018.
14. Vignesh Venkatasubramanian, Ph.D., "*Visualization Studies of Evaporation and Combustion of Alternative Liquid Fuels and Aviation Liquid Droplets in Controllable Environments"*, May 2018.

15. David Roe, Ph.D. "*Effect of Carbon Supports on Supercritical Hexane Mediated, Fe-Catalyzed Fischer-Tropsch Synthesis*", December 2017.
16. Brianna Christian, Ph.D. "*Solution Approaches to Large Scale Multistage Stochastic Programs with Endogenous and Exogenous Uncertainty*", December 2017.
17. Barry Yeh, M.S., "*Improving the Homogeneity of Superparamagnetic Nanoparticles and a Study of their Physicochemical Properties*", August 2016.
18. Bernal Sibaja, Ph.D. (Polymer and Fiber Engineering), "*Thermosetting Polymers from Renewable Resources*", August 2016.
19. Shantanu Pradhan, Ph.D., "*Development of a Three-Dimensional Tissue Engineered Model of Breast Cancer for Drug Screening Applications*", August 2016.
20. Suan Shi, Ph.D. "*Kinetics of Hemicellulose Hydrolysis in Dilute-Acid Hydrolysis of Corn Stover under High Solid Conditions and Production of Lactic Acid from Mixtures of Hemicellulose Pre-Hydrosylate and Paper Sludge*", December 2015.
21. Robert Henderson, Ph.D., "*Importance of Heat Transfer during Carbon Monoxide Oxidation"*, August 2015.
22. Pranav Vengsarkar, Ph.D. "*' Synthesis and Gas-Expanded Liquid (GXL) Processing of Metal and Metal Oxide Nanoparticles: Fundamentals and Application*", August 2015.
23. Charlotte Stewart, M.S., "*Conversion of Methanol to Hydrocarbons in a Supercritical Fluid Reaction Medium"*, May 2015.
24. Nourredine Abdoulmoumine, Ph.D., "*Fate and Remediation of Biomass Gasification Gas Contaminants Using Multifunctional Catalysts*", December 2014.
25. Jennifer Duggan (formerly Boice), Ph.D., "*The Synthesis and Tunable Processing of Magnetic and Metallic Nanoparticles in a Functional Solvent System*", May 2014.
26. Zhongliang Lu, Ph.D., "*An Automated Tissue Digester for Pancreatic Islet Production*", December 2013.
27. Meng Liang, Ph.D., "*Experimental and In Silico Fermentation of Xylose with Scheffersomyces stipitis*", December 2013.
28. Ying Zhu, Ph.D., "*Applications of Electrochemical Impedance Spectroscopy to in-situ Dynamic Characterization of Energy Conversion and Storage Systems*", December 2013.
29. Shirish Punde, Ph.D., "*Development and Simulation of Microfibrous Entrapped Catalysts for CO Oxidation*", August 2013.
30. Sihe Zhang, Ph.D., "*Production of Middle Distillate Range Transportation Fuels from Synthesis Gas Using Fischer Tropsch Synthesis Technology under Supercritical Phase*", May 2013.
31. Rui Xu, Ph.D., "*Utilization of Supercritical Fluids as Reaction Media for the Synthesis of Methanol and Higher Alcohols from Syngas over Copper-based Catalytic Systems*", May 2013.
32. Zi Xiu Wang, M.S., "*Variable Selection for Soft Sensor Development*", December 2012.
33. Siddharth Rao Gumuluru, M.S., "*Hydrogen Production by Supercritical Water Reforming of Bio-oil Components*", December 2012.
34. Yu He, Ph.D., "*A novel halogenation protocol and study on a non-heme iron hydroxylase model: $[Fe(bbpc)(CH_3CN)_2](SbF_6)_2$*", August 2012.
35. Yanli Chen, Ph.D., "*Application of Microfibrous Materials in Air Filtration for Improvement of Indoor Air Quality*", August 2012.
36. Hector Galicia, Ph.D., "*Advanced Monitoring and Soft Sensor Development with Application to Industrial Processes*", May 2012.
37. Sagar Gururaj, M.Ch.E., Non-Thesis option, December 2011.

38. Omer Ozturkoglu, Ph.D., "*New Warehouse Designs: Angled Aisles and Their Effects on Travel Distance*", August 2011.
39. Deborah Bacik, Ph.D., "*Supercritical Carbon Dioxide as a Green Medium for the Direct Catalytic Production of Hydrogen Peroxide*", August 2011.
40. Steven Saunders, Ph.D., "*Use of Gas-Expanded Liquids as Tunable Solvents to Obtain Well-Defined Nanomaterials at Relevant Scales*", May 2011.
41. Adam Byrd, Ph.D., "*Hydrogen Production in Supercritical Water*", May 2011.
42. Joseph E. Durham II, Ph.D., "*Supercritical Fluids for Fischer Tropsch Synthesis and Related Technologies*", May 2011.
43. Joshua Jackson, M.Ch.E., Non-Thesis option, December 2010.
44. Tunde Dokun, M.S., "*Fischer Tropsch Catalyst Structures & Process Design for JP-5 Fuel Integrated with MFEC*", May 2010.
45. Fengming Huang, M.S., "*Visualization of the Combustion of Single Particles: Coal, Wood Chips and Switch Grass*", May 2010.
46. Aimee Poda, Ph.D., "*Interfacial Engineering of Microstructured Materials*", May 2010.
47. Ryan Sothen, Ph.D., "*Design Characteristics of Pleated Filters and Their Corresponding Effect on Pressure Resistance*", August 2009.
48. Yanli Chen, M.S., "*Initial Investigation on Xylose Fermentation for Lignocellulosic Bioethanol Production*", December 2008.
49. Pallavi Chitta, M.Ch.E., Non-Thesis Option, December 2008.
50. Nick Irwin, M.Ch.E., August 2007.
51. Matthew Bernhart, M.S., "*Characterization of Poultry Litter for Storage and Process Design*", August 2007.
52. Chan-kyu Kang, M.S., "*Preliminary Study of Tribology: Uniform Control of the Density Control of the Functionalized Gold Nanoparticles on a Modified Silicon Surface*", May 2007.
53. Tracey L. Mole, Ph.D., "*The Auburn Engineering Technical Assistance Program Investigation of Polyvinyl Alcohol Film Developments Pertaining to Radioactive Particle Decontamination and Industrial Waste Minimization*", December 2005.

CURRENT GRADUATE STUDENTS (Dr. Eden serves as Major Professor)

1. SK Yasir Arafat Siddiki, Ph.D., "*Processing, Characterization and Application of Novel Hydrogels from Soybean Hulls*", expected 2027. Mr. Siddiki is co-advised with Dr. Zhihua Jiang.
2. Chinmoy Basak Mukta, Ph.D., "*Optimization and Flexibility Analysis of Modularized/Intensified Process Plants*", expected 2024. Mr. Mukta is co-advised with Dr. Selen Cremaschi.
3. Shuang Xu, Ph.D., "*Reaction Synthesis, Hybrid & Intensified Techniques Assisted Efficient Process Synthesis*", expected 2023. Mr. Xu is co-advised with Dr. Selen Cremaschi.
4. Yushi Deng, Ph.D., "*A Hybrid Modeling Approach for Entrainment Fraction Prediction and Uncertainty Analysis in Two-Phase Flow*", expected 2023. Ms. Deng is co-advised with Dr. Selen Cremaschi.

CURRENT GRADUATE STUDENTS (Dr. Eden serves as Committee Member)

1. Amod D. Parkhi, Ph.D., "*Towards Environmental Resilience in Pulp and Paper Manufacturing: Effluent and Carbon Dioxide Emission Reductions*", expected 2022.

2. Pooja Z. Santhamoorthy, Ph.D., "*Optimization Models for Operational, Design, and Strategic Decision Making Applications in Oil and Gas Industries*", expected 2024.

SELECTED GRADUATE STUDENT AWARDS

The graduate students supervised by Dr. Eden have been very productive and along with a large number of publications and presentations, they have been awarded several honors including:

- 2022 Department Nominee for AU Graduate School Harry M. Merriwether Fellowship – Shuang Xu
- 2017 Travel Grant ($2,000) to attend ESCAPE-27 – Sarah E. Davis
- 2016 AU Graduate School Harry M. Merriwether Fellowship – Vikrant A. Dev
- 2015 Alabama EPSCoR Graduate Research Scholarship – Pengcheng Li
- 2015 Alabama EPSCoR Graduate Research Scholarship – Narendra Sadhwani
- 2015 Frederick & Charlene Kam Outstanding International Graduate Student – Narendra Sadhwani
- 2015 Auburn University Outstanding Doctoral Student – Robert H. Herring III
- 2014 Winner of Auburn University Three Minute Thesis (3T) Competition – Narendra Sadhwani
- 2014 Paper selected for Keynote Lecture at ESCAPE-24 – Robert H. Herring III
- 2014 Alabama EPSCoR Graduate Research Scholarship – Narendra Sadhwani
- 2013 AU President's Award for Outstanding Graduate Student – Subin Hada
- 2013 Auburn University Outstanding Masters Student – J. Colin Haser
- 2013 Alabama EPSCoR Graduate Research Scholarship – Narendra Sadhwani
- 2012 SGA Outstanding International Graduate Student – Subin Hada
- 2012 US Steel Graduate Research Fellowship – Robert H. Herring III
- 2012 AU Graduate School Harry M. Merriwether Fellowship – Susilpa Bommareddy
- 2011 AU Dept. of Chemical Engineering Outstanding International Graduate Student – Wei Yuan
- 2011 PASI workshop in Angra dos Reis, Brazil – Subin Hada
- 2010 AU Graduate School Harry M. Merriwether Fellowship – Nishanth G. Chemmangattuvalappil
- 2009 Best Student Contribution FOCAPD 2009 – Charles C. Solvason
- 2009 Alabama EPSCoR Graduate Research Scholarship – Charles C. Solvason
- 2009 AU Graduate School Harry M. Merriwether Fellowship – Charles C. Solvason
- 2009 Auburn University Outstanding Doctoral Student – Charles C. Solvason
- 2008 PASI Workshop in Mar del Plata, Argentina – Charles C. Solvason
- 2008 AU Graduate School Harry M. Merriwether Fellowship – Norman E. Sammons Jr.
- 2008 Auburn University Outstanding Doctoral Student – Norman E. Sammons Jr.
- 2006 EPA Science to Achieve Results (STAR) Fellowship – Norman E. Sammons Jr.
- 2006 PASI Workshop in Iguazu Falls, Argentina – Norman E. Sammons Jr.
- 2005 AIChE Computing and Systems Technology (CAST) Director's Award – Fadwa T. Eljack

UNDERGRADUATE STUDENTS MENTORED

Dr. Eden has also been successfully involving outstanding undergraduate researchers in his research (see list below) including two recipients of the AU Undergraduate Research Fellowship. Undergraduate researchers engaged in smaller, well defined parts of each research project are mentored by senior graduate students for seamless integration with the group. One student was a two-time fellowship recipient and a 2005 Barry M. Goldwater Scholar. While supervised by Dr. Eden, this student co-authored 2 peer-reviewed papers and 11 presentations at professional and student meetings.

1. Toby Crump, B.S., May 2023.
2. Rudy Namikis, B.S., May 2013.
3. J. Chris Coletta, B.S., May 2012. Mr. Coletta is now working as a process engineer with Maverick Engineering in Pensacola, FL.
4. Robert Jernigan, B.S., December 2008. Mr. Jernigan now works as an environmental engineer with Gulf Power Company.

5. Jennifer L. Kline (formerly Wilder), B.S. with Honors, Honors Thesis: "*Simulation of Mobile Fuel Cell Systems*", May 2007. Mrs. Kline was an Auburn University Undergraduate Research Fellow from 2006-2007. Mrs. Kline now works as a process engineer with Eastman Chemical Company, Kingsport, TN.
6. Rose M. Hanks (formerly Cummings), B.S. with Honors, Honors Thesis: "*Process Simulation and Integration of Logistical Fuels Processing Plants*", August 2006. Mrs. Hanks was a 2005 Barry M. Goldwater Scholar and a Auburn University Undergraduate Research Fellow from 2004-2006. Mrs. Hanks was voted Outstanding Chemical Engineering Student 2005-2006.
7. Nikole Reeves (formerly Bohannon), B.S., August 2005. Mrs. Reeves now works as a chemical process engineer with CH2M Hill.
8. Ahmed Abdelhady, B.S., August 2004. Mr. Abdelhady now works as sales account manager for OnSpec Engineering Solutions.

COURSES TAUGHT

Dr. Eden's undergraduate teaching responsibilities have been focused on the senior capstone design sequence, i.e. covering process synthesis, simulation, design, integration and optimization:

- CHEN 4460 Process Synthesis, Simulation and Optimization (Fall Semester 2002, 2004-2012)
- CHEN 4470 Process Design Practice (Spring Semester 2003, 2004-2013)

The effectiveness of Dr. Eden's teaching can be demonstrated by the student evaluations provided after each course. In both classes, the vast majority of the students find his teaching very effective as indicated by average scores of 4.4/5.0 and 4.8/5.0, respectively. Dr. Eden has consistently received very high student evaluations and has been recognized with several teaching awards. Other undergraduate and graduate courses Dr. Eden has taught (or consistently provided contributions to) are given below.

- CHEN 2AA0 Chemical Engineering Progress Assessment I
- CHEN 3AA0 Chemical Engineering Progress Assessment II
- CHEN 4900 Chemical Engineering Independent Study
- CHEN 4980 Chemical Engineering Undergraduate Research
- CHEN 4997 Chemical Engineering Honors Thesis
- CHEN 6970 Sustainable Production of Fuels and Chemicals by Biorefining
- CHEN 7900 Graduate Independent Study
- CHEN 7990 Research and Thesis
- CHEN 8990 Research and Dissertation
- ENGR 1110 Introduction to Chemical Engineering
- ENGR 1100 Engineering Orientation
- HONR 1087 Honors Lyceum

SERVICE ACTIVITIES

PROFESSIONAL SERVICE

Editorial Board Responsibilities

- 2020 – Present Discover Chemical Engineering (SpringerNature)
- 2017 – Present Computers and Chemical Engineering
- 2016 – Present Process Integration and Optimization for Sustainability
- 2015 – Present Clean Technologies and Environmental Policy
- 2013 – Present Frontiers in Energy Research – Process and Energy Systems Engineering
- 2012 – Present Journal of Engineering
- 2007 – Present Chemical Process and Product Modelling

Conference Organization

1. *13th International Symposium on Process Systems Engineering (PSE 2018)*, **Eden M.R.**, Ierapetritou M.G., Towler, G.P., San Diego, CA, 2018. (Top conference in PSE, only held in US every 18 years)
2. *3rd Workshop on ProBioRefine*, **Eden M.R.**, Auburn, AL, 2016.
3. *8th International Conference on Foundations of Computer-Aided Process Design (FOCAPD 2014)*, **Eden M.R.**, Siirola J.D., Towler G.P., Cle Elum, WA, 2014. (Top conference in chemical process design, only held every 5 years)

Sessions Organized/Chaired at Professional Meetings

1. *CAST Division Plenary*, **Eden M.R.**, Mitsos A., AIChE Annual Meeting, Boston, MA, 2021.
2. *Industry 4.0 & Fuels and Petrochemicals Division Joint Plenary*, Castillo I., Sengupta D., **Eden M.R.**, AIChE Spring Meeting, Houston, TX, 2021.
3. *Innovation in Sustainable Process Design & Alternative and Renewable Energy Systems*, **Eden M.R.**, Maravelias C.T., 5th International Conference on Sustainable Chemical Product and Process Engineering (SCPPE), Tianjin, China, 2019.
4. *Process-Product Synthesis, Design, and Integration*, **Eden M.R.**, 29th European Symposium on Computer Aided Process Engineering (ESCAPE-29), Eindhoven, The Netherlands, 2019.
5. *Synthesis and Design*, **Eden M.R.**, 27th European Symposium on Computer Aided Process Engineering (ESCAPE-27), Barcelona, Spain, 2017.
6. *Process-Product Synthesis, Design and Integration*, **Eden M.R.**, Adams T.A., 26th European Symposium on Computer Aided Process Engineering (ESCAPE-26), Portoroz, Slovenia, 2016.
7. *Tools for Product Design*, Cox K.R., Georgiorgis D.I., **Eden M.R.**, Camarda K., American Institute of Chemical Engineers (AIChE) Annual Meeting, Salt Lake City, UT, 2015.
8. *Intelligent Decomposition: Product Design and Ontologies*, Giridhar A.V., Sin G., **Eden M.R.**, Georgiorgis D.I., American Institute of Chemical Engineers (AIChE) Annual Meeting, Salt Lake City, UT, 2015.
9. *Keynote Session: Process Intensification*, **Eden M.R.**, Process Systems Engineering (PSE-2015) & 25th European Symposium on Computer Aided Process Engineering (ESCAPE-25), Copenhagen, Denmark, 2015.
10. *Poster Session 2*, **Eden M.R.**, Carvalho A., Kammafoo A., Cisternas L., Seay J.R., Process Systems Engineering (PSE-2015) & 25th European Symposium on Computer Aided Process Engineering (ESCAPE-25), Copenhagen, Denmark, 2015.
11. *Design of Integrated Biorefinery*, **Eden M.R.** and Cremaschi S., American Institute of Chemical Engineers (AIChE) Annual Meeting, Atlanta, GA, 2014.

12. *Progress in Current Chemical Technologies: Process Design and Intensification*, **Eden M.R.**, 9th World Congress of Chemical Engineering (WCCE-9), Seoul, South Korea, 2013.
13. *Sustainability of Products and Processes 2*, **Eden M.R.**, 23rd European Symposium on Computer Aided Process Engineering (ESCAPE-23), Lappeenranta, Finland, 2013.
14. *Systems and Process Design Poster Session*, **Eden M.R.** and Lakshmanan A., American Institute of Chemical Engineers (AIChE) Annual Meeting, Pittsburgh, PA, 2012.
15. *Design of Biofuels and Bioproducts*, **Eden M.R.** and Camarda K.V., American Institute of Chemical Engineers (AIChE) Annual Meeting, Pittsburgh, PA, 2012.
16. *Systems and Process Design Poster Session*, Arora N. and **Eden M.R.**, American Institute of Chemical Engineers (AIChE) Annual Meeting, Minneapolis, MN, 2011.
17. *Methodologies for Product Design*, **Eden M.R.** and Achenie L.E.K., American Institute of Chemical Engineers (AIChE) Annual Meeting, Minneapolis, MN, 2011.
18. *Environmental Systems Engineering II*, **Eden M.R.**, 21st European Symposium on Computer Aided Process Engineering (ESCAPE-21), Chalkidiki, Greece, 2011.
19. *Bioprocess Systems Engineering Poster Session*, **Eden M.R.**, 21st European Symposium on Computer Aided Process Engineering (ESCAPE-21), Chalkidiki, Greece, 2011.
20. *Environmental Systems Engineering Poster Session*, **Eden M.R.**, 21st European Symposium on Computer Aided Process Engineering (ESCAPE-21), Chalkidiki, Greece, 2011.
21. *Training and Education Poster Session*, **Eden M.R.**, 21st European Symposium on Computer Aided Process Engineering (ESCAPE-21), Chalkidiki, Greece, 2011.
22. *Emerging Technologies for Product and Process Design*, **Eden M.R.** and Wu Y., 2nd International Symposium on Sustainable Chemical Product and Process Engineering, Hangzhou, China, 2010.
23. *Process Design I*, **Eden M.R.** and Maravelias C.T., American Institute of Chemical Engineers (AIChE) Annual Meeting, Nashville, TN, 2009.
24. *Fundamentals of Environmental Process Systems Engineering*, **Eden M.R.** and Nikolaou M., American Institute of Chemical Engineers (AIChE) Annual Meeting, Nashville, TN, 2009.
25. *Modeling and Experiments*, **Eden M.R.** and Pinto J.C., Process Systems Engineering (PSE'2009), Salvador Bahia, Brazil, 2009.
26. *Student Poster Session*, **Eden M.R.** and Piluso C., 1st International Congress of Sustainability Science and Engineering (ICOSSE), Cincinnatti, OH, 2009.
27. *Special Display Poster Session*, **Eden M.R.** and Piluso C., 1st International Congress of Sustainability Science and Engineering (ICOSSE), Cincinnatti, OH, 2009.
28. *Scheduling and Batch Plant Operation*, Jørgensen S.B. and **Eden M.R.**, 19th European Symposium on Computer Aided Process Engineering (ESCAPE-19), Cracow, Poland, 2009.
29. *Process Design I*, **Eden M.R.** and Martin L.L., American Institute of Chemical Engineers (AIChE) Annual Meeting, Philadelphia, PA, 2008.
30. *Process Design II*, **Eden M.R.** and Martin L.L., American Institute of Chemical Engineers (AIChE) Annual Meeting, Philadelphia, PA, 2008.
31. *Sustainability Education*, Hesketh R.P. and **Eden M.R.**, American Institute of Chemical Engineers (AIChE) Annual Meeting, Philadelphia, PA, 2008.
32. *Integrated Product and Process Design*, **Eden M.R.** and Hill M., American Institute of Chemical Engineers (AIChE) Annual Meeting, Philadelphia, PA, 2008.
33. *Product Design*, Wibowo C. and **Eden M.R.**, American Institute of Chemical Engineers (AIChE) Annual Meeting, Salt Lake City, UT, 2007.

34. *Products and Processes – Design Fundamentals*, Joulia X. and **Eden M.R.**, 17th European Symposium on Computer Aided Process Engineering (ESCAPE-17), Bucharest, Romania, 2007.
35. *Education Perspectives on Sustainable Chemical Engineering*, **Eden M.R.** and Liang B., 1st International Symposium on Sustainable Chemical Product and Process Engineering, Guangzhou, China, 2007.
36. *Process Synthesis and Design*, **Eden M.R.** and Grievink J., 6th European Congress on Chemical Engineering (ECCE-6), Copenhagen, 2007.
37. *Process Synthesis and Design Poster Session*, **Eden M.R.**, 6th European Congress on Chemical Engineering (ECCE-6), Copenhagen, 2007.
38. *Advances in Computational and Numerical Methods Poster Session*, **Eden M.R.**, 6th European Congress on Chemical Engineering (ECCE-6), Copenhagen, 2007.
39. *Process Design Software and Case Studies*, O'Young L. and **Eden M.R.**, American Institute of Chemical Engineers (AIChE) Spring Meeting, Houston, TX, 2007.
40. *Product and Process Design*, **Eden M.R.** and Moon I., Process Systems Engineering (PSE'2006) and 16th European Symposium on Computer Aided Process Engineering (ESCAPE-16), Garmisch-Partenkirchen, Germany, 2006.
41. *Process Design Software and Case Studies*, Towler G. and **Eden M.R.**, American Institute of Chemical Engineers (AIChE) Spring Meeting, Orlando, FL, 2006.
42. *Process Development and Manufacturing*, **Eden M.R.**, Danish Chemical Engineering Conference (DK-2), Kgs. Lyngby, Denmark, 2006.
43. *Process Systems*, **Eden M.R.**, Symposium on Modeling of Complex Processes, College Station, TX, 2005.

Membership of Scientific Committees for National and International Conferences

2022 – Present	European Symposium on Computer Aided Process Engineering (ESCAPE-33)
2021 – Present	Found. of Comp. Aided Process Operations/Chemical Process Control (FOCAPO/CPC)
2017 – Present	Executive Committee – Int. Conf. on Functional Materials & Chem. Eng. (ICFMCE) Series
2021 – 2022	European Symposium on Computer Aided Process Engineering (ESCAPE-32)
2020 – 2022	Process Systems Engineering (PSE 2022)
2020 – 2021	European Symposium on Computer Aided Process Engineering (ESCAPE-31)
2019 – 2020	5th International Conference on Sustainable Chemical Product and Process Engineering
2019 – 2020	European Symposium on Computer Aided Process Engineering (ESCAPE-30)
2018 – 2019	European Symposium on Computer Aided Process Engineering (ESCAPE-29)
2017 – 2018	European Symposium on Computer Aided Process Engineering (ESCAPE-28)
2017 – 2018	Int. Conf. on Functional Materials & Chem. Eng. (ICFMCE 2017)
2016 – 2018	Conference Co-Chair – Process Systems Engineering (PSE 2018)
2016 – 2017	10th World Congress of Chemical Engineering (WCCE-10)
2016 – 2017	European Symposium on Computer Aided Process Engineering (ESCAPE-27)
2015 – 2018	Process Systems Engineering (PSE 2018)
2015 – 2017	Foundations of Computer Aided Process Operations (FOCAPO 2017)
2015 – 2017	Chemical Process Control (CPC 2017)
2013 – 2015	Process Systems Engineering (PSE 2015)
2013 – 2015	European Symposium on Computer Aided Process Engineering (ESCAPE-25)
2012 – 2014	Conference Co-Chair – Foundations of Computer Aided Process Design (FOCAPD 2014)
2012 – 2013	3rd Int. Symposium on Sustainable Chemical Product & Process Eng. (SCPPE-3)
2012 – 2013	European Symposium on Computer Aided Process Engineering (ESCAPE-23)
2012 – 2013	2nd Postgraduate Colloquium for Environmental Research (POCER 2013)
2011 – 2012	Frontiers in Biorefining
2011 – 2012	Process Systems Engineering (PSE 2012)
2010 – 2017	Qatar Gas Processing Symposium
2009 – 2011	European Symposium on Computer Aided Process Engineering (ESCAPE-21)

2009 – 2010 2nd Int. Symposium on Sustainable Chemical Product & Process Eng. (SCPPE-2)
2007 – 2009 Foundations of Computer Aided Process Design (FOCAPD 2009)
2005 – 2006 European Congress of Chemical Engineering (ECCE-6)

Peer-Reviewer for Journals and Book Chapters

- ACS Catalysis
- ACS Omega
- Advances in Environmental and Engineering Research
- AIChE Journal
- Annals of Operations Research
- Applied Catalysis A: General
- Applied Computing and Geosciences
- Applied Energy
- Applied Sciences
- Arabian Journal of Chemistry
- Biochemical Engineering Journal
- Biofuels, Bioproducts and Biorefining
- Biomass and Bioenergy
- Biomass Conversion and Biorefinery
- Bioresource Technology
- Brazilian Journal of Chemical Engineering
- Briefings in Bioinformatics
- Canadian Journal of Chemical Engineering
- Catalysis Today
- ChemEngineering
- Chemical Engineering Communications
- Chemical Engineering Education
- Chemical Engineering Journal
- Chemical Engineering Progress
- Chemical Engineering Research and Design
- Chemical Engineering Science
- Chemical Papers
- Chemical Process and Product Modeling
- Chemical Thermodynamics
- Chinese Journal of Chemical Engineering
- Clean
- Clean Technologies and Environmental Policy
- Computational Intelligence and Neuroscience
- Computer Aided Chemical Engineering
- Computers and Chemical Engineering
- Computers and Industrial Engineering
- CRC Press
- Crystals
- Current Computer-Aided Drug Design
- Current Opinion on Chemical Engineering
- Digital Chemical Engineering
- Earth and Space Science
- Ecological Complexity
- Elsevier
- Energy
- Energy Conversion and Management
- Environmental Progress & Sustainable Energy
- Environmental Science and Policy

- European Journal of Agronomy
- Expert Systems with Applications
- Fluid Phase Equilibria
- Food and Bioproducts Processing
- Fuel
- Fuel Processing Technology
- ICT Research and Applications
- IEEE Access
- IEEE Computational Intelligence
- Industrial & Engineering Chemistry Research
- International Journal of Circuit Theory and Applications
- International Journal of Coal Geology
- International Journal of Chemical Reactor Engineering
- International Journal of Energy Research
- International Journal of Mechanical Sciences
- International Journal of Modelling, Identification and Control
- International Journal of Sustainable Energy
- Korean Journal of Chemical Engineering
- Langmuir
- Process Safety and Environmental Protection
- Processes
- Preparative Biochemistry & Biotechnology
- Progress in Organic Coatings
- Journal of Advanced Manufacturing and Processing
- Journal of the Brazilian Chemical Society
- Journal of Chemical Information and Modeling
- Journal of Chemical Thermodynamics
- Journal of Chemistry
- Journal of Cleaner Production
- Journal of Computational Design and Engineering
- Journal of Energy Chemistry
- Journal of Energy Engineering
- Journal of Field Robotics
- Journal of Harbin Institute of Technology
- Journal of Loss Prevention in the Process Industries
- Journal of Mathematics
- Journal of Membrane Science
- Journal of Microwave Power and Electromagnetic Energy
- Journal of Natural Gas Science & Engineering
- Journal of Pharmaceutical Innovation
- Journal of Pharmaceutics
- Journal of Physical Chemistry
- Journal of Wood Chemistry and Technology
- Mathematical Biosciences and Engineering
- Mathematical Methods in the Applied Sciences
- Mechanics Based Design of Structures and Machines
- Mechanics of Advanced Materials and Structures
- Molecular Informatics
- Molecular Systems Design and Engineering
- Molecules
- Nanomaterials
- PLOS ONE
- Polycyclic Aromatic Compounds

- Powder Technology
- Recent Innovations in Chemical Engineering
- Resources, Conservation & Recycling
- Royal Society Open Science
- Science Progress
- SMC Magazine
- Sustainable Energy Technologies and Assessments
- Taylor and Francis
- Transactions on Evolutionary Computation
- Water and Environment
- Wiley
- World Scientific Press

Peer-Reviewer for Research Proposals

- American Chemical Society – Petroleum Research Fund (ACS-PRF)
- Consolider (Spain)
- Danish Energy Agency (EUDP)
- Danish Council for Strategic Research
- Department of Energy – RAPID
- European Research Council
- Indiana State
- National Sciences and Engineering Research Council of Canada (NSERC)
- National Science Foundation – Chemical, Bioengineering, Environmental, and Transport Systems
- National Science Foundation – Cyber Development Initiative
- National Science Foundation – DataNet
- National Science Foundation – EFRI Distributed Chemical Manufacturing
- National Science Foundation – EFRI Photosynthetic Biorefineries
- National Science Foundation – Environmental Sustainability
- National Science Foundation – CAREER
- National Science Foundation – NRT
- Ontario Research Fund
- Portuguese Foundation for Science and Technology (FCT)
- Qatar National Research Foundation (QNRF)
- US Department of Agriculture – National Institute for Food and Agriculture (USDA-NIFA)