

DR. MARIO RICHARD EDEN

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EDUCATION

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

EXPERIENCE

2008 – Present Associate Professor, Department of Chemical Engineering, Auburn University
2004 – 2008 Assistant Professor, Department of Chemical Engineering, Auburn University

SCIENTIFIC AND PROFESSIONAL SOCIETIES

2005 – Present American Chemical Society
2004 – Present American Society for Engineering Education
1999 – Present American Institute of Chemical Engineers
1999 – Present Danish Society for Processing Technology
1999 – Present Danish Society of Chemical Engineers
1999 – Present Society of Danish Engineers

INSTITUTIONAL AND PROFESSIONAL SERVICES

2009 – Present Advisory Board Member – Computer Aided Process Engineering Center (CAPEC)
2008 – Present International Scientific Committee Member – Qatar Gas Processing Symposium 2010
2008 – Present Member – Auburn University Honors College Council
2008 – Present Selection Committee Member – AIChE Sustainability Engineering Forum Research Awards
2008 – Present Panel Member – NSF Roadmap on Zero-Incident, Zero-Emission Smart Manufacturing
2008 – Present International Scientific Committee Member – Process Design Symposium 2009
2007 – Present Editorial Board Member – Chemical Process and Product Modeling
2006 – Present Member – AU CHEN Curriculum Accreditation Planning and Action Committee (CAPAC)
2005 – Present Faculty Advisor – AU CHEN Omega Chi Epsilon Honor Society
2005 – Present Reviewer – Various journals, e.g. I&EC Research, Comp. & Chem. Eng., AIChE Journal
2005 – Present Session Chair – Various conferences, e.g. AIChE Annual Meetings, ESCAPE and PSE Series
2005 – Present Reviewer – Various funding agencies, e.g. NSF, DOE, ACS-PRF, Indiana State, Consolider Spain
2004 – Present Co-Chair – AU CHEN E-Day
2004 – Present Member – AU CHEN Graduate Recruiting Committee (Committee chair 2005-2006, 2008-2009)
2007 – 2009 Member – FOCAPD Technical Advisory Committee
2004 – 2009 Mentor, Review Committee & Panel Member – AU Undergraduate Research Fellowship Program

HONORS AND AWARDS

2009 Best Faculty Contribution – Foundations of Computer-Aided Process Design 2009
2009 Fred H. Pumphrey Teaching Award for Excellence – Samuel Ginn College of Engineering, Auburn University
2009 Outstanding Faculty Member – Samuel Ginn 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 – Samuel Ginn College of Engineering
2006 Faculty Early Career Development (CAREER) Award – National Science Foundation
2006 Junior Faculty Research Award – Auburn Alumni Engineering Council
2003 Ph.D. Degree Awarded with Distinction – Technical University of Denmark

RESEARCH INTERESTS

- ❖ Process Systems Engineering (PSE) & Computer Aided Process Engineering (CAPE)
- ❖ Process and product design
- ❖ Process integration and optimization

FORMER GRADUATE STUDENTS (*MAJOR PROFESSOR, **COMMITTEE MEMBER)

1. Yanli Chen**, M.S., “*Initial Investigation on Xylose Fermentation for Lignocellulosic Bioethanol Production*”, December 2008. Ms. Chen is now a Ph.D. student in Chemical Engineering at Auburn University.
2. Pallavi Chitta**, M.Ch.E., December 2008.
3. 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 an Assistant Professor of Chemical Engineering at University of Kentucky, Paducah.
4. Fadwa T. Eljack*, Ph.D., “*A Property Based Approach to Integrated Process and Molecular Design*”, May 2007. Dr. Eljack is now an Assistant Professor of Chemical Engineering at Qatar University and Director of the Gas Processing Center, Doha, Qatar.
5. Kristin H. McGlocklin*, M.S., “*Process Integration and Optimization of Various Hydrogen Production Schemes*”, December 2006. Ms. McGlocklin now works as a product engineer with 3M Corporation in Decatur, AL.
6. Nick Irwin**, M.Ch.E., August 2007. Mr. Irwin was in the distance education Masters of Chemical Engineering program while working for Southern Company.
7. Matthew Bernhart**, M.S., “*Characterization of Poultry Litter for Storage and Process Design*”, August 2007. Mr. Bernhart now works as an environmental engineer with CDM in Atlanta, GA.
8. 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. Mr. Kang is currently seeking admission to doctoral programs.
9. 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. Dr. Mole now works as a process engineer with Evonik Degussa in Theodore, AL.

CURRENT GRADUATE STUDENTS (*MAJOR PROFESSOR, **COMMITTEE MEMBER)

1. Norman E. Sammons Jr.*, Ph.D., “*Optimization of Biorefinery Processes and Products*”, expected 2009. Mr. Sammons is the recipient of the prestigious EPA STAR Fellowship. Mr. Sammons was selected as one of only 25 US graduate students to receive an all expenses paid trip to attend the 2006 PASI workshop in Iguazu Falls, Argentina. Mr. Sammons was selected as an Auburn University Distinguished Outstanding Graduate Student for 2007-2008 and is the recipient of the 2008-2009 Harry Merriwether Fellowship.
2. Charles C. Solvason*, Ph.D., “*Integrated Property Based Product Synthesis*”, expected 2009. Mr. 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. Mr. Solvason was selected as an Auburn University Distinguished Outstanding Graduate Student for 2008-2009 and is the recipient of the 2009-2010 Harry Merriwether Fellowship. Mr. Solvason was awarded First Prize for Best Student Contribution at the 2009 Foundation of Computer-Aided Process Design (FOCAPD) conference.
3. Wei Yuan*, Ph.D., “*Modeling and Optimization of Novel Fuel Production Strategies*”, expected 2010.
4. Nishanth Chemmangattuvalappil*, Ph.D., “*Property Based Molecular Synthesis and Design*”, expected 2010.
5. Susilpa Bommareddy*, Ph.D., “*Property Integration for Simultaneous Process and Product Design*”, expected 2011.
6. Joseph E. Durham II**, Ph.D., “*Supercritical Fluids and Nano-Catalysis for Fischer Tropsch Synthesis and Related Technologies*”, expected 2009.
7. Deborah Bacik**, Ph.D., “*Supercritical Carbon Dioxide as a Green Medium for the Direct Catalytic Production of Hydrogen Peroxide*”, expected 2009.

8. Adam Byrd**, Ph.D., “*Hydrogen Production in Supercritical Water*”, expected 2009.
9. Ryan Sothen**, Ph.D., “*Design Characteristics of Pleated Filters and Their Corresponding Effect on Pressure Resistance*”, expected 2009.
10. Shirish Punde**, Ph.D., “*Development and Simulation of Microfibrous Entrapped Catalysts for CO Oxidation*”, expected 2010.
11. Aimee Poda**, Ph.D., “*Microreactors for Fischer-Tropsch Synthesis*”, expected 2010.
12. Steven Saunders**, Ph.D., “*Use of Gas-Expanded Liquids as Tunable Solvents to Obtain Well-Defined Nanomaterials at Relevant Scales*”, expected 2010.
13. Fengming Huang**, M.S., “*Visualization of the Combustion of Single Particles: Coal, Wood Chips and Switch Grass*”, expected 2009.

FORMER UNDERGRADUATE RESEARCHERS

1. Rose M. Cummings (now Hanks), BS 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. Mrs. Hanks now works as a process engineer with Flatrock Engineering and Environmental, San Antonio, TX.
2. Jennifer L. Wilder, BS with Honors, Honors Thesis: “*Simulation of Mobile Fuel Cell Systems*”, May 2007. Ms. Wilder was an Auburn University Undergraduate Research Fellow from 2006-2007. Ms. Wilder now works as a process engineer with Eastman Chemical Company, Kingsport, TN.

PUBLICATIONS

Book Chapters

1. **Eden M.R.** (2007): “CAREER Proposal Writing – My Perspective and Experience”, Chapter in: *NSF CAREER Proposal Writing Tips*, Editor ZJ Pei, ISBN 978-1-4303-0697-9, pp. 43-47.

Refereed Papers

1. 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*, PSE-2009 (accepted for publication 3/29/09)
2. 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”, *Computer Aided Chemical Engineering*, PSE-2009 (accepted for publication 3/29/09)
3. Chemmangattuvalappil N.G., Solvason C.C., Bommareddy S., **Eden M.R.** (2009): “Incorporating Molecular Signature Descriptors in Reverse Problem Formulations”, *Computer Aided Chemical Engineering*, PSE-2009 (accepted for publication 3/26/09)
4. 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*, PSE-2009 (accepted for publication 3/26/09)
5. 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*, PSE-2009 (accepted for publication 3/26/09)
6. 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*, PSE-2009 (accepted for publication 3/26/09)
7. 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.

8. 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.
9. 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.
10. Stuart P., **Eden M.R.**, El-Halwagi M.M., Froyd J., Mahalec V., Moscota M., Milan P.M., Picon-Nunez M. (2009): “Web-Based Modules for Product and Process Design”, *Design for Energy and the Environment*, pp. 505-516, Taylor and Francis.
11. Seay J.R., **Eden M.R.** (2009): “Incorporating Sustainability and Environmental Impact Assessment into Capstone Design Projects”, *Design for Energy and the Environment*, pp. 689-698, Taylor and Francis.
12. 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 and the Environment*, pp. 767-776, Taylor and Francis.
13. 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 and the Environment*, pp. 851-860, Taylor and Francis.
14. 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 and the Environment*, pp. 757-766, Taylor and Francis.
15. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): “Multi-Scale Product Design using Property Clustering and Decomposition Techniques”, *Design for Energy and the Environment*, pp. 861-870, Taylor and Francis.
16. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): “A Systematic Method for Integrating Product Attributes and Molecular Synthesis”, *Computers and Chemical Engineering* **33(5)**, pp. 977-991.
17. Seay J.R., **Eden M.R.** (2009): “Incorporating Environmental Impact Assessment into Conceptual Process Design: A Case Study Example”, *Environmental Progress and Sustainable Energy* **28(1)**, pp. 30-37.
18. 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.
19. Chemmangattuvalappil N.G., Eljack F.T., Solvason C.C., **Eden M.R.** (2009): “A Novel Algorithm for Molecular Synthesis Using Enhanced Property Operators”, *Computers and Chemical Engineering* **33(3)**, pp. 636-643.
20. 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”, *Journal of Environmental Progress* **27(4)**, pp. 515-523.
21. Eljack F.T., **Eden M.R.** (2008): “A Visual Approach to Molecular Design using Property Clusters and Group Contribution”, *Computers and Chemical Engineering* **32(12)**, pp. 3002-3010.
22. 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 and Design* **86(7)**, pp. 800-808.
23. 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.
24. 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.

25. 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).
26. 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).
27. 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).
28. 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.
29. 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.
30. 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.
31. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2007): “A Flexible Framework for Optimal Biorefinery Product Allocation”, *Journal of Environmental Progress* **26(4)**, pp. 349-354.
32. 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.
33. 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).
34. 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.
35. 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.
36. 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.
37. 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.
38. 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.
39. 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.
40. 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 and Chemical Engineering* **29**, pp. 2304-2317.
41. 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.
42. 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.

43. 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.
44. **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 and Processing* **43**, pp. 595-608.
45. **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.
46. **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.
47. **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.
48. **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.
49. **Eden M.R.**, Gani R., Jørgensen S.B. (2002): "A Holistic Design Methodology", *Journal of Danish Chemistry* **83(12)**, pp. 29-32.
50. **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.
51. **Eden M.R.**, Koggersbøl A., Hallager L., Jørgensen S.B. (2000): "Dynamics and Control During Startup of Heat-integrated Distillation Column", *Computers and Chemical Engineering* **24**, pp. 1091-1097.
52. Jørgensen S.B., Gani R., Jonsson G., **Eden M.R.** (1999): "Development of Alternative Energyefficient Separation Processes", *Journal of Danish Chemistry* **80(11)**, pp. 44-47.

Proceedings Papers

1. 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)*.
2. **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.
3. 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.
4. 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 2008*, pp. 233-236.
5. 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*.
6. Eljack F.T., Solvason C.C., Chemmangattuvalappil N., **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*.
7. Eljack F.T., Solvason C.C., Chemmangattuvalappil N., **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*.
8. 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*.

9. 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*.
10. 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.
11. 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*, Texas A&M University.
12. **Eden M.R.**, Gani R. (2002): "Computer Aided Process/Product Design – Issues, Needs and Solution Approaches", *Proceedings of WWDU 2002*, Berchtesgaden, Germany, 2002.
13. **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 for CHISA 2002*, 15th International Congress of Chemical and Process Engineering, Prague, Czech Republic.
14. **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*.
15. **Eden M.R.**, Andersen T.R. (2000): "Computer Aided Process Engineering for Process Integration and Design", *Scandinavian Simulation Society (SIMS) 2000 Proceedings*, Lyngby, Denmark.
16. Andersen T.R., **Eden M.R.** (2000): "Computer Aided Process Engineering for Operational Analysis and Control Design", *Scandinavian Simulation Society (SIMS) 2000 Proceedings*, Lyngby, Denmark.

Submitted Journal Articles

1. Odjo A.O., Sammons Jr. N.E., **Eden M.R.**, Marcilla A., Caballero J. (2008): "A Hybrid Disjunctive-Genetic Programming Approach to Synthesis of Process Networks", *Computers and Industrial Engineering* (submitted)

PRESENTATIONS

Invited Seminars and Lectures

1. **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
2. **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.
3. **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.
4. **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.
5. **Eden M.R.** (2008): "A Systematic Method for Integrating Mixture Design and Molecular Synthesis", *Invited Lecture*, Computer Aided Process Engineering Center (CAPEC) Annual Meeting.
6. **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.
7. **Eden M.R.** (2007): "Property Clustering Methods for Integrated Process and Molecular Design", *Invited Seminar*, Department of Chemical Engineering, Tennessee Tech University.

8. **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.
9. **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.
10. 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.
11. **Eden M.R.** (2006): “Property Based Techniques for Integrated Process and Molecular Design”, *Invited Seminar*, Department of Chemical and Petroleum Engineering, University of Kansas.
12. **Eden M.R.** (2006): “CAREER Proposal Writing”, New Faculty Forum, AIChE Annual Meeting 2006, San Francisco, CA.
13. **Eden M.R.** (2005): “Biorefinery System Integration and Value Proposition Issues”, *Invited Plenary Lecture*, Forest Products Techno-Business Forum, Georgia Institute of Technology
14. **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. 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.*
2. 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.
3. Stuart P., **Eden M.R.**, El-Halwagi M.M., Froyd J., Mahalec V., Moscossa 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.
4. 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.
5. 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.
6. 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.
7. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2009): “Decomposition Techniques for Molecular Synthesis and Structured Product Design”, ESCAPE-19, Krakow, Poland.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.

13. 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.
14. 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.
15. Solvason C.C., Chemmangattuvalappil N.G., **Eden M.R.** (2008): “Systematic Integration of Product Attributes and Molecular Synthesis”, AIChE Annual Meeting 2008, Philadelphia, PA.
16. Eljack F.T., **Eden M.R.** (2008): “Incorporating Inherent Safety Principles in Design via Property Design Platform”, AIChE Annual Meeting 2008, Philadelphia, PA.
17. 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.
18. 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.
19. 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.
20. 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.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. Chemmangattuvalappil N.G., Solvason C.C., **Eden M.R.** (2008): “Combined Property Clustering and GC+ Techniques for Molecular Synthesis”, ACS National Meeting, Philadelphia, PA.
32. 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.

33. Sammons Jr. N.E., Yuan W., **Eden M.R.**, Cullinan H.T., Aksoy B. (2008): “A Systematic Framework for Biorefinery Product Allocation”, FOCAP0 2008, Boston, MA.
34. Solvason C.C., Eljack F.T., Chemmangattuvalappil N.G., **Eden M.R.** (2008): “Visual Mixture Design Using Property Clustering”, ESCAPE-18, Lyon, France.
35. 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.
36. 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.
37. 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.
38. 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.
39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. 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.
47. 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.
48. 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.
49. 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.
50. 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.
51. 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.
52. 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.

53. 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.
54. 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.
55. 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, Guangzhou, China.
56. Eljack F.T., Solvason C.C., Chemmangattuvalappil N., **Eden M.R.** (2007): “A Property Based Approach for Simultaneous Process and Molecular Design”, 1st International Symposium on Sustainable Chemical Product and Process Engineering, Guangzhou, China.
57. 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.
58. 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.
59. Eljack F.T., Solvason C.C., Chemmangattuvalappil N., **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.
60. 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 Symposium, Boston, MA.
61. 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.
62. Solvason C.C., Eljack F.T., Chemmangattuvalappil N., **Eden M.R.** (2007): “Property Based Experimental Design”, Auburn University Graduate Student Research Forum, Auburn, AL.
63. 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.*
64. 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.
65. 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.
66. 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.
67. 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.
68. 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.
69. Eljack F.T., Solvason C.C., **Eden M.R.** (2007): “An Algebraic Property Clustering Technique for Molecular Design”, ESCAPE-17, Bucharest, Romania.

70. 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.
71. 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.
72. 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.
73. 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.*
74. 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.
75. 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.
76. 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.*
77. 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.
78. 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.
79. 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.
80. 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.
81. 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.
82. 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.
83. **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.
84. 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.
85. 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.
86. Solvason C.C., Eljack F.T., **Eden M.R.** (2006): “Property Based Experimental Design”, Paper 303n, AIChE Annual Meeting 2006, San Francisco, CA.
87. 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.
88. Wilder J.L., Hanks R.M., McGlocklin K.M., **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.

89. 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.
90. 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.
91. Wilder J.L., Hanks R.M., McGlocklin K.M., **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.
92. 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.
93. 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.
94. 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.
95. 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.
96. 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.
97. 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.
98. 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.
99. 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.
100. 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.
101. 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.*
102. **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.
103. 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.
104. 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.
105. 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.*

106. 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 H₂ Production”, Paper 146e, AIChE Annual Meeting 2005, Cincinnati, OH.
107. 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.
108. 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.*
109. 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.
110. 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.
111. 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.
112. 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.
113. 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.
114. **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.
115. **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.
116. Cummings R.M., Eljack F.T., **Eden M.R.** (2004): “Process Integration and Optimization of Logistical Fuels Processing for H₂ Production”, AU Undergraduate Research Forum.
117. 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.
118. 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.
119. 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.
120. 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.
121. Sammons Jr. N.E., **Eden M.R.** (2004): “Complexity of Biorefinery Product Allocation”, Agenda 2020 Technology Alliance, Chief Technology Officer Meeting, Auburn University.
122. 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.
123. **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.

124. **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"*.
125. **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"*.
126. **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.
127. **Eden M.R.**, Gani R., Jørgensen S.B. (2002): "Targeted Development of Sustainable Technology with low CO₂ Emissions", Danish Engineering Society Conference on Separation and Deposit of CO₂ from Powerplants, Copenhagen, Denmark.
128. **Eden M.R.** (2002): "Composition Free Design – Illustration Through a Case Study", CAPEC Annual Meeting 2002, Comwell Hotel, Snekkersten, Denmark.
129. **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"*.
130. **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.
131. 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.
132. **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.
133. **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.
134. **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.
135. Glasgow I.M., **Eden M.R.**, El-Halwagi M.M. (2002): "Property Integration using Visualization Tools", 3rd International Symposium on Process Integration, Vancouver, Canada.
136. **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.
137. **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.
138. **Eden M.R.**, Jørgensen S.B., Gani R. (2002): "A Novel Technique for Process Model Reduction", AIChE Annual Meeting 2002, Indianapolis IN, USA.
139. **Eden M.R.** (2002): "Reverse Problem Formulations and Property Clustering Techniques", Nordic Energy Research Program Annual Meeting 2002, Oslo, Norway.
140. **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.
141. **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"*.

142. **Eden M.R.** (2001): "Property Clusters for Integrated Process and Product Design", Nordic Energy Research Program Annual Meeting 2001, Helsinki, Finland.
143. **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"*.
144. 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.
145. **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.
146. 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.
147. **Eden M.R.** (2000): "Simultaneous Synthesis of Mass and Heat Exchange Networks", CAPEC Annual Meeting 2000, DFDS Crown of Scandinavia, Denmark.
148. **Eden M.R.** (2000): "Effects of Process Integration on Distillation Column Startup", Process Systems Engineering (PSE) 2000, Keystone CO, USA.
149. **Eden M.R.** (2000): "Allocation of Mass and Energy through Process Integration", Nordic Energy Research Program Annual Meeting 2000, Dragør, Denmark.
150. **Eden M.R.**, Andersen T.R. (2000): "Computer Aided Process Engineering for Process Integration and Design", SIMS 2000, Lyngby, Denmark.
151. Andersen T.R., **Eden M.R.** (2000): "Computer Aided Process Engineering for Operational Analysis and Control Design", SIMS 2000, Lyngby, Denmark.
152. **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.
153. 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.
154. **Eden M.R.** (1999): "Alternative Methods for Energy Efficient Separation Processes", CAPEC Annual Meeting 1999, Technical University of Denmark.
155. **Eden M.R.** (1999): "Petlyuk Columns for Ternary Separations", CAPEC Annual Meeting 1999, Technical University of Denmark.
156. **Eden M.R.** (1999): "Dynamics and Control during Startup of Heat-Integrated Distillation Plant", CAPEC Annual Meeting 1999, Technical University of Denmark.