LEALON L. MARTIN
Assistant Professor in Chemical Engineering
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EDUCATION

- J.D., The University of Texas School of Law 2014
- Ph.D., Chemical Engineering, University of California, Los Angeles 2002
- B.S., Chemical Engineering, Tuskegee University 1995
- Texas Venture Labs, Associate 2013

ACADEMIC EXPERIENCE

Prairie View A&M University
Assistant Professor of Chemical Engineering 2020 - present
Lecturer of Chemical Engineering 2018 - 2020

- Faculty Senate, Senator and Member-at-large
- College Committees – Grievance Resolution
- Departmental Committees - Strategic Planning (chair), Curriculum, and Grievance Resolution

University of Texas-Austin
Research Fellow and Lecturer of Chemical Engineering 2011 - 2014

- Research Focus: Constructing a generalized decision-making framework tool to design optimal policies based on a synthesis network representation of resource allocation and political action.
- Delivered yearly presentation on *Patent Law Fundamentals* in the Department.
- Introduced a new elective course in the Department: *Engineering and Public Policy*.

Rensselaer Polytechnic Institute (RPI)
Assistant Professor of Chemical Engineering 2003 – 2011

- Research Focus: Process synthesis and design of chemical, biochemical, and material systems.
- Helped in securing over $5MM in sponsored research as principal, co-principal, or key investigator.
- Given over seventy invited lectures, seminars, presentations, and keynote addresses.
- Graduated six Ph.D. students.

University of California at Berkeley
Postdoctoral Researcher 2002 – 2003

- Research Focus: Modeling immune response and cell signaling mechanisms during immunological synapse formation.
- Wrote *ImmSyn2* software: a monte-carlo simulation-based analysis tool to study synapse formation between T-lymphocytes and antigen-presenting cells.

COURSES TAUGHT AND *DEVELOPED

- Mathematical Methods in Chemical Engineering (graduate level)
- Computer-Aided Chemical Engineering Process Simulations (undergraduate elective course)
- (Capstone) Senior Chemical Process Design
- *Fuel Cells Systems Engineering (undergraduate and graduate level, interdisciplinary)
- *Introduction to Chemical Engineering (Orientation-level course)

- Optimization (undergraduate and graduate level)
- Chemical Reactor Design (undergraduate level)
- *Engineering and Public Policy (undergraduate and graduate level)
- Unit Operations Laboratory
- Separations Laboratory
- Material and Energy Balances
- Thermodynamics I and II
- Separations Processes
- Process Modeling and Simulations
- Energy Systems
- Patent Law
- Immigration Law for Scientists, Engineers, and Investors (Austin Community College course co-taught with attorneys from the Azarmehr Law Group)

CERTIFICATIONS AND ADMISSIONS

- Texas State Bar No. 24093629
- Admitted to practice in the U.S. Eastern, Northern, Southern, and Western Districts of Texas
- U.S. Patent and Trademark Office registration
- Certified Information Privacy Professional/United States
- Certificate in Fund Raising Management

LEGAL PRACTICE

LeCorte Martin, P.C. – Science and Technology Law
Managing Principal Attorney 2017 – present

- Intellectual Property Counseling
  - *Patent prosecution*: Draft patent applications for clients in the chemical and mechanical arts.
  - *Due diligence*: Draft patent-related opinion work (e.g., Non-infringement, Freedom-to-Operate).
  - *Trademark and Copyright registration:* including copyright registration for musicianship.
- Immigration Services (employment-based for scientists and engineers)
  - *For employers:* Draft labor certifications; O-1 and H-1B visa petitions; draft EB-1B petitions.
  - *For individuals:* Draft petitions for National Interest Waiver applicants.
- Cybersecurity/Data Privacy Counseling
  - Assist in developing client privacy/security programs and privacy risk/impact assessments.
  - Advise on significant legislative/regulatory activity, legal developments, and industry guidelines.
- Litigation Support
  - Provide assistance with trial discovery and expert testimony.
  - Serve as general counsel and local counsel in all Texas Federal District Courts and State Courts.

Fish & Richardson, P.C. – Intellectual Property Law
Patent Litigation Associate 2014 – 2017

- Managed in all aspects of patent litigation from intake through trial.
- Assisted in the prosecution of patent applications in the chemical and mechanical arts.

Summer Associate
Fish & Richardson, P.C. – 2012 and 2013 (Austin office)
Fletcher Yoder, P.C. – 2013 (Houston office)

CURRENT, PENDING, AND PAST FUNDED RESEARCH GRANTS AND CONTRACTS

Principal Investigator, *EXCELLENCE IN RESEARCH: Smart Technology-Enabled Nutrient Lifecycle and Supply Chain Optimization*, The National Science Foundation (Collaborative), Principal Investigator, Dr. Jessye Talley (Morgan State University) w/ Co-PI Dr. Jian Peng (Morgan State University); Principal Investigator (non-Lead) Dr. Veronica Oates (Tennessee State University) w/ Co-PI Dr. Arvazena Clardy (Tennessee State University), 9/01/2020-8/30/2023, $300,000.00 (of $1,000,000.00 total collaborative funds requested) **(current)**.

Co-PI, *DUE-IUSE: Transforming the Classroom into an Active Learning Environment to Improve Comprehension, Retention and Graduation Rates*, The National Science Foundation, Principal Investigator: Dr. Michael Gyamerah, 10/01/2021-9/30/2025, $1,959,110 **(pending)**.

Key Senior Personnel, Developing and Promoting Cybersecurity Programs in Non-STEM Curriculum at Prairie View A&M University, National Security Agency, Principal Investigator: Dr. Michael Jensen, 10/01/2020-09/31/2022, $300,000.00 **(Current)**.

Principal Investigator, EXCELLENCE IN RESEARCH: Ecological Human Imprint, Economic, Social and Political Impacts associated with COVID-19, The National Science Foundation, Co-PI: Dr. Safwat Shakir-Hanna, 10/01/2020-9/30/2023, $532,231 **(pending)**.

Principal Investigator, "Advancing the Engineering Design of Bionanocomposites with Exact Properties Needed", The National Science Foundation, Principal Investigator: Dr. Yvonne Akpalu, 05/01/2006-4/30/2011, $405,821.00 **(past)**.

Co-PI, "Model Predictive Control of Integrated Gasification Combined Cycles", The Department of Energy National Energy Technology Laboratory, Principal Investigator: B. Wayne Bequette, 1/01/2007-12/31/2009, $300,000.00 **(past)**.

Co-PI, "2008 Minority Faculty Development Workshop", The National Science Foundation, Principal Investigator: Dr. Gilda Barabino, 8/01/2008-7/31/2009, $250,000.00 **(past)**.

Principal Investigator, "Screening Photoactive Nanomaterials on Nanoporous and Mesoporous Supports", Department of Defense – Army Research Office, Collaborator(s): Dr. Joel Plawsky, Dr. Howard Littman, Dr. John D. Paccione, 10/01/2006-9/30/2008, $250,000.00 **(past)**.

Co-PI, "Advancing Renewable Materials by X-Ray and Light Scattering", Department of Energy, Principal Investigator: Dr. Yvonne Akpalu, 09/01/2006-8/31/2009, $450,000.00 **(past)**.

Principal Investigator, "Alternate Thermochemical Cycles for Hydrogen Production", Argonne National Laboratory, Co-PI(s): Dr. B. Wayne Bequette, 6/01/2006-8/30/2006, $42,000.00 **(past)**.

Key Senior Personnel, "IGERT: An Entrepreneurial Ph.D. Education in Fuel Cell Manufacturing, Materials, Development, and Modeling", National Science Foundation, Principal Investigator: Dr. Michael Jensen, 09/01/2005-08/31/2012, $3,162,429.00 **(past)**.

REFEREED PUBLICATIONS

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1. L.L. Martin, "Linear infinite-dimensional models for the cost-optimal synthesis of ocean thermal energy conversion networks", *Applied Thermal Energy*, (in preparation).

2. L.L. Martin, "Optimal selection of large particles with multifunctional material properties for advanced oxidation process applications", *Chemical Engineering Science*, (in preparation).

3. Tolle, I. and L.L. Martin, "Neutron scattering component profile extraction using contrast matching and Network Component Analysis (NCA)", *Chemical Engineering Science* (submitted, 2020).

4. Shakir, S. and L.L. Martin, "Carbon cycle assessment via global ecological human dimension modeling." *Progress in Industrial Ecology*. 2019.

5. Tolle, I. and L.L. Martin*, "A generalized scattering data decomposition framework for determining network process-structure-property relationships in polymer materials", *International Journal of Advanced Manufacturing Technology* January 2013, Volume 64, Issue 1–4, pp 555–577.

6. Baughman, A., Huang X., and L.L. Martin*, "An evaluation of kinetic models for preferential CO oxidation catalysts using optimization-based parameter estimation", *The Journal of Power Sources*, Volume 210, 15 July 2012, Pages 402-408.

7. Tolle, I. and L.L. Martin*, "Quantifying polymer structural component evolution using X-ray scattering and mixed-integer Network Component Analysis (NCA)", *Computers and Chemical Engineering* Vol. **35** No. **11** (2011) 2564-2578.

8. Baughman, A.C., Sharfstein, S.T., and L.L. Martin*, "A flexible state-space approach for the modeling of metabolic networks II: advanced interrogation of hybridoma metabolic networks", *Metabolic Engineering*, Vol. **13** No. **2** (2011) 138-149.

9. Baughman, A.C., Sharfstein, S.T., and L.L. Martin*, "A flexible state-space approach for the modeling of metabolic networks I: development of mathematical methods", *Metabolic Engineering*, Vol. **13** No. **2** (2011) 125-137.

10. Andress, R.J. and L.L. Martin*, "A systematic hierarchical thermodynamic analysis of hydrogen producing Iron-Chlorine reaction clusters", *Industrial and Engineering Chemistry Research*, Vol. **50** No. **3** (2011) 1278-1293.

11. Baughman, A.C., Huang, X., Sharfstein, S.T., and L.L. Martin*, "On the dynamic modeling of mammalian cell metabolism and mAb Production", *Computers and Chemical Engineering*, Vol. **34** No. **2** (2010) 210-222.

12. Andress, R.J. and L.L. Martin*, "On the synthesis of hydrogen producing thermochemical cycles with electrochemical steps", *The International Journal of Hydrogen Energy*, Vol. **35**, Issue **3** (2010) 958-965.

13. Tolle, I., Huang, X., Akpalu, Y.A. and L.L. Martin*, "A modified Network Component Analysis (NCA) methodology for the decomposition of x-ray scattering signatures", *Industrial and Engineering Chemistry Research,* Vol. **48** No. **13** (2009) 6137-6144.

14. Andress, R.J., Bequette, B.W., and L.L. Martin*, "A systems approach towards the identification and evaluation of hydrogen producing thermochemical reaction clusters", *In Proceedings of the 7th International*

Conference on the Foundations of Computer-Aided Process Design: Design for Energy and the Environment, Ch. **41** (2009) pp. 451-460. CRC Press, Taylor and Francis Group. Boca Raton, FL.

15. Follansbee, D.M., Paccione, J.D., and L.L. Martin*, "Optimal design and operation of A circulating fluidized bed reactor for water polishing featuring minimum utility cost", *In Proceedings of the 7th International Conference on the Foundations of Computer-Aided Process Design: Design for Energy and the Environment*, Ch. **26** (2009) pp. 317-326. CRC Press, Taylor and Francis Group. Boca Raton, FL.

16. Andress, R.J., Huang X., Bequette, B.W., and L.L. Martin*, "A systematic methodology for the evaluation of thermochemical cycles for hydrogen production", *The International Journal of Hydrogen Energy*, Vol. **34**, Issue **9** (2009) 4146-4154.

17. Follansbee, D., Paccione, J.D., and L.L. Martin*, "Globally optimal design and operation of a continuous photocatalytic advanced oxidation process featuring moving bed adsorption and draft-tube transport", *Industrial and Engineering Chemistry Research*, Vol. **47** No. **10** (2008) 3591-3600.

18. Moore, F.P. and L.L. Martin*, "A nonlinear nonconvex minimum heat transfer area formulation for ocean thermal energy conversion (OTEC) systems", *Applied Thermal Energy*, Vol. **28** No. **8-9** (2008) 1015-1021.

19. Hronich, J., Plawsky, J., and Bungay, H.R. and L.L. Martin*, "The potential of *Eichhornia crassipes* for biomass refining", *Journal of Industrial Microbiology and Biotechnology*, Vol. **35** No. **5** (2008) 393-402.

20. Martin, L.L. and V.I. Manousiouthakis*, "A minimum area (MA) targeting scheme for single component MEN and HEN synthesis", *Computers and Chemical Engineering*, Vol. **28** No. **8** (2004) 1237-1247.

21. Martin, L.L. and V.I. Manousiouthakis*, "Globally optimal power cycle synthesis via the infinite dimensional state space (IDEAS) approach featuring minimum area with fixed utility", *Chemical Engineering Science* **58** (2003) 4291-4305.

22. Martin, L.L. and V.I. Manousiouthakis*, "Total annualized cost optimality properties of state space models for mass and heat exchanger networks", *Chemical Engineering Science* **56** (2001) 5835-5851.

NON-REFEREED PUBLICATIONS

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1. L.L. Martin, "Cybersecurity: Federal and State Regulatory Implications for Data Privacy and Security in the U.S.", *Fish Litigation Newsletter and Blog*. August 2017.

2. L.L. Martin, "Federal District Courts Still Unclear About How to Apply *Alice* to 101 Patentability Challenges Presented in 12(b) Motions to Dismiss", *Fish Litigation Newsletter and Blog*. March 2016.

3. L.L. Martin, "Rights of Enforcement for Non-exclusive Patent Licensees: Do They Exist?", Fish Litigation Newsletter and Blog. June 2015.

4. Samuels, A.B., Sharfstein, S., and L.L. Martin, "Optimization of mAb Synthesis via the Application of an IDEAS Formulation", *Proceedings of the 2004 AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*. Albany, NY.

5. Huang, X., Paccione, J.D., and L.L. Martin, "Modeling of Spouted Fluid Bed with Draft Tube Used for Protein Separation and Air/Water Purification System", *Proceedings of the 2004 AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*. Albany, NY.

6. Samuels, A.B., Greenfield, L., Lawal O., and L.L. Martin, "Optimization- Based Modeling of T- Lymphocyte Cell-Cell Contact Leading to Immune Response", *Proceedings of the 2004 AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*. Albany, NY.

7. Martin, L.L. and V.I. Manousiouthakis, "Minimum Utility Cost for Non-Isobaric Azeotropic Distillation Networks," *Energy and the Environment Topical Conference Proceedings*, 2000 AICHE Annual Meeting, Los Angeles, CA.

8. Martin, L.L. and V.I. Manousiouthakis, "Pure Ammonia Power Cycle Synthesis Featuring an MTAC Objective," *Energy and the Environment Topical Conference Proceedings*, 2000 AICHE Annual Meeting, Los Angeles, CA.

9. Martin, L.L. and V.I. Manousiouthakis, "Globally Optimum Ammonia/Water Power Cycle Network Synthesis via Infinite Dimensional State Space Optimization," *Energy and the Environment Topical Conference Proceedings*, 2000 AICHE Annual Meeting, Los Angeles, CA.

CONFERENCE PRESENTATIONS

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1. Shakir, S. and L.L. Martin, "Carbon cycle assessment via global ecological human dimension modeling." 2019 CIEEMAT Annual Conference. Portalegre, Portugal.

2. Follansbee, D.M., Paccione, J.P., and L.L. Martin, "Selection of Filtration Networks for Recreational Water Use," paper 282f. 2010 AIChE Fall Annual Meeting, Salt Lake City, UT.

3. Follansbee, D.M., Paccione, J.P., and L.L. Martin, "Identification of Optimal Filtration Networks for Recreational Water Use," paper 275q. 2010 AIChE Fall Annual Meeting, Salt Lake City, UT.

4. Tolle, I. and L.L. Martin, "Quantifying Polymer Structural Component Evolution Using Scattering Data and Mixed-Integer Network Component Analysis" paper 531e. 2010 AIChE Fall Annual Meeting, Salt Lake City, UT.

5. Andress, R.J. and L.L. Martin, "A Systematic Assessment of Carbon-Free Hydrogen Production through Vanadium-Chlorine Thermochemical Cycles," poster 375ab. 2010 AIChE Fall Annual Meeting, Salt Lake City, UT.

6. Baughman, A.C. and L.L. Martin, "Topological Modeling of Reaction Networks for Engineering of Microbial Fuel Cells," paper 89f. 2009 AIChE Fall Annual Meeting, Nashville, TN.

7. Andress, R.J. and L.L. Martin, "Identification of Low Temperature Carbon-Free Hydrogen Production Methods through Thermochemical Cycle Synthesis," paper 150b. 2009 AIChE Fall Annual Meeting, Nashville, TN.

8. Baughman, A.C., Sharfstein, S.T., and L.L. Martin, "Topological Metabolic Analysis for the Engineering of Metabolic Networks," paper 261f. 2009 AIChE Fall Annual Meeting, Nashville, TN.

9. Andress, R.J. and L.L. Martin, "A Systematic Approach towards the Synthesis and Evaluation of Hybrid Alternative Thermochemical Cycles," paper 469b. 2009 AIChE Fall Annual Meeting, Nashville, TN.

10. Baughman, A.C., Sharfstein, S.T., and L.L. Martin, "Topological Metabolic Analysis for the Interrogation of Metabolic Networks," paper 475f. 2009 AIChE Fall Annual Meeting, Nashville, TN.

11. Tolle, I. and Lealon L. Martin, "Characterization of Multi-Scale Polymer Structure Evolution through Multivariate Decomposition of Process-Dependent Scattering Data," paper 573c. 2009 AIChE Fall Annual Meeting, Nashville, TN.

12. Follansbee, D.M., Paccione, J.P., and Lealon L. Martin, "TiO_2 Particle Property Investigation Featuring Moving Bed Adsorption and Photo-Assisted Degradation of Azo Dyes," paper 680c. 2009 AIChE Fall Annual Meeting, Nashville, TN.

13. Baughman, A.C., Sharfstein, S.T., and L.L. Martin, "Towards a Dynamic Systems Approach to the Synthesis and Analysis of Mammalian Metabolic Networks," paper 416d. 2008 AIChE Fall Annual Meeting, Philadelphia, PA.

14. Baughman, A.C., Sharfstein, S.T., and L.L. Martin, "Non-Linear Parameter Estimation for a Dynamic Model of Mammalian Cell Culture," paper 458d. 2008 AIChE Fall Annual Meeting, Philadelphia, PA.

15. Paccione, J.P., Follansbee, D.M., Littman, H., Martin, L.L., and J.L. Plawsky, "Design, Development and Operation of a Novel Recirculating Liquid/solids Reactor Based on a Type 2 Draft Tube Spout Fluid Bed," paper 399c. 2008 AIChE Fall Annual Meeting, Philadelphia, PA.

16. Follansbee, D.M., Paccione, J.P., Plawsky, J.L., and L.L. Martin, "A Systematic Methodology for the Selection of Particles with Optimal Material Properties for Advanced Oxidation Process Applications," paper 86d. 2008 AIChE Fall Annual Meeting, Philadelphia, PA.

17. Andress, R.J., Bequette, B.W., and L.L. Martin, "A Systematic Methodology for the Evaluation of Alternative Thermochemical Cycles for Hydrogen Production," paper 328c. 2008 AIChE Fall Annual Meeting, Philadelphia, PA.

18. Tolle, I., Akpalu, Y.A., and L.L. Martin, "A Modified Network Component Analysis (NCA) Methodology for the Decomposition of X-Ray Scattering Signatures from Polymers," paper 545a. 2008 AIChE Fall Annual Meeting, Philadelphia, PA.

19. Baughman, A.C., Sharfstein, S.T., and L.L. Martin, "Towards and integrated framework to model metabolism and the synthesis of protein in mammalian cell culture," paper 594f. 2007 AIChE Fall Annual Meeting, Salt Lake City, UT. November 8, 2007.

20. Tolle, I., Huang, X., Akpalu, Y.A., and L.L. Martin, "Topology-based parameter identification for decoupling material structure-process-property relationships," paper 635e. 2007 AIChE Fall Annual Meeting, Salt Lake City, UT. November 8, 2007.

21. Baughman, A.C., Sharfstein, S.T., and L.L. Martin, "Towards and integrated framework to model metabolism and the synthesis of protein in mammalian cell culture," paper 491e. 2007 AIChE Fall Annual Meeting, Salt Lake City, UT. November 7, 2007.

22. Hronich J.E., Martin, L.L., Bungay. H., and J.L. Plawsky "The potential of Eichhornia crassipes for biomass refining," paper 454c. 2007 AIChE Fall Annual Meeting, Salt Lake City, UT. November 8, 2007.

23. Follansbee, D.M., Paccione, J.D., and L.L. Martin, "Suitable Process Operation Conditions and Sensitivity of Design Parameters for a Draft Tube Spouted Fluidized Bed Reactor Applied to a Heterogeneous Photocatalytic Process", paper 174c. 2007 AIChE Fall Annual Meeting, Salt Lake City, UT. November 6, 2007.

24. Baughman, A., Sharfstein, S. and L.L. Martin, "State-space Modeling of Metabolic Networks for Monoclonal Antibody Production," paper BIOT 118. Systems Biotechnology: Developments and Applications. ACS National Meeting, San Francisco, CA. September 11, 2006.

25. Huang, X. and L.L. Martin, "Optimized Heat and Power Exchange Networks in Ethanol-Water Pressure Swing Distillation," paper 599d. 2005 AIChE Fall Annual Meeting, Cincinnati, OH. November 5, 2005.

26. Samuels, A.B., Sharfstein, S. and L.L. Martin, "Application of State Space Models to Biological Systems for Metabolic Optimization," paper 541c. 2005 AIChE Fall Annual Meeting, Cincinnati, OH. November 4, 2005.

27. Huang, X., Rohr, D., and L.L. Martin, "Online (SPLINE) Estimation of Anode Tail Oxidation Catalyst Reaction Rate Parameters for Fuel Cell Systems," paper 501e. 2005 AIChE Fall Annual Meeting, Cincinnati, OH. November 4, 2005.

28. Huang, X., Rohr, D., and L.L. Martin, "Online (Explicit) Estimation of Anode Tail Oxidation Catalyst Reaction Rate Parameters for Fuel Cell Systems," paper 164f. 2005 AIChE Fall Annual Meeting, Cincinnati, OH. November 3, 2005.

29. Samuels, A.B., Sharfstein, S. and L.L. Martin, "Modeling of Mammalian Cell Culture Metabolism for Optimization of Protein Production," paper BIOT 418. Systems Biotechnology: Developments and Applications. ACS National Meeting, San Diego, CA. March 17, 2005.

30. Huang, X., Paccione, J.D., and L.L. Martin, "Optimal Draft Tube Spouted Fluidized Bed Operation for Small-scale and Industrial Materials Processing with Reacting Systems," Symposium on Modeling Complex Processes. Texas A&M University, College Station, TX. March 2, 2005

31. William F. Godbold and L.L. Martin, "Cost-Optimal Recovery of Ethanol for use as an Alternative Economically Viable Gasoline Additive," Symposium on Modeling Complex Processes. Texas A&M University, College Station, TX. March 2, 2005

32. Samuels, A.B., Sharfstein, S.T., and L.L. Martin, "Maximum Production Targeting of Monoclonal Antibodies in Hybridoma Systems," Symposium on Modeling Complex Processes. Texas A&M University, College Station, TX. March 2, 2005.

33. Huang, X., Paccione, J.D., Littman, H., and L.L. Martin, "Modeling and Optimization of a Spouted Fluidized Bed with a Draft Tube used for Heterogeneous Mixed-phase First Order Reaction System," 554c, 2004 AIChE Annual Meeting, Austin, TX.

34. Greenfield, L., Samuels, A.B., and L.L. Martin, "An Analysis of Cell-Cell Contact between T-Lymphocyte Receptors and APC Surface Molecules via State Space Models," 408a, 2004 AIChE Annual Meeting, Austin, TX.

35. Godbold, W.F. and L.L. Martin, "A Novel State-Space Approach to Non-Isobaric Separations Synthesis," 403ag, 2004 AIChE Annual Meeting, Austin, TX.

36. Samuels, A.B., Sharfstein, S. and L.L. Martin, "mAb Production Targeting in Hybridoma Systems via a State Space Network Synthesis Approach," 408g, 2004 AIChE Annual Meeting, Austin, TX.

37. Samuels, A.B., Sharfstein, S., and L.L. Martin, "Optimization of mAb Synthesis via the Application of an IDEAS Formulation", Chemical and Biological Applications of Optimization Session, 2004 Multidisciplinary Analysis and Optimization Conference, Albany, NY.

38. Huang, X., Paccione, J.D., and L.L. Martin, "Modeling of a Spouted Fluidized Bed with Draft Tube Used for Protein Separation and Air/Water Purification Systems", Design Applications Session, 2004 Multidisciplinary Analysis and Optimization Conference, Albany, NY.

39. Godbold, W.F. and L.L. Martin, "Optimization of a Chemical Process Network Alternative to Pressure- Swing Distillation", Chemical and Biological Applications of Optimization Session, 2004 Multidisciplinary Analysis and Optimization Conference, Albany, NY.

40. Samuels, A., Greenfield, L., Lawal O., and L.L. Martin, "Optimization- Based Modeling of T- Lymphocyte Cell- Cell Contact Leading to Immune Response", Chemical and Biological Applications of Optimization Session, 2004 Multidisciplinary Analysis and Optimization Conference, Albany, NY.

41. Martin, L.L., "Globally Optimum Refrigeration Cycle Network Synthesis," 432e, 2003 AIChE Annual Meeting, San Francisco, CA.

42. Martin, L.L. and A.K. Chakraborty, "State-space Modeling of Immunological Synapse Formation via Reaction-Diffusion Network Synthesis," 107ck, 2003 AIChE Annual Meeting, San Francisco, CA.

43. Martin, L.L. and V. Manousiouthakis, "Minimum Total Annualized Cost Optimization Strategies Featuring Models with Economies of Scale," 268d, 2001 AIChE Annual Meeting, Reno, NV.

44. Martin, L.L. and V. Manousiouthakis, "Globally Optimum Multi-Component Power Cycle Network Synthesis via Infinite Dimensional State-Space (IDEAS)," 256d, 2001 AIChE Annual Meeting, Reno, NV.

45. Martin, L.L. and V. Manousiouthakis, "Cost Optimal Synthesis and Design of Non-Isobaric Distillation Networks," 29e, 2001 AIChE Annual Meeting, Reno, NV.

46. Martin, L.L. and V. Manousiouthakis, "Minimum Utility Cost for Non-Isobaric Azeotropic Distillation Networks," 48d, 2000 Annual Meeting of the AIChE, Los Angeles, CA.

47. Martin, L.L. and V. Manousiouthakis, "Pure Ammonia Power Cycle Synthesis Featuring an MTAC Objective," 50e, 2000 Annual Meeting of the AIChE, Los Angeles, CA.

48. Martin, L.L. and V. Manousiouthakis, "Globally Optimum Ammonia/Water Power Cycle Network Synthesis via Infinite Dimensional State-Space Optimization," 47b, 2000 Annual Meeting of the AIChE, Los Angeles, CA.

49. Martin, L.L. and V. Manousiouthakis, "Globally Optimal Design of an Ammonia Power Cycle via Infinite Dimensional State Space (IDEAS) Modeling," 48c, 1999 Annual Meeting of the AIChE, Dallas, TX.

50. Martin, L.L., S. Wilson, and V. Manousiouthakis, "Chemical Process Total Annualized Cost Minimization Using Infinite Dimensional State-Space (IDEAS) Formulations," 207f, 1999 Annual Meeting of the AIChE, Dallas, TX.

51. Martin, L.L. and V. Manousiouthakis, "Optimality Properties of State Space Models for Mass and Heat Exchanger Networks," 219h, 1998 Annual Meeting of the AIChE, Miami, FL.

52. Martin, L.L. and V. Manousiouthakis, "Minimum Area of Heat and Mass Exchanger Networks with Fixed Utility," 239g, 1998 Annual Meeting of the AIChE, Miami, FL.

53. Martin, L.L. and V. Manousiouthakis, "Rigorous Area-Utility Tradeoffs for HEN/MEN," 239h, 1998 Annual Meeting of the AIChE, Miami, FL.

54. Martin, L.L. and V. Manousiouthakis, "Global Optimization of Chemical Processes for Cost Effective Waste Reduction and Resource Recovery," 24th National Convention of the National Society of Black Engineers Meeting, 1998, Anaheim, CA.

55. Martin, L.L., S. Choi, and V. Manousiouthakis, "Properties of the Minimum Total Annualized Cost Problem for Heat and Mass Exchange Networks," 188k, 1997 Annual Meeting of the AIChE, Los Angeles, CA.

INVITED SEMINARS, LECTURES, AND KEYNOTES ADDRESSES

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1. **Special Lecture**, "Filling in The V.O.I.D.: A Four-Step Method to Success", Spring 2019 Wednesday Wisdom Lecture Series, Prairie View A&M University. Prairie View, TX. April 17, 2019

2. **Invited Seminar**, "Midnight Confessions of a Process Systems Engineer", Department of Chemical Engineering, Prairie View A&M University. Prairie View, TX. November 10, 2018.

3. **Invited Talk**, "Introduction to IP Law", Thurgood Marshall Legal Society. University of Texas School of Law. Austin, TX. September 2017.

4. **Summer Associate Training**, "Depositions", Fish & Richardson Summer Associate Litigation Bootcamp. July 2017.

5. **Summer Associate Training**, "Taking a Case from Intake to Trial", Fish & Richardson Summer Associate Litigation Bootcamp. June 2017.

6. **Invited Talk**, "Introduction to IP Law", Thurgood Marshall Legal Society. University of Texas School of Law. Austin, TX. September 2016.

7. **Summer Associate Training**, "Depositions", Fish & Richardson Summer Associate Litigation Bootcamp. June 2016.

8. **Summer Associate Training**, "Taking a Case from Intake to Trial", Fish & Richardson Summer Associate Litigation Bootcamp. May 2016.

9. **Invited Talk**, "Introduction to IP Law", Thurgood Marshall Legal Society. University of Texas School of Law. Austin, TX. September 2015.

10. **Summer Associate Training**, "Depositions", Fish & Richardson Summer Associate Litigation Bootcamp. July 2015.

11. **Summer Associate Training**, "Taking a Case from Intake to Trial", Fish & Richardson Summer Associate Litigation Bootcamp. June 2015.

12. **Special Invited Seminar**, "Designing Renewable Systems via Process Synthesis Approaches", Institute of Chemical Engineering, Technical University of Vienna. Vienna, Austria EU. June 24, 2010.

13. **Special Invited Seminar**, "Designing Renewable Systems via Process Synthesis Approaches", Institute for Energy Systems and Thermodynamics, Technical University of Vienna. Vienna, Austria EU. June 18, 2010.

14. **Invited Talk**, "Transitioning from High School to College", College Preparation Workshop, Macedonia Baptist Church. Albany, NY. June 6, 2010.

15. **Invited Talk**, "Process Synthesis Approaches to Energy Integration and Reduced Water Utilization in New York State Chemical Process Industries", NYS Pollution Prevention Institute Meeting, Rochester Institute of Technology. Rochester, NY. January 6, 2010.

16. **Invited Keynote Address**, ``Clean Energy, Clean Water, Clean Medicine: Opportunities and Challenges in Green Technology and Engineering'', 2009 NOBCChE Midwest Regional Conference. Troy, MI. October 30, 2009.

17. **Invited Seminar**, "Designing Renewable Systems via Process Synthesis Approaches", Department of Chemical Engineering, University of Rhode Island. Kingston, RI. March 12, 2009.

18. **Invited Panelist**, "MAC Scholarships Forum: "Celebrating More than a Decade of MAC Scholarship Awards at the AIChE Centennial"**,** 2008 AIChE Fall Annual Meeting, Philadelphia, PA. November 17, 2008.

19. **Invited Seminar**, "Designing Renewable Systems via Process Synthesis Approaches", Department of Chemical Engineering, Kansas State University. Manhattan, KS. September 10, 2008.

20. **Invited Seminar**, "Designing Renewable Systems via Process Synthesis Approaches", Departments of Chemical Engineering and Engineering Public Policy, Carnegie-Mellon University. Pittsburgh, PA. May 29, 2008.

21. **Invited Seminar**, "Designing Renewable Systems via Process Synthesis Approaches", Departments of Chemical Engineering, Northwestern University. Evanston, IL. May 27, 2008.

22. **Invited Seminar**, "A Systems Engineering Approach for the Identification of Network Structure-Process-Property Relationships in Materials Design", Molecular and Multi-Scale Modeling Laboratory, Department of Chemical Engineering, University of Florida. Gainesville, FL. May 14, 2008.

23. **Invited Panelist**, "Pathways to Success: Industry vs. Academia", 3rd Annual SEAGEP Student Conference**,** University of Florida. Gainesville, FL. May 14, 2008.

24. **Invited Seminar**, "Rational Design of Advanced Oxidation Processes for Water Treatment Applications through Systems Engineering", Department of Chemistry, Tufts University. Boston, MA. April 10, 2008.

25. **Invited Seminar**, "Rational Design of Photocatalytic Oxidation Processes for Water Treatment Applications through Systems Engineering", Department of Physics and Astronomy, Union College. Schenectady, NY. February 28, 2008.

26. **Invited Seminar**, “Synthesis of Separations Networks through Linear Systems Theoretical Approaches'', Department of Chemical Engineering, Manhattan College. Riverdale, NY. December 11, 2007.

27. **Invited Keynote Address**, ``Enhanced Learning through the integration of Engineering and the Arts'', Abada Capoeira RPI Annual Banquet, Heffner Alumni House. Troy, NY. March 24, 2007.

28. **Invited Talk**, ``Alternative Thermochemical Cycles for Hydrogen Production: An Evaluation of the Fe-Cl Thermochemical Cycle'', Chemical Engineering Division, Argonne National Laboratories. Argonne, IL. June 26, 2006.

29. **Invited Seminar**, ``State-State Optimal Design of Chemical and Biological Systems for Product Production and Recovery Maximization'', Department of Chemical Engineering, Tuskegee University. Tuskegee, AL. March 30, 2005.

30. **Invited Seminar**, ``Developing State Space Approaches for the Synthesis of Globally Optimal Chemical Process Networks and Cell-Derived Material Production Systems'', Department of Chemical Engineering, Prairie View A&M University. Prairie View, TX. November 10, 2004.

31. **Invited Keynote Address**, ``Twenty-Five Years into the Mission'', UCLA National Society of Black Engineers Annual Banquet, Downtown Bonaventure Hotel. Los Angeles, CA. May 22, 2004.

32. **Invited Speaker**, ``Pathways to Success: Filling in the V.O.I.D'', sponsored by the UCLA Center for Excellence and Engineering Diversity, UCLA Career Center. Los Angeles, CA. May 22, 2004.

33. **Invited Seminar**, ``A State Space Methodology for Monoclonal Antibody Production Targeting in Hybridoma Systems '', Chemical Process Systems Engineering Consortium, Department of Chemical Engineering, University of California. Los Angeles, CA. May 21, 2004.

34. **Invited Seminar**, ``Strategies for the Globally Optimal Synthesis of Chemical and Biological Process Networks'', Department of Decision Sciences and Engineering Systems, Rensselaer Polytechnic Institute. Troy, NY. March 2, 2004.

35. **Invited Seminar**, ``Understanding Chemical and Biological Process Networks via State-space Approaches'', Industrial Advisory Board Meeting, Department of Chemical and Biological Engineering, Rensselaer Polytechnic Institute. Troy, NY. May 13, 2003.

36. **Invited Seminar**, ``Global Optimization of Chemical Process Networks'', Chakraborty Research Group, Department of Chemical Engineering, University of California. Berkeley, CA. November 10, 2002.

37. **Invited Seminar**, ``Global Optimization of Chemical Process Networks'', Department of Chemical Engineering, University of California. Los Angeles, CA. May 23, 2002.

38. **Invited Seminar**, ``Global Optimization of Chemical Process Networks'', Iserman Department of Chemical and Biological Engineering, Rensselaer Polytechnic Institute. Troy, NY. April 10, 2002.

39. **Invited Seminar**, ``Novel and Systematic Approaches to the Globally-Optimal Synthesis of Chemical Process Networks'', Department of Chemical Engineering, Polytechnic University. Brooklyn, NY. March 5, 2002.

40. **Invited Seminar**, ``Optimization-Based Methods and Techniques for Chemical Process Network Synthesis'', Department of Chemical Engineering, University of South Carolina. Columbia, SC. February 13, 2002.

41. **Invited Seminar**, ``Globally Optimal Chemical Process Network Synthesis'', Department of Chemical Engineering, University of Alabama. Tuscaloosa, AL. January 9, 2002.

STUDENT THESIS SUPERVISION

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1. Dr. Xinqun Huang – "*Integrated Computational Strategies for the Synthesis, Design, and Analysis of Complex Systems*"**,** completed *Spring 2008.*

2. Dr. Tom Kiehl – "*A Systems Biology Approach for Understanding Osmotic Stress in Antibody-Producing Cell Lines*", completed *Summer 2009.*

3. Dr. Ian Tolle – *"Quantifying Multi-scale Network Process-Structure-Property Relationships for Polymer Material Design through Scattering Data Decomposition",* completed *Fall 2010.*

4. Dr. Adam C. Baughman, Fuel Cell IGERT Fellow - *"Optimization-based Approaches for Chemical and Biological Systems Engineering",* completed *Spring 2011.*

5. Dr. David M. Follansbee, EPA STAR Fellow - *"A Systems-level Analysis of Continuous Photocatalytic Advanced Oxidation Processes",* completed *Spring 2011.*

6. Dr. Ryan Andress, Fuel Cell IGERT Fellow - *"A Systems Approach to the Rational Synthesis and Analysis of Hydrogen Producing Thermochemical Reaction Clusters",* completed *Summer 2011.*

7. Jessica Hronich (Masters Thesis) – "*The Potential of Eichhornia Crassipes for Biomass Refining*", completed Spring 2008.

8. Adam C. Baughman (Masters Thesis) - Fuel Cell IGERT Fellow - "*Optimization-based Parameter Estimation of Chemical and Biological Systems*", completed Spring 2011.

DOCTORAL COMMITTEES

Dr. Biljana Cosic	*PhD committee member*
Dr. Zhihua Chang	*PhD committee member*
Dr. Oscar Rodriguez	*PhD committee member*
Dr. Mary Kate diTursi	*PhD committee member*
Dr. Sashidar Panchamgam	*PhD committee member*
Dr. Duan Shen	*PhD committee member*
Dr. Zhou Zhang	*PhD committee member*
Dr. Ravi Achanta	*PhD committee member*
Dr. Matthew Kuure-Kinsey	*PhD committee member*
Dr. Monalisa Mazumder	*PhD committee member*
Dr. Priyadarshi Mahapatra	*PhD committee member*
Dr. Xinqun Huang	*PhD committee chair*
Dr. Tom Kiehl	*PhD committee chair*
Dr. Ian Tolle	*PhD committee chair*
Dr. Adam C. Baughman	*PhD committee chair*
Dr. David M. Follansbee	*PhD committee chair*
Dr. Ryan Andress	*PhD committee chair*

UNDERGRADUATE RESEARCH PROGRAM SUPERVISION (KEY LIST)

Olusola Lawal	Chemical Engineering
Michael Ayer	Computer Science
Fred Moore	Chemical Engineering
Wenjing Guo	Chemical Engineering
Thomas Mwakibinga	Electrical and Computer Systems Engineering
Sean Perry	Electrical and Computer Systems Engineering
Ryan Andress	Chemical Engineering
Tiffany Lai	Chemical Engineering
Daniel Dugan	Chemical Engineering
Adam Hardy	Chemical Engineering
Amir Nikfetrat	Chemical Engineering
Michael Franke	Chemical Engineering

SERVICE

- Faculty Advisor, Minority Graduate Students Association (RPI)
- Faculty Organizer, The Michael M. Abbott Fundamentals in Engineering Research Summer Colloquia (RPI)
- Faculty Advisor, The National Society of Black Engineers (RPI)
- Faculty Advisor, Caribbean Students Association (RPI)
- Faculty Advisor, The Biodiesel Campus Initiative (RPI)
- Member, Industrial and Engineering Chemistry Executive Committee, American Chemical Society
- Member, Academic Advisory Committee, Department of Chemical Engineering, Tuskegee University
- Member, Curriculum Committee, Iserman Department of Chemical and Biological Engineering
- Faculty Advisor, Chemical and Biological Engineering Class of 2007 (RPI)
- Associate member, Committee on Minority Affairs (ACS)
- Executive member, Div. of Industrial and Engineering Chemistry (ACS)
- Past Chair, Minority Affairs Committee of the AIChE
- Past Programming Co-Chair, Environmental Division, Fundamentals Section
- Past Programming Co-Chair, CAST Division
- Faculty Advisor, RPI Chapter of the NSBE
- Session Chair, **Energy Systems Design and Alternative Energy Sources** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2010 AIChE Annual Meeting, Salt Lake City, UT.
- Session Chair, H_2/CO_2 Generation/Separation/Storage/Utilization sponsored by the Environmental Division of the AIChE. 2010 AIChE Annual Spring Meeting, San Antonio, TX.
- Session Co-Chair, Hydrogen Production and Carbon Redirection Technologies sponsored by the Environmental Division and the Climate Change Initiative of the AIChE. 2009 AIChE Annual Meeting, Nashville, TN.
- Session Chair, **Multiscale Modeling for Process Design** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2009 AIChE Annual Meeting, Nashville, TN.
- Session Co-Chair, **Changing the Conversation -- Strategies and Opportunities for Engineers to Strengthen the STEM K-12 Pipeline** sponsored by the AIChE *Liaison Functions*. 2009 AIChE Annual Meeting, Nashville, TN.
- Session Co-Chair, **Multiscale and Complex Systems**. 2009 Fundamentals of Computer-Aided Process Design (FOCAPD), Beaver Run Resort, Breckenridge, CO.
- Co-organizer, **2009 Minority Faculty Development Workshop** sponsored by the National Science Foundation and FOCUS, Georgia Institute of Technology Global Learning Center, Atlanta, GA.
- Session Chair, **Reflections on Past Contributions and Future Impact of Process Systems Engineering I and II:** ***A Special Symposium in Honor of the 60th Birthday of George Stephanopoulos*** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2008 Annual Meeting, Philadelphia, PA.

- Session Chair, **Bio- and Pharmaceutical Process Design** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2008 AIChE Annual Meeting, Philadelphia, PA.
- Session Co-Chair, **Process Design** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2008 AIChE Annual Meeting, Philadelphia, PA.
- Session Chair, **Multiscale Approaches to Design** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2007 AIChE Annual Meeting, Salt Lake City, UT.
- Session Chair, **Fundamentals of Environmental Systems Engineering** sponsored by the *Environmental Division* of the AIChE. 2007 AIChE Annual Meeting, Salt Lake City, UT.
- Session Chair, **Process Design** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2006 AIChE Annual Meeting, San Francisco, CA.
- Session Co-Chair, **Fundamental Research in Transport Processes I, II, and III** sponsored by the *Engineering Sciences and Fundamentals Division* of the AIChE. 2006 Annual Meeting, San Francisco, CA.
- Reviewer, **Infrastructure Systems.** 9th International Symposium on Process Systems Engineering/ESCAPE, Garmisch-Partenkirchen, Germany (2006).
- Session Chair, **Design of Integrated Chemical and Biological Systems** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2005 AIChE Annual Meeting, Cincinnati, OH.
- Session Co-Chair, **Fundamental Research in Transport Processes sponsored** by the *Engineering Sciences and Fundamentals Division* of the AIChE. 2004 AIChE Annual Meeting, Austin, TX.
- Session Chair, **Design and Analysis for Biological Systems** co-sponsored by the *Computing and Systems Technology Division* and the *Food, Pharmaceutical, and Bioengineering Division* of the AIChE. 2004 AIChE Annual Meeting, Austin, TX.
- Session Chair, **Chemical and Biological Applications of Optimization** co-sponsored by the *AIAA and the International Society of Structural and Multidisciplinary Optimization (ISSMO)*. 2004 Multidisciplinary Analysis and Optimization Conference. Albany, NY.
- Topic Co-Chair, **Transport Phenomena in Manufacturing and Materials Processing (session 7-3)** sponsored by the *Heat Transfer/Fluid Engineering Division* of the ASME. 2004 ASME HT-FED Summer Conference, Charlotte, NC.
- Session Chair, **Fundamental Research in Transport Processes (session 274)** co-sponsored by the *Engineering Sciences and Fundamentals Division* and the *Energy and Transport Processes Division* of the AIChE. 2003 AIChE Annual Meeting, San Francisco, CA.
- Session Chair, **Design for Separation Processes (session 251)** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2002 AIChE Annual Meeting, Indianapolis, IN.
- Session Vice-Chair, **Integration of Design and Control (session 260)** sponsored by the *Computing and Systems Technology Division* of the AIChE. 2002 AIChE Annual Meeting, Indianapolis, IN.
- Workshop Organizer and Chair, **Current Topics in Engineering Research** sponsored by the *NSBE Professional and Technical Development Division.* 24th National Convention of the National Society of Black Engineers Meeting, 1998, Anaheim, CA.

MEMBERSHIPS AND AFFILIATIONS

American Institute of Chemical Engineers
American Chemical Society
National Society of Black Engineers
American Society of Engineering Education
Texas Bar Association
American Intellectual Property Law Association
Austin Black Lawyers Association
Association of Fundraising Professionals

HONORS AND AWARDS

- 2012 Fish & Richardson 1-L Diversity Fellow
- 2011 Distinguished Service Award, AIChE Minority Affairs Committee
- Dean's Merit Scholar, The University of Texas School of Law, 2011
- Sidney B. Williams, Jr. Scholar, The American Intellectual Property Law Education Foundation (AIPLEF), 2010 (declined), 2011
- Vinson & Elkins Law Preview Scholar, 2011
- Endowed Presidential Scholar, The University of Texas School of Law, 2010 (deferred)
- Institute Outstanding Service Award, The American Institute of Chemical Engineers (AIChE), 2009
- Award for Excellence and Expertise in Chemical Engineering, The Nat'l Organization for the Professional Development of Black Chemists and Chemical Engineers (NOBCChE), 2009
- NSF Travel Award, 2009 Foundations of Computer-Aided Process Design, Breckenridge, CO.
- Faculty Appreciation Award, Rensselaer Polytechnic Institute, 2007
- Martin Luther King Jr. Outstanding Faculty/Staff Award, Rensselaer Polytechnic Institute, Office of Minority Student Affairs, 2006
- Engineering Achievement Award for Student Welfare, University of California, Los Angeles Henry Samuelli School of Engineering and Applied Science, 2002
- Outstanding Ph.D. of the Year Award, University of California, Los Angeles Department of Chemical Engineering, 2002
- Dean's Special Award for Research, University of California, Los Angeles Henry Samuelli School of Engineering and Applied Science, 1998-2000
- NSF Graduate Trainee in Environmentally Conscious Manufacturing, University of California, Los Angeles Department of Chemical Engineering, 1999-2001
- Engineering Leadership Award, University of California, Los Angeles Center for Underrepresented Engineering Students, 1996-2002
- Project '88 Fellow, University of California, Los Angeles 1995, 1999
- Chemical Engineer of the Year, Tuskegee University, 1995
- Omega Xi Epsilon, Chemical Engineering Honor Society member, 1994
- Emcom Scholar, 1993-1995
- NACME Scholar, 1989-1991