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SECTION LEADER, PROCESS TECHNOLOGY: - Program leadership in biofuels, energy conversion, water technologies, bioconversion, catalysis, recycling, chemistry, biochemistry, engineering, biotechnology, computational modeling, environmental, and nanotechnology.

EXPERIENCE

2001-: **ARGONNE NATIONAL LABORATORY**, Argonne IL, Section Leader – Biochemical Engineer, Energy Systems, Process Technology Research

- Leads a research team with seven principle investigators and a total staff, technicians, postdoctoral fellows, and students of up to 50.
- Generated significant R&D program funding in new areas and expansion of existing programs. Developed, directed and managed new R&D programs in collaboration with large and small businesses and University partners. Funding from DOE – Office of the Biomass Program, Industrial Technologies Program, Nanomanufacturing, Geothermal Program, ARPA-E, and Fossil Energy, as well as, USDA, internal seed funds, industrial partners, and venture capitalists.
- Principle Investigator (PI) or Project Manager for ~15 concurrent projects in water management, biofuels, biobased products, chemical engineering, biotechnology, bioprocessing, microbiology, catalysis, biofuels analysis, photoelectrochemical cells, carbon sequestration, phytoremediation, methane, and environmental R&D. Managed research group efforts including bench scale research, pilot plant demonstrations, field operations, and modeling. Research group includes microbiologists, biochemists, chemists, chemical engineers, and agronomists. Contributing to models on the future impact of biofuels on the U.S. economy. Represented the programs in negotiations, communications, and reporting with program sponsors, industrial partners, and licensees. The research group has strong focus on developing and protecting intellectual property
- PI (or co-Investigator) on externally funded industrial partnerships (since 2004)
 - 1) Eurisko Scientific – Enhanced Transportation Biomethane Production from Municipal Sludge Digesters, California Energy Commission (highest rated proposal in the solicitation)

- 2) National Advanced Biofuels Consortium, NREL, PNNL, etc, DOE Office of the Biomass Program
- 3) Nalco - Energy Efficient Carbon Dioxide Capture Using Resin Wafer Electrodeionization, DOE APRA-E
- 4) Heat Integrated Reactive Distillation, DOE Industrial Technologies Program
- 5) Archer Daniels Midland – Separative Bioreactor for Production of Organic Acids and Polyols, DOE Office of the Biomass Program
- 6) BP Whiting Refinery – Emerging Technologies and Approaches to Minimize Discharges into Lake Michigan, Work for others
- 7) Chemical Energy Carriers for the Utilization of Geothermal Energy, DOE Geothermal Program
- 8) Universal Lubricants, Inc. – Accelerated Deployment of Nanostructured Hydrotreating Catalysts, DOE Industrial Technologies Program
- 9) Electrodeposition Process for Manufacturing High-Selectivity Catalysts
- 10) Demonstration of a New Technology to Reduce Conventional Energy Use and Water Use in a Biofuels Production Facility
- 11) Nalco Company – A Synergistic Combination of Advanced Separation and Chemical Scale Inhibitor Technologies for Efficient Use of Impaired Water as Cooling Water in Coal-based, DOE Office of Fossil Energy.* Nalco licensed the technology
- 12) Colorado School of Mines – An Integrated Framework for the Treatment and Management of Produced Water - RPSEA
- 13) BP Chemicals – Production and Separation of Fermentation-Derived Acetic Acid
- 14) Gas Technology Institute – Produced Water Management and Beneficial Use
- 15) Carbozyme Inc. – Carbon Dioxide Capture and Sequestration (*Enzyme/membrane capture of CO₂ from flue gas*)
- 16) Michigan State Univ. & Vertec Biosolvents - Enhancing Animal Feed Values in Corn Dry Mills With Biobased Solvents
- 17) Vertec Biosolvents – Advanced Membrane Separations for Biosolvents
- 18) Coskata Inc. – Optimization of the Bioreactor Performance for Biomass Syngas Fermentation
- 19) UOP – Advanced Separations Technology for Efficient and Economical Recovery and Purification of Hydrogen Peroxide
- Provided technical direction to the Argonne and DOE in long term strategic planning and development of new strategic initiatives, development of AOP's and multi-year technical plans.
- Former Title: Section Leader, Chemical and Biological Technology
- *External Responsibilities*
 - 1) DOE Office of the Biomass Program – Lab Relationship Manager, Sustainability Working Group
 - Oversee budgets, reporting, reviews, communications, and special projects
 - 2) Council for Chemical Research – President (2011-2), Chair (2010), Vice Chair (2009), 2nd Vice Chair (2008), Executive Committee, Governing Board, Chair Research Collaboration Action Network, Diversity Committee, Chair Finance Committee.
 - Led the most radical restructuring of the organization since its founding, transitioning from internal staffing to an external association management service

- Reduced expenses by 40 % while attracting new industrial members and creating new products.
 - 3) Advisory Board, Midwest Aviation Sustainable Biofuels Initiative (MASBI). 2012
 - 4) Adjunct Professor, Chemical and Biological Engineering, Mechanical Engineering, Northwestern University, 2011
 - Mentor for graduate student researchers
 - Taught graduate level course “Energy and Combustion”
 - 5) National Panel for “Initiative for a Carbon Negative Economy” (ICNE), Iowa State University, 2011
 - 6) NSF Center for Bioenergy R&D (CBERD) – South Dakota – Advisory Board
 - 2011-2 Chair of the advisory board
 - 7) Center for Bioprocessing R&D (CBRD) – South Dakota – Advisory Board
 - 8) DOE Energy Efficiency and Conservation Block Grant Program – 2009 Recovery Act – Reviewer and monitor
 - 9) State of Illinois – Biofuels Infrastructure and Investment Working Group
 - 10) Illinois Finance Authority – “Illinois Energy Team”
 - 11) Richard G. Lugar Renewable Energy Center – IUPUI, Indianapolis, IN – Advisory Board, 2009, 2012
 - 12) Center for Advanced Bioenergy Research (CABER) – University of Illinois Urbana Champaign – Advisory Board
 - 13) Institute for Genomics Biology, University of Illinois Urbana Champaign – Affiliate Faculty
 - 14) University of Chicago, Booth School of Business – Energy Initiative – Affiliated Faculty.
 - 15) University of Chicago, Institute of Genomics and Systems Biology – Fellow.
 - 16) American Chemical Society – Selection committee for a national chemistry award.
 - 17) Argonne programmatic committees and panels
 - a. Diversity and Inclusion
 - b. Business Development working group
 - c. CRADA process review
 - d. Planning team – new Biology and Environmental Sciences Building
 - e. Strategic Planning – Alternative Energy and Energy Efficiency
 - f. Strategic Planning – Lead, Advanced Biofuels Development
 - g. Work for Others (WFO) Working Group
 - h. Life Science Initiative Working Group
 - i. Energy Strategic Initiative Co-leader
 - j. Climate Working Group
 - k. Illinois Energy Systems Institute
 - l. Chemical Engineering Strategy Working Group
 - m. Energy-Water Nexus
 - n. Library Collection Committee
- 2) **1998-2001: ARGONNE NATIONAL LABORATORY**, Associate Director, Chemistry Division
- Managed division operations and administrative staff for a \$20 million division. Responsibility and direct oversight of financial, ES&H, QA, HR, building operations, intellectual property, IT and technical services.

- Coordinated new initiatives and proposals in chemical nanoscience, biobased chemicals, structural genomics, and environmental research. Represented the division in negotiations, communications, and reviews with sponsors on emerging and ongoing research programs.
- Coordinated the technical and design needs for the chemical science programs proposal for Argonne's "Center for Nanoscale Materials". The \$72 million center opened in 2006
- Served as the lead or ex-officio on all divisional safety and operational committees. Represented the division in all external safety and operational reviews and inspections. Led a complete revision of all divisional safety and QA manuals and procedures.
- Identified and directed remediation of several legacy radiological waste and chemically contaminated laboratories. Initiated division-wide IT upgrade.
- Former title: Manager Research Program Administration.

1994-98: ABBOTT LABORATORIES, Abbott Park IL, Senior Research Biochemist, Protein Biochemistry, Pharmaceutical Discovery Research

- Characterized structure/function relationships in novel protein targets using spectroscopy.
- Worked on development teams across Structural Biology department (X-ray crystallography and NMR) and Advanced Technology area (combinatorial chemistry and high throughput screening) on protein characterization and interactions with drug candidates.
- Research focused on discovery research in several therapeutic areas including anti-bacterial, anti-viral, anti-fungal, anti-cancer, neuroscience, immunology, and degenerative diseases.
- Incorporated novel scientific instrumentation and technologies into Protein Biochemistry laboratory. Integrated laboratory automation and web browser-based data access.
- Former title: Research Biochemist

1992-94: ABBOTT LABORATORIES, Postdoctoral Fellow, Alzheimer's Research

- Investigated kinetic and structural aspects of amyloid- β aggregation with analytical ultracentrifugation, microscopic imaging, and optical spectroscopy.
- Investigated binding between A β and drug candidates. Probed pathological properties of A β and its interactions with cellular proteins associated with Alzheimer's disease.
- Developed non-linear software for kinetic and thermodynamic analysis of hydrodynamic data.
- The program was a joint collaboration with Northwestern University.

1989-92: ARGONNE NATIONAL LABORATORY, Postdoctoral Fellow, Photosynthesis

- Investigated electron transfer events in plant and bacterial reaction centers with electron paramagnetic resonance.
- Confirmed secondary electron acceptor in the photosynthetic pathway. Identified new plant herbicide target.
- Developed a laser-based, time-resolved epr spectrometer and related instrument-control and data-analysis software.

1981-89: UNIVERSITY OF VIRGINIA, Charlottesville VA, Research and Teaching Assistant

- Identified new chiral-selective energy transfer processes between metal complexes in aqueous and DNA solutions using time-resolved, circularly polarized luminescence.
- Developed models and characterized kinetics of chiral interactions between metal complexes and microheterogeneous environments. Developed non-linear least squares analysis applications to model interactions.

- Constructed a single photon counting fluorescence spectrometer. Developed instrument control software and numerical Marquardt non-linear least squares applications for deconvoluting the kinetics of multiple interacting species.
- System administrator for the Chemistry Department's first Silicon Graphics.
- University of Virginia President's and Visitor's Research Prize

1979-80: R. BUCKMINSTER FULLER'S OFFICE, Philadelphia PA, Energy Researcher
Inventoried world energy resources from UN data banks of geologic and industrial resources.

1978-79: ENVIRONMENTAL PROTECTION AGENCY, Philadelphia PA, Water Safety Engineer
Implemented Non-Community Safe Water Drinking Act for the state of Pennsylvania.

EDUCATION

UNIVERSITY OF CHICAGO: Strategic Laboratory Leadership Program, Graduate School of Business, **2008**.

UNIVERSITY OF VIRGINIA: Ph.D. in Biophysics, 1990 & M.S. in Physical Chemistry 1985

- Ph.D. Dissertation: "Excited-State Chiral Recognition Between Lanthanide and Transition Metal Complexes: A Time-Resolved Circularly Polarized Luminescence Study in Aqueous and DNA Solutions" **1989**.
- M.S. Thesis: "Interactions of Ru(II) Photosensitizers with Surfactant Media" **1985**.

UNIVERSITY OF PENNSYLVANIA: B.A. with honors in Chemistry and Environmental Studies, cum laude, also two years of Chemical Engineering, 1980

- Environmental Studies Senior Thesis: "Nitrates in Drinking Water" **1980**.

PROFESSIONAL ACTIVITIES (SINCE 2006)

- 1) Invited Speaker "Biofuel Technology Landscape & Sustainability Implications" Midwest Aviation Sustainable Biofuels Initiative (MASBI), Kick-off, Chicago IL, June 2012
- 2) Organizer and Chair "Advanced Biofuels and the Midwest Market", Energy Policy Institute at Chicago, University of Chicago – Booth School of Business, June 2012
- 3) Invited Panelist – Technology Ventures Corporation, Deal Stream Summit, Albuquerque NM, April 2012
- 4) Invited Speaker - "The Potential Threat of Future Power and Energy Technology Breakthroughs" McLean, VA, March 2012. Hosted by the MITRE Corporation on behalf of the U.S. Government as part of the Science & Technology Expert Partnership (STEP). STEP operates under the auspices of the National Intelligence Council (NIC) and the Scientific and Technical Intelligence Committee (STIC).
- 5) Invited Speaker - International Symposium on Assessing the Economic Impact of Nanotechnology, Washington, DC, March 2012. Organized by the OECD Working Party on Nanotechnology and the U.S. National Nanotechnology Initiative
- 6) Invited Seminar Speaker – South Dakota Schools of Mines & Technology, Rapid City SD, March 2012
- 7) Invited Panelist, Advanced Biofuels – Clean Energy Challenge, Clean Energy Trust Investor Conference, Chicago IL, March 2012
- 8) Company Mentor – Clean Energy Trust Investor Conference, Chicago IL, March 2012
- 9) Winner – Federal Laboratory Consortium Award for Excellence in Technology Transfer "Resin Wafer Electrodeionization", January 2012

- 10) Invited Writer – DOE Office of the Biomass Program, Conversion Technologies for Advanced Biofuels Roadmap, December 2011
- 11) Facilitator – CCR-AIChE Plenary Symposium “Chemical Science Innovation: Future of US Chemical Enterprise”, Minneapolis, MN, October 2011.
- 12) Invited Participant – 2nd Annual U.S.-China Advanced Biofuels Forum
- 13) Organizing Committee, Council for Chemical Research, NICHÉ Workshop on Catalysis with Alternative Feedstocks, Newark DE, September 2011
- 14) Host – Agenda 2020 Board visit and tour, September 2011
- 15) Organizing Committee, Midwest CleanTech Forum 2011, Chicago IL, September 2011
- 16) Invited contributor – Biomass 2011 National Laboratory showcase, National Harbor MD, July 2011
- 17) Invited Plenary Speaker WIndiana – Indiana Renewable Energy Conference, Indianapolis IN, July 2011
- 18) Invited Panelist – North Dakota Cleantech 2011 Workshop & Action Summit, Grand Forks ND, June 2011
- 19) Panelist on “Failure in Science” – Webinar hosted by Science Magazine, June 2011
- 20) Workshop Facilitator – Council for Chemical Research, NICHÉ Workshop on OLEDs for Lighting and Display, Minneapolis MN, June 2011
- 21) Invited contributor and technical reviewer – Advanced Biofuels section of the DOE Quadrennial Technology Review.
- 22) Company Mentor – Clean Energy Trust challenge, Chicago IL, March 2011
- 23) Invited Panelist – University of Chicago, Harris School of Public Policy, - alternative energy, Chicago IL, February 2011
- 24) Invited Speaker – Northwestern University Medill School of Journalism, renewable energy research, Argonne IL, January 2011
- 25) Organizing Committee – CTO Roundtable on Graduate Education, Council for Chemical Research – Crystal City, VA, December 2010
- 26) Invited Speaker – Water Stewardship Forum 2010 – Chicago IL, October 2010
- 27) Invited Speaker – Near-term Opportunities for Biorefineries, University of Illinois – Champaign IL, October 2010
- 28) Organizing committee – Midwest Clean Tech Forum 2010 – Midwest Global Partnerships – Chicago IL, September 2010
- 29) Invited Speaker – “Future Fuels” Chicago Council on Science and Technology (C2ST), Chicago IL, September 2010
- 30) Invited Speaker – “Biobased Chemicals” Infocast Summit – Boston MA, September 2010
- 31) Co-organizer – American Chemical Society Presidential Symposium “Translational Chemical R&D: The Driving Force of Job Creation”, Boston MA, August 2010
- 32) Invited Speaker – “Biobased Chemicals” Infocast Summit – San Diego, CA, February 2010
- 33) Organizing committee – Clean Tech Forum 2009 – Illinois Global Partnerships – Chicago IL, November 2009
- 34) Invited Speaker – Illinois Institute of Technology, Chicago IL, October 2009
- 35) Invited Speaker – Dow/Union Carbide Reaction Engineering and Catalysis Seminar Series in Honor of R. Richard Bannister, West Virginia University, Morgantown WV, September 2009.
- 36) Invited Speaker – NSF Energy Workshop, Civil, Mechanical and Manufacturing Innovation Division of the National Science Foundation – Honolulu, HI, June 2009

- 37) Conference Chair – Council for Chemical Research Annual Meeting – Salt Lake City, UT, April 2009
- 38) Invited Plenary Speaker – 15th International Petroleum and Biofuels Environmental Conference – Albuquerque, NM, November 2008
- 39) Conference co-chair – Council for Chemical Research, NIChe Conference, “CO₂ Capture and Sequestration”, Houston TX, Argonne IL, October 2008.
- 40) Invited Panelist – Federal Reserve Bank - Clean Technologies & Sustainability: Global Perspectives & Opportunities – Chicago IL, September 2008
- 41) Keynote Speaker – Illinois Agronomy Day – Energizing Agriculture, Urbana IL, August 2008
- 42) Panel Moderator and Invited Speaker – "Why Go Bio?", Business Panel, Illinois Community College Board – Kankakee IL, May 2008
- 43) Invited Speaker – Platts Advanced Biofuels – San Francisco, May 2008
- 44) Invited Speaker – 30th Symposium on Biotechnology for Fuels and Chemicals – New Orleans, May 2008
- 45) Session Facilitator – Research Collaboration – Council for Chemical Research Annual Meeting – St. Louis, April 2008
- 46) Invited Participant – NSF Bioprocessing R&D Center - Strategic Planning, Minneapolis, March 2008
- 47) Invited Panelist – Univ. of Chicago Graduate School of Business – Clean Tech Forum, Chicago, February 2008
- 48) Invited Speaker and Panel Moderator – iBIO IndEx – Renewable Chemicals, Chicago, February 2008
- 49) Invited Speaker – Dept. of Civil and Environmental Engineering, Northwestern University “Creating our Biobased Future”, Evanston IL, December 2007.
- 50) Invited Panelist - Midwest Alternative Energy Venture Forum “What Will The Next Breakthroughs in Alternative Energy Technology Be?” – Chicago, November 2007
- 51) Invited Speaker– Financial Research Associates “Next Generation Biofuels for a "Twenty In Ten" World – New York, October 2007
- 52) Invited Speaker – Federal Reserve Bank of Chicago – “The Role of R&D in Agriculture and Related Industries: Today and Tomorrow”, Chicago, September 2007.
- 53) Dept. of Energy – Industry Technologies Program – National Laboratory Strategic Planning Group, August 2007
- 54) Invited Speaker – EMD Chemicals/Notre Dame Workshop on Ionic Liquids – “Biocatalysis in Ionic Liquids” - South Bend, IN, July 2007
- 55) Conference chair – Council for Chemical Research, NIChe Conference, “Biobased Feedstocks”, Argonne IL, June 2007.
- 56) Invited Speaker – Renewables in a Carbon Constrained World – “Fueling Changing with Renewable Energy” – University of Illinois, Champaign IL, April 2007
- 57) Coordinator – CCR Annual Meeting, Research collaboration breakouts sessions and reports, New Orleans, LA, April 2007
- 58) Invited Participant – iBIO Ag-Bio Leadership Summit, March 2007
- 59) Invited Panelist – POWER-GEN Renewable Energy & Fuels “Next Generation Biofuels: Thermochemical vs. Biological Pathways”, Las Vegas, NV, March 2007
- 60) Panel Moderator – 2007 iBIO Industry Expo & Marketplace, “Bio Energy - Food, Fiber, Feed, and Fuel” – Chicago IL, February 2007

- 61) Panelist – UChicago-Argonne LLC Board of Governors, “Industrial Research Partnerships” – Chicago IL, February 2007
- 62) Invited Lecture – UOP LLC 2007 Invitational Lecture Series – “Envisioning and Creating Our Biobased Future”, Des Plaines, IL, January 2007
- 63) Invited Presenter – Cellulosic Ethanol, Commercial and Financial Viability and Prospects for Growth, Platts, Chicago IL, 2006
- 64) Invited Presenter “Monitoring and Mitigation of Sustained Localized Pitting Corrosion”. 72nd meeting of the Petroleum Environmental Research Forum, Naperville IL, 2006
- 65) Panelist –Biofuels Infrastructure and Investment Working Group, State of Illinois, 2006
- 66) Invited Presenter - French Atomic Energy Delegation, “Biomass Research at Argonne”, Argonne IL, 2006.
- 67) Invited Participant, DOE Office of the Biomass Program 30x30 Workshop, A scenario for Supplying 30 % of 2004 Motor with Biofuels by 2030, Washington DC, 2006.
- 68) R&D100 winner “Separative Bioreactor for the Production and Recovery of Biobased Products”, 2006
- 69) Invited Presenter – Argonne FAST Career Workshop “Career Options in Science and Technology, Argonne IL, 2006
- 70) Invited Presenter – “Illinois Agricultural Leadership Foundation”, Carbondale, IL – 2006
- 71) Co-organizer – Argonne Bioenergy Workshop, Argonne, 2006
- 72) Panelist – Energy-Water Nexus, “Technology Innovation Workshop”, San Diego, 2006
- 73) Coordinator – Research Collaboration workshops, CCR Annual Meeting, Tucson, 2006
- 74) Session co-chair – Separations section, 28th Symposium on Biotechnology for Fuels and Chemicals, Nashville, 2006
- 75) Invited Panelist - Joint Water Reuse & Desalination Task Force, “Institutional Issues in Desalination and Water Purification”, San Antonio, 2006
- 76) Working Group – 30 x 30 Agenda for Presidential Energy Initiative, 2006
- 77) Invited Speaker – University of Illinois Urbana Champaign – Sustainable Bioenergy: Focus on the Future of Biofuels and Chemicals, 2006
- 78) Invited Participant – Update of the DOE Biomass Roadmap, 2006
- 79) Invited Speaker – Northern Illinois University, 2006
- 80) Organizing Committee – North American Membrane Society Annual Meeting, 2006

AWARDS (SINCE 2002)

- 2012 – FLC Award for Excellent in Technology Transfer “Resin Wafer Electrodeionization”
- 2011 – R&D 100 “Enhanced Renewable Methane Production System”
- 2007 – Outstanding Mentor Award – DOE FAST Program.
- 2006 - R&D 100 “Separative Bioreactor for the Production and Recovery of Biobased Products”
- 2002 - R&D 100 “Advanced Electrodeionization for Product Desalting”

PROFESSIONAL SERVICE

COUNCIL FOR CHEMICAL RESEARCH – PRESIDENT (2011-2), CHAIR (2010), VICE CHAIR (2009), 2ND VICE CHAIR (2008), Governing Board (2006-11), First person to serve as both Chair and President

- Led a major restructuring of the organization to improve finances and responsiveness to member companies.

COMMUNITY SERVICE

STATE OF ILLINOIS – Candidate, Lieutenant Governor, 2010
SCHOOL DISTRICT 74 – Candidate, Board of Education, 2007
VILLAGE OF LINCOLNWOOD – Commissioner of Economic Development, 2000 – present
WNUR-FM (NORTHWESTERN UNIVERSITY) – Jazz disc jockey, 1994 – present
PUBLIC SCHOOLS –Career Explorations, Job Shadowing, Science Fair Judge, Science Content Committee, – 1994 – present
EVANSTON DANCE ENSEMBLE – Board of Directors, Secretary, and Co-chair of Grant Writing, 2001-5

PUBLICATIONS

- 1) S. Datta, S.W Snyder, D.J. Schell, C.S Millard, S.F. Ahmad, M.P. Henry, P. Gillenwater, A.T Fracaro, A. Moradia, Z.P. Gwarnicki, Y.J. Lin “Removal of Acidic Impurities from Corn Stover Hydrolysate Liquor by Resin Wafer based Electrodeionization (RW-EDI)”, *Biomass and Bioenergy*, **2012**, submitted.
- 2) M. Urgun-Demirtas, P.S. Gillenwater, M.C. Negri, Y. Lin, S.W. Snyder, R.D. Doctor, L.M. Pierce, J.S. Alvarado “Achieving the Great Lakes Initiative mercury limits in oil refinery effluent”, *Water Environment Research Journal*, **2012**, in press.
- 3) M. Urgun-Demirtas, P.L. Benda, P.S. Gillenwater, M.C. Negri, H. Xiong, S.W. Snyder, Achieving very low mercury levels in refinery wastewater by membrane filtration, *Journal of Hazardous Materials*, **2012**, 215-6, 98-107 ([doi:10.1016/j.jhazmat.2012.02.040](https://doi.org/10.1016/j.jhazmat.2012.02.040))
- 4) P. S. Gillenwater, M. Urgun-Demirtas, M. C. Negri, S.W. Snyder “Comparative Evaluation of As, Se and V Removal Technologies for the Treatment of Oil Refinery Wastewater”, *Water Science and Technology*, **2012**, 65(1), 112–118. ([doi:10.2166/wst.2011.842](https://doi.org/10.2166/wst.2011.842))
- 5) F. You, L. Tao, D.J. Graziano, S.W. Snyder “Optimal Design of Sustainable Cellulosic Biofuel Supply Chains: Multiobjective Optimization Coupled with Life Cycle Assessment and Input-Output Analysis”, *AICHE Journal*, **2012**, 58(4), 1157-1180 ([doi:10.1002/aic.12637](https://doi.org/10.1002/aic.12637))
- 6) G. Gopalakrishnan, M. Cristina. Negri, Seth W. Synder (sic) “Redesigning agricultural landscapes for sustainability using bioenergy crops: Quantifying the tradeoffs between agriculture, energy and the environment”, *Aspects of Applied Biology, Biomass and Energy Crops IV*, **2011**, 112, 139-146.
- 7) R.L. Stiles, J. Shah, J. Yuan, L. Wesoloski, R.W. Dorner, W.M. Carlson, Y.J. Lin, S. Datta, M.P. Henry, C.S. Millard, S.W. Snyder “Resin Wafer Electrodeionization for Flue Gas Carbon Dioxide Capture”, *AICHE Spring Meeting proceedings*, **2011**, <http://apps.aiche.org/proceedings/Abstract.aspx?PaperID=212053>
- 8) G. Gopalakrishnan, M. C. Negri, S. W. Snyder, “A novel framework to classify marginal land for sustainable biomass feedstock production”, *Journal of Environmental Quality*, **2011**, 40(5), 1593-1600 ([doi:10.2134/jeq2010.0539](https://doi.org/10.2134/jeq2010.0539))
- 9) R.N. Gurram, S. Datta, Y.J. Lin, S.W. Snyder, T.J. Menkhaus, “Removal of Enzymatic and Fermentation Inhibitory Compounds from Biomass Slurries for Enhanced Biorefinery Process Efficiencies”, *Bioresource Technology*, **2011**, 102, 7850–7859 (<http://dx.doi.org/10.1016/j.biortech.2011.05.043>)

- 10) A. Rockett, Y.W. Chung, Y. W.; H. Blaschek, S. Butterfield, R. R. Chance, C. Ferekides, M. Robinson, S. W. Snyder, M. Thackeray “Transformative research issues and opportunities in alternative energy generation and storage”, *Current Opinion in Solid State Materials Science*, **2011**, 15(1): 8-15 ([doi:10.1016/j.coSSMS.2010.09.001](https://doi.org/10.1016/j.coSSMS.2010.09.001))
- 11) S. Datta, B. D. Bals, L. Pasieta, S. F. Ahmad, A. A. Moradia, Y. J. Lin, M. C. Negri, R. Datta, B. E. Dale, Seth W. Snyder “An Attempt towards Simultaneous Biobased Solvent Based Extraction of Proteins and Enzymatic Saccharification of Cellulosic Materials from Distiller’s Grains and Solubles”, *Bioresource Technology*, **2010**, 101 (10), 5444-5448 (dx.doi.org/10.1016/j.biortech.2010.02.039)
- 12) G. Gopalakrishnan, M. C. Negri, M. Wang, M. Wu, S.W. Snyder, L. LaFreniere “Biofuels, Land and Water: A Systems Approach to Sustainability”, *Environmental Science and Technology*, **2009**, 43(15): 6094-6100. (pubs.acs.org/doi/abs/10.1021/es900801u)
- 13) M.B. Arora, J.A. Hestekin, S.W. Snyder, E. St. Martin, M. Donnelly, C. S. Millard, Y.P. Lin “The Separative Bioreactor: A Continuous Separation Process for the Simultaneous Production and Direct Capture of Organic Acids, *Separations Science and Technology*, **2007**, 2 (11): 2519-2538.
- 14) J. A. Hestekin, E. G. Gilbert, M. P. Henry, R. Datta. E. J. St. Martin, S. W. Snyder “Modified Porous Nafion 112 Membranes: Characterization, Modeling, and Emulsion Separations”, *Journal of Membrane Science*, **2006**, 281: 268-273.
- 15) J.E. Harlan, D.A. Egan, U.S. Ladror, S. Snyder, M.I. Tang, A. Buko, T.F. Holzman “Driving Affinity Selection by Centrifugal Force”, *ASSAY and Drug Development Technologies*, **2003**, 1(4): 507-519.
- 16) J. A. Hestekin, Y.P. Lin, J. Frank, S.W. Snyder, E. St. Martin “Electrochemical Enhancement of Glucose Oxidase Kinetics: Gluconic Acid Production with Anion Exchange Membrane Reactor”, *Journal of Applied Electrochemistry*, **2002**, 32(9): 1049-1052.
- 17) U. S. Ladror, D. A. Egan, S. W. Snyder, J. O. Capobianco, R. C. Goldman, S. A. Dorwin, R. W. Johnson, R. Edalji, A. V. Sarthy, T. McGonigal, K. A. Walter, T. F. Holzman “Domain Structure Analysis of Elongation Factor-3 from *Saccharomyces cerevisiae* by Limited Proteolysis and Differential Scanning Calorimetry”, *Protein Science*, **1998**, 7, 2595-2601.
- 18) P. D. Laible, Y. Zhang, A. L. Morris, S. W. Snyder, C. Ainsworth, S. R. Greenfield. M. R. Wasielewski, P. Parot, B. Schoepp, M. Schiffer, D. K. Hanson, M. C. Thurnauer, “Spectroscopic Characterization of Quinone-site Mutants of the Bacterial Photosynthetic Reaction Center”, *Photosynthesis Research*, **1997**, 52, 93-103.
- 19) S. W. Snyder, R. P. Edalji, F. G. Lindh, K. A. Walter, L. Solomon, S. Pratt, K. Steffy, T. F. Holzman, “Initial Characterization of Autoprocessing and Active-Center Mutants of CMV Proteinase”, *Journal of Protein Chemistry*, **1996**, 15, 763-774.
- 20) W. B. Stine, S. W. Snyder, U. S. Ladror, W. S. Wade, M. F. Miller, T. J. Perun, T. F. Holzman, G. A. Krafft, “The Nanometer-Scale Structure of Amyloid- β Visualized by Atomic Force Microscopy”, *Journal of Protein Chemistry*, **1996**, 15, 193-203.

- 21) A. Barkoff, N. Brunkan, S. W. Snyder, A. Ostafin, M. Werst, J. Biggins, M. C. Thurnauer, “Quinone Exchange at the A₁ Site in Photosystem I (PSI)” in [Photosynthesis: from Light to Biosphere, Vol. II](#), (P. Mathis, ed.), pp. 115-118, Kluwer Academic Publishers, Dordrecht, Netherlands, 1995.
- 22) T. Oda, P. Wals, H. H. Osterburg, S. A. Johnson, G. M. Pasinetti, T. E. Morgan, I. Rozovsky, W. B. Stine, S. W. Snyder, T. F. Holzman, G. A. Krafft, C. E. Finch, “Clusterin (apoJ) Alters the Aggregation of Amyloid β-Peptide (Aβ₁₋₄₂) and Forms Slowly Sedimenting Aβ complexes that Cause Oxidative Stress” [Experimental Neurology, 1995, 136, 22-31.](#)
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CONFERENCE PRESENTATIONS (SINCE 2002)

- 1) Invited Speaker - "The Potential Threat of Future Power and Energy Technology Breakthroughs" MITRE Corporation, McLean, VA, March **2012**.
- 2) Invited Speaker - International Symposium on Assessing the Economic Impact of Nanotechnology, Washington, DC, March **2012**.
- 3) Seth W. Snyder, "Critical Opportunities and Barriers to Bioenergy", Invited departmental seminar, Department of Chemical and Biological Engineering, South Dakota School of Mines & Technology, Rapid City, SD, March **2012**
- 4) Seth W. Snyder, Advanced Biofuels panel, Clean Energy Challenge, Chicago IL, March **2012**
- 5) Patricia Gillenwater, Meltem Urgun Demirtas, M. Cristina Negri, Seth Snyder "Evaluating technologies to achieve the Great Lakes water quality objective for mercury in wastewater", 15th Annual Energy, Utility & Environment Conference (EUEC) 2012, Phoenix AZ, January **2012**

- 6) Seth W. Snyder, "Critical Barriers to Bioenergy", Invited departmental seminar, Department of Chemical and Biological Engineering, Northwestern University, Evanston IL, November **2011**
- 7) Seth W. Snyder, "Critical Barriers to Bioenergy" AIChE 2011 Midwest Regional Conference, Chicago IL, November **2011**
- 8) Saurav Datta, Yupo J. Lin, Michael P. Henry, Cynthia S. Millard, Seth W. Snyder, Jitendra Shah, Lisa Wesoloski, Rebecca L. Stiles, Jianwei Yuan, Robert W. Dorner, Wayne M. Carlson "Novel Electrochemical Process for Capture of CO₂ from Power Plant Flue Gas" AIChE National Meeting, Minneapolis MN, October **2011**
- 9) Yupo J. Lin, Saurav Datta, Michael Henry, Anthony Fracaro , Seth Snyder "Hydrolysate De-Acidification Using Resin-Wafer Electrodeionization" AIChE National Meeting, Minneapolis MN, October **2011**
- 10) G. Gopalakrishnan, M. Cristina. Negri, Seth W. Synder (sic) "Redesigning agricultural landscapes for sustainability using bioenergy crops: Quantifying the tradeoffs between agriculture, energy and the environment" Biomass and Energy Crops IV, Association of Applied Biologists, Urbana IL, September **2011**
- 11) Gurram, S. Datta, Y. Lin, S. Snyder, T. J. Menkhaus "Removal and Recovery of Enzymatic and Fermentation Inhibitory Compounds from Biomass Slurries for Enhanced Biorefinery Process Efficiencies", 33rd Symposium on Biotechnology for Fuels and Chemicals, Seattle WA, May **2011**
- 12) S.W. Snyder "WIndiana – Indiana Renewable Energy Conference", Indianapolis IN, July **2011**
- 13) Y. J. Lin, S. Datta, M. P. Henry, C. S. Millard, S. W. Snyder, J. Shah, L. Wesoloski, R. L. Stiles, J. Yuan, R. W. Dorner, W. M. Carlson "Electrochemical process for energy efficient capture of CO₂ from coal flue gas" American Chemical Society Spring National Meeting, Anaheim CA, March **2011**
- 14) R. L. Stiles, J. Shah, J. Yuan, L. Wesoloski, R. W. Dorner, W. M. Carlson, Y. J. Lin, S. Datta, M. P. Henry, C. S. Millard, and S. W. Snyder, "Resin Wafer Electrodeionization for Flue Gas Carbon Dioxide Capture ", AIChE Spring Meeting, Chicago IL, March **2011**
- 15) F. You, L. Tao, D. J. Graziano, S. W. Snyder, "Optimal Design of Sustainable Cellulosic-Based Advanced Biofuels Supply Chains", AIChE National Meeting, Salt Lake City, UT November **2010**
- 16) F. You, L. Tao, D. J. Graziano, S. W. Snyder, "Environmentally and Socially Conscious Design and Planning of Cellulosic Ethanol Supply Chains", AIChE National Meeting, Salt Lake City, UT November **2010**
- 17) S. Datta, S. W. Snyder, M. H. Henry, S. A. Ahmad, Yupo J. Lin "Separation and Recovery of Ionic Impurities from Biomass Hydrolysate by Electrodialysis/Electrodeionization", AIChE National Meeting, Salt Lake City, UT November **2010**
- 18) Y. J. Lin, C. S. Millard, S. Datta, S. W. Snyder, "Integrated Separative Bioreactor of Succinic Acid Fermentation" AIChE National Meeting, Salt Lake City, UT November **2010**

- 19) S.W. Snyder – “Sustainable water: succeeding in a changing environment” Water Stewardship Forum 2010 – Chicago IL, October **2010**
- 20) S.W. Snyder – “Critical Barriers to Bioenergy” Near-term Opportunities for Biorefineries, University of Illinois – Champaign IL, October **2010**
- 21) S.W. Snyder, “Sustainability, Compatibility and Economics: The Critical Barriers to Bioenergy”, International Bioenergy Days (IBED) 2010, Rockford IL, September **2010**
- 22) S.W. Snyder, “Sustainability, Compatibility and Economics: The Critical Barriers to Bioenergy”, Future Fuels, Chicago Council on Science and Technology, Chicago IL, September **2010**
- 23) J. Shah, R. Stiles, L. Wesoloski, R. Dorner, J. Yuan, D. Musale, W. Carlson, C. Doucette, S. Snyder, Y. Lin, M. Henry, S. Datta, C. Millard, M. Trachtenberg, D. Schabacker, R. Doctor “Resin Wafer-Electrodeionization for Flue Gas Carbon Dioxide Capture”, 2010 NETL CO₂ Capture Technology Meeting, Pittsburgh PA, September **2010**
- 24) J. E. Drewes, T. Cath, P. Xu, N. Hancock, K. Dahm, K.L. Guerra, D. Heil, J. Graydon, J. Debroux, J. Veil, S. Snyder, B. Raucher, W. Buschmann “An Integrated Framework for Treatment & Management of CBM Produced Water”, 17th Annual International Petroleum & Biofuels, Environmental Conference, San Antonio TX, September **2010**
- 25) S.W. Snyder “Integration of Conversions and Separations”, Infocast Biobased Chemicals Northeast, Boston MA, September **2010**
- 26) Y.J. Lin, S. Datta, S. Snyder “Applications of Resin-Wafer Electrodeionization in biofuels and biobased product” NAMS 2010, Washington DC, July **2010**
- 27) S.W. Snyder Drop in Biofuels panel, Advanced Biofuels Workshop at the 2010 International Fuel Energy Workshop & Expo, St. Louis MO, June **2010**
- 28) J.E. Drewes, T. Cath, P. Xu, N. Hancock, K. Dahm, K. Guerra, D. Heil, J. Graydon, J. Debroux, J. Veil, S. Snyder, R. Raucher, W. Buschmann “An Integrated Framework for Treatment and Management of CBM Produced Water” 2010 NGWA Ground Water Summit, Denver CO, April **2010**.
- 29) S.W. Snyder “Challenges of Downstream Processing and Chemical Conversion of Fermentation Products”, Biobased Chemicals, Infocast Summit, San Diego, CA, February **2010**
- 30) T.Y. Cath, N. Hancock, P. Xu, K.L. Benko, J.E. Drewes, S.W. Snyder, Y. Lin “Emerging Treatment Processes for CBM Produced Water Purification”, 16th IPEC Conference, Houston TX, November **2009**
- 31) S. Datta, M. Henry, S. F. Ahmad, S. W. Snyder, Y. J. Lin “Removal of Salt Impurities from Glycerol using Electrodeionization Technique” AIChE National Meeting, November **2009**, Nashville TN
- 32) S.W. Snyder, J. Libera, J. Elam, J. Franceschi, A. Libshutz, J. Park, W. Gorman, W. Ragland, D. Cronauer “Accelerated Deployment of Nanostructured Hydrotreating Catalysts”, AIChE National Meeting, November **2009**, Nashville TN

- 33) Y.J. Lin, S.W. Snyder "Desalination and pH control using Resin-Wafer Electrodeionization" Materials Research Society, Spring Meeting, April **2009**, San Francisco, CA
- 34) G. Gopalakrishnan, M. C. Negri, M. Wu, M. Wang, S. Snyder "A systems approach to biomass sustainability" Biomass 2009, March 2009, National Harbor, MD
- 35) S. Datta, Y. Lin, C. Negri, R. Datta, B. D. Bals, S. Snyder "Extraction of Proteins from Corn Dry Mill By-product by Bio-based Solvents", AIChE Fall National Meeting, November **2008**, Philadelphia, PA
- 36) S. W. Snyder "Science and Commercialization Panel" – 2008 CleanTech Forum, Chicago Federal Reserve, September **2008**, Chicago IL
- 37) S. W. Snyder "Creating our biobased future", Illinois Agronomy Day – Energizing Agriculture, August **2008**, Urbana IL
- 38) G. Gopalakrishnan, M. C. Negri, M. Wu, M. Wang, S. Snyder "Use of marginal land and water for sustainable biofuel production", Short Rotation Crops International Conference, International Phytotechnology Society, August **2008**, Minneapolis, MN
- 39) S.W. Snyder "Creating our biobased future", Platt's Advanced Biofuels, Emerging Technologies and Commercial Development, May **2008**, San Francisco, CA
- 40) S.W. Snyder, Y. Lin, L. Sun, M. Henry "Membrane contactor for efficient alcohol recovery", 30th Symposium on Biotechnology for Fuels and Chemicals, May **2008**, New Orleans, LA
- 41) L. Sun, Y.J. Lin, M Henry, S.W. Snyder "Membrane Contactor/Ionic Liquid for Biofuel Recovery", AIChE Spring National Meeting, April **2008**, New Orleans, LA
- 42) S.W. Snyder "Renewable Chemical Replacements", iBIO IndEx, February **2008**, Chicago IL
- 43) S.W. Snyder "National Laboratory Perspective on the Twenty-in-Ten Biofuels Initiative", Next Generation Biofuels for a "Twenty in Ten" World, Financial Research Associates LLC, October **2007**, New York, NY
- 44) S.W. Snyder "Biofuels R&D", The Role of R&D in Agriculture and Related Industries: Today and Tomorrow, Chicago Federal Reserve Bank, September **2007**, Chicago IL
- 45) S.W. Snyder, Y. Lin "Ionic Liquids in the Production of Biofuels and Biobased Products", Ionic Liquids Workshop, July **2007**, South Bend IN
- 46) S.W. Snyder "Overview of Biobased Feedstocks", CCR NIChe conference – Biobased Feedstocks, June **2007**, Argonne IL
- 47) N. Sather, Y. Lin, T. Rajh, N. Dimitrijevic and S. Snyder, "Photoelectrochemical Water-Splitting Cell for Integrated Production and Separation of High-Purity Hydrogen", 211th Meeting of the Electrochemical Society, May **2007**, Chicago IL
- 48) S.W. Snyder "Renewable Energy in a Carbon Constrained World" Fueling Changing with Renewable Energy – University of Illinois, April **2007**, Champaign IL
- 49) S.W. Snyder "Production and Separation of Fermentation-Derived Acetic Acid" AIChE Spring Meeting, April **2007**, Houston TX
- 50) S. W. Snyder "Thermochemical vs. Biochemical: You Make the Case", PowerGen Renewable Energy and Fuels Conference, March **2007**, Las Vegas, NV

- 51) S. W. Snyder "Food, Feed, Fiber, Fuel", iBIO IndEx, February **2007**, Chicago IL
- 52) Rajh, T., Saponjic, Z., Dimitrijevic, N.; de la Garza, L.; Lin, Y.J., Snyder, S.W. "Surface Reconstruction of Nanoparticles: An Opportunity for Improving Solar Energy Conversion", Materials Research Society, Fall Meeting, **2006**, Boston MA.
- 53) YuPo J. Lin, Mike, P. Henry and Seth W. Snyder, "Resin Wafer Based Technologies for Reaction and Separation in Bioprocessing", in the Separations Interactive Networking Poster Session, AIChE **2006** Annual Meeting, San Francisco, CA.
- 54) Snyder, S. W.; "Thermal Conversion Technologies, Syngas, alternative paths to ethanol from cellulosic sources", Platt's Cellulosic Ethanol, Commercial and Financial Viability and Prospects for Growth, **2006**, Chicago IL.
- 55) Y.J. Lin, E.J. St. Martin, S.W. Snyder, "Monitoring and Mitigation of Sustained Localized Pitting Corrosion". 72nd meeting of the Petroleum Environmental Research Forum, **2006**, Naperville IL
- 56) Hayes, T., Gowelly, S., Moon, P., Snyder, S., "Electrodialysis Treatment of Coal Bed Methane Produced Water: Application Issues and Projections of Costs", International Petroleum Environmental Conference, **2006**, San Antonio, TX.
- 57) Moon, P., Snyder, S., Hayes, T., "Integrated Electrodialysis Membrane Stability Results for Cost-Effective CBM Produced Water Demineralization", International Petroleum Environmental Conference, **2006**, San Antonio, TX.
- 58) Hayes, T.; Moon P.; Snyder, S., "Integrated Electrodialysis for Cost-Effective CBM Produced Water Demineralization", Rocky Mountain Natural Gas (RMAG) Conference **2006**, Denver, CO.
- 59) S.W. Snyder, "The Economics of Energy in Illinois & the Science Supporting It", Illinois Ag Leadership Foundation, **2006**, Carbondale, IL
- 60) Y.J. Lin, M.P. Henry, S.W. Snyder, "Applications of Resin-Wafer Electrodeionization and the Separative Bioreactor in Biorefineries", North American Membrane Society Annual Meeting, **2006**, Chicago, IL.
- 61) Moon, P., Snyder, S., and Hayes, T., "Integrated Electrodialysis Process for CBM Produced Water Treatment", Paper # 107248, Rocky Mountain Section of American Association of Petroleum Geologists, **2006**, Billings, MT
- 62) M.B. Arora, L. de la Garza, E.J. St. Martin, J. Frank, S.W. Snyder, Y.J. Lin, "Electrochemical Regeneration of Cofactor Using an Electron/Ion Mixed Conductive Matrix", **2006**, 28th Symposium of Biotechnology for Fuels and Chemicals, Nashville TN
- 63) S.W. Snyder "Bioproducts Separations", Sustainable Bioenergy: Focus on the Future of Biofuels and Chemicals, University of Illinois, **2006**, Urbana-Champaign, IL.
- 64) S W. Snyder, M. Patel, R. Datta, M. Henry, Y.J. Lin, "Syngas Fermentations - A More Efficient Route to Ethanol and Biobased Products", **2006**, BIO 2006, Chicago IL.
- 65) S W. Snyder, M. Henry, Y. J. Lin, W. Ragland, "Membrane-Based Separative Bioreactor Integrates Bioconversion and Downstream Processing", **2006**, BIO 2006, Chicago IL.

- 66) T. Hayes, P. Moon, S. Snyder, "Transforming CBM Produced Water To Beneficial Use Through Electrodialysis Processing", Produced Waters Workshop, Energy and Water: How can we get both for the price of one, **2006**, Colorado State University, Ft. Collins, CO.
- 67) S.W. Snyder "Bioprocessing R&D Needs to Achieve Energy Independence", Northern Illinois University, **2006**, DeKalb IL
- 68) S.W. Snyder "The Future For Biofuels", iBIO Lunch with Midwest Agroscience, **2005**, Peoria IL
- 69) S.W. Snyder "Bioprocessing R&D Needs to Achieve Energy Independence", University Industry Consortium, **2005**, Argonne IL
- 70) S.W. Snyder, "ANL Membrane Separation Technology and the Biofuels Initiative", 2005 ENERGY STAR® Energy Efficiency in Corn Refining, **2005**, Argonne IL
- 71) L. de la Garza, Y.J. Lin, M.B. Arora, M.C. Thurnauer, S.W. Snyder "Electron/Ion Mixed Conductive matrix for Electrochemical Regeneration of Cofactors", American Chemical Society National Meeting, **2005**, Washington DC
- 72) S.W. Snyder, et al., "Production and Separation of Fermentation-Derived Acetic Acid", AIChE Spring Meeting, **2005**, Atlanta, GA
- 73) S.W. Snyder, et al., "Membranes for Corrosive Oxidations", AIChE Spring Meeting, **2005**, Atlanta, GA
- 74) S.W. Snyder, R. Datta, "Syngas Fermentations Using Black Liquor Gas from Paper and Pulp Mills", DOE Forest Product Biorefineries workshop, **2005**, Washington DC
- 75) S.W. Snyder, R. Datta, "Syngas Fermentation in Pulp and Paper Mills for Production of Ethanol and Other Biobased Chemicals", TAPPI Research Management Committee, **2004**, Washington DC
- 76) Y.J. Lin, M.P. Henry, E.J. St. Martin, S.W. Snyder, "Separative Bioreactor: pH Controlled Production of Biobased Chemicals from Renewables", AIChE Annual Meeting, **2004**, Austin TX
- 77) E.J. St. Martin, Y.J. Lin, , M.B. Arora, K. Baier, M.I. Donnelly, S.W. Snyder, "Direct Production and Purification of Gluconic Acid in a pH-Controlled Separative Bioreactor", poster, 26th Symposium on Biotechnology for Fuels and Chemicals, **2004**, Chattanooga, TN.
- 78) Y.J. Lin, M.B. Arora, S.W. Snyder, E.J. St. Martin, "Separative Bioreactor Using a pH-Controlled Electrodeionization Device", AIChE Annual Meeting, **2003**, San Francisco CA.
- 79) Y.J. Lin, M.B. Arora, J.A. Hestekin, E.J. St. Martin, C.S. Millard, M. Donnelly, S.W. Snyder, "A Separative Bioreactor: Direct Product Capture and pH Control", 25th Symposium on Biotechnology for Fuels and Chemicals, **2003**, Breckenridge CO.
- 80) S.W. Snyder, E.J. St. Martin, M. Donnelly, C.S. Millard, M.B. Arora, J.A. Hestekin, Y.J. Lin, "Production of Lactic Acid in a pH-Controlled Separative Bioreactor", poster, 25th Symposium on Biotechnology for Fuels and Chemicals, **2003**, Breckenridge CO.
- 81) E.J. St. Martin, W.H. Eschenfeldt, M. Donnelly, J.A. Hestekin, S. Hend, M.B. Arora, S.W. Snyder, Y.J. Lin, J. Davila, "Controlled Immobilization of Biocatalytic Enzymes in

Separative Bioreactors”, poster, 25th Symposium on Biotechnology for Fuels and Chemicals, **2003**, Breckenridge CO.

- 82) M. B. Arora, Y. Kim, M. W. Straza, E. J. St.Martin, J. Harlan, T. Holzman, M. Donnelly, A. Joachimiak, S. Snyder “Glucose-triggered shift in the conformational state of glucose fructose oxidoreductase (GFOR)”, American Society for Biochemistry & Molecular Biology (Enzyme Structure and Function), **2003**, San Diego, CA.
- 83) S.W. Snyder, Y.J. Lin, J.A. Hestekin,, M.B. Arora, M. Donnelly, E.J. St. Martin “A New Membrane-Based Separative Bioreactor”, Twentieth Annual BCC Membrane Planning Conference, **2002**, Newton MA.
- 84) S.W. Snyder, “Direct Capture of Products from Biotransformations”, AIChE Annual Meeting, **2002**, Indianapolis IN.
- 85) J.A. Hestekin, Y.J. Lin, S.W. Snyder, M.B. Arora, E.J. St. Martin, J.R. Frank, M. Donnelly, “Electrodeionization for Low Concentration Acid and Salt Separations”, AIChE Annual Meeting, **2002**, Indianapolis IN.
- 86) M.B. Arora, H. Samaha, J. Davila, W.H. Eschenfeldt, Y.J. Lin, J.A. Hestekin, E.J. St. Martin, M. Donnelly, S.W. Snyder, “Controlled Immobilization of Biocatalytic Enzymes in Separative Bioreactors”, poster, AIChE Annual Meeting, **2002**, Indianapolis IN.
- 87) S.W. Snyder, M.P. Henry, P.R. Moon, Y.J. Lin, C.D. Landahl, J.R. Frank, R. Datta, R. Moore, J. Cornelissen, "Development of a New Wafer Based Process for Electrodeionization of High Fructose Corn Syrup", 24th Symposium on Biotechnology for Fuels and Chemicals, **2002**, Gatlinburg TN.
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PATENTS

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