

WAYNE S. SEAMES
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EDUCATION AND PROFESSIONAL EXPERIENCE

Education

2000 Ph.D., Chemical Engineering, University of Arizona
1979 B.S., Chemical Engineering, University of Arizona

Professional Experience

2011 – Present Chester Fritz Distinguished Professor, University of North Dakota
2014 – 2015 Visiting Professor, University of Leeds, Leeds, UK
2008 – 2011 Professor, University of North Dakota
2003 – 2008 Associate Professor, University of North Dakota
2000 – 2003 Assistant Professor, University of North Dakota
1995 – 2000 Independent Consultant, Seaway Consulting
1996 – 2000 Instructor, University of Arizona
1992 – 1995 Project Manager, Saudi Arabian Oil Company
1988 – 1992 Engineering Supervisor, Ras Tanura Refinery, ARAMCO
1985 – 1988 Operations/Project Engineer, Ras Tanura Refinery, ARAMCO
1982 – 1985 Process Engineer, Aramco Services Co.
1979 – 1982 Chemical Engineer, Radian Corp.

HONORS AND AWARDS

Overall Faculty Awards

1. The Fulbright Foundation's 2014/15 Distinguished Chair Scholar at the University of Leeds
2. 2013 UND Faculty Scholar Award for Excellence in Teaching, Research, and Service
3. 2012 UND Faculty Spirit of Achievement Award
4. 2011 UND Chester Fritz Distinguished Professor for sustained excellence as a tenured faculty member (UND's highest faculty award)

Teaching Awards

1. "2006 Professor of the Year", University of North Dakota, School of Engineering and Mines
2. 1999 "Award for Excellence at the Student Interface", University of Arizona College of Engineering and Mines, (Professor of the Year)

Research Awards

1. 2012 UND Award for Interdisciplinary Collaboration in Research or Creative Work
2. 2007 UND Foundation/Thomas Clifford Faculty Achievement Award for Individual Excellence in Research
3. 2004 UND School of Engineering and Mines Olson Professorship for Outstanding Individual Accomplishments in Research

COURSES DEVELOPED AND TAUGHT

Undergraduate Level

- ChE 206 Unit Operations in Chemical Engineering
- ChE 408 Process Dynamics and Control
- ChE 411 Chemical Engineering Plant Design I
- ChE 412 Chemical Engineering Plant Design II
- ChE 420 Capstone in Sustainable Energy
- ChE 431 Chemical Engineering Laboratory IV
- ChE 435 Materials and Corrosion

Graduate Level

- ChE 501 Advanced Transport Phenomena
- ChE 535 Metallic Corrosion and Polymer Degradation
- ChE 562 Graduate Seminar

Continuing Education Instruction

- 2014-15 "Engagement Teaching for Engineering", 3 hour workshop for faculty and instructors in Engineering. Workshops held at UND, Univ. of Leeds, Queens Belfast (Northern Ireland), Bath, Sheffield, Newcastle, Nottingham, and Strathclyde (Glasgow, Scotland).
- 2004 "An Introduction to Bioremediation", GF Area High School Science Teachers Continuing Ed program, co-taught with E. Kozliak of Chemistry
- 2004 "Energy and the Environment", 2004, GF Area High School Science Teachers Continuing Ed program, co-taught with M. Mann of Chemical Engineering
- 2007-2009 "Air Pollution Workshop", 2007 & 2009, University of North Dakota, "Session 2: Air pollution control technologies".

RESEARCH

Specialty Fields

The environmental and operational impact of coal impurities liberated during combustion; fundamental mechanisms of trace element partitioning during combustion; sustainable energy technologies including the invention and development of fuels and chemicals from crop oils and biomass; the environmental impact and remediation technologies of both organic and inorganic chemicals, project management, design engineering, technical & commercial feasibility analyses.

Research Programs

Since 2000, Dr. Seames has submitted 290 grant proposals valued at over \$314,000,000. He has been awarded 96 grants valued at over \$21,000,000 as a faculty member at UND as PI, co-PI, or task leader.

PhD Student Advisor or Co-Advisor

Sara Pourjafar, 2013-present, ChE
Ian Foerester, 2013-present, ChE
Ivana Brzonova, 2012-present, ChE
Dennis Sisk, 2008-present, Energy Eng
Swapnil Fegade, 2008-2015, ChE
Michael Linnen, 2009-2014, ChE
Clancy Kadrmas, 2011-2014, ChE
David James, 2010-2013, ChE,
Jana Stavova, 2007-2011, Chemistry

MS Student Advisor or Co-Advisor

Adedayo Idowu, 2015-present (combined degree program), ChE
Shelby Amsley-Benzie, 2015-present (combined degree program), ChE

Fnu Asina, 2013-present, ChE
 Blake Sander, 2006-2014, ChE
 Ben Jones, 2011-2012 (combined degree program), ChE
 Nathan Bosquez, 2009-2012, ChE
 Nahid Khatibi, 2009-2012, ChE
 Sarah Rosli, 2009-2011, ChE
 Shankar Lande, 2008-2011, ChE
 Dennis Vosglu, 2008-2011, ChE
 Malhar Khambete, 2007-2010, ChE
 Chen Zhu, 2006-2009, Env Eng
 Mitchell Braegelmann, 2007-2009 (combined degree program), ChE
 Saha Bithi, 2006-2008, ChE
 Rahul Pandey, 2006-2008, ChE
 David Young, 2006-2008, Mech Eng
 Prasad Chavan, 2005-2007, ChE
 Greg Fix, 2005-2007, ChE
 Swapnilkumar Gandhi, 2006-2008, ChE
 Lu Zhang, 2005-2007, ChE
 Marko Jurkic, 2005-2006 (combined degree program), ChE
 Jason Hrdlicka, 2004-2007 (combined degree program), ChE
 Yao Luo, 2004-2006, ChE
 Chunmei Wang, 2004-2006, ChE
 Shannon Nelson, 2004-2006, Env Eng
 Tara Kopplin, 2004-2006, Env Eng
 Mandar Gadgil, 2003-2006, Env Eng
 Carol Horabik, 2004-2006, ChE
 Sathyendra Ghantasala, 2003-2005, ChE
 Nidhi Jalan, 2003-2005, ChE
 Sachine Putane, 2003-2005, ChE
 Irshad Ahmed, 2003-2005, ChE
 Pushkaraj Sardesai, 2003-2004, ChE
 Venus Larson, 2002-2004, Env Eng
 Weipeng Liu, 2002-2004, ChE
 April Offart, 2002-2004 (combined degree program), ChE
 Laura Dronen, 2001-2003, ChE

Peer-Reviewed Book Chapters

1. Evguenii I. Kozliak, Wayne S. Seames, Ganna V. Baglayeva, Shannon L. Nelson, Julie N. Renner, Nidhi N. Jalan, J. Paca, Novel Approaches To The Remediation Of Building Materials (Wood And Concrete) Contaminated With Chemicals, in Soil Remediation, Editors: Lukas Aachen and Paul Eichmann, Nova Science Publishers, ISBN: 978-1-60741-074-4, 2009, p. 1-43.
2. Anna A. Raeva, Evguenii I. Kozliak, David T. Pierce, and Wayne S. Seames, Evaluation of Trace Element Partitioning during the Initial Phase of Coal Combustion Using GFAAS, in ACS Symposium Series, Volume 1084, Synthetic Liquids Production and Refining, Chapter 3, 2011, pp 75-101,

Peer-Reviewed Journal Publications

1. Fegade, Swapnil; Tande, Brian; Kubatova, Alena; Seames, Wayne; Kozliak, Evguenii, "A novel two-step process for the production of renewable aromatic hydrocarbons from triacylglycerides", Industrial & Engineering Chemistry Research, in proofs.

2. Jones, Benjamin; Linnen, Michael; Tande, Brian; Seames, Wayne, "A Renewable Process for the Production of Vinyl Acetate Monomer", *Processes* 2015, 3, 619-633, doi:10.3390/pr3030619.
3. A. Kubátová, A. Geetla, J. Casey¹, M. J. Linnen, W. S. Seames, I. P. Smoliakova, E. I. Kozliak (2015), "Cleavage of Carboxylic Acid Moieties in Triacylglycerides During Non-Catalytic Pyrolysis", *J. American Oil Chemists*, 92:755-767.
4. M. T. Berti, R. W. Gesch, B.L. Johnson, Y. Ji, W. S. Seames, and A. Aponte (2015), "Double- and Relay-Cropping of Energy Crops in the Northern Great Plains, USA, *Industrial Crops and Products*, in press.
5. Kadrmas, C., Khambete, M., Kubátová,, A., Kozliak, E., and Seames, W. (2015), "Optimizing the Production of Renewable Aromatics via Crop Oil Catalytic Cracking", *Processes*, 3, 222-234, doi:10.3390/pr3020222.
6. Martin Halecky, Jana Rousova, Jan Paca, Evguenii Kozliak, Wayne Seames, and Kim Jones (2015), "Biofiltration of gasoline and diesel aliphatic hydrocarbons, *Journal of the Air & Waste Management Association*", 65:2, 133-144, DOI:10.1080/10962247.2014.980016
7. David W. James, Gautham Krishnamoorthy, Steven A. Benson, Wayne S. Seames, "Modeling trace element partitioning from pyritic mineral inclusions", *Fuel Processing Technology*, 126C (2014), p. 284-297. DOI 10.1016/fuproc.2014.05.002.
8. Michael Linnen, Wayne Seames, Alena Kubatova, Suresh Menon, Kashinatham Alisala, and Sara Hash, "Evaluation of Microbial Triglyceride Oil Purification Requirements for the Celtherm Process, an Efficient Biochemical Pathway to Renewable Fuels and Chemicals", *Bioprocess and Biosystems Engineering*, 37, p 2121-2129, 2014.
9. Anna A. Raeva, Nagaraju Dongari, Anastasia A. Artemyeva, Evguenii I. Kozliak, David T. Pierce, and Wayne S. Seames, "Experimental simulation of trace element evolution from the excluded mineral fraction during coal combustion using GFAAS and TGA-DSC", *Fuel*, v124, p 28-40, May 15, 2014.
10. Zhang, X.; Seames, W.S., Tande, B.M. "*Recovery of CO₂ from Monoethanolamine Using a Membrane Contactor*", *Separation Science and Technology*, v 49, n 1, p 1-11, 2014.
11. Fix G., Seames W.S., Mann, M.D., Benson, S.A., and Miller, D., "The effect of combustion temperature on coal ash fine-fragmentation mode formation mechanisms", *Fuel*, 113 (2013) 140-147.
12. Swapnil L. Fegade , Brian M. Tande , Hyunwook Cho , Wayne S. Seames , Inna Sakodynskaya , Darrin S. Muggli & Evguenii I. Kozliak (2013). "Aromatization of Propylene over HZSM-5: A Design of Experiments (DOE) Approach", *Chemical Engineering Communications*, 200:8, 1039-1056.
13. Evguenii Kozliak, Robert Mota, David Rodriguez, Paul Overby, Alena Kubátová, Danese Stahl, Vadoud Niri, Gregory Ogden, and Wayne Seames. "Non-catalytic cracking of jojoba oil to produce fuel and chemical by-products", *Industrial Crops and Products*, 43 (2013) 386– 392.
14. Alena Kubátová, Jana Št'ávoová, Wayne S. Seames, Yan Luo, S. Mojtaba Sadrameli,‡,Michael J. Linnen, Ganna V. Baglayeva, Irina P. Smoliakova, and Evguenii I. Kozliak. "Triacylglyceride thermal cracking: pathways to cyclic hydrocarbons." *Energy Fuels* (2012), 26, 672–685.
15. Jana Stavova, Danese Stahl, Wayne Seames, Alena Kubatova, "Method development for the characterization of biofuel intermediate products using gas chromatography with simultaneous mass spectrometric and flame ionization detections", *Journal of Chromatography A*, 1224 (2012) 79– 88.
16. Swapnil Gandhi, Julie Kadrmas, Jana Št'ávoová, Alena Kubátová, Darrin Muggli, Wayne S. Seames,

- and Brian M. Tande, "Extraction of Short Chain Fatty Acids from Noncatalytically Cracked Triacylglycerides with water and aqueous sodium hydroxide.", *Separation Science and Technology*, v 47, n 1, p 66-72, January 2012.
17. Raeva, Anna; Klykov, Oleg; Kozliak, Evguenii; Pierce, David; Seames, Wayne. "In situ evaluation of inorganic matrix effects on the partitioning of three trace elements (As, Sb, Se) at the outset of coal combustion", *Energy and Fuels*, 25 (10), pp. 4290-4298, October, 2011.
 18. Mitchel P. Braegelmann, Alexa Azure, Danese Stahl, Alena Kubátová, Wayne S. Seames, and Brian M. Tande, "Extraction of Short Chain Fatty Acids from Noncatalytically Cracked Triacylglycerides with Aqueous Amines", *Separation Science and Technology*, 46 (14), pp. 2167-2173, September, 2011.
 19. Raeva, Anna A.; Pierce, David T.; Seames, Wayne S.; Kozliak, Evguenii I., "A method for measuring the kinetics of organically associated inorganic contaminant vaporization during coal combustion," *Fuel Processing Technology*, v 92, n 7, p 1333-1339, July 2011.
 20. Alena Kubátová, Yan Luo, Jana Šťávová, Mojtaba Sadrameli, Ted Aulich, Evguenii Kozliak, and Wayne Seames, "New Path in the Thermal Cracking of Triacylglycerols (Canola and Soybean Oil)", *Fuel* 90 (2011) 2598–2608.
 21. Jassim, E., Benson, S. A., Bowman, F. M., Seames, W. S., "Influence of fragmentation on the behavior of pyrite particles during combustion," *Fuel Processing Technology*, *Fuel Processing Technology* 92 (2011) 970–976.
 22. Fix G., Seames W.S., Mann, M.D., and Benson, S.A., "The effect of oxygen-to-fuel stoichiometry on coal ash fine-fragmentation mode formation mechanisms," *Fuel Processing Technology* 92 (2011) 793–800.
 23. Yan Luo, Irshad Ahmed, Alena Kubatova, Jana Stavova, Ted Aulich, S. M. Sadrameli, and W. S. Seames, "The Thermal Cracking of Soybean/Canola Oils and Their Methyl Esters", *Fuel Processing Technology*, 91 (2010) 613-617.
 24. Wayne Seames, Yan Luo, Irshad Ahmed, Ted Aulich, Alena Kubátová, Jana Šťávová, and Evguenii Kozliak (2010), "The Thermal Cracking of Canola And Soybean Methyl Esters: Improvement Of Cold Flow Properties", *Biomass and BioEnergy*, 34, 939-946.
 25. Sadrameli, S.M.; Green, Alex E.S.; Seames, Wayne, "Modeling representations of canola oil catalytic cracking for the production of renewable aromatic hydrocarbons", *Journal of Analytical and Applied Pyrolysis*, v 86, n 1, p 1-7, September 2009.
 26. Jason A. Hrdlicka, Wayne S. Seames, Michael D. Mann, Darrin S. Muggli, and Carol A. Horabik, "Mercury oxidation in flue gas using gold and palladium catalysts on fabric filters", *Env. Sci. Tech.*, 2008, 42, 6667-6682.
 27. Mojtaba S Sadrameli, Wayne Seames, and Michael Mann, Prediction of higher heating values for saturated fatty acids from their physical properties. *Fuel*, 87 (2008) 1776–1780.
 28. Wayne Seames, Ben Ficek, and William Line, Assessing Insulating Fabric Performance for Extremely Cold Weather, *International Journal of Clothing Science and Technology*. 2007 19/ 5, 349-360.
 29. Chunmei Wang, Wayne S. Seames*, Mandar Gadgil, Jason Hrdlicka, and Gregory Fix, "Comparison of Coal Ash Particle Size Distributions from Berner and Dekati Low Pressure Impactors", *Journal of Aerosol Science*. 2007, 41 (12), 1062-1075.
 30. S.R. Phutane, J.N. Renner, S.L. Nelson, W.S. Seames, J. Paca, T.J. Sundstrom, and E.I. Kozliak, Removal of 2,4-Dinitrotoluene from Concrete Using Bioremediation, Agar Extraction, and Photocatalysis. *Folia Microbiologica*, 2007, 52(3), 253-260.

31. Seames, W. and Wendt, J., "Regimes of Association of Arsenic and Selenium During Pulverized Coal Combustion", *Proc. Combust. Inst.*, 2007, **31**, 2839-2846.
32. Kozliak, E.; Popova, I.; Beklemishev, M.; Baglayeva, A.; Seames, W.; Nelson, S.; Phutane, S.; Jalan, N.; Frihart, C.; Paca, J., "Contamination of common building materials (wood and concrete) with chemicals and novel approaches to their remediation", CHISA 2006 - 17th International Congress of Chemical and Process Engineering, CHISA 2006 - 17th International Congress of Chemical and Process Engineering, 2006.
33. A.E. Hoffart, W.S. Seames, E.I. Kozliak, S. Riedinger, J. Francini, and C. Carlson, "A Two-Step Acid Mercury Removal Process for Pulverized Coal", *Fuel* 85, 2006, 1166–1173.
34. Popova, I.E., Beklemishev, M.K., Frihart, C.R., Seames, W.S., Sundstrom, T.J., and Kozliak, E.I., "Penetration of Naphthalene, n-Hexadecane, and 2,4-Dinitrotoluene into Building Grade Southern Yellow Pine under Conditions Modelings Spills and Floods", *Forest Prod. J.* 56(6):68-75, 2006.
35. Sardesai, P., Seames, W., Dronen, L., and Kozliak, E., "Exploring the Gas-Phase Anaerobic Bioremoval of Hydrogen Sulfide for Coal Gasification Fuel Cell Feed Streams", *Fuel Processing Technology*, Vol 87 Iss 4, 2006, 319-324.
36. Corporan, Edwin; Reich, Richard; Monroig, Orvin; DeWitt, Matthew J.; Larson, Venus; Aulich, Ted; Mann, Michael; Seames, Wayne, "Impacts of Biodiesel on Pollutant Emissions of a JP-8-- Fueled Turbine Engine", *Journal of the Air & Waste Management Association*, Jul2005, Vol. 55 Issue 7, p940-949.
37. Corporan, E., Reich, R., Monroig, O., DeWitt, M., Larson, V., Aulich, T., Mann, M., and Seames, W., "Impacts of Biodiesel on Pollutant Emissions of a JP-8 Fueled Turbine Engineer", *Proceedings of the Air and Waste Management Association's Annual Meeting and Exhibition, Proceedings of the A and WMA's 97th Annual Conference and Exhibition; Sustainable Development: Gearing up for the Challenge*, 2004, 751, p 35-50.
38. Dronen, L.C., Moore, A.E., Kozliak, E.I., and Seames, W.S., "An Assessment of Acid Wash and Bioleaching Pretreating Options to Remove Mercury from Coal", *Fuel*, **83**, 181-186, 2003.
39. Seames, W.S., "An Initial Study of the Fine Fragmentation Fly Ash Particle Mode Generated during Pulverized Coal Combustion", *Fuel Processing Technology*, **81**:109-125, 2003.
40. Linak, W.P., Miller, C.A., Seames, W.S., Wendt, J.O.L., Ishinamori, T., Endo, Y., and Miyamae, S., "On Trimodal Particle Distributions in Fly Ash From Pulverized Coal Combustion", *Proc. Combust. Inst.*, **29**:441-447, 2002.
41. Seames, W.S., Fernandez, A.F., and Wendt, J.O.L., "A Study of Fine Particulate Emissions from Combustion of Treated Pulverized Municipal Sewage Sludge", *Environ. Sci. Technol.*, 36(12), 2772-2776, 2002.
42. Seames, W.S., Sooroshian, J., and Wendt, J.O.L., "Assessing the solubility of inorganic compounds from size-segregated coal fly ash aerosol impactor samples", *J. Aerosol Science*, **33**/1:77-90, 2001.
43. Seames, W.S. and J.O.L. Wendt, "Partitioning of As, Se, and Cd During the Combustion of Pittsburgh and Illinois #6 Coals in a Self-Sustained Combustor", *Fuel Processing Technology*, **63**:179-196, March, 2000.
44. Seames, W.S. and J.O.L. Wendt, "Partitioning of Radionuclides During the Combustion of Pittsburgh and Illinois #6 Coals in a Self-Sustained Combustor", *Advances in Environmental Research*, **4**, 45-58, 2000.
45. Seames, W.S. and J.O.L. Wendt, "The Partitioning of Arsenic during Pulverized Coal

Combustion”, Proc. Combust. Inst., **28**:2305-2312, 2000.

46. Seames, W.S. and J.O.L. Wendt, “The Partitioning of Arsenic, Selenium, Cadmium, and Cesium During Pulverized Coal Combustion in a 17kW Downflow Combustor”, Development in Chemical Engineering & Mineral Processing, Fall, **9**, 231-239, 2001.

Invited Speeches and Presentations

1. Seames, W., (Invited Presenter), "The Fatty Acid Biorefinery: A Commercially Viable Concept for the Production of Renewable Transportation Fuels and Chemicals", Energy Leeds Seminar Series, Leeds, UK, October 9, 2014.
2. Seames, W., (Invited Presenter), “The Fatty Acid Biorefinery: A Commercially Viable Concept for the Production of Renewable Transportation Fuels and Chemicals”, the University of Maine Chemical and Biological Engineering Distinguished Speakers Series, Orono, ME, April 11, 2014.
3. Seames, W., (Invited Presenter), “A Process Engineering Perspective on Research Towards the Long-Term Sustainable Use of Coal for Power Generation”, NSF-NSFC Joint Workshop on Sustainable Combustion, Hangzhou, China, March 12, 2014.
4. Seames, W. (Invited Plenary Keynote Presenter), “An Example of the Impact of NSF EPSCoR Funding in Renewable Energy Research”, NSF EPSCoR Annual National Conference, Nashville, TN, November, 2013.
5. Seames, W. (Keynote Presenter), Kozliak, E., Linnen, M. , Kubatova, A. , Wills, W., CHISA Congress, Prague, Czech Republic, "Biofuels: A Path to Practical Production", International, published in proceedings, August 2012.
6. Seames, W. S. (Keynote speaker), “The Fatty Acid Biorefinery – A Commercially Viable Concept for the Production of Renewable Transportation Fuels and Chemicals”, AAIC 43rd Annual Meeting, September 12, 2011, Fargo, ND.
7. Seames, W., (Invited Speaker), “Green Energy for the Future”, The Scanadinavian Hjemkomst Festival in Moorhead, Mn, June 26, June 27, and June 28, 2010.
8. Seames, W., (Invited Speaker), “Three Grand Challenges for the 21st Century”, San Jose State University Department of Chemical and Materials Engineering Seminar, Feb 2010.
9. Seames, W., (Invited Speaker), “Three Grand Challenges for the 21st Century”, University of Arizona Department of Chemical and Environmental Engineering Seminar, Feb 2010.
10. Seames, W., (Keynote Invited Speaker), “The Next Generation of Biofuels”, 21st Annual Meeting of the Association for the Advancement of Industrial Crops, Chillan, Chile, Nov. 2009.
11. Seames, W., Invited Speaker. "Advancing the Sustainable Use of Coal as an Energy Resource", the University of South Carolina Department of Chemical Engineering Seminar, Aug, 2008.

Patents

1. Inventors: W. Seames, M. Mann, and D. Muggli, Mercury oxidation of flue gas using catalytic barrier filters, U.S. Patent # 7,618,603, issued 11/17/09.
2. Inventors: D. Pierce and W. Seames, Rapid automated extraction of trace elements from biomass, U.S. Patent # 7,578,983, issued 8/25/09.
3. Inventors: Kozliak, E., Seames, W. Photocatalyst-induced reduction of semivolatile organic chemicals. US Patent #7781638, issued 08/24/2010. Australian patent issued 3/8/12; Patent number 277082.
4. Inventors: W. Seames and T. Aulich, U.S. Patent Application Number, 11/824,644, Method for Cold Stable Biojet Fuel, submitted 7/2/07. Australian Patent issued - May 24, 2012; Patent

Number 2007347872. Israeli Patent issued – May 29, 2013 ; Patent number 196123. Mexican Patent issued – June 4, 2014 ; Patent number 316545.

5. Inventors: E. Kozliak and W. Seames, U.S. Patent, Adsorbent mediated reduction of organic chemicals from solid building materials, U.S. Patent #8012242, issued 9/6/11.
6. Inventors: W. Seames, B. Tande, and A. Kubatova, Method to Produce Short Chain Carboxylic Acids and Esters from Biomass, US Patent #8,076,504, issued 12/13/2011. European patent #2231830 issued 12/09/14.
7. Inventors: W. Seames, B. Tande, and D. Muggli, U.S. Patent #8,450,541, Method to Produce Cyclic Organic Compounds from Crop Oils, issued 5/28/2013.
8. Inventors: R. Parker and W. Seames, Method for Creating High Carbon Content Products from Crop Oils, US Patent # 8,333,949, issued 12/18, 2012.
9. Inventors : W. Seames and B. Tande, U.S. Patent Application 12/800,449, Production of Aromatics from Noncatalytically Cracked Fatty Acid Based Oils, submitted 4/22/11; pending.

Teaching Related Peer Reviewed Publications

1. Krenelka, L., Watson, J., Salehfar, H., Seames, W. (2006), "A hybrid model for delivering ABET accredited undergraduate distance engineering degree programs". In N. Caldarola, & C. Nichols (Eds.), Proceedings of the 2006 U.S.-China Forum on Distance Learning, April 9-11, 2006, Troy, AL, USA, Vol. 1.
2. Seames, W.S., "Those Pesky Side-Reactions, An Ethical Dilemma Case study for Upper Division Chemistry and Chemical Engineering Students", Journal of Case Studies, Oct, 2001.

SERVICE

Professional Associations and Service

- 2009-Present Director, The SUNRISE BioProducts Center of Excellence
- 2004-Present Director, The Sustainable Energy Research Initiative and Supporting Education (ND SUNRISE) Research Supercluster
- 1979-Present American Institute of Chemical Engineers, Lifetime Member
- 2005-2011 Director, North Dakota's DOE EPSCoR Program
- 2011 Organizer and Conference Chair, Cleantech 2011 Workshop and Action Summit
- 2001-2007 Director, Chemical Engineering Masters Graduate Program
- 2003-2005 Director, Environmental Engineering Masters Graduate Program
- 2006-2007 Chemical Engineering Rep, Engineering Doctoral Program
- 2006-2007 Chemical Engineering Representative, Environmental Engineering Masters Graduate Program
- 2002-2009 Combustion Institute Internationale
- 2000-2012 American Society for Engineering Education
- 1996-2001 Instrument Society of America

Journal Reviewer

Journal of the American Oil Chemists Society (JAOCS), Fuel, Environmental Engineering Science, Energy and Fuels, Fuel Processing Technology, 32nd International Symposium on Combustion, Environmental Science and Technology, Bioresource Technology, Industrial & Engineering Chemistry Research, 31st International Symposium on Combustion, Powder Technology, CLEAN AIR-International Journal on Energy for a Clean Environment, 30th International Symposium on Combustion, 29th International Symposium on Combustion, Combustion and Flame, Chemosphere, Asian Energy Journal

Research Proposal Reviewer

The Fulbright Commission of Poland Senior Scholar Engineering Fellowships, USDA-ARS Internal proposal, DOE EPSCoR IIP Project, NSF IRES Program, TVA Remediation Program, US Civilian R&D Foundation, UND "Beyond Boundaries" Conference, DOE Univ Coal Research Grant – novel uses for coal fly ash, NSF MRI Program, California Energy Commission, NASA EPSCoR

UND SERVICE

University-wide Service

2015 Engagement Teaching Workshop, UND Alice T. Clarke Program
 2011-2014 Master of Ceremonies, Annual ND State Science and Engineering Fair Awards Ceremony,
 2014 Chester Fritz Professor Candidate Evaluation Committee
 2013/14 Faculty Instructional Development Committee
 2011 Panelist, "Undergraduate Research", 1st Year Experience Class
 2002-2011 Freshman orientation faculty orientation volunteer
 2001-2009 Graduate School orientation volunteer
 2002-2008 SEM Representative, UND Loss Prevention Committee
 2000-2002 University-wide Advisory Board on University Recruitment and Marketing
 2005-2008 SEM Representative, UND Invention Disclosure Committee
 2006-2009 Center for Excellence in Life Sciences and Advanced Technologies laboratory building design committee

College-wide Service

2013-2015 Chair, CEM Promotion and Tenure Committee
 2015 Associate Dean Selection Committee
 2011 SEM Representative – Legislative Review Day at the State Capitol
 2008-2011 SEM Promotion and Tenure Committee
 2010 SEM Representative – "East meets West" program to increase UND's engagement with the emerging oil and associated industries in western North Dakota
 2008, 2011 SEM Strategic Planning Committee
 2002-2004 Director Environmental Engineering Graduate Program
 2004-2007 Chemical Engineering Representative, Env Eng Graduate Program committee
 2005-2007 Chemical Engineering Representative, SEM PhD Program committee
 2002, 2006 Alice T. Clarke New Faculty Orientation Program Mentor
 2001-2002 Committee for the Development of an interdisciplinary graduate program in Environmental Engineering
 2002-2013 SEM Environmental Analytical Research Laboratory Steering Committee
 2003-2007 Chair of student selection committee, Chemistry-Chemical Engineering NSF Research Experiences for Undergraduates

Departmental Service

2003-present Editor, Kinetics, the annual ChE departmental newsletter
 2006-2013 Chair, Department Promotion and Tenure committee
 2005-2013 Ad-hoc acting Department Chair during Chair absences
 2001-2007 Director Chemical Engineering Graduate Program
 2015 Member, Departmental Promotion and Tenure committee
 2014-2015 Performed a comparative study of ChE undergraduate programs at Univ. of Leeds and UND
 2010 Graduate student recruiting at the Institute of Chemical Technology, Prague
 2007-2015 Graduate, REU, and IRES student recruiting at California State Polytechnic Univ, Pomona
 2007-2010 Graduate and REU student recruiting at San Jose State University
 2009 Developed Program Specific Appendix for an Undergraduate to Graduate Bridge program with California State Polytechnic University

2009 Developed new graduate program in Sustainable Energy Engineering
2001 Major Undergraduate curriculum modification development
2003 Initiated a fund and alumni donation campaign with the UND alumni association for an
endowed chair in Chemical Engineering (the Tom Owens endowed chair)
2009-10 Lead Author for feature article for Chemical Engineering Education on the UND Chemical
Engineering Department