KAREN JEAN NORDHEDEN

Address: Department of Chemical & Petroleum Engineering
University of Kansas
1530 W. 15th Street
Lawrence, KS 66045

Education:
Ph.D., Electrical Engineering, University of Illinois, 1988.
M.S., Electrical Engineering, University of Illinois, 1984.
B.S., Physics, Michigan State University, 1980.

Work Experience:

2001-present Associate Professor of Chemical & Petroleum Engineering, University of Kansas, Lawrence, KS. Recent courses taught include Introduction to the Chemical Engineering Profession (CPE 111), Semiconductor Processing (CPE 655/EECS 670), Methods of Chemical and Petroleum Calculations (CPE 701), Heat Transfer (CPE 521), Momentum Transfer (CPE 511), Process Dynamics & Control (CPE 615), Plant & Environmental Safety (CPE 624), Properties of Materials (CPE 715), Advanced Engineering Mathematics (CPE 250), and Introduction to Computers in Engineering (CPE 121).

1999-2001 Assistant Professor of Chemical & Petroleum Engineering, University of Kansas, Lawrence, KS.

1994-1998 Assistant Professor of Electrical Engineering and Computer Science, University of Kansas, Lawrence, KS.

1993-1994 Senior Process Engineer, Martin Marietta Laboratories-Syracuse, Syracuse, NY. (formerly GE Electronics Laboratory)

- Head of dry chemistry workstation. Responsible for all plasma etching and deposition processes (maintenance and development).
- Responsible for wafer production lots of low noise and power HEMTs, HBTs, MESFETs, and MMICs (from epitaxial wafers to finished chips).
- Ombudsman (1992-1994)

1988-1993 General Electric Co., Electronics Laboratory, Syracuse, NY.

- Senior Process Engineer (1990-1993)
- Process Engineer (1988-1990)

Professional and Honor Societies:
Institute of Electrical and Electronics Engineers (IEEE, Senior Member)
American Institute of Chemical Engineers (AIChE)
Electrochemical Society (ECS)
Eta Kappa Nu, Tau Beta Pi, Phi Kappa Phi, Golden Key

Awards and Recognitions:

2010 Bellows Scholar, University of Kansas, School of Engineering

2010 KU Center for Teaching Excellence Recognition

2002 W. T. Kemper Fellow Award for Teaching Excellence
University wide award selected by a committee of KU students and faculty.

1999 Henry E. Gould Award
School of Engineering Award for distinguished teaching to undergraduate engineering education. Selected by all graduating engineering students.

1998 H. Bernerd Fink Award for Excellence in Teaching
University wide award selected by a committee of KU students and faculty.

1997 Harry Talley Excellence In Teaching Award
Awarded by the local KU student chapter of Eta Kappa Nu. Electrical and Computer Engineering Departmental Award voted on by graduating seniors.

IBM Fellowship (1983-1984)

1983 University of Illinois Incomplete List of Instructors Rated Excellent by Their Students

PUBLICATIONS AND CONFERENCES:

Refereed Journals:

1. Q. Jiang, K. J. Nordheden, and S. M. Stagg-Williams, "Oxygen permeation study and improvement of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ perovskite ceramic membranes," J. Membrane Science **369**(1-2), pp. 174-181 (2011).
2. Q. Jiang, S. Faraji, K. J. Nordheden, and S.M. Stagg-Williams, "CO_2 reforming reaction assisted with oxygen permeable $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ ceramic membranes," J. Membrane Science **368**(1-2), pp. 69-77 (2011).
3. Sedigheh Faraji, Karen J. Nordheden, Susan M. Stagg-Williams, "A comparative study of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ (BSCF) and $SrFeCo_{0.5}O_x$ (SFC) ceramic membranes used for syngas production," Applied Catalysis B, Environmental **99**(1-2), 118-126 (2010).
4. David A. Slade, Qiying Jiang, Karen J. Nordheden, and Susan M. Stagg-Williams, "A Comparison of Mixed-conducting Oxygen-permeable Membranes for CO_2 Reforming," Catalysis Today **148**(3-4), 290-297 (2009).
5. K. J. Nordheden, B. A. Pathak, and J. L. Alexander, "ICP etching of ZnO in BCl_3/SF_6 gas mixtures," Proceedings of the SPIE, Volume **7217**, pp. 72170Q-72170Q-5, 2009. (Invited)
6. Sedigheh Faraji, Karen J. Nordheden, and Susan M. Stagg-Williams, "The Interaction Between $SrFeCo_{0.5}O_x$ Ceramic Membranes and $Pt/CeZrO_2$ during Syngas Production from Methane", Catalysis Letters **131**(1), pp. 114-121 (2009).
7. Trung Van Nguyen, Minh Vu Nguyen, and Karen J. Nordheden, "Effect of Bulk and Surface

Treatments on the Surface Ionic Activity of Nafion Membranes and Their Performance in a PEMFC," J. Electrochem. Soc. **154**(11), A1073-A1076 (2007).
8. Karen J. Nordheden, Mark Dineen, and Colin Welch, "Inductively coupled plasma etching of ZnO," Proceedings of the SPIE, SPIE Vol. **6474**, pp. 6474OP1-4, 2007. (Invited)
9. David A. Slade, Andrew M. Duncan, Karen J. Nordheden, and Susan M. Stagg-Williams, "Mixed-conducting oxygen permeable ceramic membranes for the carbon dioxide reforming of methane," Green Chemistry **9**(6), 577-581 (2007).
10. Sean M. Murphy, David A. Slade, Karen J. Nordheden, and Susan M. Stagg-Williams, "Increasing Oxygen Flux through a Dense Oxygen Permeable Membrane by Photolithographic Patterning of Platinum," J. Membrane Science, **277**(1-2), 94-98 (2006).
11. A. S. Agarwal, V. Berry, R. Alapati, and K. J. Nordheden, "Characterization of $SiCl_4/N_2$ Plasmas," J. Electrochem. Soc. **152**(3), G210-G212 (2005).
12. Karen J. Nordheden, "Plasma etching of ZnO: a review," Quantum Sensing and Nanophotonic Devices, Proceedings of the SPIE, SPIE Vol. **5359** (January 25-29, 2004), pp. 228-233 (Invited).
13. Karen J. Nordheden and Joanne F. Sia, "Characterization of BCl_3/N_2 Plasmas," J. Appl. Phys. **94**(4), 2199-2202 (2003).
14. Y.-S. Lee, J. F. Sia, and K. J. Nordheden, "Mass Spectrometric Characterization of BCl_3/SF_6 Plasmas," J. Appl. Phys. **88**(8), 4507-4509 (2000).
15. K. J. Nordheden, K. Upadhyaya, Y.-S. Lee, S. P. Gogineni, and M.-Y. Kao, "GaAs Etch Rate Enhancement with SF_6 Addition to BCl_3 Plasmas," J. Electrochem. Soc. **147**(10), 3850-3852 (2000).
16. Y.-S. Lee, K. Upadhyaya, K. J. Nordheden, and M.-Y. Kao, "Selective RIE of GaAs/AlAs in BCl_3/SF_6 for Gate Recess", J. Vac. Sci. Technol. B**18**(5), 2505-2508 (2000).
17. K. J. Nordheden and M. H. Hoeflich, "Undergraduate Research & Intellectual Property Rights," IEEE Transactions on Education, **42**(4), 233-236 (1999).
18. Barbara Abraham-Shrauner, Karen J. Nordheden and Yao-Sheng Lee, "Model For Etch Depth Dependence on GaAs Via Hole Diameter," J. Vac. Sci. Technol. B**17**(3), 961-964 (1999).
19. K. J. Nordheden, X. D. Hua, Y. S. Lee, L. W. Yang, D. C. Streit, and H. C. Yen, "Smooth and anisotropic reactive ion etching of GaAs slot vias for monolithic microwave integrated circuits using Cl_2/BCl_3/Ar plasmas," J. Vac. Sci. Technol. B**17**(1), 158 (1999).
20. K. J. Nordheden, "RIE Initiation Delay in BCl_3/SF_6/Ar Plasmas Due to Native Oxide Removal in NH_4OH/H_2O," Electrochem. Solid-State Lett. **2**(1), 43-45 (1999).
21. P. C. Chao, M. Y. Kao, K. Nordheden and A. W. Swanson, "HEMT Degradation in Hydrogen Gas," IEEE Electron Device Lett. **15**(5), 151 (1994).
22. V. S. Wang, R. J. Matyi, and K. J. Nordheden, "Triple crystal x-ray diffraction analysis of reactive ion etched gallium arsenide," J. Appl. Phys. **75**(8), 3835 (1994).
23. K. J. Nordheden, D. W. Ferguson, and P. M. Smith, "Reactive ion etching of via holes for GaAs high electron mobility transistors and monolithic microwave integrated circuits using Cl_2/BCl_3/Ar gas mixtures," J. Vac. Sci. Technol. B**11**(5), 1879 (1993).
24. Albert Chin, Li-Wu Yang, Paul. A. Martin, Karen J. Nordheden, Jim M. Ballingall, T. H. Yu, and P. C. Chao, "High performance heterojunction bipolar transistors grown by molecular-beam epitaxy using novel growth method," J. Vac. Sci. Technol. B**11**(3), 972 (1993).
25. P. M. Smith, K. Nordheden, and J. M. Ballingall, "Ku-band high efficiency high gain pseudomorphic HEMT," Electronics Lett. **27**(3), 270 (1991).

26. K. J. Nordheden, T. R. Dill, and J. T. Verdeyen, “Predictable Reactive Ion Etching of GaAs and AlGaAs in HCl/Ar RF Discharges,” J. Electrochem. Soc. **137**(2), 691 (1990).
27. K. J. Nordheden and J. T. Verdeyen, “The Effect of Oxygen on the Etch Rate of NF_3 Discharges,” J. Electrochem. Soc. **133**(10), 2168 (1986).
28. K. J. N(ordheden) Badura and J. T. Verdeyen, “Radiative Efficiencies of Radio Frequency Sulfur Discharges,” IEEE J. Quantum Elect. **QE21**(7), 748 (1985).

Non-refereed Journals:

1. K. J. Nordheden and M. H. Hoeflich, “Undergraduate Research and Intellectual Property Rights,” The Kansas Journal of Law & Public Policy, Vol. VI, Number III, Summer/Fall 1997. [Also published in IEEE Transactions on Education, November 1999.]
2. M. H. Hoeflich and Karen Nordheden Hoeflich, “Accelerating Science: A Problem for the Legal System,” UMKC Law Review **60**(4), 717 (1992).

Conference Proceedings:

1. Qiying Jiang, Travis Wentworth, Karen Nordheden and Susan M. Stagg-Williams, “Studies of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Asymmetric Membranes,” 2010 AIChE annual meeting, November 7-12, Salt Lake City, UT.
2. Sedigheh Faraji, Karen Nordheden, and Susan M. Stagg-Williams, “Improvement of Catalytic Hydrogen Production from Methane Using Dense $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Ceramic Membranes,” 2010 AIChE annual meeting, November 7-12, Salt Lake City, UT.
3. Qiying Jiang, Karen J. Nordheden, Susan M. Stagg-Williams, “$Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Asymmetric Oxygen-Permeable Ceramic Membrane for CO_2 Reforming and Partial Oxidation of Methane,” ACS meeting, March 21-25, 2010. San Francisco, CA.
4. S. Faraji, K.J. Nordheden, and S.M. Stagg-Williams, "$Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Mixed Conducting Ceramic Membranes for Syngas Production", 2009 AIChE annual meeting, November 8-13, Nashville, TN.
5. Jiang Q., Nordheden K. J., Williams S. M., Reaction Performance of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}Ox$ Asymmetric Oxygen-Permeable Ceramic Membrane Reactor, 2009 AICHE Annual Meeting, November 8-13, Nashville, TN.
6. Q. Jiang, S. Faraji, K.J. Nordheden, and S.M. Stagg-Williams, "Application of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Asymmetric Oxygen-permeable Membranes for Hydrocarbon Conversion Reactions", 2009 North American Meeting (NAM), June 10, 2009, San Francisco, CA.
7. Qiying Jiang, Karen J. Nordheden, and Susan M. Stagg-Williams, “Oxygen Permeation Studies of Asymmetric $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Membranes”, 2008 AIChE annual meeting, November, 2008, Philadelphia, PA.
8. S. Faraji, K. J. Nordheden, and S. M. Stagg-Williams, "The Interaction Between $SrFeCo_{0.5}Ox$ Ceramic Membranes and $Pt/CeZrO_2$ During Syngas Production from Methane", 2008 AIChE annual meeting, November 19, 2008, Philadelphia, PA.
9. David A. Slade, Karen J. Nordheden, and Susan M. Stagg-Williams, “Catalyst and Oxygen Permeable Membrane Synergy in Hydrocarbon Conversion Reactors”, North American Catalysis Society Meeting, May 2007.

10. Qiying Jiang, Sedigheh Faraji, David A. Slade, Karen J. Nordheden, and Susan M. Stagg-Williams, “Performance Analysis of Mixed-Conducting Ceramic Membranes for Membrane Reactor Applications”, 2007 AIChE Annual Meeting, November 7, 2007, Salt Lake City, UT.
11. David A. Slade, Andrew M. Duncan, Karen J. Nordheden, Susan M. Stagg-Williams, “Oxygen permeable ceramic membranes for hydrocarbon conversion reactors”, 2006 AIChE Annual Meeting, November 13, 2006, San Francisco, CA.
12. David A. Slade, Sean M. Murphy, Andrew M. Duncan, Karen J. Nordheden, Susan M. Stagg-Williams, “Mixed-conducting oxygen-permeable ceramic membranes for the CO_2 reforming of CH_4”, 232nd ACS National Meeting, September 13, 2006, San Francisco, CA.
13. David A. Slade, Sean M. Murphy, Andrew M. Duncan, Karen J. Nordheden, Susan M. Stagg-Williams, “Performance enhancement of mixed-conducting oxygen-permeable ceramic membranes”, 2006 Western States Catalysis Club Meeting, February 24, 2006, Boulder, CO.
14. David A. Slade, Andrew M. Duncan, Karen J. Nordheden, Susan M. Stagg-Williams “Enhanced CO_2 reforming using oxygen-permeable ceramic membranes”, 2nd Process Intensification and Process Innovation Conference, September 28, 2006, Christchurch, New Zealand.
15. David A. Slade, Sean M. Murphy, Karen Nordheden, Susan M. Stagg-Williams, “Synthesis Gas Generation Using Ionic/Electronic Oxygen Permeable Membranes”, AIChE 2005 Annual Meeting, Conference Proceedings, 2005, pp. 2177-2182.
16. David Slade, Sean Murphy, Karen Nordheden, and Susan M. Stagg-Williams, “Synthesis Gas Generation Using Ionic/Electronic Oxygen Permeable Membranes”, Proceedings from the 19th North American Catalysis Society Meeting, May (2005).
17. Saeed Taherion, Ronqing Hui, Karen Nordheden, Joanne Sia, Aldo Baldanzi, Michele Goano Enrico Bellotti, and Hongxing Jiang, "Experimental and Theoretical Study of Refractive Indices of Wurtzite *GaN* Thin Film from Visible to Infrared," Integrated Photonics Research, June 13-15 2001, Monterey, California.
18. Y.-S. Lee, K. Upadhyaya, and K. J. Nordheden, "Selective RIE in BCl_3/SF_6 Plasmas for GaAs HEMT Gate Recess Etching", Electrochemical Society Proceedings Vol. 2000-1 on State Of The Art Processing Of Compound Semiconductors (SOTAPOCS XXXII), May 2000, pp.182-188.
19. P. C. Chao, M. Y. Kao, K. Nordheden and A. W. Swanson, “HEMT Degradation in Hydrogen Gas,” U.S. Conference on GaAs Manufacturing Technology (MANTECH), 1994, pp. 105-108.
20. V. S. Wang, R. J. Matyi, and K. J. Nordheden, “Characterization of reactive ion etch damage in GaAs by triple crystal x-ray diffraction,” Materials Research Society Symposium Proceedings, Vol. 324, pp. 445-450, 1994.
21. L. W. Yang, J. J. Komiak, M. Y. Kao, D. E. Houston, D. P. Smith, and K. J. Nordheden, “E-Beam Re-Aligned HBTs and A New Broadband MMIC Power Amplifier Using Bathtub as Heat Sink,” IEEE International Electron Devices Meeting (IEDM) Tech. Digest, pp. 203-206, Dec. 11-14, 1994, San Francisco, CA.
22. L. W. Yang, J. J. Komiak, D. P. Smith, M. Y. Kao, R. S. Brozovich, K. J. Nordheden, D. R. Helms, D. E. Houston, and F. R. Bardsley, “Manufacturing Technology for High Performance HBT Linear Power Amplifiers,” IEEE GaAs IC Symp.Tech. Digest, pp. 127-130, Oct. 16-19, 1994, Philadelphia, PA.
23. Ming-Yih Kao, Shih-Tsang Fu, Pin Ho, Phillip M. Smith, P. C. Chao, Karen J. Nordheden, and Sujane Wang, "Very High Voltage AlGaAs/InGaAs Pseudomorphic Power HEMTs,"

IEEE International Electron Devices Meeting (IEDM) Tech. Digest, pp.319-321, Dec. 13-16, 1992, San Francisco, CA.

Presentations:

1. Karen J. Nordheden, A. M. Banerjee, J. Billinger, S. M. Stagg-Williams, R. V. Chaudhari, and B. Subramaniam, "CO_2 conversion in a cylindrical packed-bed dielectric barrier discharge," International Symposium on Plasma Chemistry, Antwerp, Belgium, Oral presentation, July 6-10, 2015.
2. Atindra M. Banerjee, Karen J. Nordheden, Susan M. Stagg-Williams, R. V. Chaudhari, and Bala Subramaniam, "CO_2 Splitting in a CeO_2-ZrO_2 Packed-bed Dielectric Barrier Discharge Reactor," CEBC Industry Advisory Board Meeting, Poster , April 14-15, 2014.
3. Karen J. Nordheden, Atindra M. Banerjee, Susan M. Stagg-Williams, R. V. Chaudhari, and Bala Subramaniam, "CO_2 Splitting in a CeO_2-ZrO_2 Packed-bed Dielectric Barrier Discharge Reactor," Solvay Workshop on Plasmas for Environmental Applications, Brussels, Belgium, Poster, March 31-April 2, 2014.
   http://www.solvayinstitutes.be/events/plasmas_for_environmental_applications/KJNordheden.pdf
4. K. J. Nordheden, A. Banerjee, T. McDonald, S. M. Stagg-Williams, R. V. Chaudhari, and B. Subramaniam, "Plasma Catalysis Reactor for CO_2 Splitting," CEBC Industry Advisory Board Meeting, Poster , October 2-3, 2013.
5. K. J. Nordheden, "Plasma Catalysis Reactor for Dry Reforming of Methane and CO_2," CEBC Industry Advisory Board Meeting, Oral presentation , October 15-16, 2012.
6. K. J. Nordheden, T. McDonald, S. M. Stagg-Williams, R. V. Chaudhari, and B. Subramaniam, "Plasma Catalysis Reactor for Dry Reforming of Methane and CO_2," CEBC Industry Advisory Board Meeting, Poster, October 15-16, 2012.
7. K. J. Nordheden, "Microfabrication and Microfluidics Core," KU Center for Molecular Analysis of Disease Pathways, Oral presentation, September 15, 2012.
8. S. Faraji, K. J. Nordheden, and S. M. Stagg-Williams, "Improvement of Catalytic Hydrogen Production from Methane Using Dense $Ba_{0.5}Sr_{0.5}Co_{0.8}$ $Fe_{0.2}O_x$ Ceramic Membranes", Oral presentation, 2010 AIChE annual meeting, November 7-12, Salt Lake City, UT.
9. Q. Jiang, T. Wentworth, K. J. Nordheden, and S. M. Stagg-Williams, "Studies of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Asymmetric Membranes" Oral presentation, 2010 AIChE Annual Meeting, November 7-12, Salt Lake City, UT.
10. Qiying Jiang, Karen J. Nordheden, Susan M. Stagg-Williams, "$Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Asymmetric Oxygen-Permeable Ceramic Membrane for CO_2 Reforming and Partial Oxidation of Methane," ACS meeting, March 21-25, 2010. San Francisco, CA.
11. Sedigheh Faraji, Karen J. Nordheden, Susan M. Stagg-Williams, "Parametric Studies of Catalytic Syngas Production from Hydrocarbons Using $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Ceramic Membranes", Poster, 2010 NAMS annual meeting, July 20, 2010, Washington, DC.
12. Sedigheh Faraji, Karen J. Nordheden, and Susan M. Stagg-Williams, "Investigation of Nickel and Platinum Catalysts for Use in the Dry Reforming of Methane", Poster, 2010 AIChE annual meeting, November 8, 2010, Salt Lake City, UT
13. Sedigheh Faraji, Karen J. Nordheden, and Susan M Stagg-Williams, "The Influence of Different Factors on Catalytic Syngas Production from Methane Using $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Ceramic Membranes", Oral presentation. 2010 University of Kansas Graduate Research Competition, March 31, 2010, Lawrence, KS.

14. S. Faraji, K. J. Nordheden, and S.M. Stagg-Williams, "$Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Mixed Conducting Ceramic Membranes for Syngas Production", 2009 AIChE annual meeting, November 09, 2009, Nashville, TN.
15. Q. Jiang, K. J. Nordheden, S. M. Williams, "Reaction Performance of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}Ox$ Asymmetric Oxygen-Permeable Ceramic Membrane Reactor," AICHE Annual Meeting, paper no.539a, Nashville, TN, 2009.
16. A. El Saghir, C. Kennedy, S. Shannon, B. Pathak, J. Alexander, K. Nordheden, "Evaluation of Advanced Algorithms to improve EEDF extraction from Langmuir Probe data Using Tikhonov Regularization Methods," Gaseous Electronics Conference (GEC), 2009.
17. A. El Saghir, C. Kennedy, S. Shannon, B. Pathak, J. Alexander, K. Nordheden, "EEDF Analysis of CCP Plasmas Using Regularized Reconstruction Analysis of IV Characteristics from an RF Compensated Langmuir Probe," International Conference on Plasma Science (ICOPS) poster, 2009.
18. Q. Jiang, S. Faraji, K.J. Nordheden, and S.M. Stagg-Williams, "Application of $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_x$ Asymmetric Oxygen-permeable Membranes for Hydrocarbon Conversion Reactions", 2009 North American Meeting (NAM), June 10, 2009, San Francisco, CA.
19. Karen J. Nordheden, Bogdan A. Pathak, and John L. Alexander, "ICP etching of ZnO in BCl_3/SF_6 gas mixtures," Zinc Oxide Materials and Devices IV, Photonics West, SPIE, San Jose, January 25-28, 2009. (invited)
20. S. Faraji, K. J. Nordheden, and S.M. Stagg-Williams, "The Interaction Between $SrFeCo_{0.5}Ox$ Ceramic Membranes and $Pt/CeZrO_2$ During Syngas Production from Methane", 2008 AIChE annual meeting, Philadelphia, PA, November, 2008.
21. Qiying Jiang, Karen J. Nordheden, and Susan M. Stagg-Williams, "Oxygen Permeation Studies of Asymmetric $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}Ox$ Membranes", 2008 AIChE annual meeting, Philadelphia, PA, November, 2008.
22. Bogdan A. Pathak, John L. Alexander, and Karen J. Nordheden, "Negative Ion Densities and EEDFs in BCl_3/N_2 and BCl_3/SF_6 CCP Plasmas", 61st Gaseous Electronics Conference, Dallas, TX, October 13-17, 2008.
23. Karen J. Nordheden, Mark Dineen, and Colin Welch, "Inductively coupled plasma etching of ZnO," Photonics West, SPIE, San Jose, January 21-24, 2007. (invited)
24. Qiying Jiang, Sedigheh Faraji, David A. Slade, Karen J. Nordheden, and Susan M. Stagg-Williams, "Performance Analysis of Mixed-Conducting Ceramic Membranes for Membrane Reactor Applications", (Poster) 2007 AIChE Annual Meeting, November 7, 2007, Salt Lake City, UT.
25. David A. Slade, Karen J. Nordheden, and Susan M. Stagg-Williams, "Catalyst and Oxygen Permeable Membrane Synergy in Hydrocarbon Conversion Reactors", (Poster) North American Catalysis Society Meeting, May 2007.
26. David A. Slade, Andrew M. Duncan, Karen J. Nordheden, Susan M. Stagg-Williams, "Oxygen permeable ceramic membranes for hydrocarbon conversion reactors", 2006 AIChE Annual Meeting, November 13, 2006, San Francisco, CA.
27. David A. Slade, Andrew M. Duncan, Karen J. Nordheden, Susan M. Stagg-Williams "Enhanced CO_2 reforming using oxygen-permeable ceramic membranes", 2nd Process Intensification and Process Innovation Conference, September 28, 2006, Christchurch, New Zealand.

28. David A. Slade, Sean M. Murphy, Andrew M. Duncan, Karen J. Nordheden, Susan M. Stagg-Williams, "Mixed-conducting oxygen-permeable ceramic membranes for the CO_2 reforming of CH_4", 232nd ACS National Meeting, September 13, 2006, San Francisco, CA.
29. David A. Slade, Sean M. Murphy, Andrew M. Duncan, Karen J. Nordheden, Susan M. Stagg-Williams, "Performance enhancement of mixed-conducting oxygen-permeable ceramic membranes", 2006 Western States Catalysis Club Meeting, February 24, 2006, Boulder, CO.
30. David A. Slade, Sean M. Murphy, Karen Nordheden, Susan M. Stagg-Williams, "Synthesis Gas Generation Using Ionic/Electronic Oxygen Permeable Membranes", AIChE 2005 Annual Meeting, October 30-November 4, 2005, Cincinnati, Ohio.
31. David Slade, Sean Murphy, Karen Nordheden, and Susan M. Stagg-Williams, "Synthesis Gas Generation Using Ionic/Electronic Oxygen Permeable Membranes", 19th North American Catalysis Society Meeting, May (2005).
32. Sean Murphy, David Slade, Karen Nordheden, and Susan M. Stagg-Williams, "Deposition of catalytic materials on mixed metal oxide membranes using photolithography and electron beam evaporation", Annual meeting of the Western States Catalysis Club, February (2005).
33. "Photolithography and Nanoparticle Synthesis for Optical Waveguides," Joel T. Abrahamson, Rongqing Hui, and Karen J. Nordheden, AIChE student poster session 95d, Materials Engineering and Sciences, Cincinnati OH, October 31, 2005.
34. "Reactive Ion Etching of SiC in SF_6/He plasmas," R. Alapati and K. J. Nordheden, presented at the 56th Annual Gaseous Electronics Conference, San Francisco, CA, October 21-24, 2003.
35. "Effect of SF_6 addition to BCl_3 Etching Plasmas," Yao-Sheng Lee, Kaushal Upadhyaya, Prasad Gogineni, and Karen J. Nordheden, presented at the 52nd Gaseous Electronics Conference (GEC), Norfolk, VA, October, 1999.
36. "Smooth and anisotropic RIE of GaAs slot via holes for HEMTs using Cl_2/BCl_3/Ar plasmas," Y. S. Lee, X. D. Hua, and K. J. Nordheden, presented at the K*STAR NSF EPSCoR Meeting, Topeka, KS, April, 1999.
37. "Smooth and anisotropic RIE of GaAs slot via holes for HEMTs using Cl_2/BCl_3/Ar plasmas," Y. S. Lee, X. D. Hua, and K. J. Nordheden, presented at the 194th Meeting of The Electrochemical Society, Boston, MA, November, 1998.
38. "Reactive ion etching of via holes for GaAs HEMTs and MMICs using Cl_2/BCl_3/Ar gas mixtures," K. J. Nordheden, presented at the IEEE International Conference on Plasma Science (ICOPS), June 1995, Madison, WI.
39. "High performance heterojunction bipolar transistors grown by molecular-beam epitaxy using novel growth method," Albert Chin, Li-Wu Yang, Paul. A. Martin, Karen J. Nordheden, Jim M. Ballingall, T.H. Yu, and P.C. Chao, presented at the 12th North American Conference on Molecular-Beam Epitaxy, Oct.12-14, 1992, Ottawa, Ont., Canada.
40. "Reactive Ion Etching of GaAs in HCl/Ar Discharges," K.J. Nordheden, J.H. Beberman, T.R. Dill, and J.T. Verdeyen, poster presentation at the Twenty-First Physical Electronics Industrial Affiliates Program, April 6-7, 1988, University of Illinois, Urbana, IL.
41. "The Effect of Oxygen on the Etch Rate of Si/SiO_2 in NF_3 Discharges," K.J. Nordheden, J.H. Beberman, T.R. Dill, and J.T. Verdeyen, poster presentation at the Nineteenth Physical Electronics Industrial Affiliates Program, April 15-16, 1986, University of Illinois, Urbana, IL.
42. "Optical, Microwave, and Mass-spectroscopy of Plasma Processing Discharges," J. T. Verdeyen, G. Hebner, K. Nordheden, and L. Overzet, presented at the Tegal Conference, J. Electrochem. Soc. **133**(8), PC311, 1986, San Diego, CA.

Invited Talks:

1. Karen J. Nordheden, Bogdan A. Pathak, and John L. Alexander, “ICP etching of ZnO in BCl_3/SF_6 gas mixtures,” Zinc Oxide Materials and Devices IV session, Photonics West, SPIE, San Jose, January 25-28, 2009.
2. Karen J. Nordheden, Mark Dineen, and Colin Welch, “Inductively coupled plasma etching of ZnO,” presented at the Zinc Oxide Materials and Devices session, Photonics West, SPIE, San Jose, January 22, 2007.
3. “Reactive Ion Etching of SiC in SF_6/He plasmas,” K. J. Nordheden, Department of Chemistry, University of Kansas, Lawrence, KS, April 14, 2004.
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