Prof. Jochen A. Lauterbach
Department of Chemical Engineering
University of South Carolina
541 Main Street, Columbia, SC 29208
(803) 381 6193
lauteraj@cec.sc.edu

Education

- University of Bayreuth, Bayreuth, Germany, Physics, 5 year Diploma, 1992.
- Free University of Berlin and Fritz-Haber-Institute, Berlin, Germany, Chemistry, Dr. rer.nat., 1994.
- University of California, Santa Barbara, CA, Post-Doc, Chemical Engineering, 1994-1996.

Professional Experience

- Visiting Professor, ICAT, Hokkaido University, Japan, 2017.
- Professor and Smartstate Endowed Chair, Department of Chemical Engineering, University of South Carolina, 2010 – present.
- Director, South Carolina Smartstate Center for Strategic Approaches to the Generation of Electricity, 2010 – present.
- Visiting Professor, Department of Physics, Dalhousie University, Canada, 2008.
- Professor, Department of Chemical Engineering, University of Delaware, 2006 – 2010.
- Associate Professor, Department of Chemical Engineering, University of Delaware, 2002 – 2006.
- Associate Director, Center for Catalytic Science and Technology, University of Delaware, 2002 – 2010.
- Associate Professor, School of Chemical Engineering, Purdue University, 2000 – 2002.
- Assistant Professor, School of Chemical Engineering, Purdue University, 1996 – 2000.
- Postdoctoral Research Associate, Department of Chemical Engineering, University of California, Santa Barbara, 1994 – 1996.
- Graduate Research Assistant, Department of Physical Chemistry, Fritz-Haber-Institut, Berlin, Germany, 1992 – 1994.

Published Work

A. Jochen Lauterbach

Published & Submitted Work (peer reviewed)

(as of 12/11/18: h-index: 36; i10-index: 77; total citations: 4139; information retrieved from Google Scholar)

1. J. Lauterbach, M. Wittmann and J. Küppers, "Adsorption of CO on Ni(100): a FTIRAS - TDS study", Surface Science 279; 287-296, 1992.
2. J. Lauterbach, M. Wittmann and J. Küppers, "A FTIRAS study of CO adsorbed at Ni(100) surfaces", Berichte der Bunsengesellschaft für Physikalische Chemie 97; 326-328, 1993.
3. J. Lauterbach, G. Haas, H.H. Rotermund and G. Ertl, "Spatio-temporal pattern formation on polycrystalline platinum surfaces during catalytic CO oxidation", Surface Science 294; 116-130, 1993.
4. H.H. Rotermund, J. Lauterbach and G. Haas, "The formation of subsurface oxygen on Pt(100)", Applied Physics A 57(6); 507-511, 1993.
5. J. Lauterbach and H.H. Rotermund, "Spatio-temporal pattern formation during the catalytic CO-oxidation on Pt(100)", Surface Science 311; 231-246, 1994.
6. J. Lauterbach, K. Asakura and H.H. Rotermund, "Subsurface oxygen on Pt(100): kinetics of the transition from chemisorbed to subsurface state and its reaction with CO, H_2, and O_2", Surface Science 313(1-2); 52-63, 1994.
7. M.D. Graham, I.G. Kevrekidis, K. Asakura, J. Lauterbach, K. Krischer, H.H. Rotermund and G. Ertl, "Effects of boundaries on pattern formation: catalytic oxidation of CO on platinum", Science 264; 80-82, 1994.
8. J. Lauterbach and H.H. Rotermund, "Gas-phase coupling in the CO oxidation reaction on polycrystalline platinum", Catalysis Letters 27; 27-32, 1994.
9. V. Gorodetskii, J. Lauterbach, H.H. Rotermund and G. Ertl, "Coupling between adjacent crystal planes in heterogeneous catalysis by propagating reaction-diffusion waves", Nature 370; 276-279, 1994.
10. K. Asakura, J. Lauterbach, H.H. Rotermund and G. Ertl, "Modification of spatio-temporal pattern formation in an excitable medium by continuous variation of its intrinsic parameters: CO oxidation on Pt(110)", Physical Review B 50; 8043-8046, 1994.
11. K. Asakura, J. Lauterbach, H.H. Rotermund and G. Ertl, "Spatio-temporal concentration patterns associated with the catalytic oxidation of CO on Au covered Pt(110) surfaces", Journal of Chemical Physics 102; 8175-8184, 1995.
12. M.D. Graham, M. Bär, I.G. Kevrekidis, K. Asakura, J. Lauterbach, H.H. Rotermund, and G. Ertl, "Catalysis on micro-structured surfaces: Pattern formation during CO oxidation in complex Pt domains", Physical Review E 52; 76-93, 1995.
13. M. Schick, J. Lauterbach, and W.H. Weinberg, "Adsorption of CO and hydrogen on the K-modified Ir(111)", Journal of Vacuum Science and Technology *A* 14; 1448-1452, 1996.
14. J. Lauterbach, M. Schick, and W.H. Weinberg, "Coadsorption of CO and hydrogen on the Ir(111) surface", Journal of Vacuum Science and Technology A 14; 1511-1515, 1996.
15. J. Lauterbach, M. Schick, R.W. Boyle, W.J. Mitchell, B. Meng and W.H. Weinberg, "The adsorption of CO on Ir(111) investigated with FT-IRAS", Surface Science 350; 32-44, 1996.
16. M. Schick, J. Lauterbach, and W.H. Weinberg, "The coadsorption of hydrogen and potassium on Ir(111)", Surface Science 360; 255-260, 1996.
17. R.W. Boyle, J. Lauterbach, W.J. Mitchell, M. Schick, and W.H. Weinberg, "Chemisorption of CO on the Ir(111) surface", Industrial & Engineering Chemistry Research - Eli Ruckenstein Festschrift 35(9); 2986-2992, 1996 [*Invited Contribution*].

18. J. Lauterbach, M. Sushchikh, and W.H. Weinberg, "Chemisorption of CO on the Ir(111) Surface: Does Adsorption Assisted desorption occur?", Zeitschrift für Physikalische Chemie - Gerhard Ertl Festschrift, 198(1-2); 99-112, 1997, [*Invited Contribution*].
19. K. Asakura, J. Lauterbach, H.H. Rotermund and G. Ertl, "Spatio-temporal patterns on a submonolayer Au-modified Pt(100) surface", Surface Science, 374(1-3); 125-141, 1997.
20. M. Sushchikh, J. Lauterbach, and W.H. Weinberg, "Chemisorption of CO on the Ir(111) surface: Adsorption and desorption kinetics measured with in situ vibrational spectroscopy", Journal of Vacuum Science and Technology A, 15(3); 1630-1635, 1997.
21. M. Sushchikh, J. Lauterbach, and W.H. Weinberg, "Adsorption and desorption kinetics of CO on Ir(111): Bridging the pressure gap", Surface Science, 393(1-3); 135-140, 1997.
22. S. Lau, J. Right, K. Stavens, J. Whitaker, Z. Liu, and J. Lauterbach, "Do-it-yourself attenuated total reflectance cell designed and constructed in a laboratory course: A versatile and economical alternative to commercial designs", The Chemical Educator; 2(4), 1997.
23. J. Lauterbach, S. White, X. Lui, G.M. Bodner, and W.N. Delgass, "A novel laboratory course on advanced chemical engineering experiments", Chemical Engineering Education, 31(4); 260-265, 1997.
24. G. Haas, T.D. Pletcher, G. Bonilla, T.A. Jachimowski, H.H. Rotermund, and J. Lauterbach, "Ellipsomicroscopy for surface imaging - A novel tool to investigate surface dynamics", Journal of Vacuum Science and Technology A, 16(3); 1117-1121, 1998.
25. T.A. Jachimowski and J. Lauterbach, "A combined pressure reaction cell – UHV chamber with sample transfer system", Review of Scientific Instruments, 69(7); 2757-2761, 1998.
26. G. Bonilla, T.D. Pletcher, G. Haas, and J. Lauterbach, "Unsteady-state behavior of CO oxidation over a supported Pt catalyst in the Torr range", Reaction Kinetics and Catalysis Letters, 65(1); 3-8, 1998.
27. J. Lauterbach, K. Asakura, P.B. Rasmussen, H.H. Rotermund, M. Bär, M.D. Graham, I.G. Kevrekidis, and G. Ertl, "Catalysis on mesoscopic composite surfaces: Influence of palladium boundaries on patter formation during CO oxidation on Pt(110)", Physica D - Nonlinear Phenomena, 123(1-4); 493-501, 1998.
28. T. Lee, J. Liu, D.B. Janes, V.R. Kolagunta, J. Dicke, M.R. Melloch, D. McInturff, J.M. Woodall, R.P. Andres, J. Lauterbach, and R. Reifenberger, "An ohmic nanocontact to GaAs", Applied Physics Letters, 74(19); 2869-2871, 1999.
29. J. Lauterbach, G. Bonilla, and T.D. Pletcher, "Unsteady-state behavior of CO oxidation over supported Pt catalysts and Pt single crystals: A comparison in the Torr pressure range", Chemical Engineering Science, 54(20); 4501- 4512, 1999.
30. D.B. Janes, R.P. Andres, M. Batistuta, E.H. Chen, J. Dicke, V.R. Kolagunta, J. Lauterbach, T. Lee, J. Liu, M.R. Melloch, E.L. Peckham, T.D. Pletcher, R. Reifenberger, H.U. Ueng, B.L. Walsh, J.M. Woodall, C.K. Kubiak, and B. Kasibhatla, "Nanoelectronic device applications of a chemically stable GaAs structure", Journal of Vacuum Science and Technology B, 17; 1773-1777, 1999.
31. C.M. Snively, S. Katzenberger, G. Oskarsdottir, and J. Lauterbach, "Fourier Transform Infrared imaging utilizing a rapid-scan spectrometer", Optics Letters, 24(24); 1841-1843, 1999.
32. David B Janes, RP Andres, EH Chen, J Dicke, VR Kolagunta, J Lauterbach, T Lee, J Liu, MR Melloch, EL Peckham, T Pletcher, R Reifenberger, HJ Ueng, BL Walsh, JM Woodall, CP Kubiak, B Kasibhatla, "Self-assembly based approaches for metal/molecule/semiconductor nanoelectronic circuits", VLSI, IEEE, 1999.

33. J. Dicke, H.H. Rotermund, and J. Lauterbach, "Ellipsomicroscopy for surface imaging: Contrast mechanism, enhancement, and application to CO oxidation on Pt(110)", Journal of the American Optical Society A: Optics, Image Science, and Vision, 17(1); 135-141, 2000.
34. C.M. Snively, S. G. Oskarsdottir, and J. Lauterbach, "Chemically sensitive high throughput parallel analysis of solid phase supported chemical libraries", Journal of Combinatorial Chemistry, 2(3); 243-245, 2000.
35. X. Wen, J. Lauterbach, and E.I. Franses, "Surface densities of adsorbed monolayers of aqueous sodium myristate inferred from surface tension and reflection absorption infrared spectroscopy", Langmuir, 16(17); 6987-6994, 2000.
36. J. Dicke, H.H. Rotermund, and J. Lauterbach, "Formation of surface oxides on Pt(100) during CO oxidation in the millibar pressure range", Surface Science, 454; 352-357, 2000.
37. J. Bai, C. Snively, W.N. Delgass, and J. Lauterbach, "Formation of ultra-thin polystyrene films using a two-step deposition/polymerization process", Macromolecules, 34(5); 1214-1220, 2001.
38. T. Lele, T.D. Pletcher, and J. Lauterbach, "Spatio-temporal pattern formation during CO oxidation on Pt(100) at elevated pressures", AIChE Journal, 47(6); 1418-1425, 2001.
39. C.M. Snively, G. Oskarsdottir, and J. Lauterbach, "Parallel screening of supported catalyst arrays using hyperspectral imaging", Angewandte Chemie - International Edition, 40(16); 3028-3030, 2001 [*selected by editor as "Hot Paper" August 2001*].
40. C.M. Snively, G. Oskarsdottir, and J. Lauterbach, "Parallelanalyse der Reaktionsprodukte von Katalysatorbibliotheken", Angewandte Chemie, 113(16); 3117-3120, 2001.
41. J. Lauterbach, G. Oskarsdottir, and C.M. Snively, "Chemically sensitive parallel analysis of combinatorial catalyst libraries", Catalysis Today, 67(4); 357-368, 2001 *[invited article]*.
42. P. Fanson, W.N. Delgass, and J. Lauterbach, "Island formation during kinetic rate oscillations in the oxidation of CO over Pt/SiO_2: A time-resolved FTIR study", Journal of Catalysis, 204(1); 35-52, 2001.
43. P. Fanson, M.W. Stradt, W.N. Delgass, and J. Lauterbach, "Infrared evidence for the existence of nitrate species on Cu-ZSM5 during isothermal rate oscillations during N_2O decomposition over Cu-ZSM5", Catalysis Letters, 77(1); 15-19, 2001.
44. C.M. Snively and J. Lauterbach, "Sampling accessories for the high throughput analysis of combinatorial libraries using spectral imaging", Spectroscopy, 17(4); 26-33, 2002 *[invited article]*.
45. J. Lauterbach, C.M. Snively, and G.H. Oskarsdottir, "Chemically Sensitive High-throughput Parallel Analysis of Resin Bead-supported Combinatorial Libraries", ACS Symposium Series, 814, 65-86, 2002.
46. T. Lele and J. Lauterbach, "Non-linear phenomena during CO oxidation on Pt(100) – experiments and simulations", Chaos, 12(1); 164-172, 2002 *[invited article]*.
47. P.T. Fanson, M.W. Stradt, J. Lauterbach, W.N. Delgass, "The effect of Si/Al ratio and copper exchange level on isothermal kinetic rate oscillations for N_2O decomposition over Cu-ZSM-5: a transient FTIR study", Applied Catalysis B-Environmental, 38(4); 331-347, 2002.
48. J. Bai, C. Snively, W.N. Delgass, and J. Lauterbach, "Formation of polypyrrole nanofilms using a two-step deposition/polymerization process", Advanced Materials, 14(21); 1546-1549, 2002.

49. C.M. Snively and J. Lauterbach, "Sampling Accessories for the High-throughput Analysis of Combinatorial Libraries using Spectral Imaging", ChemInform, 33(29), 2002.
50. R. Hendershot, P. Fanson, C.M. Snively, and J. Lauterbach, "High-throughput catalytic science: parallel analysis of transients in catalytic reactions", Angewandte Chemie-International Edition, 42(10); 1152-1155, 2003.
51. R. Hendershot, P. Fanson, C.M. Snively, and J. Lauterbach, "Hochdurchsatz Analyse von Katalysatoren: Parallel Analyse von transientem Verhalten", Angewandte Chemie, 115(10) 1184-1187, 2003.
52. J.M. Caruthers, J. Lauterbach, K.T. Thomson, V. Venkatasubramanian, C.M. Snively, A. Bhan, S. Katare, and G. Oskarsdottir, "Catalyst Design: Knowledge Extraction from High Throughput Experimentation", Journal of Catalysis; 216(1) 98-109, 2003.
53. T. Lele, J. Lauterbach, and D. Ramkrishna, "Mathematical analysis of physico-chemical processes on catalytic surfaces", AIChE Journal, 49(8); 2158-2172, 2003.
54. P. Fanson, M. Horton, W.N. Delgass, and J. Lauterbach, "FTIR analysis of storage behavior and sulfur tolerance in barium-based nitrogen storage and reduction (NSR) catalysts", Applied Catalysis B, 46(2); 393-413, 2003.
55. R. J. Hendershot, S.S. Lasko, M.-F. Fellmann, G. Oskarsdottir, W.N. Delgass, C.M. Snively, and J. Lauterbach, "A novel reactor system for high throughput catalyst testing under realistic conditions", Applied Catalysis A, 254(1); 107-120, 2003.
56. R. J. Hendershot, B. Rogers, C.M. Snively, B. Ogunnaike, and J. Lauterbach, "Development and Optimization of NO_x Storage and Reduction Catalysts Using Statistically Guided High-throughput Experimentation", Catalysis Today, 98; 375-385, 2004.
57. R. J. Hendershot, B. Feist, R. Vijai, C.M. Snively, B. Ogunnaike, and J. Lauterbach, "Multivariate and univariate analysis of infrared imaging data for high-throughput studies of NH_3 decomposition and NO_x storage and reduction catalysts", Measurement Science and Technology, 16(1); 302-208, 2005 *[paper among top 5% downloaded from publisher]*.
58. R. Vijay, R. J. Hendershot, S. M. Rivera-Jiménez, W. B. Rogers, B. J. Feist, C. M. Snively, J. Lauterbach, "Noble Metal Free NO_x Storage Catalysts Using Cobalt Discovered via High-throughput Experimentation", Catalysis Communications, 6(2); 167-171, 2005.
59. R. J. Hendershot, C.M. Snively, and J. Lauterbach, "High-throughput Catalytic Science", Chemistry – A European Journal, 11(3); 806-814, 2005 *[invited Concentrate article]*.
60. A. Deskins, J. Lauterbach, and K. Thomson, "Lifting the Pt{100} Surface Reconstruction Through Oxygen Adsorption: A DFT Analysis", Journal of Chemical Physics, 122(18); 184709, 2005.
61. B. Taylor, J. Lauterbach, and W.N. Delgass, "Gas-phase Epoxidation of Propylene over Small Gold Ensembles on TS-1", Applied Catalysis A, 291(1-2); 188-198, 2005.
62. N. McMillan, T. Lele, C.M. Snively, and J. Lauterbach, "Subsurface oxygen formation on Pt(100): Experiments and Modeling", Catalysis Today, 105(2); 244-253, 2005 *[invited article for special issue on Oscillatory Behaviour of Heterogeneous Catalytic Reactions]*.
63. C.M. Snively and J. Lauterbach, "Experimental aspects of asynchronous sampling in FTIR imaging", Applied Spectroscopy, 59(9); 1075-1081, 2005 *[selected by the editor as Accelerated Paper; one such paper is selected per journal issue]*.
64. I. Takeuchi, J. Lauterbach and M. Fasolka, "Combinatorial materials synthesis", Materials Today, 8(10); 18-26, 2005.

65. B. Taylor, L. Cumarananatunge, J. Lauterbach, and W.N. Delgass, "Gas-phase epoxidation of propylene over small gold ensembles on TS-1", Gold Bulletin, 38(3); 133-133, 2005.
66. S. Washburn, E. Townsend, J. Lauterbach, and C.M. Snively, "Desorption and photopolymerization behavior of mixed and multilayered styrene-pyrrole nanofilms", Applied Surface Science, 252(18); 6228-6235, 2006.
67. R. J. Hendershot, R. Vijai, C.M., and J. Lauterbach, "High-throughput study of the influence of H_2O and CO_2 on the performance of Nitrogen storage and reductions (NSR) catalysts", Applied Surface Science, 252(7); 2588-2592, 2006.
68. R. Hendershot, R. Vijay, C.M. Snively, and J. Lauterbach, "High-throughput study of the Performance of NO_x Storage and Reduction Catalysts as a Function of Cycling Conditions and Catalyst Composition", Chemical Engineering Science, 61(12); 3907-3916, 2006.
69. B. Taylor, J. Lauterbach, G. Blau, W. N. Delgass", "Reaction Kinetic Analysis of the Gas-Phase Epoxidation of Propylene over Au/TS-1", Journal of Catalysis, 242(1); 142-152, 2006.
70. R. Vijay, C.M. Snively, and J. Lauterbach, "Performance of Co-containing NO_x Storage and Reduction Catalysts as a Function of Cycling Conditions", Journal of Catalysis, 243(2); 368–375, 2006.
71. S. Washburn, J. Lauterbach, and C.M. Snively, "Polymerizing the unpolymerizable – The case of 1,2-disubstituted ethylenes", Macromolecules, 39(24); 8210-8212, 2007.
72. J. C. Dellamorte, J. Lauterbach and M. A. Barteau, „Rhenium Promotion of Ag and Cu-Ag Bimetallic Catalysts for Ethylene Epoxidation", Catalysis Today, 120(2); 182-185, 2007.
73. N. McMillan, C.M. Snively, and J. Lauterbach, "Spatio-temporal dynamics of the NO + NH_3 reaction on polycrystalline platinum", Surface Science, 601(3); 772-780, 2007.
74. R. Hendershot, R. Vijay, C.M. Snively, and J. Lauterbach, "Response surface study of the performance of lean NO_x Storage Catalysts as a Function of reaction conditions and catalyst composition", Applied Catalysis B, 70(1); 160-171, 2007.
75. B. Taylor, J. Lauterbach and W. N. Delgass, "The Effect of Mesoporous Scale Defects on the Activity of Au/TS-1 for the Epoxidation of Propylene", Catalysis Today, 123(1-4); 50-58, 2007.
76. J. C. Dellamorte, R. Vijay, C. M. Snively, M. Barteau, and J. Lauterbach, "High-throughput reactor system with individual temperature control for the investigation of monolith catalysts", Review of Scientific Instruments, 78(7); 072211, 2007.
77. R. Vijay, J.C. Dellamorte, C.M. Snively, and J. Lauterbach, "Optimization of Co containing NSR catalysts using high throughput experimentation", Chimica Oggi-Chemistry Today, 25(2); 14-16, 2007.
78. R. Vijay and J. Lauterbach, "Design of experiments combined with high-throughput experimentation for the optimization of $DeNO_x$ catalysts", Studies in Surface Science and Catalysis, 171, 325-359, 2007.
79. W. Pyrz, R. Vijay, J. Binz, J. Lauterbach, and D.J. Buttrey, "Characterization of K-promoted Ru catalysts for ammonia decomposition discovered using high-throughput experimentation", Topics in Catalysis, 50(1-4), 180-191, 2008.
80. N. McMillan, C.M. Snively, and J. Lauterbach, "Spatio-temporal control of reaction-diffusion patterns through local micro-dosing", AIChE Journal, 55(1); 172-179, 2008.
81. D. Bilbao and J. Lauterbach, "Fingering instabilities in heterogeneous reaction-diffusion systems", New Journal of Physics, 10(12); 123002, 2008.

82. R. Vijay, H. Sakurai, C.M. Snively, and J. Lauterbach, "Mechanistic Investigation of Co Containing NO_x Traps discovered through High-throughput Experimentation", Topics in Catalysis, 52(10), 1388-1399, 2009.
83. J.C. Dellamorte, M.A. Barteau, and J. Lauterbach, "Opportunities for Catalyst Discovery and Development: Integrating Surface Science and Theory with High Throughput Methods", Surface Science, *Special Issue honoring Prof. G. Ertl*, 603(10), 1770-1775, 2009.
84. J.C. Dellamorte, J. Lauterbach and M.A. Barteau, "Promoter-induced morphological changes of Ag Catalysts for Ethylene Epoxidation", T.W. Russel issue of Industrial & Engineering Chemistry Research, 48(13), 5943-5953, 2009.
85. D. Bilbao, N. McMillan, and J. Lauterbach, "Local Forcing of a Nonlinear Surface Reaction: CO Oxidation on Pt(100).", AIChE Journal, 55(1), 121-133, 2009
86. J. Dellamorte, J. Lauterbach, and M.A. Barteau, "Effect of Preparation Conditions on Ag Catalysts for Ethylene Epoxidation", Topics in Catalysis, 53(1-2), 13-18, 2010.
87. D. Bilbao and J. Lauterbach, "Gas-phase coupling of reactive surfaces by oscillating reactant clouds", Journal of Catalysis, 272(2), 309-314, 2010.
88. J.C. Dellamorte, J. Lauterbach and M.A. Barteau, "Palladium-silver bimetallic catalysts with improved activity and selectivity for ethylene epoxidation", Applied Catalysis A, 391(1), 281-288, 2011.
89. D.W. Fickel, E. D'Addio, J.A. Lauterbach, and R.F. Lobo, "The ammonia selective catalytic reduction activity of copper-exchanged small-pore zeolites", Applied Catalysis B, 102(3-4), 441-448, 2011. (ISI highly cited paper)
90. B.A. Cheney, J.A. Lauterbach, and J.G.G. Chen, "Reverse micelle synthesis and characterization of supported Pt/Ni bimetallic catalysts on gamma-Al_2O_3", Applied Catalysis A, 394(1), 41-47, 2011.
91. J. Bedenbaugh, J. Ashok, A. Chien, S. Kim, S. Salim, M. Glascock, and J. Lauterbach, "High-Throughput Screening of Catalytic Materials for JP-8 Fuel Cracking to Liquefied Petroleum Gas", MRS Proceedings, Vol. 1425, 2012.
92. M. K. Mayeda, W.-F. Kuan, W.-S. Young, J. Lauterbach, and T. H. Epps, III, "Controlling Particle Location with Mixed Surface Functionalities in Block Copolymer Thin Films", Chemistry of Materials, 24(14) 14, 2627-2634, 2012.
93. K.J. Yang, J. Bedenbaugh, H. Li, M. Peralta, J.K. Bunn, J. Lauterbach, and J. Hattrick-Simpers, "Development of a High-Throughput Methodology for Screening Coking Resistance of Modified Thin-Film Catalysts", ACS Combinatorial Science, 14(6), 372-377, 2012.
94. C. Wen, X. Zhang, S.E. Lofland, J. Lauterbach, and J. Jason Hattrick-Simpers, "Synthesis of mono-disperse CoFe alloy nanoparticles with high activity toward $NaBH_4$ hydrolysis", International Journal of Hydrogen Energy, 38(15), 6436-6441, 2013.
95. J. Bedenbaugh, S. Kim, E. Sasmaz, J. Lauterbach, "High-throughput investigation of catalysts for JP-8 fuel cracking to liquefied petroleum gas", ACS Combinatorial Science, 15(9), 491-497, 2013.
96. C. Wen, E. Barrow, J. Hattrick-Simpers, and J. Lauterbach, "One-step production of long-chain hydrocarbons from waste-biomass-derived chemicals using bi-functional heterogeneous catalysts", Phys. Chem. Chem. Phys, 16(7), 3047-3054, 2014.
97. C. Wen, D. Dunbar, X. Zhang, J. Lauterbach and J. Hattrick-Simpers, "Self-healing catalysts: Co_3O_4 nanorods for Fischer–Tropsch synthesis", Chemical Communications, 50,

4575-4578, 2014 [*article featured in a Science Concentrate in Chemical & Engineering News*].

98. Y. Yi, C.T. Williams, M. Glascock, G. Xiong, J. Lauterbach, and C. Liang, "Transformation of Mo and W thiosalts into unsupported sulfide catalysts: A temperature dependent in-situ spectroscopic investigation", Materials Research Bulletin, 56, 54-64, 2014.
99. J. Hattrick-Simpers, C. Wen and J. Lauterbach, "The Materials Super Highway: Integrating High-Throughput Experimentation into Mapping the Catalysis Materials Genome", Catalysis Letters, 145 (1), 290-298, 2015 *[invited perspective paper for 25th anniversary issue]*.
100. S. Kim, E. Sasmaz, and J. Lauterbach, "Effect of Pt and Gd on coke formation and regeneration during JP-8 cracking over ZSM-5 catalysts", Applied Catalysis B, 168-169, 212-219, 2015.
101. S. Kim, M.K. Mayeda, E. Sasmaz, and J. Lauterbach, "One Step Process for the Production of BTEX and LPG-like fuel from Pentanediol", ACS Sustainable Chemistry & Engineering, 3 (3), 381-385, 2015.
102. C. Wang, E. Sasmaz, C. Wen, and J. Lauterbach, " Pd supported on SnO_2–MnO_x–CeO_2 catalysts for low temperature CO oxidation", Catalysis Today, 258, 481-486, 2015.
103. M.K. Mayeda, J. Hayat, T. Epps, III, and J. Lauterbach, "Metal Oxide Arrays from Block Copolymer Thin Film Templates", Journal of Materials Chemistry A, 3 (15), 7822-7829, 2015.
104. E. Sasmaz, K. Mingle, and J. Lauterbach, "High-Throughput Screening Using Fourier-Transform Infrared Imaging", Engineering 1 (2), 234-242, 2015.
105. J. Bunn, R. Voepel, Z. Wang, E. Gatzke, J, Lauterbach, and J. Hattrick-Simpers, "Development of an Optimization Procedure for Magnetron Sputtered Thin Films to Facilitate Combinatorial Materials Research", Industrial & Engineering Chemistry Research, 55(5), 1236-1242, 2016.
106. J. Jimenez, C. Wen, A. Bird, M. Santos Santiago, and J. Lauterbach, "Supported Cobalt nanorod catalysts for CO_2 hydrogenation", Energy Technology, 5(6), 884–891, 2017.
107. C. Wang, A. Binder, T. Toops, J. Lauterbach, and E. Sasmaz, "Evaluation of Mn and Sn modified Pd-Ce based catalysts for low-temperature diesel exhaust oxidation", Emission Control Science and Technology, 3(1) 37-46, 2017.
108. C. Wang, C. Wen, J. Lauterbach, and E. Sasmaz, "Superior oxygen transfer ability of Pd/MnO_x-CeO_2 for enhanced low temperature CO oxidation activity", Applied Catalysis B, 206, 1-8, 2017.
109. C. Wang, J. Lauterbach, and E. Sasmaz, "In situ spectroscopic investigation of Pd local structure over Pd/CeO_2 and Pd/MnOx-CeO_2 during CO oxidation", Journal of Materials Chemistry A, 5, 12998-13008, 2017.
110. J. Wu, C. Wen, M. Liu, J. Jimenez, X. Zou, J. Sun, Y. Xia, M. Fonseca Rodrigues, S. Vinod, J. Zhong, N. Chopra, I.N. Odeh, G. Ding, J. Lauterbach, P.M. Ajayan, "Carbon Dioxide Hydrogenation over a Metal-Free Carbon Based Catalyst", ACS Catalysis, 7(7), 4497–4503, 2017
111. D. Kim, Y. Lee, Y. Kim, K. Mingle, J. Lauterbach, D. Blom, T. Vogt, Y. Lee, "Nanoparticles on Large-Pore Ag-LSX Zeolites formed by Pressure and Temperature Induced Auto-Reduction and their Catalytic Reactivity for Ethylene Epoxidation", Chemistry – A European Journal, 24(5), 1041–1045, 2018.

112. K. Mingle and J. Lauterbach, "Synthesis-Structure-Activity Relationships in Co_3O_4 Catalyzed CO Oxidation", Frontiers in Chemistry, 6, 185, 2018.
113. C.R. Thomas, J.A. Pihl, M.J. Lance, T.J. Toops, J.E. Parks II and J. Lauterbach, "Effects of Four-Mode Hydrothermal Aging on Three-Way Catalysts for Passive Selective Catalytic Reduction to Control Emissions from Lean-Burn Gasoline Engine", Applied Catalysis B, 244, 284, 2019.
114. J. Jimenez, K. Mingle, T. Bureerug, C. Wen, J. Lauterbach, "Statistically Guided Synthesis of MoV-Based Mixed Oxide Catalysts for Ethane Partial Oxidation", Catalysts, 8(9), 370, 2018 [selected as Feature Paper].
115. Y. Xi, W. Yang, S. Ammal, J. Lauterbach, Y. Pagan-Torres and A. Heyden, "Mechanistic study of the ceria supported, Re-catalyzed deoxydehydration of vicinal OH groups", Catalysis Science & Technology, 8, 5750, 2018.

Book Chapters

1. C.M. Snively and J. Lauterbach "FTIR imaging for chemically sensitive, high throughput analysis of combinatorial libraries", in "Combinatorial Catalysis and High Throughput Catalyst Design and Testing", Springer Netherlands, 2000.
2. J. Lauterbach, G. Oskarsdottir, and C.M. Snively, "Chemically sensitive high-throughput parallel analysis of resin bead supported combinatorial libraries" in "Combinatorial Approaches to Materials Development", Oxford University Press (ACS symposium series 814); 65-87, 2002.
3. S. Lasko, R. J. Hendershot, Y. Fu, M. Fellmann, G. Oskarsdottir, C. M. Snively, and J. Lauterbach, "Spectroscopic Imaging in the Mid-Infrared Applied to High Throughput Studies of Supported Catalyst Libraries" in "High-Throughput Analysis – A Tool for Combinatorial Materials Science", Kluwer Academic Press, December 2003.
4. R. J. Hendershot, C. M. Snively, and Jochen Lauterbach, "Combinatorial Approaches to catalyst Development" in "High-Throughput Materials Science", Kluwer Academic Press, 2004.
5. C.M. Snively and J. Lauterbach, "High-throughput Experimentation", in "Accelerating Catalyst and Process Development Using High Throughput and Combinatorial Methods", The Catalyst Group, 2004.
6. C.M. Snively and J. Lauterbach, "Combinatorial Approaches to Catalyst Development with Multichannel Detectors" chapter 6 in "Spectrochemical Analysis using Infrared Multichannel Detectors", Blackwell Publishing, 143-157, 2005
7. R. Vijay and J. Lauterbach, "Design of experiments combined with high-throughput experimentation for the optimization of $deNO_x$ catalysts" in "Past and Present in $DeNO_x$ catalysis: From molecular modeling to chemical engineering", Elsevier, 2007.
8. J. Bedenbaugh, S. Kim, E. Sasmaz, J. Hattrick-Simpers, and J. Lauterbach, "Discovery and Optimization of Coking and Sulfur Resistant Bi-Metallic Catalyst for Cracking JP-8: From Thin Film Libraries to Single Powders", in "Modern Applications of HT Experimentation in Heterogeneous Catalysis", Editors: Alfred Hagemeyer, Anthony F. Volpe, Bentham Publishers, 2014.
9. H.H. Rotermund und J. Lauterbach, "Non-linear Phenomena during Heterogeneously Catalyzed Reactions Exemplified by the CO Oxidation on Pt", Vol. 9 (Surface and

Interface Science: Solid-Gas Interfaces II) of Surface and Interface Science, Wiley-VCH Verlag, Editor: K. Wandelt, 2016.

Patents and Copyrighted Material

1. "Fast Fourier Transform Data Processing and Manipulation Software for Spectral Hypercube Imaging", Software Copyright, 1999.
2. "Method and Apparatus for Simultaneous Collection of Time Resolved Infrared Spectral Information From Multiple Samples", WO Patent, 2001006209, 2001.
3. "Method and Apparatus for Simultaneous Collection of Time Resolved Infrared Spectral Information From Multiple Samples", EP Patent, 1200795, 2002.
4. "Nitrogen Oxides Storage Catalysts Containing Cobalt", United States Patent 7,811,536, 2010.
5. "Self-Healing Catalysts: Co_3O_4 Nanorods for Fischer-Tropsch Synthesis", United States Patent, 9,169,167, issued Oct 27, 2015.
6. "One-Step Synthesis of Monodisperse Transition Metal Core-Shell Nanoparticles with Solid Solution Shells", United States Patent 9,205,410; issued December 8, 2015.
7. "Flexible Fuel Converter for Producing Liquefied Petroleum Gas from Transportation Fuels.", United States Patent, 9,855,540, issued January 2, 2018.
8. "One-Step Production of Long-Chain Hydrocarbons from Waste-Biomass-Derived Chemicals", United States Patent 9,890,342, issued February 13, 2018.
9. "Methods of Cracking a Platform Chemical Mixture to Liquefied Petroleum Gas and Aromatic Hydrocarbon Products" US Patent App. 14/593,086.
10. "Structurally Tunable Highly Active Metal Oxides for Tri-Reforming of Methane", US provisional patent application 62/595,152, January 2018.
11. "Ammonia Decomposition Catalysts and Systems", US provisional patent application 62/720,356, August 2018.
12. "ReO_x-Pd/CeO_2 Catalyst for the Hydrodeoxygenation of Xylitol", US provisional patent application 62/731,164, September 2018.
13. "Highly Active Decomposition Catalyst for low Carbon Hydrogen Production from Sulfur Containing Fuel", US Patent, issued November 2018.