

CURRICULUM VITAE - KERRY M. DOOLEY

CURRENT POSITION: BASF Professor
Dept. of Chemical Engineering, Louisiana State University
Baton Rouge, Louisiana 70803
Phone: (225) 578-3063; FAX: (225) 578-1476
E-MAIL: dooley@lsu.edu
Adjunct Professor, Dept. of Chemistry, LSU
Registered Professional Engineer, Louisiana
H-index – 33; i10-index – 71; total citations 2975 (Google Scholar)

EDUCATION: University of Delaware, Newark, Ph.D., Chemical Engineering, 1982. Dissertation: "Catalysis by Strong Acid Macroporous Polymers: Sulfonic Acids and Superacids on Poly(Styrene-Divinylbenzene)." Advisor: Bruce C. Gates.
Tulane University, New Orleans, M.Ch.E., 1978; B.S., 1976, Chemical Engineering.

EXPERIENCE:
Louisiana State University, Department of Chemical Engineering, Assistant Professor, 1983-1987; Associate Professor, 1987-1995; Professor, 1995-1998; BASF Professor, 1998-present. Adjunct in Chemistry, 2011-present.
University of Delaware, Department of Chemical Engineering, Instructor, 1982; Research Assistant, 1978-1981.
Tulane University, Department of Chemical Engineering, Teaching Assistant, 1978.
DuPont, Laplace, LA, Process Engineer, 1976-1977.
Union Carbide Corp., Seadrift, TX, Process Engineer, 1975.

PROFESSIONAL ORGANIZATIONS:

- (1) The American Institute of Chemical Engineers
- (2) The American Chemical Society
- (3) Tau Beta Pi
- (4) Omega Chi Epsilon
- (5) Registered Professional Engineer (Louisiana)
- (6) North American Catalysis Society

PUBLICATIONS AND PATENTS:

i. Books -

K.M. Dooley and G.L. Price (Eds.), "Gallium-Loaded Zeolites and Related Systems", Elsevier Science, Amsterdam, 1996.

J.J. Spivey and K.M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 19, Specialist Periodical Reports, Royal Society of Chemistry, 2006.

J.J. Spivey and K.M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 20, Specialist Periodical Reports, Royal Society of Chemistry, 2007.

J.J. Spivey and K.M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 21, Specialist Periodical Reports, Royal Society of Chemistry, 2009.

J.J. Spivey and K.M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 22, Specialist Periodical Reports, Royal Society of Chemistry, 2010. [[10.1039/9781847559630](https://doi.org/10.1039/9781847559630)]

J.J. Spivey and K.M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 23, Specialist Periodical Reports, Royal Society of Chemistry, 2011. [[10.1039/9781849732772](https://doi.org/10.1039/9781849732772)]

J.J. Spivey, Y.-F. Han and K. M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 25, Specialist Periodical Reports, Royal Society of Chemistry, 2013. [[10.1039/9781849737203](https://doi.org/10.1039/9781849737203)]

J.J. Spivey, Y.-F. Han and K. M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 26, Specialist Periodical Reports, Royal Society of Chemistry, 2014. [[10.1039/9781782620037](https://doi.org/10.1039/9781782620037)]

J.J. Spivey, Y.-F. Han and K. M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 27, Specialist Periodical Reports, Royal Society of Chemistry, 2015. [[10.1039/9781782622697](https://doi.org/10.1039/9781782622697)]

J.J. Spivey, Y.-F. Han and K. M. Dooley (Eds.), "Catalysis, A Review of Recent Literature", Vol. 28, Specialist Periodical Reports, Royal Society of Chemistry, 2016. [[10.1039/9781782626855](https://doi.org/10.1039/9781782626855)]

ii. **Book Chapters** -

K.M. Dooley, "Catalysis of Acid/Aldehyde/Alcohol Condensations to Ketones", in "Catalysis, A Review of Recent Literature", Vol. 17, Specialist Periodical Reports, Royal Society of Chemistry, London, 2004, pp. 293-319.

iii. **Articles in Refereed Journals** (*corresponding author; *undergraduate author*)

1. K.M. Dooley, J.A. Williams, B.C. Gates, and R.L. Albright, "Sulfonated Poly(Styrene-Divinylbenzene) Catalysts. II. Diffusion and the Influence of Macroporous Polymer Physical Properties on the Rate of Reesterification," J. Catal., 74, 361-372 (1982). [[10.1016/0021-9517\(82\)90041-0](https://doi.org/10.1016/0021-9517(82)90041-0)]

2. R.B. Diemer, Jr., K.M. Dooley, B.C. Gates, and R.L. Albright, "Sulfonated Poly(Styrene-Divinylbenzene) Catalysts. III. The Influence of Polymer Physical Properties on the Kinetics of Methanol Dehydration," J. Catal., 74, 373-381 (1982). [[10.1016/0021-9517\(82\)90042-2](https://doi.org/10.1016/0021-9517(82)90042-2)]

3. K.M. Dooley and B.C. Gates, "Preparation and Characterization of Polymer-Supported Superacid Catalysts," J. Polym. Sci.-Polym. Chem., 22, 2859-2870 (1984).

4. K.M. Dooley* and B.C. Gates, "Paraffin Isomerization Catalyzed by Polymer-Supported Superacids," J. Catal., 95, 347-356 (1985). [[10.1016/0021-9517\(85\)90304-5](#)]
5. B.O. Brady, C.-P. Kao, R.P. Gambrell, K.M. Dooley, and F.C. Knopf, "Supercritical Extraction of Toxic Organics from Soils," Ind. Eng. Chem. Research, 26, 261-268 (1987). [[10.1021/ie00062a014](#)]
6. K.M. Dooley*, S.R. Brodt, and F.C. Knopf, "Comments on Reactions in Supercritical Fluids-A Review," Ind. Eng. Chem. Research, 26, 1267 (1987). [[10.1021/ie00066a038](#)]
7. K.M. Dooley* and F.C. Knopf, "Oxidation Catalysis in a Supercritical Fluid Medium," Ind. Eng. Chem. Research, 26, 1910-1916 (1987). [[10.1021/ie00069a032](#)]
8. K.M. Dooley*, C.-P. Kao, R.P. Gambrell, and F.C. Knopf, "The Use of Entrainers in the Supercritical Extraction of Soils Contaminated with Hazardous Organics," Ind. Eng. Chem. Research, 26, 2058-2062 (1987). [[10.1021/ie00070a021](#)]
9. J.A. Maness, Jr. and K.M. Dooley*, "Paraffin Isomerization and Disproportionation Catalyzed by Pd-Loaded, Fluorided Mordenites," J. Catal., 117, 322-334 (1989). [[10.1016/0021-9517\(89\)90343-6](#)]
10. C.H. Cheng, K.M. Dooley, and G.L. Price, "The Role of Tellurium and Antimony in PtTe/Al₂O₃ and PtSb/Al₂O₃ Reforming Catalysts," J. Catal., 116, 325-337 (1989). [[10.1016/0021-9517\(89\)90100-0](#)]
11. V. Kanazirev, G.L. Price, and K.M. Dooley, "Enhancement in Propane Aromatization with Ga₂O₃/HZSM-5 Catalysts", J. Chem. Soc. Chem. Comm., 712-713 (1990).
12. K.M. Dooley, S.D. Brignac, and G.L. Price, "Kinetics of Zeolite-Catalyzed Toluene Disproportionation," Ind. Eng. Chem. Research, 29, 789-795 (1990). [[10.1021/ie00101a013](#)]
13. K.M. Dooley*, D. Ghonasgi, R.P. Gambrell, and F.C. Knopf, "Supercritical CO₂-Cosolvent Extraction of Contaminated Soils and Sediments", Environ. Progr., 9, 197-203 (1990).
14. D. Ghonasgi, S. Gupta, K.M. Dooley, and F.C. Knopf, "Measurement and Modeling of Supercritical Carbon Dioxide Extraction of Phenol from Water", J. Supercrit. Fluids, 4, 53-59 (1991).
15. S. Gupta, D. Ghonasgi, K.M. Dooley, and F.C. Knopf, "Supercritical Carbon Dioxide Extraction of a Phenolic Mixture from an Aqueous Waste Stream", J. Supercrit. Fluids, 4, 181-185 (1991).
16. D. Ghonasgi, S. Gupta, K.M. Dooley, and F.C. Knopf, "Supercritical Carbon Dioxide Extraction of Single Contaminants from Aqueous Waste Streams: Benzene, Phenol, p-Chlorophenol and m-Cresol", AIChE J., 37, 944-950 (1991).
17. M. Ye, F.C. Knopf, T.-H. Pang, and K.M. Dooley*, "Catalytic Oxidation of Model Waste Aromatic Hydrocarbons in a Supercritical Fluid," Chem. Eng. Comms., 110, 85-97 (1991).

18. V. Kanazirev, G.L. Price, and K.M. Dooley, "Preparation of Ga-Doped Zeolite Catalysts via Solid State Interaction Between Ga₂O₃ and HZSM-5 Zeolite," Stud. Surf. Sci. Catal., **69**, 277-285 (1991).
19. L.G. Butler, D.G. Cory, J.B. Miller, K.M. Dooley, and A.N. Garroway, "NMR Imaging of Anisotropic Solid-State Chemical Reactions," In Selectivity in Catalysis, S.L. Suib and M.E. Davis, Eds., ACS Books, Washington, D.C., 1992, p. 260-271.
20. L.G. Butler, D.G. Cory, K.M. Dooley, J.B. Miller, and A.N. Garroway, "NMR Imaging of Anisotropic Solid-State Chemical Reactions Using Multiple Pulse Line Narrowing Techniques and ¹H T₁ Weighting," J. Amer. Chem. Soc., **114** 125-135 (1992).
21. K.M. Dooley*, C. Chang, and G.L. Price, "Effects of Pretreatments on State of Gallium and Aromatization Activity of Gallium/ZSM-5 Catalysts," Appl. Catal. A., **84**, 17-30 (1992).
22. K.M. Dooley* and J.R.H. Ross, "Potassium/Calcium/Nickel Oxide Catalysts for Oxidative Coupling of Methane," Appl. Catal. A., **90**, 159-174 (1992).
23. S. Gupta, K.M. Dooley and F.C. Knopf, "Reply to the Letter of Salim [AIChE J., **39**, 724 (1993)]," AIChE J., **39**, 924 (1993).
24. K. Dooley*, C. Chang, V. Kanazirev and G. Price, "Pretreatment Effects on Active State and Aromatization Activity of Ga/ZSM-5 Catalysts," Stud. Surf. Sci. Catal., **75**, 2415-2418 (1993).
25. K.M. Dooley*, S.-Y. Chen and J.R.H. Ross, "Stable Nickel-Containing Catalysts for the Oxidative Coupling of Methane," J. Catal., **145**, 402-408 (1994). [[10.1006/jcat.1994.1050](#)]
26. V. Kanazirev, K.M. Dooley and G.L. Price, "Thermal Analysis of Adsorbed Propanamines for the Characterization of Ga-MFI Zeolites," J. Catal., **146**, 228-236 (1994). [[10.1016/0021-9517\(94\)90026-4](#)]
27. Kanazirev, G.L. Price and K.M. Dooley*, "Change in the Decomposition Mode of 1-Propanamine Due to the Presence of Cations in MFI Zeolite," Catal. Lett., **24**, 227-233 (1994).
28. V. Kanazirev, G.L. Price and K.M. Dooley, "On the Interaction of 1-Propanamine with Cation-Containing MFI Zeolite," J. Catal., **148**, 164-180 (1994). [[10.1006/jcat.1994.1198](#)]
29. W. Feng, F.C. Knopf and K.M. Dooley*, "The Effects of Pressure, Third Bodies, and Temperature Profiling on the Noncatalytic Partial Oxidation of Methane," Energy and Fuels, **8**, 815-822 (1994). [[10.1021/ef00046a001](#)]
30. S. Sengupta, S. Gupta, K.M. Dooley and F.C. Knopf, "Measurement and Modelling of Extraction of Chlorinated Hydrocarbons from Water with Supercritical Carbon Dioxide," J. Supercrit. Fluids, **7**, 201-209 (1994).
31. R.D. Samarth, S.-Y. Chen and K.M. Dooley*, "Dual-Bed Strategies to Improve Hydrocarbon Yields in the Oxidative Coupling of Methane," Appl. Catal. B., **5**, 71-88 (1994).

32. A. Toebe, K.M. Dooley and J.R.H. Ross, "Oxidative Coupling of Methane over K/Ca/Ni Oxide and K/Ni/Mg Oxide Catalysts," Catal. Today, **21** (2-3), 401-408 (1994).
33. G.L. Price, V.I. Kanazirev and K.M. Dooley, "Characterization of [Ga]MFI via Thermal Analysis," Zeolites, **15**, 725-731 (1995).
34. K.M. Dooley*, *D. Launey, J.M. Becnel* and T.L. Caines, "Measurement and Modeling of Supercritical Fluid Extraction from Polymeric Matrices," ACS Symp. Ser. #608, "Innovations in Supercritical Fluids" (K.W. Hutchenson and N.R. Foster, Eds.), ACS, Washington, 1995, pp. 269-280.
35. K.M. Dooley*, T.F. Guidry and G.L. Price, "Control of Intrazeolitic Gallium Cation Content and Its Effects on C₂ Dehydrogenation in Ga-MFI Catalysts," J. Catal., **157**, 66-75 (1995). [[10.1006/jcat.1995.1268](#)]
36. K.M. Dooley*, G.L. Price, V.I. Kanazirev and V.I. Hart, "Gallium-Loaded Zeolites for Light Paraffin Aromatization: Evidence for Exchanged Gallium Cation Active Centers," Catal. Today, **31**, 305-315 (1996).
37. K.M. Dooley and G.L. Price, "Prologue: Gallium-Loaded Zeolites and Related Systems," Catal. Today, **31**, 189-190 (1996).
38. R. Carli, V. Ragaini, M. Guisnet, N.S. Gnep, K.M. Dooley, G.L. Price, V.I. Kanazirev, V.I. Hart, G. Gianetto and G. Lehn, "Aromatisation of propane over Ga/H-ZSM-5: comments on the activation of propane," Catal. Today, **31**, 351-352 (1996).
39. K.M. Dooley, A.W. Cain and F.C. Knopf, "Supercritical Fluid Extraction of Acetic Acid, Alcohols and Other Amphiphiles from Acid/Water Mixtures," J. Supercrit. Fluids, **11**, 81-89 (1997).
40. G.L. Price, V. Kanazirev, K.M. Dooley and V.I. Hart, "On the Mechanism of Propane Dehydrocyclization over Cation (Ga, Cu, In)-Containing, Proton-Poor MFI Zeolites", J. Catal., **173**, 17-27 (1998). [[10.1006/jcat.1997.1891](#)]
41. J.M. Becnel and K.M. Dooley*, "Supercritical Fluid Extraction of Polycyclic Aromatic Hydrocarbon Mixtures from Contaminated Soils", Ind. Eng. Chem. Res., **37**, 584-594 (1998). [[10.1021/ie9704105](#)]
42. V.I. Hart, M.G. Bryant, L.G. Butler, X. Wu and K.M. Dooley*, "Proton-Poor, Gallium- and Indium-Loaded Zeolites as Dehydrogenation Catalysts", Catal. Lett., **55**, 111-118 (1998).
43. F.C. Knopf, A. Roy, *H.A. Samrow* and K.M. Dooley*, "High-Pressure Molding and Carbonation of Cementitious Materials", Ind. Eng. Chem. Res., **38**, 2641-2649 (1999). [[10.1021/ie980705y](#)]
44. S.D. Randery, J.S. Warren and K.M. Dooley*, "Cerium oxide-based catalysts for production of ketones by acid condensation", Applied Catalysis A, **226**, 265-280 (2002).
45. B.P. Guilbeau, F.P. Harry, R.P. Gambrell, F.C. Knopf and K.M. Dooley*, "Algae Attachment on Carbonated Cements in Fresh and Brackish Waters - Preliminary Results", Ecol. Eng., **20**, 309-319 (2003).

46. T.S. Hendren and K.M. Dooley*, "Kinetics of Catalyzed Acid/Acid and Acid/Aldehyde Condensation Reactions to Non-Symmetric Ketones", Catal. Today, **85**, 333-351 (2003).
47. R. Li, A.B. Corripio, K.M. Dooley, M.A. Henson and M.J. Kurtz, "Dynamic Modeling of Crosslinking and Gelation in Continuous Ethylene--Propylene-Diene Polymerization Reactors Using the Pseudo-Kinetic Constant Approach", Chem. Eng. Sci., **59**, 2297-2313 (2004).
48. Y. Song, K.T. Hart and K.M. Dooley*, "Waste-Reducing Catalysis for Acylation of a Secondary Amine: Synthesis of DEET", Catal. Lett., **98**, 69-75 (2004).
49. K.M. Dooley*, A.K. Bhat, C.P. Plaisance and A.D. Roy, "Methylketones from Acid Condensation Using Metal/CeO₂ Catalysts", Appl. Catal. A: General, **320**, 122-133 (2007). [[doi:10.1016/j.apcata.2007.01.021](https://doi.org/10.1016/j.apcata.2007.01.021)]
50. A.G. Bussard and K.M. Dooley*, "Polymer Hydrogenation in Pulsed Flow Systems with Extrusion," AIChE J., **54**, 1064-1072 (2008).
51. A.G. Bussard, Y.G. Waghmare, K.M. Dooley and F.C. Knopf, "Hydrogenation of Alpha-methyl Styrene in a Piston Oscillating Monolith Reactor," Ind. Eng. Chem. Res., **47**, 4623-4631 (2008). [[10.1021/ie701708w](https://doi.org/10.1021/ie701708w)]
52. P.S. Russo, K.M. Dooley, V.L. Licata and E. Kennedy, "Craft-Based IGERT Experiment in Graduate Macromolecular Studies," J. Macromol. Sci., Part C, **48**, 653-673 (2008).
53. C.P. Plaisance and K.M. Dooley*, "Zeolite and Metal Oxide Catalysts for the Production of Dimethyl Sulfide and Methanethiol," Catal. Lett., **128**, 449-458 (2009). [[10.1007/s10562-008-9772-2](https://doi.org/10.1007/s10562-008-9772-2)]
54. Y.G. Waghmare, A.G. Bussard, R.V. Forest, F.C. Knopf and K.M. Dooley*, "Partial Hydrogenation of Soybean Oil in a Piston Oscillating Monolith Reactor," Ind. Eng. Chem. Res., **49**, 6323-6331 (2010). [[10.1021/ie902000e](https://doi.org/10.1021/ie902000e)]
55. K.M. Dooley*, V. Kalakota, and S. Adusumilli, "High-Temperature Desulfurization of Gasifier Effluents with Rare Earth and Rare Earth/Transition Metal Oxides," Energy Fuels, **25**, 1213-1220 (2011). [[10.1021/ef101487v](https://doi.org/10.1021/ef101487v)]
56. S. Karmakar, J. Hanberry, K.M. Dooley, S. Acharya, "Combustion of Commercially Available Boron Nanoparticles - Particle Characterization," Intl. J. Energetic Mater. & Chem. Propulsion, **10**, 1-17 (2011). [[10.1615/IntJEnergeticMaterialsChemProp.2012002669](https://doi.org/10.1615/IntJEnergeticMaterialsChemProp.2012002669)]
57. A.D. Mayernick, R. Li, K.M. Dooley and M.J. Janik, "Energetics and Mechanism for H₂S Adsorption by Ceria-Lanthanide Mixed Oxides: Implications for the Desulfurization of Biomass Gasifier Effluents", J. Phys. Chem. C, **115**, 24178-24188 (2011). [[10.1021/jp206827n](https://doi.org/10.1021/jp206827n)]
58. S. Karmakar, S. Acharya and K.M. Dooley, "Ignition and Combustion of Boron Nanoparticles in Ethanol Spray Flame," J. Propulsion and Power **28**, 707-718 (2012). [[10.2514/1.B34358](https://doi.org/10.2514/1.B34358)]

59. R. Li, M.D. Krcha, M.J. Janik, A.D. Roy and K.M. Dooley*, "Ce-Mn Oxides for High-Temperature Gasifier Effluent Desulfurization," Energy Fuels, 26, 6765-6776 (2012). [[10.1021/ef301386f](#)]
60. M.S. Syed, J.R. Punuru, K.M. Dooley and F.C. Knopf, "A Readily Accessible Platform for Detailed Combustion Emissions Calculations," Intl. J. Mech. Eng. Educ. 40, 289–304 (2012).
61. S. Karmakar, N. Wang, S. Acharya and K.M. Dooley*, "Effects of Rare-earth Oxide Catalysts on the Ignition and Combustion Characteristics of Boron Nanoparticles," Combust. Flame, 160, 3004–3014 (2013). [[10.1016/j.combustflame.2013.06.030](#)]
62. C. Zhou, S. Lee, K. Dooley and Q. Wu, "A facile approach to fabricate porous nanocomposite gels based on partially hydrolyzed polyacrylamide and cellulose nanocrystals for adsorbing methylene blue at low concentrations," J. Hazard. Mater. 263, 334-341 (2013). [[10.1016/j.jhazmat.2013.07.047](#)]
63. K.M. Dooley*, D. Liu, A.M. Madrid and F.C. Knopf, "Oxidative desulfurization of diesel with oxygen: reaction pathways on supported metal and metal oxide catalysts," Appl. Catal. A, Gen. 468, 143-149 (2013). [[10.1016/j.apcata.2013.08.013](#)]
64. M.S. Syed, K.M. Dooley, F.C. Knopf, M.R. Erbes and F. Madron, "Data Reconciliation and Suspect Measurement Identification for Gas Turbine Cogeneration Systems," J. of Engineering for Gas Turbines and Power 135, 091701-1-10 (2013).
65. R. Li, A. Roy, J. Bridges and K.M. Dooley*, "Tar Reforming in Model Gasifier Effluents: Transition Metal/Rare Earth Oxide Catalysts," Ind. Eng. Chem. Res. 53, 7999–8011 (2014) [[10.1021/ie500744h](#)]
66. J. Spivey, P. de Jongh, M. Janik, C. Kumar, K. Dooley, J. Flake, L. Haber, S.B. Sinnott, T. Liang, D. Sholl, T. Manz, U. Diebold, G. Parkinson, D. Bruce, Y. Xu and S.K. Katla, "Synthesis, Characterization and Computation of Catalysts at the Center for Atomic-level Catalyst Design," J. Phys. Chem. C (2014) 118, 20043-20069 [[10.1021/jp502556u](#)].
67. J. Zhao, R. Huang, H. He, W. Gao, J-M. Zuo, X. Zhang, T.S. Mixture, Y. Chen, J. Lockard, B. Zhang, S. Guo, M.R. Khoshi, K. Dooley and Y. Wang, "Ion-Exchange Promoted Phase Transition in Li-Excess Layered Cathode Material for High-Performance Lithium Ion Batteries," Adv. Energy Mater., 1401937 (2015). [[10.1002/aenm.201401937](#)]
68. K. Song, Q. Wu, Z. Zhang, S. Ren, T. Lei, K. Dooley, D. Liu, M. Janes, "Fabricating electrospun nanofibers with antimicrobial capability: A facile route to recycle biomass tar," Fuel, 150, 123–130 (2015). [[10.1016/j.fuel.2015.02.025](#)]
69. M. Krcha, K. Dooley, and M. Janik, "Alkane Reforming on Partially Sulfided CeO₂ (1 1 1) Surfaces," J. Catal., 330, 167-176 (2015). [[10.1016/j.jcat.2015.07.002](#)]
70. J.E. Bruno and K.M. Dooley*, "Double-Bond Isomerization of Hexadecenes with Solid Acid Catalysts," Appl. Catal. A: Gen., 497, 176-183 (2015). [[10.1016/j.apcata.2015.03.009](#)]
71. W Xu, Z. Xie, X. Cui, K. Zhao, L. Zhang, G. Dietrich, K.M. Dooley, and Y. Wang, "Hierarchical Graphene-Encapsulated Hollow SnO₂@SnS₂ Nanostructures with Enhanced

Lithium Storage Capability,” *ACS Appl. Mater. Interfaces*, 7, 22533-22541 (2015). [[10.1021/acsami.5b06765](https://doi.org/10.1021/acsami.5b06765)].

72. Y. Song, K.T. Hart and K.M. Dooley, “Waste-Reducing Catalytic Process for m-Xylene Oxidation to m-Toluic Acid,” *Catal. Lett.* 146, 1213-1220 (2016). [[10.1007/s10562-016-1746-1](https://doi.org/10.1007/s10562-016-1746-1)]

73. C. Rosu, A.J. Gorman, R. Cueto, K.M. Dooley and P.S. Russo, “Modelling the Internal Architecture of Fluorescent Silica Particles via a Template-Free Approach,” *J. Colloid Interface Sci.*, 467, 321-334 (2016). [[10.1016/j.jcis.2016.01.007](https://doi.org/10.1016/j.jcis.2016.01.007)]

74. M. Syed, K.M. Dooley, F. Madron and F.C. Knopf, “Enhanced Turbine Monitoring Using Emissions Measurements and Data Reconciliation,” *Appl. Energy*, 173, 355-365 (2016). [[10.1016/j.apenergy.2016.04.059](https://doi.org/10.1016/j.apenergy.2016.04.059)]

75. J.E. Bruno and K.M. Dooley*, “Regeneration of a Supported Nafion® Catalyst for the Double-Bond Isomerization of Octadecenes,” *Appl. Catal. A: Gen.*, 526, 70-76 (2016). [[10.1016/j.apcata.2016.08.009](https://doi.org/10.1016/j.apcata.2016.08.009)]

76. J. Lee, R. Li, M.J. Janik and K.M. Dooley*, “Rare Earth/Transition Metal Oxides for Syngas Tar Reforming: A Model Compound Study,” *Ind. Eng. Chem. Res.*, 57, 6131-6140 (2018). [[10.1021/acs.iecr.8b00682](https://doi.org/10.1021/acs.iecr.8b00682)]

77. M. Shahami, K.M. Dooley and D.F. Shantz, “Steam-Assisted Crystallized Fe-ZSM-5 Materials and Their Unprecedented Activity in Benzene Hydroxylation to Phenol using Hydrogen Peroxide,” *J. Catal.*, 368, 354–364 (2018). [[10.1016/j.jcat.2018.10.011](https://doi.org/10.1016/j.jcat.2018.10.011)]

78. K.M. Dooley* and M.G. Benton, “Single and Two-phase Flow in a Packed Bed Reactor,” *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10431/single-and-two-phase-flow-in-a-packed-bed-reactor>]

79. K.M. Dooley* and M.G. Benton, “Catalytic Reactor: Hydrogenation of Ethylene,” *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10427/catalytic-reactor-hydrogenation-of-ethylene>]

80. K.M. Dooley* and M.G. Benton, “Crystallization of Salicylic Acid via Chemical Modification,” *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10407/crystallization-of-salicylic-acid-via-chemical-modification>]

81. K.M. Dooley* and M.G. Benton, “Demonstration of the Power Law Model Through Extrusion,” *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10382/demonstration-of-the-power-law-model-through-extrusion>]

82. K.M. Dooley* and M.G. Benton, “Liquid Phase Reactor: Sucrose Inversion,” *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10408/liquid-phase-reactor-sucrose-inversion>]

83. K.M. Dooley* and M.G. Benton, “Efficiency of Liquid-liquid Extraction,” *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10426/efficiency-of-liquid-liquid-extraction>]

84. K.M. Dooley* and M.G. Benton, "The Effect of Reflux Ratio on Distillation Efficiency," *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10432/the-effect-of-reflux-ratio-on-tray-distillation-efficiency>]
85. M.G. Benton and K.M. Dooley, "Vapor-liquid Equilibrium," *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10425/vapor-liquid-equilibrium>]
86. M.G. Benton and K.M. Dooley, "Testing the Heat Transfer Efficiency of a Finned-tube Heat Exchanger," *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10437/testing-the-heat-transfer-efficiency-of-a-finned-tube-heat-exchanger>]
87. K.M. Dooley* and M.G. Benton, "Kinetics of Addition Polymerization to Polydimethylsiloxane," *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10369/kinetics-of-addition-polymerization-to-polydimethylsiloxane>]
88. M.G. Benton and K.M. Dooley, "Gas Absorber," *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10436/gas-absorber>]
89. M.G. Benton and K.M. Dooley, "Using a Tray Dryer to Investigate Convective and Conductive Heat Transfer," *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10438/using-tray-dryer-to-investigate-convective-conductive-heat>]
90. M.G. Benton and K.M. Dooley, "Evaluating the Heat Transfer of a Spin-and-Chill," *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10440/evaluating-the-heat-transfer-of-a-spin-and-chill>]
91. M.G. Benton and K.M. Dooley, "Viscosity of Propylene Glycol Solutions," *J. Vis. Exp.* 2018. [<https://www.jove.com/science-education/10439/viscosity-of-propylene-glycol-solutions>]
92. K.M. Dooley* and M.G. Benton, "Porosimetry of a Silica-Alumina Powder," *J. Vis. Exp.* 2018 [<https://www.jove.com/science-education/10383/porosimetry-of-a-silica-alumina-powder>]
93. P. Darapaneni, N.S. Moura, D. Harry, D.A. Cullen, K.M. Dooley, and J.A. Dorman, "Effect of Moisture on Dopant Segregation in Solid Hosts," *J. Phys. Chem. C*, 123, 12234-12241 (2019). [[doi/10.1021/acs.jpcc.9b01067](https://doi.org/10.1021/acs.jpcc.9b01067)]
94. C. Jiang, M.R. Akkullu, B. Li, J.C. Davila, M.J. Janik and K.M. Dooley*, "Rapid Screening of Ternary Rare-Earth – Transition Metal Catalysts for Dry Reforming of Methane and Characterization of Final Structures," *J. Catal.*, 377, 332-342 (2019). [[10.1016/j.jcat.2019.07.020](https://doi.org/10.1016/j.jcat.2019.07.020)]
95. L. Wang, S. Deo, K. Dooley, M.J. Janik and R.M. Rioux, "Influence of Metal Nuclearity and Physicochemical Properties of Ceria on the Oxidation of Carbon Monoxide," *Chin. J. Catal.*, 41, 951-962 (2020). [[10.1016/S1872-2067\(20\)63557-4](https://doi.org/10.1016/S1872-2067(20)63557-4)]
96. B. Safavinia, Y. Wang, C. Jiang, C. Roman, P. Darapaneni, J. Larriviere, D.A. Cullen, K.M. Dooley and J.A. Dorman, "Role of Subsurface Dopants for Enhanced Activities in Redox Catalysts," *ACS Catal.* 10, 4070–4079 (2020). [[10.1021/acscatal.0c00203](https://doi.org/10.1021/acscatal.0c00203)]

97. C. Cooper, K.M. Dooley*, J.C. Fierro-Gonzalez, J. Guzman, R. Jentoft, H.H. Lamb, I. Ogino, R.C. Runnebaum, A. Sapre and A. Uzun, "Bruce Gates: A Career in Catalysis," ACS Catal. **10**, 11912–11935 (2020). [[10.1021/acscatal.0c03568](https://doi.org/10.1021/acscatal.0c03568)]
98. N.S. Moura, K.R. Bajgiran, C.L. Roman, L. Daemen, Y. Cheng, J. Lawrence, A.T. Melvin, K.M. Dooley, and J.A. Dorman, "Catalytic Enhancement of Inductively Heated Fe₃O₄ Nanoparticles by Removal of Surface Ligands," ChemSusChem, **13**, 1-10 (2020). [[10.1002/cssc.202002775](https://doi.org/10.1002/cssc.202002775)]
99. C. Jiang, E. Loisel, D.A. Cullen, J.A. Dorman and K.M. Dooley*, "On the Enhanced Sulfur and Coking Tolerance of Ni-Co-Rare Earth Oxide Catalysts for the Dry Reforming of Methane," J. Catal. **393**, 215-229 (2021) [[10.1016/j.jcat.2020.11.028](https://doi.org/10.1016/j.jcat.2020.11.028)]
100. D. A. Norena-Caro, C. Zuniga, A.J. Pete, S.A. Saemundsson, M.R. Donaldson, A.J. Adams, K.M. Dooley, K. Zengler and M. G. Benton, "Analysis of the cyanobacterial amino acid metabolism with a precise genome-scale metabolic reconstruction of Anabaena sp. UTEX 2576," Biochem. Eng. J. **171** (2021) [[10.1016/j.bej.2021.108008](https://doi.org/10.1016/j.bej.2021.108008)]
101. B. Whajah, N. da Silva Moura, J. Blanchard, S. Wicker, K. Gandar, J.A. Dorman and K.M. Dooley*, "Catalytic Depolymerization of Waste Polyolefins by Induction Heating: Selective Alkane/Alkene Production," Ind. Eng. Chem. Res. **60**, 15141-15150 (2021) [[10.1021/acs.iecr.1c02674](https://doi.org/10.1021/acs.iecr.1c02674)]
102. N.S. Moura, K.R. Bajgiran, A.T. Melvin, K.M. Dooley, and J.A. Dorman, "Direct Probing of Fe₃O₄ Nanoparticle Surface Temperatures during Magnetic Heating: Implications for Induction Catalysis," ACS Appl. Nano Mater. **4**, 13778–13787 (2021) [[10.1021/acsanm.1c03168](https://doi.org/10.1021/acsanm.1c03168)]
103. Y. Ma, G. Nagy, M. Siebenbürger, R. Kaur, K.M. Dooley and B. Bharti, "Adsorption and Catalytic Activity of Gold Nanoparticles in Mesoporous Silica: Effect of Pore Size and Dispersion Salinity," J. Phys. Chem. C **126**, 5, 2531–2541 (2022) [[10.1021/acs.jpcc.1c09573](https://doi.org/10.1021/acs.jpcc.1c09573)]
104. C.L. Roman, N.S. Moura, S. Wicker, K.M. Dooley,* and J.A. Dorman, "Induction Heating of Magnetically Susceptible Nanoparticles for Enhanced Hydrogenation of Oleic Acid," ACS Appl. Nano Mater. (2022) [[10.1021/acsanm.1c04351](https://doi.org/10.1021/acsanm.1c04351)]

iv. **Patents**

1. G.L. Price, V.I. Kanazirev, and K.M. Dooley, "Gallium-Containing Zeolite Catalysts," U.S. Patent No. 5,149,679 (1992).
2. G.L. Price, V.I. Kanazirev, and K.M. Dooley, "Gallium-Containing Zeolite Catalysts," European Patent Application PCT-US91-02482 (1993).
3. F.C. Knopf and K.M. Dooley, "Pressure-Assisted Molding and Carbonation of Cementitious Materials", U.S. Patent No. 6,264,736 (2001).

4. F.C. Knopf and K.M. Dooley, "Pressure-Assisted Molding and Carbonation of Cementitious Materials", U.S. Patent No. 6,387,174 (2002).

v. **Refereed Bulletins** - None.

vi. **Conference Proceedings (refereed only; other Proceedings appear under Conference Presentations)**

1. B.O. Brady, R.P. Gambrell, K.M. Dooley, F.C. Knopf, "Supercritical Fluid Extraction of Hazardous Waste from contaminated Soils," Abstr. Pap. ACS, 190, 91-ENR (1985).

2. F.C. Knopf and K.M. Dooley, "Supercritical Extraction and Catalytic Oxidation of Toxic Organics from Soils," Proceedings, 13th Annual EPA Hazardous Waste Research Symposium, Cincinnati, 1987.

3. K.M. Dooley, R. Gambrell and F.C. Knopf, "Supercritical Fluid Extraction and Catalytic Oxidation of Toxic Organics from Soils," Proceedings, 2nd International Conference on New Frontiers in Hazardous Waste Management, pp. 383-397 (1987).

4. F.C. Knopf, T.-H. Pang, and K.M. Dooley, "Catalyzed Reactions of Alkylaromatic Hydrocarbons Dissolved in Supercritical Fluids," Prepr.-ACS Div. Fuel Chem., 32, 359-363 (1987).

5. F.C. Knopf and K.M. Dooley, "Extraction of Pesticides from Solid Matrices Using Supercritical Fluids," Abstr. Pap. ACS, 196, 143-AGRO (1988).

6. C.Y. Chang and K.M. Dooley, "Diffusivity Estimation in Zeolites by a Kinetics TPD Technique," Abstr. Pap. ACS, 196, 262-COLL (1988).

7. L.G. Butler, D.G. Cory, K.M. Dooley, J.B. Miller and A.N. Garroway, "NMR Imaging of Anisotropic Solid-State Chemical Reactions Using Multiple-Pulse Line Narrowing Techniques and ¹H-T1 Weighting," Abstr. Pap. ACS, 202, 22-CATL.Pt. 1 (1991).

8. K.M. Dooley and J.R.H. Ross, "Potassium/Calcium/Nickel Oxide Catalysts for Oxidative Coupling of Methane", "Potassium/Calcium/Nickel Catalysts for Oxidative Coupling of Methane," Prepr. ACS Div. Petrol. Chem., 37, 93 (1992).

9. K.M. Dooley, C. Chang, V. Kanazirev and G.L. Price, "Pretreatment Effects on Active State and Aromatization Activity of Ga/ZSM-5 Catalysts," Proc. 10th Intl. Conference on Catalysis, Budapest, 1992, p. 2415-2418.

10. G.L. Price and K.M. Dooley, "Gallium Zeolites for Light Paraffin Aromatization," 9th DOE-BES workshop in Catalysis and Surface Science, Milwaukee, 1994, p. 120-122.

11. K.M. Dooley, T.F. Guidry, V.I. Hart, L.G. Butler, V. Kanazirev and G.L. Price, "Control of Intrazeolitic Ga and In Cation Content and Its Effects on Alkane Dehydrogenations in Pentasilis", Proc. 14th North American Meeting, Catalysis Society, Snowbird, 1995.

12. J.M. Becnel, P. Kim and K.M. Dooley, "Supercritical Fluid Extraction of Aromatic and Chlorinated Hydrocarbon Mixtures from Heavily Contaminated Soils," American Chemical Society Emerging Technologies in Hazardous Waste Management VIII, 1996, p. 203-205.

13. K.M. Dooley and S.D. Randery, "Ceria-Based Catalysts for Asymmetric Ketone Synthesis," Proc. 16th North American Meeting, Catalysis Society, Boston, 1999.
14. K.M. Dooley, "Mating the Unit Operations Lab to the Entire Upper-Level Curriculum," Proceedings, Chemical Engineering in the New Millennium Topical Conference, AIChE Annual 2000, Los Angeles.
15. K.M. Dooley, T.S. Hendren, S.D. Randery, "New Catalysts for Acid/Acid and Acid/Aldehyde Condensations," Proceedings, 17th North American Meeting, Catalysis Society, Toronto, 2001.
16. K.M. Dooley, "Kinetics Experiments with Exxon Reactor," Proceedings, ASEE Summer School, 2002, "Electronic Manual for Unit Operations Laboratory".
17. K.M. Dooley, Y. Song, R.M. Iyer and J.S. Warren, "Waste-Reducing Catalytic Processes for Amidation and Alkylaromatic Oxidation," Proceedings, 18th North American Meeting, Catalysis Society, Cancun, 2003.
18. K.M. Dooley, A.K. Bhat, A.D. Roy and C.P. Plaisance, "Ketones from Acid/Aldehyde Condensation Using Metal/CeO₂ Catalysts," Proceedings, 19th North American Meeting, Catalysis Society, Philadelphia, 2005.
19. J.A. Muss, R.C. Farmer, R.W. Pike, C.E. O'Quin and K.M. Dooley, "Decomposition Kinetics for Hydrogen Peroxide," Proceedings, JANNAF 40th CS/28APS/22nd PSHS/4th MMS Joint Meeting, Charleston, 2005.
20. A.G. Bussard and K.M. Dooley, "Heterogeneous catalyzed polymer hydrogenation in an oscillating microreactor," Polymer Prepr. (ACS Div. Polymer Chem.), 47(1), 22-23 (2006).
21. A.G. Bussard and K.M. Dooley, "Polymer hydrogenation by reactive extrusion: pulsed and continuous flow systems," Proceedings, 2nd North American Society of Chemical Reaction Engineering Conference, Houston, 2007.
22. A.G. Bussard, Y. Waghmare, F.C. Knopf and K.M. Dooley, "Catalysis in Structured Pulsed Reactors – Low- and High-Molecular Weight Hydrogenations," Proceedings, 20th North American Meeting, Catalysis Society, Houston, 2007.
23. K.M. Dooley, S. Adusumilli and V. Kalakota, "Desulfurization of and Tar Removal from Gasifier Effluents Using Mixed Rare Earth Oxides," Proceedings, 21st North American Meeting, Catalysis Society, San Francisco, 2009.
24. K.M. Dooley, F. C. Knopf, A.G. Bussard, Y.G. Waghmare, D. Liu, and R.V. Forest, "Enhanced Rates of Gas-Liquid Reactions in a Piston Oscillating Monolith Reactor," Proceedings, ISCRE 21, Philadelphia, 2010.
25. S. Karmakar, K. Dooley, S. Acharya, "Combustion of Boron Nano-Particles in Ethanol Spray Flame," Proceedings, ASME 2010 IMECE, Vancouver, 2010, paper no. IMECE2010-37450.
26. D. Liu, J. Yakshimuradova, R. Forest, F.C. Knopf, and K. Dooley, "Catalytic Oxidative Desulfurization of Model Diesel," Proceedings, AIChE Annual, Salt Lake City, 2010.

27. S. Acharya, S. Karmakar, K.M. Dooley, and J. Hanberry, "Catalytic/Energetic Nanoparticles for Enhanced Combustion Performance," Proceedings of the Advanced Propulsion Meeting, Office of Naval Research (ONR), 2010 Annual Review, Arlington, VA.
28. K.M. Dooley, D. Liu, J. Bridges, A. Madrid and F. Carl Knopf, "Catalytic Oxidative Desulfurization of Model Diesel," Proceedings 22nd North American Meeting, Catalysis Society, Detroit, 2011.
29. R. Li, W. Kong and K.M. Dooley, "Mixed Rare Earth Oxides for Desulfurization and Tar Removal from Gasifier Effluents," Proceedings 22nd North American Meeting, Catalysis Society, Detroit, 2011.
30. M.J. Janik, M. Krcha, A.D. Mayernick and K.M. Dooley, "Density functional theory studies of doped ceria systems: Alkane oxidation and desulfurization," Abstracts of Papers of the American Chemical Society, 242 (84-PETR), 2011.
31. M.D. Krcha, M.J. Janik and K.M. Dooley, "Evaluation of Density Functional Theory (DFT+U) to Describe Doped Cerium Oxide Surfaces," AIChE Annual Meeting, Minneapolis, 2011.
32. M. Krcha, A. Mayernick, M. Janik, R. Li and K. Dooley, "Transition metal-doped CeO₂ for use in biomass gasifier effluent clean-up," ACS Fall Meeting (Preprints, Energy and Fuels Div.), Philadelphia, 2012.
33. R. Li, M.D. Krcha, M.J. Janik, A. Roy and K.M. Dooley, "Rare Earth/Transition Metal Oxides for Syngas Cleanup," ACS Spring Meeting (Preprints, Energy and Fuels Div.), New Orleans, 2013.
34. J. Bruno and K.M. Dooley, "Catalysts for the Positional Isomerization of Long-Chain Olefins," Proceedings, 23rd North American Meeting, Catalysis Society, Louisville, 2013.
35. K. Dooley, R. Li, M. Janik, M. Krcha, J. Lee and N. Seetala, "Hydrocarbon Reforming on Transition Metal/Rare Earth Oxide Catalysts: Experimental and DFT Studies," Proceedings, 24th North American Meeting, Catalysis Society, Pittsburgh, 2015.
36. J. Lee, K.M. Dooley, F. Madron and F.C. Knopf. "Energy Sustainability Remote Laboratory (ESRL), Proceedings, 123rd ASEE Annual Conference, New Orleans, 2016.
37. K. Dooley, J. Lee, R. Li, M. Krcha and M. Janik "Design of Rare Earth/Transition Metal Oxides for Syngas Tar Reforming," Proceedings, 25th North American Catalysis Society, Denver, 2017.
38. M. Shahami, K.M. Dooley and D.F. Shantz, "Steam-Assisted Crystallized Fe-ZSM-5 Materials and Their Unprecedented Activity in Benzene Hydroxylation to Phenol Using Hydrogen Peroxide," Proceedings, 26th North American Meeting, North American Catalysis Society, Chicago, 2019.
39. 112. C. Jiang, J. Lee, B. Li, M.J. Janik and K.M. Dooley, "Ternary Oxides for Dry Reforming of Methane: Rapid Screening of Rare-Earth - Transition Metal Catalysts and

Sulfur Tolerance Evaluation," Proceedings, 26th North American Meeting, North American Catalysis Society, Chicago, 2019.

OTHER SCHOLARLY CONTRIBUTIONS

T. Baldwin and K.M. Dooley, "Chemical Engineering: Profession of the Future," a recruiting videotape (production and script).

Session Chair, Professional Activities

Session Co-chair: Alternative Treatment and Destruction Methods for Hazardous Wastes, AIChE Spring Meeting, New Orleans, LA, April, 1986.

Participant, CACHE Curriculum Taskforce on "Utilization of Computer Technology in the Undergraduate Curriculum," 1987-1988.

Session Co-chair: Materials Processing in Supercritical Fluids, AIChE Annual Meeting, Los Angeles, 1997.

Programming Committee, Topical Conference in Environmental Reaction Engineering (AIChE/Catalysis Society), Miami Beach, 2000.

Session Chair: Environmental Reaction Engineering: Greenhouse Gases, AIChE Meeting, Miami Beach, November, 1998.

Programming Committee, AIChE Area 1f (High Pressure), 1999-2002.

Session Chair: Materials Processing in Supercritical Fluids, AIChE Annual Meeting, Los Angeles, 2000.

Session Chair: Materials Processing in Supercritical Fluids, AIChE Annual Meeting, Reno, 2001.

Session Co-chair: Materials Processing in Supercritical Fluids, AIChE Annual Meeting, Indianapolis, 2002.

Session Chair: Polymer Processing with Near-Critical and Supercritical Fluids, AIChE Annual Meeting, San Francisco, 2003.

AIChE Area 1f (High Pressure), Program Chair, 2003.

AIChE National Programming Committee, Area 1f (High Pressure), 2004-05.

Catalysis Society, Southwest Section: Treasurer, 1998-01; Chair-elect, 2001-02; Chair, 2003-05; Director, 2005-2009; Secretary 2013-14.

Session Co-chair: Materials Synthesis and Processing with Near and Supercritical Fluids III: Polymers, AIChE Annual Meeting, San Francisco, 2006.

Executive Board, North American Catalysis Society, 2005-2007; 2011-2013.

Chair, 20th North American Meeting of the North American Catalysis Society, 2007.

Associate Editor, RSC Catalysis Series, 2005-2010; 2012-2015.

Session Chair: Catalysis and Reaction Engineering of Fine Chemicals, AIChE National Meeting, New Orleans, 2008.

Oklahoma Biofuels Center, External Advisory Board, 2009-2013.

Session Chair: Nanoscale Materials as Catalysts, AIChE Annual Meeting, Nashville, 2009.

Session Chair: Nanoscale Materials as Catalysts, AIChE Annual Meeting, Salt Lake City, 2010.

Session Chair: Hydrotreating, NACS Meeting, Detroit, 2011.

Session Chair: Advances in Reaction Engineering: Processes, NACS Meeting, Louisville, 2013.

Session Chair: Fuels Reforming, NACS Meeting, Pittsburgh, 2015.

Session Chair: Materials for Environmental Catalysis, NACS Meeting, Denver, 2017.

Consulting Activities

Sohio Oil, 1982-83

Dow Chemical, 1986

Exxon Corp., 1992-94

Melamine Chemical, 1993 and 1995-97

DSM Copolymer, 1998

Lamp Recyclers, 1995

Georgia Gulf, 1998-2003, 2007, 2009.

PCS Nitrogen, 2004-06.

ExxonMobil Corp., 2005-06.

Gaylord Chemical, 2017-19.

The Catalyst Group, 2018-19.

SNF Polychemie, 2019

The Castellan Group, 2019-20

Stress Engineering, 2020

Louisiana Governor's Covid Task Force, 2020

3. PAPERS PRESENTED AT PROFESSIONAL MEETINGS

1. K.M. Dooley (speaker), R.B. Diemer, Jr., J.A. Williams, B.C. Gates, and R.L. Albright, "Catalysis, Diffusion, and the Influence of Polymer Physical Properties on Catalysis by Macroporous Sulfonated Poly(Styrene-Divinylbenzene)," 1981 AIChE Annual Meeting, New Orleans.

2. K.M. Dooley (speaker) and B.C. Gates, "Preparation, Characterization, and Butane Isomerization Activities for Polymer-Supported Superacid Catalysts," 1982 Annual Review, Center for Catalytic Science and Technology, Newark.
3. K.M. Dooley (speaker) and B.C. Gates, "Preparation, Characterization, and Butane Isomerization Activities for Polymer-Supported Superacid Catalysts," 1983 North American Catalysis Society Meeting, Philadelphia.
4. K.M. Dooley (speaker) and B.C. Gates, "Reactions of Alkanes over Polymer-Supported Superacid Catalysts," 1984 AIChE National Meeting, Atlanta.
5. B.O. Brady, K.M. Dooley, R.P. Gambrell, and F.C. Knopf, "Supercritical Extraction of PCB-Contaminated Soils," 1985 EPA Conference on "New Frontiers for Hazardous Waste Management," Pittsburgh.
6. B.O. Brady, K.M. Dooley, R.P. Gambrell, and F.C. Knopf, "Supercritical Fluid Extraction of Hazardous Waste from Contaminated Soils", 1985 ACS National Meeting, Chicago.
7. F.C. Knopf and K.M. Dooley (speaker), "Oxidation Catalysis in a Supercritical Fluid Medium," 1986 AIChE Annual Meeting, Miami Beach.
8. F.C. Knopf and K.M. Dooley (speaker), "Supercritical Extraction and Catalytic Oxidation of Toxic Organics from Soils," 1987 AIChE National Meeting, Houston.
9. F.C. Knopf, K.M. Dooley, and R.P. Gambrell, "Supercritical Extraction and Catalytic Oxidation of Toxic Organics from Contaminated Soils," EPA Conference on New Frontiers in Hazardous Waste Management, Pittsburgh, 1987.
10. F.C. Knopf, K.M. Dooley, R.P. Gambrell, and E. McLaughlin, "Supercritical Extraction and Catalytic Oxidation of Toxic Organics from Soils," Annual Symposium on Hazardous Waste Research, Louisiana State University, 1987.
11. F.C. Knopf, T.-H. Pang, and K.M. Dooley (speaker), "Catalyzed Reactions of Alkylaromatic Hydrocarbons Dissolved in Supercritical Fluids," 1987 ACS National Meeting, New Orleans.
12. F.C. Knopf and K.M. Dooley (speaker), "Extraction of Pesticides from Solid Matrices Using Supercritical Fluids," 1988 ACS National Meeting, Los Angeles.
13. C. Chang and K.M. Dooley, "Diffusivity Estimation in Zeolites by a Kinetics/TPD Technique," 1988 ACS National Meeting, Los Angeles.
14. K.M. Dooley and F.C. Knopf, "High-Pressure Solvent Extraction and Catalytic Oxidation of Hazardous Wastes from Aqueous Streams," Annual Symposium on Hazardous Waste Research, Louisiana State University, 1988.
15. K.M. Dooley (speaker) and F.C. Knopf, "High-Pressure Solvent Extraction and Catalytic Oxidation of Hazardous Wastes from Aqueous Streams," 1989 Symposium, Gulf Coast Hazardous Substance Research Center, Beaumont.

16. K.M. Dooley (speaker), D. Ghonasgi, and F.C. Knopf, "Supercritical CO₂-Cosolvent Extraction of Contaminated Soils and Sediments," 1989 AIChE Annual Meeting, San Francisco.
17. K.M. Dooley (speaker), F.C. Knopf, D. Ghonasgi, and M. Ye, "High-Pressure Solvent Extraction and Catalytic Oxidation of Toxic Organics from Aqueous Streams," 1990 Symposium, Gulf Coast Hazardous Substance Research Center, Beaumont.
18. D. Ghonasgi, S. Gupta, K.M. Dooley, and F.C. Knopf, "Extraction of Phenol and Cresols from Water Using Supercritical CO₂", 1990 AIChE National Meeting, Orlando.
19. M. Ye, F.C. Knopf and K.M. Dooley (speaker), "Oxidation of Aromatic Hydrocarbons in Supercritical Fluids", 1990 AIChE Annual Meeting, Chicago.
20. C. Chang and K.M. Dooley (speaker), "Diffusivity Determination in Zeolites by Desorption and Kinetics Techniques", 1990 AIChE Annual Meeting, Chicago.
21. C. Chang and K.M. Dooley, "Diffusivity Estimation in Zeolites: Comparison of Desorption and Kinetics Techniques," 1990 Symposium of the Southwest Catalysis Society, Houston.
22. F.C. Knopf, K.M. Dooley, S. Gupta, D. Ghonasgi, and M. Ye, "High-Pressure Solvent Extraction and Catalytic Oxidation of Hazardous Waste Mixtures", 1991 Symposium, Gulf Coast Hazardous Substance Research Center, Beaumont.
23. K.M. Dooley (speaker), F.C. Knopf, M. Ye and D. Ghonasgi, "High-Pressure Solvent Extraction and Catalytic Oxidation of Aromatic Hydrocarbons from Aqueous Streams," Fourth World Conference of Chemical Engineering, Karlsruhe, 1991.
24. K.M. Dooley (speaker) and J.R.H. Ross, "Potassium/Calcium/Nickel Oxide Catalysts for Oxidative Coupling of Methane", Third European Community Workshop on C₁ Activation, Bochum, 1991.
25. V. Kanazirev, G.L. Price and K.M. Dooley, "Preparation of Ga-Doped Zeolite Catalysts via Hydrogen Induced Solid State Interaction Between Ga₂O₃ and HZSM-5 Zeolite", Intl. Symp. Zeolite Chemistry and Catalysis, Prague, 1991.
26. L.G. Butler, D.G. Cory, K.M. Dooley, J.B. Miller and A.N. Garroway, "NMR Imaging of Anisotropic Solid-State Chemical Reactions Using Multiple-Pulse Line Narrowing Techniques and ¹H-T1 Weighting," ACS National Meeting, 1991.
27. K.M. Dooley and J.R.H. Ross, "Potassium/Calcium/Nickel Oxide Catalysts for Oxidative Coupling of Methane", "Potassium/Calcium/Nickel Catalysts for Oxidative Coupling of Methane," ACS National Meeting, 1992.
28. K.M. Dooley (speaker) and F.C. Knopf, "Extraction of Pollutants from Aqueous Streams and Slurries", 1993 Symposium, Gulf Coast Hazardous Substance Research Center, Beaumont.
29. K.M. Dooley (speaker), S.-Y. Chen and J.R.H. Ross, "Active and Stable Catalysts for Oxidative Coupling of Methane Based on Ni-Doped Alkaline Earth Oxides", 1993 North American Meeting, Catalysis Society.

30. K.M. Dooley (speaker), F.C. Knopf, D. Launey and A. Cain, "Supercritical Fluid Extraction of Water-Soluble Contaminants from Wet Soils and Aqueous Streams", 1993 AIChE Annual Meeting, St. Louis.
31. K.M. Dooley (speaker), F.C. Knopf, D. Launey and A. Cain, "The Use of Supercritical Fluids for Waste Minimization", 1994 Symposium, Gulf Coast Hazardous Substance Research Center, Beaumont.
32. G.L. Price and K.M. Dooley, "Gallium Zeolites for Light Paraffin Aromatization," 9th DOE-BES Workshop in Catalysis and Surface Science, Milwaukee, 1994.
33. K.M. Dooley (speaker), T.F. Guidry, V.I. Hart, L.G. Butler, V. Kanazirev and G.L. Price, "Control of Intrazeolitic Ga and In Content and Its Effects on Alkane Dehydrogenation in Pentasils," 1994 Symposium, Southwest Catalysis Society.
34. K.M. Dooley (speaker), F.C. Knopf, J.M. Becnel and T.L. Caines, "Measurement and Modeling of Supercritical Fluid Extraction from Polymeric Matrices," 1994 AIChE Annual Meeting, San Francisco.
35. K.M. Dooley (speaker), J.M. Becnel, D. Launey and F.C. Knopf, "The Use of Supercritical Fluids for Waste Minimization", 1995 Symposium, Gulf Coast Hazardous Substance Research Center, Beaumont.
36. K.M. Dooley (speaker), J.M. Becnel and P. Kim, "Comparison of Extraction Methods for Removal of Aromatic and Chlorinated Hydrocarbon Mixtures from High Organic-Content Soils", 1995 AIChE Annual Meeting, Miami Beach.
37. V.I. Hart and K.M. Dooley, "Comparison of Gallium and Indium Loaded Zeolites for Amine Dehydrogenation", 1995 Louisiana DOE-EPSCoR Conference, New Orleans.
38. K.M. Dooley, T.F. Guidry, V.I. Hart, L.G. Butler, V. Kanazirev and G.L. Price, "Control of Intrazeolitic Ga and In Cation Content and Its Effects on Alkane Dehydrogenations in Pentasils", 16th North American Meeting, Catalysis Society, Snowbird, 1995.
39. K.M. Dooley, V.I. Hart, M.B. Bryant and L.G. Butler, "Alkane Dehydrogenation Catalysis of Posttransition Metal-Loaded Zeolites: Behavior of Highly Reduced 1:1 Metal (In,Sn)/Al Systems", 11th International Congress on Catalysis, Baltimore, 1996.
40. J.M. Becnel, P. Kim and K.M. Dooley, "Supercritical Fluid Extraction of Aromatic and Chlorinated Hydrocarbon Mixtures from Heavily Contaminated Soils," ACS Emerging Technologies in Hazardous Waste Management VIII, Birmingham, 1996.
41. K.M. Dooley (speaker), P.M. Kim and J.M. Becnel, "Supercritical Fluid Extraction of Trace Solutes from Polymers: modeling and Experimental Verification Using the Carbon Dioxide/Ethylbenzene/Polystyrene System," 1996 AIChE Annual Meeting, Chicago.
42. F.C. Knopf, A. Roy, Z.G. Feng and K.M. Dooley (speaker), "Densification and pH Reduction in Cement Mixtures Using Supercritical CO₂," 1997 AIChE Annual Meeting, Los Angeles.

43. V.I. Hart, L.G. Butler and K.M. Dooley (speaker), "Pt/Post-Transition Metal/Zeolite Dehydrogenation Catalysts Prepared by Solid-State Techniques," 1997 AIChE Annual Meeting, Los Angeles.
44. K.M. Dooley (speaker), V.I. Hart and L.G. Butler, "Comparison of Zeolite-Supported Alloy Dehydrogenation Catalysts," 1998 Fall Symposium, Southwest Catalysis Society, New Orleans.
45. K.M. Dooley and S.D. Randery, "Ceria-Based Catalysts for Asymmetric Ketone Synthesis," 16th North American Meeting, Catalysis Society, Boston, 1999.
46. K.M. Dooley (speaker), F. C. Knopf, R.P. Gambrell and B.P. Guilbeau, "Supercritical CO₂ Carbonated Cements - Characterization and Application as Artificial Coral Reefs," 1999 AIChE Annual Meeting, Dallas
47. K.M. Dooley (speaker), S.D. Randery and K.T. Hart, "Rare-Earth Oxide Catalysts for Asymmetric Ketone Synthesis," 1999 AIChE Annual Meeting, Dallas.
48. K.M. Dooley, "Mating the Unit Operations Lab to the Entire Upper-Level Curriculum," 2000 AIChE Annual Meeting, Los Angeles.
49. K.M. Dooley (speaker), T.S. Hendren, S.D. Randery, "New Catalysts for Acid/Acid and Acid/Aldehyde Condensations," 17th North American Meeting, Catalysis Society, Toronto, 2001.
50. K.M. Dooley, F.P. Harry and F.C. Knopf, "Carbonation of Cementitious Materials by Reactive Extrusion," 2001 meeting, North American Society of Chemical Reaction Engineering.
51. Y. Song, K.T. Hart, J.S. Warren and K.M. Dooley (speaker), "Waste-Reducing Catalytic Processes for Amidation and Alkylaromatic Oxidation," 2002 AIChE Annual Meeting, Indianapolis.
52. K.M. Dooley (speaker) and S. Watkins, "Research in the Chemical Sciences for Undergraduates at LSU," 2002 NSF Education Engineering Grantees Conference, Washington, D.C.
53. K.M. Dooley (speaker), K.E. Thompson and V.P. Rodriguez, "Lab Experiments Integrating Process Control, Transport Phenomena, and Reactor Design," 2002 AIChE Annual Meeting, Indianapolis.
54. K.M. Dooley (speaker) and F.C. Knopf, "LSU/Emerson Process Management/John H. Carter Partnership," 2003 Gulf Coast Control Conference, Baton Rouge.
55. K.M. Dooley (speaker), Y. Song, R.M. Iyer and J.S. Warren, "Waste-Reducing Catalytic Processes for Amidation and Alkylaromatic Oxidation," 18th North American Meeting, Catalysis Society, Cancun, 2003.
56. R. Li, A.B. Corripio, K.M. Dooley, M.A. Henson and M.J. Kurtz, "Dynamic Modeling of Crosslinking and Gelation in Continuous Ethylene-Propylene-Diene Polymerization Reactors Using the Pseudo-Kinetic Constant Approach", 2003 AIChE Annual Meeting, San Francisco.
57. A.K. Bhat, A.D. Roy and K.M. Dooley (speaker), "Methylketone Manufacture by Acid Condensation Using Metal/Rare Earth Oxide Catalysts", 2004 AIChE Annual Meeting, Austin.

58. F.P. Harry, K.M. Dooley (speaker), D. Schmerfeld, F.C. Knopf, S.E. Gates, K. Ham and L.G. Butler, "Rapid Carbonation of Cements and Cement/Polymer Composites Using Supercritical and Near-Critical CO₂", 2004 AIChE Annual Meeting, Austin.
59. K.M. Dooley (speaker), A.K. Bhat, A.D. Roy and C.P. Plaisance, "Ketones from Acid/Aldehyde Condensation Using Metal/CeO₂ Catalysts," 19th North American Meeting, Catalysis Society, Philadelphia, 2005.
60. J.A. Muss, R.C. Farmer, R.W. Pike, C.E. O'Quin and K.M. Dooley, "Decomposition Kinetics for Hydrogen Peroxide," JANNAF 40th CS/28APS/22nd PSHS/4th MMS Joint Meeting, Charleston, 2005.
61. K.M. Dooley (speaker), "Craft for Macromolecular Creativity - IGERT at LSU," NSF Southeast IGERT Conference, Chapel Hill, 2005.
62. K.M. Dooley (speaker), H.J. Toups and D.B. Mowrey, "Better Integration of Process Design / Control Principles in Engineering Labs," 2005 AIChE Annual Meeting, Cincinnati.
63. K.M. Dooley (speaker) and Craig P. Plaisance, "Zeolite and Metal Oxide Catalysts for the Production of Dimethyl Sulfide and Methanethiol," 2005 AIChE Annual Meeting, Cincinnati.
64. A.G. Bussard and K.M. Dooley, "Heterogeneous catalyzed polymer hydrogenation in an oscillating microreactor," 2006 ACS Annual Meeting, Atlanta.
65. A.G. Bussard and K.M. Dooley, "Polymer Hydrogenation by Reactive Extrusion – Pulsed and Continuous Flow Systems," 2006 AIChE Annual Meeting, San Francisco.
66. A.G. Bussard and K.M. Dooley (speaker), "Polymer Hydrogenation by reactive extrusion: pulsed and continuous flow systems," 2007 Meeting, North American Society of Chemical Reaction Engineering, Houston.
67. A.G. Bussard, Y. Waghmare, F.C. Knopf and K.M. Dooley, "Catalysis in Structured Pulsed Reactors – Low- and High-Molecular Weight Hydrogenations," 20th North American Meeting, Catalysis Society, Houston, 2007.
68. A.G. Bussard, Y. Waghmare, F.C. Knopf and K.M. Dooley (speaker), "Low- and High-Molecular Weight Hydrogenations in Structured, Pulsed Flow Reactors," 2007 AIChE Annual Meeting, Salt Lake City.
69. S. Acharya and K.M. Dooley, "Catalytically Enhanced Combustion Processes," 2007 ONR Contractors' Meeting, Washington.
70. K.M. Dooley (speaker), V. Kalakota, S. Adusumilli and R. Forest, "Desulfurization/Tar Removal for Gasifier and Biogasifier Effluents with Mixed Rare Earth Oxides," 2008 AIChE Annual Meeting, Philadelphia.
71. K.M. Dooley (speaker) and F.C. Knopf, "The University Power Plant: A Readily Accessible Remote Learning Platform," 2008 AIChE Annual Meeting, Philadelphia.

72. K.M. Dooley (speaker), S. Adusumilli and V. Kalakota, "Desulfurization of and Tar Removal from Gasifier Effluents Using Mixed Rare Earth Oxides," 21st North American Meeting, Catalysis Society, San Francisco, 2009.
73. F.C. Knopf, K.M. Dooley (speaker) and M. Shafi Syed, "Collaborative Education Across the Curriculum Using a Cogeneration System," 2009 AIChE Annual Meeting, Nashville.
74. K.M. Dooley (speaker), V. Kalakota, S. Adusumilli and R. Forest, "Desulfurization / Tar Removal for Gasifier and Biogasifier Effluents with Mixed Rare Earth Oxides," 2009 AIChE Annual Meeting, Nashville.
75. K.M. Dooley (speaker), "Perspectives on Catalytic Oxydesulfurization," 2010 Southwest Catalysis Symposium, Houston.
76. K.M. Dooley (speaker), F. C. Knopf, A.G. Bussard, Y.G. Waghmare, D. Liu, and R.V. Forest, "Enhanced Rates of Gas-Liquid Reactions in a Piston Oscillating Monolith Reactor," ISCRE 21, Philadelphia, 2010.
77. D. Liu, J. Yakshimuradova, R. Forest, F.C. Knopf, and K. Dooley (speaker), "Catalytic Oxidative Desulfurization of Model Diesel," AIChE Annual Meeting, Salt Lake City, 2010.
78. A.D. Mayernick, M.J. Janik and K.M. Dooley, "A DFT Study of Desulfurization and Tar Cracking of Gasifier Effluents Over Ceria-Based Rare-Earth Oxides," AIChE Annual Meeting, Salt Lake City, 2010.
79. S. Karmakar, K. Dooley, S. Acharya, "Combustion of Boron Nano-Particles in Ethanol Spray Flame," ASME 2010 IMECE, Vancouver, 2010.
80. S. Acharya, S. Karmakar, K.M. Dooley, and J. Hanberry, "Catalytic/Energetic Nanoparticles for Enhanced Combustion Performance," ONR Contractors' Meeting, 2010.
81. K.M. Dooley (speaker), D. Liu, J. Bridges, A. Madrid and F. Carl Knopf, "Catalytic Oxidative Desulfurization of Model Diesel," 22nd North American Meeting, Catalysis Society, Detroit, 2011.
82. R. Li, W. Kong and K.M. Dooley (speaker), "Mixed Rare Earth Oxides for Desulfurization and Tar Removal from Gasifier Effluents," 22nd North American Meeting, Catalysis Society, Detroit, 2011.
83. R. Li, A. Mayernick, J. Bridges, W. Kong, M. Krcha, M.J. Janik, S. Adusumilli and K.M. Dooley (speaker), "Synthesis, Modeling and Application of Mixed Rare Earth Oxides for Syngas Cleanup and Conditioning," EFRC Contractors' Meeting, Washington, D.C., 2011.
84. M. J. Janik, A. D. Mayernick, M. D. Krcha, R. Li, K. M. Dooley. "Density functional theory studies of doped ceria systems: alkane oxidation and desulfurization" ACS Fall Meeting, Denver, 2011.
85. R. Li, J. Bridges, W. Kong and K.M. Dooley, "Mixed Rare Earth Oxides (REOs) for Desulfurization and Tar Removal From Gasifier Effluents," AIChE Annual Meeting, Minneapolis, 2011.

86. A.D. Mayernick, M.J. Janik and K.M. Dooley, "Density Functional Theory Evaluation of Rare-Earth Oxides for Biomass Gasification Effluent Cleanup," AIChE Annual Meeting, Minneapolis, 2011.
87. M.D. Krcha, M.J. Janik and K.M. Dooley, "Evaluation of Density Functional Theory (DFT+U) to Describe Doped Cerium Oxide Surfaces," AIChE Annual Meeting, Minneapolis, 2011.
88. M. Krcha, A. Mayernick, M. Janik, R. Li and K. Dooley, "Transition metal-doped CeO₂ for use in biomass gasifier effluent clean-up," ACS Fall Meeting, Philadelphia, 2012.
89. N. Wang, J. Hanberry, S. Karmakar, S. Acharya and K.M. Dooley (speaker), "Boron Composite Nanoparticles for Enhancement of Biofuel Combustion," AIChE Annual Meeting, Pittsburgh, 2012.
90. R. Li, M.J. Janik, M.D. Krcha and K.M. Dooley (speaker), "Mixed Rare Earth Oxides for Desulfurization and Tar Removal From Gasifier Effluents," AIChE Annual Meeting, Pittsburgh, 2012.
91. M.D. Krcha, R. Li, M.J. Janik and K.M. Dooley, "Density Functional Theory Evaluation of M-Doped Ceria for Desulfurization and Hydrocarbon Conversion," AIChE Annual Meeting, Pittsburgh, 2012.
92. M.S. Syed, K.M. Dooley and F.C. Knopf, "Modeling Water Injected Gas Turbines - Performance and Emissions," AIChE Annual Meeting, Pittsburgh, 2012.
93. R. Li, M.D. Krcha, M.J. Janik, A. Roy and K.M. Dooley, "Rare Earth/Transition Metal Oxides for Syngas Cleanup," ACS Spring Meeting, New Orleans, 2013.
94. A. Merille, N. V. Seetala, R. Li and K. M. Dooley, "Positron Annihilation Lifetime Studies of (Mn, Al)/Rare Earth Oxide (REOs) nanoparticle catalysts", Fall 2013 LaSPACE Meeting, New Orleans, Sept. 13-14, 2013.
95. A. Merille, D.S. Fasheru, N. V. Seetala, R. Li and K. M. Dooley, "Positron Lifetime, Magnetization, and FTIR Studies of Mn/Rare Earth Oxides", First place winning poster at the NSF-Emerging Researchers National (ERN) Conference in STEM, Washington, DC, February 28 - March 2, 2013.
96. R. Li, M.D. Krcha, M.J. Janik, A. Roy and K.M. Dooley, "Rare Earth/Transition Metal Oxides for Syngas Cleanup," 23rd North American Meeting, Catalysis Society, Louisville, 2013.
97. J. Bruno and K.M. Dooley, "Catalysts for the Positional Isomerization of Long-Chain Olefins," 23rd North American Meeting, Catalysis Society, Louisville, 2013.
98. K.M. Dooley (speaker) and M.J. Janik, "Key Issues in Syngas Cleanup," DOE Workshop on "Gas Clean-up for Fuel Cell Applications", Argonne National Lab, March 2014.
99. R. Li, M. Krcha, M. Janik, A. Roy and K. Dooley (speaker), "Rare Earth/Transition Metal Oxides for Syngas Cleanup," ACS Spring Meeting, Dallas, 2014.

100. K. Dooley (speaker), R. Li, M. Janik, M. Krcha, J. Lee and N. Seetala, "Hydrocarbon Reforming on Transition Metal/Rare Earth Oxide Catalysts: Experimental and DFT Studies," 24th North American Meeting, Catalysis Society, Pittsburgh, 2015.
101. J. Lee, K.M. Dooley (speaker) and F.C. Knopf, "The Energy Sustainability Remote Laboratory (ESRL)," AIChE Annual Meeting, Salt Lake City, 2015.
102. J. Lee, R. Li, M. Janik, M.D. Krcha, N. Seetala and K.M. Dooley (speaker), "Hydrocarbon (Tar) Reforming on Transition Metal/Rare Earth Oxide Catalysts: Experimental and DFT Studies," AIChE Annual Meeting, Salt Lake City, 2015.
103. J. Lee, K.M. Dooley, F. Madron and F.C. Knopf. "Energy Sustainability Remote Laboratory (ESRL)," 123rd ASEE Annual Conference, New Orleans, 2016.
104. J. Lee, K.M. Dooley, F. Madron and F.C. Knopf. "Energy Sustainability Remote Laboratory (ESRL)," AAAS EnFuse Conference, Washington DC, 2016.
105. J. Bruno, N. Wang, M. Fertitta, A. Gisle and K.M. Dooley (speaker), "B-C and B-Fe Core-Shell Nanoparticles for the Enhancement of Biofuel Combustion and Mn-C Core-Shells for Pipeline Natural Gas Desulfurization," AIChE Annual Meeting, San Francisco, 2016.
106. K. Dooley (speaker), J. Lee, R. Li, M. Krcha and M. Janik "Design of Rare Earth/Transition Metal Oxides for Syngas Tar Reforming," 25th North American Meeting, North American Catalysis Society, Denver, 2017.
107. K.M. Dooley (speaker), C. Jiang, M. Janik, B. Li and J. Lee, "Towards the Design of Sulfur-Tolerant CO₂-Reforming Catalysts," AIChE Annual Meeting, Minneapolis, 2017.
108. K.M. Dooley (speaker), F.C. Knopf and J. Lee, "Laboratory and Design Projects in Energy Sustainability Based on Industrial Operations and Data (Power Plants, Sugar Mills, Pilot Plants)," AIChE Annual Meeting, Minneapolis, 2017.
109. B. Safavinia, Y. Wang, J. Larriviere, J.A. Dorman and K.M. Dooley, "Controlled Doping of CeO₂-ZrO₂ Nanoparticles to Modify Catalytic Activity," AIChE Annual Meeting, Pittsburgh, 2018.
110. N. da Silva Moura, P. Darapaneni, K.M. Dooley and J.A. Dorman, "Catalytic Activity of Magnetic Nanoparticles Activated Via RF Induction Heating," AIChE Annual Meeting, Pittsburgh, 2018.
111. M. Shahami, K.M. Dooley and D.F. Shantz, "Steam-Assisted Crystallized Fe-ZSM-5 Materials and Their Unprecedented Activity in Benzene Hydroxylation to Phenol Using Hydrogen Peroxide," 26th North American Meeting, North American Catalysis Society, Chicago, 2019.
112. C. Jiang, J. Lee, B. Li, M.J. Janik and K.M. Dooley, "Ternary Oxides for Dry Reforming of Methane: Rapid Screening of Rare-Earth - Transition Metal Catalysts and Sulfur Tolerance Evaluation," 26th North American Meeting, North American Catalysis Society, Chicago, 2019.

113. C. Jiang, M.J. Janik, B. Li, E. Loisel and K.M. Dooley (speaker), "Ternary Rare-Earth – Transition Metal Catalysts for Dry Reforming of Methane, Characterization of Final Structures and Sulfur Tolerance Evaluation," AIChE Annual Meeting, Orlando, 2019.
114. B. Safavinia, P. Darapaneni, O. Kizilkaya, D. Cullen, J. Larriviere, K.M. Dooley and J. A. Dorman, "Engineering Dopant Position in Core-Shell CeO₂-ZrO₂ Nanoparticles to Control Catalytic Activity," AIChE Annual Meeting, Orlando, 2019.
115. N. da Silva Moura, B. Watson, H. Simonson, P. Darapaneni, K.M. Dooley and J. A. Dorman, "Coupling the Magnetic and Catalytic Properties of Fe₃O₄ Via Shape-Controlled Routes and Cr Doping," AIChE Annual Meeting, Orlando, 2019.
116. N. da Silva Moura, K.R. Bajgiran, C. Roman, K.M. Dooley and J.A. Dorman, "Functionalizing Fe₃O₄ Nanoparticles for Local Luminescence Probing and Mediation of Heat Transfer in Induction Heating Catalysis," AIChE Annual Meeting, virtual, 2020.
117. C. Roman, N. da Silva Moura, S. Wicker, K. Dooley and J. Dorman, "Enhanced hydrogenation of oleic acid by RF heating via magnetically susceptible nanoparticles," ACS Spring Meeting, virtual, 2021.
118. C. Roman, N. Moura, S. Wicker, K.M. Dooley, J.A. Dorman, "Enhanced Hydrogenation of Oleic Acid By RF Heating Via Magnetically Susceptible Nanoparticles," AIChE Annual Meeting, Boston, 2021.
119. B. Whajah, N.S. Moura, J. Blanchard, S. Wicker, K. Gandar, J.A. Dorman, and K.M. Dooley, "Catalytic Depolymerization of Waste Polyolefins by Induction Heating: Selective Alkane/Alkene Production," AIChE Annual Meeting, Boston, 2021.
120. K. Dooley, J. Dorman, M. Janik, J. Lucas, C. Jiang, "Adsorbate and metal migration and confinement, and their roles in the CO₂-CH₄ dry reforming reaction," 263rd ACS National Meeting, San Diego, 2022.

4. AWARDS, PRIZES, LECTURESHIPS

Awards

Cross-Holloway Research Award, Louisiana State University, 1985.
Harold A. Levey Alumni Medal, Tulane University, 1987.
Fulbright Scholar, University of Twente (Netherlands), 1991
Alan Berman Research Publication Award, Naval Research Laboratory, 1992.
BASF Corp. Endowed Professorship, 1998
Donald Clayton Graduate Mentoring Award, Louisiana State University, 2005.
Southwest Award in Applied Catalysis, Southwest Catalysis Society, 2016

Honors

Catalysis Society, Southwest: Chair, 2004-05; 2007-08; Director, 2005-06; 2008-10; Secretary, 2013-14; Treasurer, 2002-04.

Oklahoma Biofuels Center, External Advisory Board, 2009-12
Associate Editor, RSC Catalysis Series, 2007-2010; 2012-16
Executive Board, North American Catalysis Society, 2011-13
North American Catalysis Society, North American Meeting Chair, 2007
AIChE, National Program Committee, Chair Group 1f (High Pressure), 2004-05; Program Chair, 2003-04

Lectureships and Invited Seminars

Sohio Oil (1982), Auburn University (1986), Georgia Tech. Univ. (1987), North Carolina St. Univ. (1988), Dow Chemical (1988), Society of Plastics Engineers, Baton Rouge (1989), Tulsa Univ. (1990), Univ. of Twente, Netherlands (1990 and 1991), Univ. of Böchum, Germany (1991), Univ. of Oklahoma (1994), Tulane Univ. (1994, 2003, 2017), Univ. of Connecticut (1995), Dow Chemical (1998), Eastman Chemical (1999); ExxonMobil Chemical (2000); Univ. of North Carolina (2005); Albemarle Corp. (2006); Univ. of Houston (2007), Arizona Chemical (2009, 2010, 2011), Univ. of Oklahoma (2009); Penn St. Univ. (2010), Albemarle Corp. (2011), Bercen Chemical (2011, 2013), Argonne National Lab (2014).

TOTAL = 30

5. CONTRIBUTIONS TO REFEREED ACTIVITIES

Panel Reviewer: NSF CSIP, 1986-1989, Panel Chair (Chem. Eng.), NSF, 1988-1989; NSF REU, 2003; NSF CTS, 2005; NSF SBIR, 2008-2013, 2016; 2020-2021. NSF EPSCoR (Oklahoma), 2009-2013; NSF CBET, 2016, 2020, 2021; Fulbright Commission, 2019-2020.

Journal Reviewer: AIChE Journal (32*), Angew. Chem. Intl. Ed. Engl. (1), J. Catal. (21), Chem. Eng. Comms. (5), Env. Sci. Technol. (4), Ind. Eng. Chem. Res. (38), J. Phys. Chem. B (4), J. Phys. Chem. C (3), Environ. Progress (4), Catal. Today (11), ACS Catal. (5), ACS Appl. Mater. Interfaces (2), Energy and Fuels (8), Appl. Catal. A (33), Appl. Catal. B (12), J. Chem. Eng. Data (7), Chem. Eng. J. (11), ACS Symp. Series (3), J. Molec. Catal. (4), Micro. Meso. Mater. (6), Catal. Letters (7), Catal. Comms. (5), Chem. Select (1), Combustion and Flame (1), Intl. J. of Spray and Comb. Dynamics (1), J. Haz. Mater. (1), Intl. J. Hyd. Energy (3), Intl. J. Ind. Chem. (1), J. Mater. Sci. (2), Mater. Letters (2), J. Supercrit. Fluids (6), Waste Mgt. (1), ASME J. Energy Resources Technol. (1), Energy Technol. (1), Chem. Comms. (1), Chem. and Eng. News (1), 7th World Cong. Chem. Eng. (7), RSC "Catalysis" series (12), Bioresource Technol. (1), ChemSusChem (1), ChemCatChem (2), Fuel (8), Fuel Proc. Technol. (2), IMECE (ASME) (2), ICEF (ASME) (1), Energy Conv. Mgt. (3), Energy Tech. (1), Appl. Energy (2), Canad. J. Chem. Eng. (1), J. Rare Earths (1), North Amer. Catal. Soc. Conferences (numerous).

Casebook Reviewer: External reviewer of five casebooks for promotion to Associate Professor and three for promotion to Professor.

Proposal Reviewer: National Science Foundation (28*), Army Research Office (3), Air Force Office of Scientific Research (3), Environmental Protection Agency (1), ACS-Petroleum Research Fund (11), New York Environmental Research Center (2), ORAU Enhancement Program (1), NSERC (2), Dept. of Energy (2), USDA (1), NWO (Netherlands) (1), NSF-SBIR (>110), Fulbright Commission (110).

*number of papers or proposals

Book Reviewer: Elsevier (3 Catalysis books and 2 book chapters); Wiley (one book on energy optimization), AIChE Center for Chemical Process Safety (one book)

6. GRANTS AND CONTRACTS FUNDED

LSU Council on Research, "Transition-Metal Loaded Zeolites: Interaction of Physical Chemistry and Catalytic Behavior." 1983 (\$4,000).

Shell Oil Corp., "Faculty Initiation Grant." 1983-85 (\$45,000).

Louisiana Center for Energy Studies, "Oxidation Catalysis in a Supercritical Fluid Medium." PI, with F.C. Knopf, 1985 (\$15,000), renewal in 1986 (\$28,000).

Exxon Foundation, "Fundamental Research in Heterogeneous Catalysis." Co-PI with G.L. Price, 1983-1986 (\$50,000), 1986-88 (\$40,000), 1989 (\$18,500), 1990-94 (\$75,000), 1995-99 (\$50,000).

EPA, "Studies of the Supercritical Extraction of PCBs and Dioxins from Soils, Sediments, and Sludges." Co-PI with F.C. Knopf (PI) and R. Gambrell, 1986-87 (\$198,000).

NSF, "Diffusivity Estimation for Counterdiffusing Reactants in Catalytic Solids of Complex Pore Structure." 1985-87 (\$68,000).

Louisiana Educational Quality Support Fund, "Chemical Engineering Department Enhancement", with E. McLaughlin (PI), D.P. Harrison, F.C. Knopf and G.L. Price (\$365,000).

Hazardous Waste Research Center (EPA), "Supercritical Extraction and Catalytic Oxidation of Toxic Organics from Soils." Co-PI with F.C. Knopf (PI), 1986 (\$25,000), renewals in 1987 (\$55,000) and 1988 (\$20,000).

U.S. Army Corps of Engineers, "Light-Initiated Detonation." Co-PI with E. McLaughlin (PI) and A.M. Sterling, 1987 (\$20,000).

Gulf Coast Hazardous Substances Research Center (EPA), "High-Pressure Solvent Extraction and Catalytic Oxidation of Hazardous Wastes from Aqueous Streams," Co-PI with F.C. Knopf (PI), 1989-90 (\$45,000), renewals in 1990-91 (\$37,300); and 1991-92 (\$45,000).

Louisiana Educational Quality Support Fund, "Methane Activation: Solvent, Pressure, and Additive Effects", PI, with F.C. Knopf, 1989-92 (\$272,000).

Louisiana Department of Transportation and Development, "Determination of Significant Factors Controlling Compatibility of Asphalt with Synthetic Polymers", Co-PI with W.H. Daly (PI) and J.C. Collier, 1989-91 (\$214,000).

NWO (Netherlands Energy Organization), "Catalytic Activation of Methane", 1991 (\$5,000).

Fulbright Foreign Scholarship Board, "Catalytic Activation of Methane," 1991 (\$10,800).

Louisiana Educational Quality Support Fund, "Raman Spectroscopy Equipment Enhancement", Co-PI with F.C. Knopf (PI) and G.L. Price, 1992-93 (\$141,000).

Catalysis Society, "Travel Grant to Attend International Catalysis Conference", 1992 (\$1,000).

Louisiana Educational Quality Support Fund, "The Use of Supercritical Fluids for Waste Site Remediation and Waste Minimization", Co-PI with F.C. Knopf (PI), 1991-95 (\$321,000).

DOE - Basic Energy Sciences, "Gallium Zeolites for Light Paraffin Aromatization", Co-PI with G.L. Price (PI), 1992-95 (\$270,000).

Gulf Coast Hazardous Substances Research Center (EPA), "The Use of Supercritical Fluids for Waste Minimization", Co-PI with F.C. Knopf (PI), 1994-95 (\$30,000).

EPA-RREL, "The Use of Supercritical Fluids for Waste Minimization", PI, with F.C. Knopf, 1994-96 (\$95,300).

Louisiana Educational Quality Support Fund, "Combustion Equipment Enhancement", Co-PI with F.C. Knopf (PI), M.A. Henson, D. Nikotopoulos and S. Acharya, 1995-1996 (\$147,500).

DOE - Basic Energy Sciences, "Solid-State Ion-Exchanged Zeolites for Hydrocarbon Conversion", Co-PI with G.L. Price (PI), 1995-1996 (\$90,000).

DOE-USRE, "Research Support for Student Workers on Energy-Related Projects", 1995 (\$4,000).

Handlers International, "Physical Analysis of Activated Carbon", Co-PI with G.L. Price, 1995-1996 (\$10,000).

Grant Chemical, "Olefin Metathesis on Group 6b Metals: Survey of Catalytic Activity", PI, with G.L. Price, 1996-97 (\$10,000).

MGK Co., "Catalyst Development and Reactor Study for Asymmetric Ketone Production," PI, with G.L. Price, 1997 (\$29,500).

MGK Co., "Catalyst Development and Reactor Study for Asymmetric Ketone Production," 1998 (\$38,000); 1999 (\$54,000).

BOR, "Enhanced Capabilities in Advanced Materials Analysis," PI, with G.L. Price and F.C. Knopf, 1998-99 (\$100,300).

DOE-FETC, "pH-Neutral Concrete for Attached Microalgae and Enhanced Carbon Dioxide Fixation," PI, with F.C. Knopf and R.P. Gambrell, 1998-99 (\$50,400).

Dow Chemical, "Re-Engineering Chemical Engineering Laboratories," PI, with F.C. Knopf, \$40,000, 1998-99.

Louisiana Student Tech Fee, "Re-Engineering Chemical Engineering Laboratories," PI, \$60,000, 1998-99.

Eagleview Technologies, "Catalyst Development and Reactor Study for Asymmetric Ketone and Amide Production," PI, 2000 (\$73,000).

Honeywell IAC, "Distributed Control System for Chemical Engineering Undergraduate Laboratories," PI, with F.C. Knopf, 2000 (~\$400,000).

Exxon Chemical, "Catalyst Evaluation and Development for Heterogeneous Carbonylation Reactions," Co-PI with G.L. Price (PI), 1999-2000 (\$86,500).

Fisher-Rosemount Systems/John H. Carter Co., "Distributed Control System for Chemical Engineering Undergraduate Laboratories," 2001, PI, with F.C. Knopf (~\$250,000).

Louisiana Board of Regents, "Enhancement of Biochemical Engineering and Control Facilities in Undergraduate Laboratory", 2001-02, with M.A. Hjortso (PI) and M.A. Henson (\$52,200).

ExxonMobil Chemical, "Catalyst Evaluation and Development for Heterogeneous Carbonylation Reactions," 2001-02 (\$111,000).

BASF, "Permeameter and Reactor Flow Analysis Experiment," PI, with K.E. Thompson, 2002-03 (\$18,000).

Eagleview Technologies, "Catalyst Development for Ketone, Aldehyde and Amide Production," 2001 (\$70,000).

Louisiana Student Tech Fee Program, "Batch Processing in Chemical Engineering Laboratories," 2001-02 (\$58,700).

NSF-ARI, Investigator on UHV Equipment Proposal, with ~20 PI's and investigators, 2002-03 (~\$730,000).

Louisiana Student Tech Fee Program, "Integration of Process Control and PC-LAN Facilities", PI, with D.B. Mowrey, 2002-03 (\$39,400).

ExxonMobil, "Parameter Estimation and Online Modeling of EPDM Process", 2003 (\$10,000).

NSF-REU, "Research in the Chemical Sciences for Undergraduates at Louisiana State University," co-PI with S.F. Watkins (PI), 2002-04 (\$283,000).

Gaylord Chemical Co., "Catalyst Development and Reactor Study for Dimethyl Sulfide Production," 2004 (\$12,000).

Louisiana Student Tech Fee Program, "Portable Gas Analyzer and Wireless Networking - Undergraduate Laboratory," 2004-05 (\$57,500).

LSU Focused Research Program, "Harmonic Forcing of Bubble Column Reactors for the Selective Oxidation of Alkanes and Alkenes," with F.C. Knopf (PI), 2004 (\$10,000).

NSF-DUE, "Reforming the Chemical Engineering Curriculum: Manufacturing/Process Dynamics/Process Control Emphasis," co-PI with F.C. Knopf (PI) and A.B. Corripio, 2003-05 (\$92,400).

Louisiana Student Tech Fee Program, "Biochemical Processing Lab - Crystallization", 2005-06 (\$19,700).

EagleView Technologies/MGK Co., "Catalyst Development and Reactor Study for Asymmetric Ketone and Amide Production," 2002-05 (\$90,000).

U.S. Army, Phase II STTR, "Thermal Decomposer for Hydrogen Peroxide," Co-PI with R.M. Pike (PI), 2004-06 (\$191,300).

NASA, "Applied Polymer Technology Extension Cooperative", co-PI with P. Russo (PI), D. Spivak and L. Butler, 2005-06 (\$99,800).

INEOS Corp., "Amine Homolog Distillation," 2006 (\$4,300).

Gaylord Chemical Co., "Catalyst Development and Reactor Study for Dimethyl Sulfide Production," 2006-2007 (\$12,000).

Applied Polymer Technology Extension Cooperative (NASA), "Mesoporous Carbon and Rare Earth Oxide Synthesis," co-PI with P. Russo (PI), D. Spivak and L. Butler, 2006-07 (\$47,000).

Georgia Gulf Inc., "EDC Reactor Study," 2007 (\$14,000).

IGERT (NSF), "Teaching Craft for Macromolecular Creativity: An Experiment," P.S. Russo (PI), Co-PIs T.M. Bricker and K.M. Dooley, 2000-08, (\$3.3 million).

NSF-DUE, "Integrating a Cogeneration Facility into Engineering Education," 2006-2009, co-PI with F.C. Knopf (\$126,000).

Bercen Chemical, "Catalytic Isomerization of Sizing Agents (PI), 2010-2011 (\$28,000).

Arizona Chemical, "Catalytic Hydrogenation/Dehydrogenation of Rosin Acids" (PI), 2009-2011 (\$39,850).

Nova Molecular Technologies, "Vapor Phase Hydrogenolysis of Furfuryl Alcohol" (PI), 2011-12 (\$44,805).

NSF, "Integrating a Cogeneration Facility into Engineering Education, Phase II" F.C. Knopf (PI), K.M. Dooley (co-PI), 2007-2012 (\$484,913).

Louisiana Board of Regents OPT-IN, "Improving Catalysts for Long-Chain Olefin Isomerization in the Manufacture of Paper Sizing Agents" (PI), 2011-12 (\$70,000).

Ashburn Technologies, "Hydrophilic Modification of Polymer Coatings" (PI), 2012 (\$9488).

Arizona Chemical, "Catalytic Hydrogenation of Rosin Esters", 7/1/12 – 12/31/12 (\$15,000).

Chevron Innovative Research Fund, "Novel Separation Strategy for Processing Biopyrolysis Liquids" (PI, Carl Knopf, co-PI), 9/1/11-6/30/13 (\$39,960).

Ashburn Technologies, "Hydrophilic Modification of Polymer Coatings" (PI), 3/13 – 6/13 (\$4220).

ONR, "Catalytic Nano-particle-laden Fuels for Enhanced Performance in Propulsion Systems" (co-PI, S. Acharya, PI), 8/1/09 – 7/31/13 (\$289,936).

NSF, "GOALI: Catalytic Hydrogenation Using an Actively Forced Microreactor" F.C. Knopf (PI), K.M. Dooley (co-PI), 2008-2014 (\$366,465).

DOE/EFRC, "Rare Earth Oxide Catalysts/Sorbents for Desulfurization and Tar Cracking" (co-PI, part of DOE/EFRC Computational catalysis and atomic-level synthesis of materials: building effective catalysts from first principles, with Jerry Spivey, PI, and Richard Kurtz, John Flake, Ward Plummer, David Bruce, Susan Sinnott, Ulli Diebold, Krijn deJong, David Sholl and Challa Kumar, co-PIs), Sept. 2009-Aug. 2015 (Total \$11,566,936.00, KMD project \$576,000, partial share in one other project). Center name: Center for Atomic Level Catalyst Design.

Bercen Chemical, "Catalytic Isomerization of Long-Chain Olefins and Applications as Diesel Additives" (PI), 2013-14 (\$71,800).

Gaylord Chemical, "Catalyst Activity Method Development" (PI), 2013-2014 (\$25,000).

Gaylord Chemical, "Catalyst Activity Method Development" (PI), 2015 (\$2400).

ONR, "Catalytic Nano-particle-laden Fuels for Enhanced Performance in Propulsion Systems" (PI), 8/1/13 – 9/30/15 (\$211,800).

NSF-DUE, "Energy Sustainability Remote Laboratory" F.C. Knopf (PI), K.M. Dooley (co-PI), 8/22/14-8/22/17 (\$146,142).

LA BOR, Integrating Energy Sustainability into Engineering Education (co-PI, F.C. Knopf, PI), 1/15/15 – 1/14/16 (\$10,000).

JOVE, "Chemical Engineering Laboratory Videos," (with M. Benton), 10/1/16-9/30/17 (\$15,000).

LA BOR, "Multi-element silicon drift detector for X-ray absorption spectroscopy" (co-PI, A. Roy, PI), 7/1/16 – 6/30/18 (\$178,500).

LA BOR, "High-Resolution Raman System for Multidisciplinary Research at LSU," (co-PI, M. Gartia PI), 6/1/17-6/30/18 (\$166,395).

NSF-CBET, "Collaborative Research: Hydrocarbon conversion on oxysulfide surfaces: Towards the design of sulfur-tolerant reforming catalysts," (PI, collaborative with M. Janik, Penn St. Univ.), 7/1/15 – 10/30/19 (\$189,595, KD share).

LSU LIFT², "Electromagnetic depolymerization of waste plastics," (co-PI, C. Sabliov, PI) 10/1/19-9/30/21 (\$75,000).

NSF-MRI, "MRI: Acquisition of a Near-Field Optical Microscope for Multidisciplinary Research and Education at Louisiana State University," (Sr. Personnel, Kevin McPeak, PI), 8/1/20-7/31/21 (\$665,000).

TOTAL = 80 projects, ~\$24,140,000

Current Projects

LA BOR-ITRS and Mezzo Technologies LLC, "Micro Heat Exchanger/Reactor for Advanced Oxidation Processes," 6/1/18 – 5/30/22 (\$198,030).

NSF-CBET, "Understanding Reaction Mechanisms for the Design of RF Driven Catalytic Modular Reactors" (co-PI, James Dorman PI), 9/1/18-8/31/22 (\$316,073).

BIRD Israel-U.S. Binational Industrial Research and Development Foundation, "Safe, sustainable, and resilient development of offshore reservoirs and natural gas upgrading through innovative technology (co-PI, K. Thompson, PI), 7/1/20-6/30/25 (\$2,499,997).

LSU LIFT², "Controlled Depolymerization of Mixed Plastic Waste," (co-PI, J. Dorman, PI), 1/10/22-1/9/23 (\$75,000).

ORNL CNMS User Proposal CNMS2021-B-00889, "Spillover mechanisms and stability of hierarchical dry reforming catalysts" (\$150,000, co-PI, J. Dorman, PI).

Gaylord Chemical, "NH₃ Oxidation Catalysis," \$4000.

7. DOCUMENTATION OF TEACHING ACTIVITIES

New Courses Initiated - ChE 7536 - Advanced Mass Transfer; ChE 7542 - Catalysis; ChE 7140 - Reactor Design; ChE 4285 - Introduction to Polymers; ChE 4210 – Catalysis; Che 1100, Introduction to Chemical Engineering.

New Laboratories Developed

Kinetics/Reactor Design, ChE 4162 (Senior Lab).

Polymer Extrusion, ChE 3104 (Junior Lab), with J. Collier.

Tray Distillation, ChE 4162.

Biological Kinetics, ChE 4162, with M.A. Hjortso.

Permeameter/Packed Bed Transport/Nonideal Reactor, ChE 4162, with K.E. Thompson.

Polymerization Reaction/Separation, ChE 4162.

Nonlinear Control - pH Neutralization, with M.A. Henson.

Adsorption, ChE 4162.
Crystallization, ChE 4162.
Packed Column Distillation experiment, ChE 4162, with Frank Groves.
Polymer Compounding/Rheology, CHEM 4010 (Macromolecules I)
Revamped Two-Tank Dynamics experiment in ChE 4162/3104.
Revamped Liquid/Liquid Extraction experiment in ChE 4162.
Revamped Heat Exchanger Train experiment in ChE 4162/3104.
Polymer extrusion/compositing, CHEM 4010
Mass Transfer, ChE 3104
Distillation, ChE 4162

Curriculum Development Activity

- (1) Developed 5 design projects for ChE 4190 (Chemical Reaction Engineering).
- (2) Developed 8 design projects for ChE 7140 (Chemical Reactor Design, graduate).
- (3) Developed 9 short design projects for ChE 7140 (Chemical Reactor Design, graduate).
- (4) Developed 7 short lab projects for ChE 4285 (Introduction to Polymers) and CHEM 4010 (Macromolecules I).
- (5) Member of team that developed <http://www.esrl.lsu.edu/>, the website for the NSF Energy Sustainability (educational) project.
- (6) Developed 10 short design projects for ChE 4151 (Design I).
- (7) JOVE Laboratory Instructional Modules – Primary author on 9 lab modules; secondary author on 6.
- (8) Developed 3 ASPEN modules/projects for ChE 3101 (Momentum Transfer).

Theses/Dissertations Directed

NOTE: I have also supervised 60 undergraduate student workers on research projects.

1. James Maness, "Development of Solid Superacid Alkylation Catalysts," M.S., 1986. Employer: Retired.
2. Stephen Brodt, "Partial Oxidation Catalysis in a Supercritical Medium," with F.C. Knopf, M.S., 1986. Employer: Retired.
3. Chi H. Cheng, , with G.L. Price, "The Investigation of PtTe/Al₂O₃ and PtSb/Al₂O₃ Bimetallic Reforming Catalysts," Ph.D., 1988. Employer: Albemarle, Baton Rouge, LA.
4. Chauchyun Chang, "Diffusivity Estimation for Counterdiffusing Reactants in Catalytic Solids," Ph.D., 1990. Employer: Industrial Technology and Research Institute, Taiwan.
5. Gerald Flood, "Bounding Feasible Composition Spaces in Complex Reactions," M.S., 1990. Employer: BASF, Florham Park, NJ.
6. Rajesh Samarth, "Evaluation of Strategies to Improve the Hydrocarbon Selectivities in Oxidative Coupling of Methane," M.S., 1991. Employer: ABB Lummus, Houston, TX.
7. Yanfeng Wang, "Reactor Design for Partial Oxidation of Methane to Methanol," M.S., 1992. Employer: Pfizer, St. Louis.

8. Andrew Cain, with F.C. Knopf, "Supercritical Fluid Extraction of Water-Soluble Contaminants from Aqueous Streams," M.S., 1994. Employer: Sydor Technologies, Pittsford, NY.
9. Peter Kim, "Supercritical Fluid Extraction of Contaminants from Polymeric Materials," M.S., 1997. Employer: Jupeng Bio Inc.
10. James Becnel, "Cosolvents for High-Pressure Extraction from Soils Using Supercritical CO₂," M.S., 1997. Employer: DOE, Savannah River National Laboratory, Augusta, GA.
11. Vaughan Hart, "Posttransition Metal-Exchanged Zeolite Catalysts for Alkane Dehydrogenation Reactions," M.S., May 1998. Employer: Lockheed-Martin, Boulder, CO.
12. Sandeep Randery, "Ceria-Baerd Catalysts for Asymmetric Ketone Production," M.S., August 1999. Employer: Self-Employed, Mumbai, India.
13. Travis Hendren, "Kinetics of Catalyzed Acid/Acid and Acid/Aldehyde Condensation Reactions to Non-Symmetric Ketones," M.S., December, 2001. Employer: CRS Reprocessing, Crestwood, KY.
14. Frederick Harry, "The Carbonation of Cementitious Materials Through Reactive Extrusion," M.S., August, 2001. Employer: AdvanSix, Hopewell, VA.
15. Yujun Song, "Development of New Catalysts for Amidation and Alkylaromatic Oxidation," M.S., August, 2002. Employer: Univ. of Science and Technology, Beijing (faculty).
16. Rujun Li, with M.A. Henson, "Dynamic Modeling and Parameter Estimation for an Ethylene-Propylene-Diene Polymerization Process," Ph.D. August 2003. Employer: Aveva, Houston, TX
17. Arvind Bhat, "Metal-Doped Rare Earth Oxide Catalysts for Ketones," M.S., Aug. 2004. Employer: NETDESQ, New York, NY.
18. Craig Plaisance, "Catalyst Development and Reactor Study for Dimethyl Sulfide Production," M.S., August 2005. Employer: Louisiana State Univ. (faculty).
19. Alan Bussard, "Heterogeneous Catalyzed Macromolecular Hydrogenations in Oscillating Systems," Ph.D., May 2008. Employer: UOP/Honeywell, Mobile, AL
20. Vikram Kalakota, "Removal of H₂S Using Regenerable Sorbents of Rare Earth / Transition Metal Oxides," M.S., August 2008. Employer: SBM Offshore, Houston, TX.
21. Sumana Adusumilli, "Desulfurization and Tar Removal from Gasifier Effluents Using Mixed Rare Earth Oxides," M.S., January 2010. Employer: Micron Technology Inc., Boise, ID.
22. Dongxing Liu, "Catalytic Oxidative Desulfurization of a Model Diesel," M.S., August 2010. Employer: LSU Petroleum Engineering (staff).
23. Jacob Hanberry, "Boron and Rare Earth Oxide Composite Nanoparticles for Enhancement of Combustion," M.S., August 2011. Employer: Boardwalk Louisiana Midstream, Baton Rouge, LA.

24. Edward O'Brien, "The Stereospecific Hydrogenation and Dehydrogenation of Fatty and Rosin Acids," M.S., Dec. 2011. Employer: Mexichem, Baton Rouge, LA.
25. Neng Wang, "Boron/Transition Metal Nanocomposites for Combustion Enhancement," M.S., Dec., 2012. Employer: Engineers and Constructors Intl., Baton Rouge, LA.
26. Mohammed Shafi Syed, with F.C. Knopf, "A New Diagnostics Tool for Water-Injected Gas Turbines: Emissions Monitoring," Ph.D., May 2013. Employer: CP Kelco, San Diego, CA.
27. Andrew Madrid, with F.C. Knopf, "Oxidative Desulfurization with O₂ Oxidant," M.S., May 2013. Employer: Zink Imaging Inc., Greensboro, NC.
28. Rui Li, "Desulfurization and Tar Removal from Biogasifier Effluents Using Rare Earth Oxide / Transition Metal Catalysts," Ph.D., Aug. 2014. Employer: Bloom Energy, Sunnyvale, CA.
29. James Bruno, "Catalysts for the Generation of Internal, Long-Chain Olefins," Ph.D., Aug. 2015. Employer: Fresenius Healthcare, Oklahoma City, OK.
30. Chuanlin Zhao, "Novel Separation Strategy for Processing Biopyrolysis Liquids," M.S., Dec. 2013. Employer: Sun-Yat Sen Univ., PRC (faculty).
31. Jaren Lee, "A Model Compound Study in Syngas Tar Reforming" M.S., Dec. 2016. Employer: Maverick Engineering, Baton Rouge, LA.
32. Changyi Jiang, "Sulfur Tolerant High Temperature Reforming Catalysts," Ph.D., May 2020. Employer: Postdoc, Univ. of Central Florida.
33. Cameron Roman, with James Dorman, "Understanding Reaction Mechanisms for the Design of RF Driven Catalytic Modular Reactors," Ph.D., expected Dec. 2022.
34. Bernard Whajah, with James Dorman, "Electromagnetic Depolymerization of Waste Plastics," Ph.D., expected Aug. 2023.
35. Kelly Cohen, with James Dorman, "Micro Heat Exchanger/Reactor for Advanced Oxidation Processes," Ph.D., expected Aug. 2024.
36. Jonathan Lucas, with James Dorman, "The Role of Overlayers on Adsorbate Migration – Adsorbate Confinement and the Impact on Limiting Secondary Reactions in Methane Dry Reforming," Ph.D., expected Aug. 2024.

Postdoctoral Fellows/Research Associates Directed

Chien-Ping Kao, 1985-1986, with Dr. F.C. Knopf. Project: Supercritical Fluid Extraction. Employer: retired.

Minghua Ye, 1990-1991, with Dr. F.C. Knopf. Projects: Oxidation Catalysis in Supercritical Fluids, Methane Activation. Employer: ExxonMobil, Baton Rouge, LA.

Shang-Yang Chen, 1992. Project: Catalytic Activation of Methane. Employer: retired.

Woo-Sik Kim, 1992-1993. Project: Supercritical Fluid Extraction. Employer: Samsung, South Korea.

Ellen Chagnard, 1997. Project: Catalysis of Asymmetric Ketone Production. Employer: retired.

Chris Martin, 1997. Project: Catalysis of Asymmetric Ketone Production. Employer: Lawyer, Baton Rouge, LA.

Bronson Guilbeau, 1998-99. Project: pH-Neutral Concrete for Attached Microalgae and Enhanced Carbon Dioxide Fixation. Employer: Cargill, Gainesville, GA.

Katherine Tritz, 1999. Project: Catalytic Amidation and Imidation. Employer: retired.

Anwu Li, 200-01. Project: Alkylaromatic Carbonylation. Employer: MRT Corp., Vancouver, Canada.

Karen Xu, 2001-02. Project: Alkylaromatic Carbonylation. Employer: LA Dept. of Environmental Quality, Baton Rouge, LA.

Casey O'Quin, 2004-05, with Dr. Ralph Pike. Project: Thermal Decomposition of Hydrogen Peroxide. Employer: Dow Chemical, Freeport, TX.

Exchange Students

Freddy Avila-Diaz, 2007-08. Project: Condensation Catalysis to Methylketones. Employer: Univ. of Santander, Columbia.

Antoine Gisle, 2015. Project: "Core-Shell Nanocomposites for Gas Separations," Univ. of Grenoble, France.

List of Courses Taught

At Louisiana State University

1. Chemical Reaction Engineering
2. Heat and Mass Transfer
3. Catalysis, graduate
4. Introduction to Polymers
5. Chemical Reactor Design, graduate
6. Senior Projects
7. Engineering Practice Lab
8. Senior Lab (Unit Operations Lab)
9. Momentum Transfer
10. Advanced Mass Transfer, graduate
11. Catalysis
12. Macromolecules I and II (Chemistry, team-taught).
13. Unit Operations (Design I)
14. Junior Lab (Engineering Measurements Lab)
15. Introduction to Chemical Engineering

At University of Delaware

1. Introduction to Catalysis
2. Applied Heat Transfer

At University of Twente

1. Senior Research Lab

7. MAJOR AREAS OF RESEARCH INTEREST

- Catalysis research on supported acids (zeolites, macroporous polymers, functionalized mesoporous silicas) and mixed metal oxides for syngas conditioning/production, biorefining, hydrogenation/dehydrogenation, depolymerization, carbonylation, and oxidative desulfurization applications.
- Characterization techniques: FTIR and Raman spectroscopies, thermal analysis (TGA, DSC, TPD), SEM, TEM, XRD, XPS, XAS (XANES and XAFS), and microreactor kinetics measurements.
- Synthesis / characterization of rare earth oxide catalysts and their application in decarboxylative condensation, combustion, desulfurization, reforming and tar removal.
- Synthesis / characterization of energetic material / catalyst composite materials.
- Synthesis / characterization of zeolite and transition metal-containing zeolites.
- High-pressure processing and extraction research, e.g., supercritical fluid extraction (SCFE) of priority pollutants from contaminated soils, SCFE of low molecular weight organic solutes from polymers, and of organic pollutants from water, and non-catalytic partial oxidations.

9. UNIVERSITY SERVICE

Administrative Duties

Graduate program coordinator (Chemical Eng.), Jan. 1993–Sept. 1995;
Undergraduate laboratory coordinator, Jan. 1998–July 2007.

University Committees

Undergraduate Recruiting, 1987-88
Council of College Policy Committees, 1998-2000
Library, 1993-1996 and 2006-2008, Chair
Faculty Senate, 2005-2007; 2009-2013; 2021-present
Communication across the Curriculum, 2005-08
Multidisciplinary Hiring Initiative, 2007–09, 2012
Courses and Curricula, 1997-1999; 2008-14, Vice-Chair – 2012-14
PS69 (Research Misconduct), 2015
Program Review, Computer Science, 2017.
CAMD User Group, 2014-17.

College Committees

Chemistry Library, 1985-1988

Review of Department Chair, 1984
Safety, 1988-1989
Chair Search, 1987-1988
Review of Department Chair, 1992
Environmental Engineering Curriculum, 1992
Chair Search, 1994 (Chair)
College Policy, 1996-2000 (Chair, 1998-2000); 2002-2004.
Chair Search, 2005
Promotion and Tenure, 2008-2012
CAMD Tenure (College of Science), 2014, 2020
Chevron Energy Scholars Awards, 2018-present
Electronics Shop Supervisor Search (College of Science), 2019-2020

Departmental Committees

Catalysis, Combustion, Kinetics (1984-1986, Chair)
Equilibrium and Transport Properties (1984-1986)
Computer Steering (1984)
Safety (1986-1992, Chair, 1987-1992)
Undergraduate Recruitment (1987-1989, Chair)
Undergraduate Development (1988-1992)
Graduate Development (1983-1988; 1992-2000, Chair 1992-1995)
Gordon Cain Endowment (1999-2000, Chair)
Assistant Professor Search (2000-2001)
Assistant Professor Search (2003-2004)
Assistant Professor Search (2006-2007)
Promotion and Tenure (2008-2012, Chair)
Assistant Professor Search (2012-2013)
Process Safety in the Curriculum (2013-2015)
Seminar, Awards and Events (2011-2019, Chair)
Undergraduate (2015-present)
Lab Coordinator Search (2017)
Assistant Professor Search (2017-2018)
Cain Chair Search (2017-2019)
Assistant Professor Search (2019-2020, Chair)
Instructor Search (2022)

In addition I have served on 50 Ph.D. and 15 M.S. committees for the graduate students of other Faculty.

10. PUBLIC SERVICE

AIChE, Chair, area 1f (High Pressure), 2004-05; Program Chair, 2003-04.
Executive Board, Catalysis Society, 2011-2013
Organizing Committee Chair, North American Catalysis Society Meeting, 2007
Organizing Committee, ChemInnovations Conference, New Orleans, 2012
External Advisory Board, Oklahoma Biofuels Center, 2009-2013
Co-Chair, ACS Graduate Polymers Conference, 2013-14
Associate Editor, RSC Catalysis, 2005-2016

I taught part of the P.E. Review course at LSU (subject: Reactor Design) until 2006. I was Treasurer of the local AIChE section in 1987-88, and was a long-time officer of the Southwest Catalysis Society, having held all the offices at one time or another, including as Chair three times.

I rewrote both the graduate brochure and changed the design/text of the Department's webpage when I was graduate coordinator. I wrote the original safety manual for the Department (still used with some revisions), and assisted in writing several departmental reports and publications during the Pike (1992-1993) and Knopf (1998-2005) chairmanships. I coordinated the Dept.'s Centennial Celebration in 2008 and wrote its official history to that point, which can be found at:

<https://www.lsu.edu/eng/che/images/about/history/centennial-history.pdf>

In community-related work, I judged the Louisiana State Science Fair in 1985. In the late '80s, I produced and wrote the script for "Chemical Engineering: Profession of the Future," a 25 minute informational and recruiting video. One copy was sent to every High School in the state and any other organization requesting it.

In 2011 I spoke to classes at Kenilworth Middle School on "Why Become an Engineer". From 2009-12 I judged the Dept. of Defense Science and Humanities Fair for LA. In 2012 I spoke to the Iberville Parish Rotary Club. I judged two school Science Fairs in 2015, and spoke on my research to the Louisiana Summer Undergraduate Research Forum. I periodically advise high-school students in the Baton Rouge area on chemistry-related science fair projects.

I was Faculty Coordinator (2012-2020) for the Chemical Education Foundation's "You Be the Chemist Challenge", a quiz-bowl type competition targeted to middle-school students. This included coordination of both the BR region and state competitions.