

## Natalia Shustova

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### Professional Appointments and Education

McCausland Professor	2021–present
Peter and Bonnie McCausland Associate Professor	2019–2020
IAS Hans Fischer Fellow, Technical University of Munich	2020–present
Associate Professor of Chemistry, University of South Carolina	2018–2020
Associate Editor, Materials Chemistry Frontiers	2016–2019
Assistant Professor of Chemistry, University of South Carolina	2013–2017
Postdoctoral Associate, Massachusetts Institute of Technology	2010–2013
Ph.D. in Inorganic Chemistry, Colorado State University	2005–2010
Ph.D. in Physical Chemistry, Moscow State University	2004–2005

### Awards and Honors

IAS Hans Fischer Fellowship	2020
Camille Dreyfus Teaching-Scholar Award	2019
McCausland Fellowship	2019
Distinguished Undergraduate Research Mentor Award	2019
Alfred P. Sloan Research Award	2017
Cottrell Scholar Award – Research Corporation for Science Advancement	2017
Breakthrough Award	2017
Scialog Fellow, Research Corporation for Science Advancement	2017
NSF CAREER Award	2016
MIT Infinite Kilometer Postdoctoral Award	2013
MIT/Bruker Symposium Poster Award	2013
Graduate Teaching Assistant Award, Colorado State University	2009
XIX International Symposium on Fluorine Chemistry Poster Award (first prize)	2009
German Academic Exchange Service (DAAD) Scholarship	2009
ECS Poster Award	2009
Herbert H. Uhlig ECS Summer Fellowship	2008
ECS Solid-State Science and Technology Poster Award	2008
AWIS Educational Foundation Citation of Merit	2008
International J. Soros Science Education Program Fellowship	2002, 2005
L. Euler Student Fellowship	2003, 2004
V. F. Luginin Research Award, Moscow State University	2002, 2003
International Student Conference (first prize), Moscow State University	2002–2004

### Publications (\* denotes Shustova, N. as a corresponding author)

- Martin, C. R.; Park, K. C.; Leith, G. A.; Yu, J.; Mathur, A.; Wilson, G. R.; Gange, G. B.; Barth, E. L.; Ly, R. T.; Manley, O. M.; Forrester, K. L.; Karakalos, S. G.; Smith, M. D.; Makris, T. M.; Vannucci, A. K.; Peryshkov, D. V.; **Shustova, N. B.\*** "Stimuli-Modulated Metal Oxidation States in Photochromic MOFs" *J. Am. Chem. Soc.* **2022**, DOI: 10.1021/jacs.1c11984.
- Leith, G. A.; Martin, C. R.; Park, K. C.; **Shustova, N. B.\*** "Playing "Jenga" with MOFs: De-interpenetration for Pore Opening" *Chem.* **2022**, DOI: 10.1016/j.chempr.2022.01.013.
- Kittikhunnatham, P.; Leith, G. A.; Mathur, A.; Naglic, J. K.; Martin, C. R.; Park, K. C.; McCullough, K.; Jayaweera, C. H. D. A.; Corkill, R. E.; Lauterbach, J.; Karakalos, S. G.; Smith, M. D.; Garahschuk, S.; Chen, D. A.; **Shustova, N. B.\*** "A MOF Multifunctional Cargo Vehicle for Reactive-Gas Delivery and Catalysis" *Angew. Chem. Int. Ed.* **2021**, DOI: 10.1002/anie.202113909.
- Martin, C. R.; Leith, G. A.; Kittikhunnatham, P.; Park, K. C.; Ejegbawo, O. A.; Mathur, A.; Callahan, C. R.; Desmond, S. L.; Keener, M. R.; Ahmed, F.; Pandey, S.; Smith, M. D.; Phillipot, S. R.; Greytak, A. B.; **Shustova, N. B.\*** "Heterometallic Actinide-Containing Photoresponsive Metal-Organic Frameworks: Dynamic and Static Tuning of Electronic Properties" *Angew. Chem. Int. Ed.* **2021**, *60*, 8072–8080 (article featured as a frontispiece; **Metal-Organic Frameworks: Special Collection**).

95. Leith, G. A.; **Shustova, N. B.\*** “Graphitic Supramolecular Architectures Based on Corannulene, Fullerene, and Beyond” *Chem. Comm.* **2021**, 57, 10125–10138 (**invited**).
94. Stanley, P. M.; Haimerl, J.; Thomas, C.; Urstoeger, A.; Schuster, M.; **Shustova, N. B.**; Casini, A.; Rieger, B.; Warnan, J.; Fischer, R. A. “Host-Guest Interactions in Metal-Organic Framework Isorecticular Series for Molecular Photocatalytic CO<sub>2</sub> Reduction” *Angew. Chem. Int. Ed.* **2021**, 60, 17854–17860 (**highlighted on the cover**).
93. Martin, C. R.; Leith, G. A.; **Shustova, N. B.\*** “Beyond Structural Motifs: The Frontier of Actinide-Containing Metal-Organic Frameworks” *Chem. Sci.* **2021**, 12, 7214–7230 (**invited**).
92. Leith, G. A.; Martin, C. R.; Mathur, A.; Kittikhunnatham, P.; Park, K. C.; **Shustova, N. B.\*** “Dynamically-Controlled Electronic Behavior of Stimuli-Responsive Materials: Exploring Dimensionality and Connectivity” *Adv. Energy Mater.* **2022**, 12, 2100441 (**special Issue: "Dimensionality, Emerging Materials, and Energy"**).
91. Martin, C. R.; Park, K. C.; Corkill, R. E.; Kittikhunnatham, P.; Leith, G. A.; Mathur, A.; Abiodun, S. L.; Greytak, A. B.; **Shustova, N. B.\*** “Photoresponsive Frameworks: Energy Transfer in the Spotlight” *Faraday Discuss.*, **2021**, 231, 266–280 (**invited contribution as a part of a Faraday Discussion Series: "MOFs for Energy and the Environment"**).
90. Leith, G. A.; Rice, A. M.; Yarbrough, B. J.; Kittikhunnatham, P.; Mathur, A.; Morris, N. A.; Francis, M. J.; Berseneva, A. A.; Dhull, P.; Adams, R. D.; Bobo, M. V.; Vannucci, A. A.; Smith, M. D.; Garashchuk, S.; **Shustova, N. B.\*** “Broken-Hearted” Carbon Bowl via Electron Shuttle Reaction: Energetics and Electron Coupling” *Chem. Sci.* **2021**, 12, 6600–6606.
89. Li, Y.; Hu, S.; Hilty, F. W.; Montgomery, R.; Park, K. C.; Martin, C. R.; **Shustova, N. B.**; Liu, Y.; Phillpot, S. R. “Leaching Model of Radionuclides in Metal-Organic Framework Particles” *Comput. Mater. Sci.* **2021**, 201, 110886.
88. Leith, G. A.; Martin, C. R.; Mayers, J.; Kittikhunnatham, P.; Larsen, R.; **Shustova, N. B.\***; “Confinement-Guided Photophysics in MOFs, COFs, and Cages” *Chem. Soc. Rev.* **2021**, 50, 4382–4410. (**themed collection of Chemical Society Reviews on “Nanoconfinement”**)
87. **Shustova, N. B.\*** “Natalia Shustova answers questions about 15 years of research on covalent organic frameworks” *Nat. Commun.* **2020**, 11, 5329.
86. Dolgoplova, E. A.; Berseneva, A. A.; Faillace, M. S.; Ejegbavwo, O. A.; Leith, G. A.; Choi, S. W.; Gregory, H. N.; Rice, A. M.; Smith, M. D.; Chruszcz, M.; Garashchuk, S.; Myhre, K.; **Shustova, N. B.\*** “Confinement-Driven Photophysics in Cages, Covalent-Organic Frameworks, Metal-Organic Frameworks, and DNA” *J. Am. Chem. Soc.* **2020**, 142, 4769–4783.
85. Leith, G. A.; Rice, A. M.; Yarbrough, B. J.; Berseneva, A. A.; Ly, R. T.; Buck, C. N. III; Chusov, D.; Brandt, A. J.; Chen, D. A.; Lamm, B. W.; Stefik, M.; Stephenson, K. S.; Smith, M. D.; Vannucci, A. K.; Pellechia, P. J.; Garashchuk, S.; **Shustova, N. B.\*** “A Dual Threat: Redox-Activity and Electronic Structures of Well-Defined Donor-Acceptor Fullerene Covalent-Organic Materials” *Angew. Chem. Int. Ed.* **2020**, 59, 6000–6009.
84. Ejegbavwo, O. E.; Berseneva, A. A.; Martin, C. R.; Leith, G. A.; Pandey, S.; Brandt, A. J.; Park, K. C.; Mathur, A.; Farzandh, S.; Klepov, V. V.; Heiser, B. J.; Chandrashekar, M.; Karakalos, S. G.; Smith, M. D.; Phillpot, S. R.; Garashchuk, S.; Chen, D. A.; **Shustova, N. B.\*** “Heterometallic Multinuclear Nodes Directing MOF Electronic Behavior” *Chem. Sci.* **2020**, 11, 7379–7389.
83. Martin, C. R.; Kittikhunnatham, P.; Leith, G. A.; Berseneva, A. A.; Park, K. C.; Greytak, A. B.; **Shustova, N. B.\*** “Let the Light be a Guide: Chromophore Communication in Metal-Organic Frameworks” *Nano Res.* **2021**, 14, 338–354 (**special issue: Future Directions of Reticular Chemistry**).
82. Metavarayuth, K.; Ejegbavwo, O. A.; McCarver, G.; Myrick, M.; Makris, T.; Vogiatzis, K.; Senanayake, S.; Manley, O.; Ebrahim, A.; Frenkel, A.; Hwang, S.; Rajeshkumar, T.; Jimenez, J.; Chen, K.; **Shustova, N. B.\***; Chen, D. A. “Direct Identification of Mixed-Metal Centers in Metal-Organic Frameworks: Cu<sub>3</sub>(BTC)<sub>2</sub> Transmetalated with Rh<sup>2+</sup> Ions” *Phys. Chem. Lett.* **2020**, 11, 8138–8144.
81. Pandey, S.; Demaske, B.; Ejegbavwo, O. A.; Berseneva, A. A.; Setyawan, W.; Shustova, N. B.; Phillpot, S. “Electronic Structures and Magnetism of Zr-, Th-, and U-based Metal-Organic Frameworks (MOFs) by Density Functional Theory” *Comput. Mater. Sci.* **2020**, 184, 109903.
80. Brandt, A. J.; Shakya, D.; Metavarayuth, K.; Dolgoplova, E.; Hensley, L.; Duke, A. S.; Farzandh, S.; Stefik, M.; **Shustova, N. B.\***; Chen, D. A. “Growth of Crystalline Bimetallic Metal-Organic Framework Films via Transmetalation” *Langmuir* **2020**, 36, 9900–9908.
79. Li, D.; Shustova, N. B.; Martin, C. R.; Taylor-Pashow, K.; Seaman, J. C.; Kaplan, D. I.; Amoroso, J. W.; Chernikov, R. J. Anion-Exchanged and Quaternary Ammonium Functionalized MIL-101-Cr Metal-Organic Framework (MOF) for ReO<sup>-</sup>/TcO<sup>-</sup> Sequestration from Groundwater *Environ. Radioact.* **2020**, 222, 106372.
78. Ejegbavwo, O. A.; Martin, C. R.; Oyindamola, A. O.; Leith, G. A.; Ly, R. T.; Rice, A. M.; Dolgoplova, E. A.; Smith, M. D.; Karakalos, S. G.; Birkner, N.; Powell, B. A.; Pandey, S.; Koch, R. J.; Mixture, S. T.; zur Loye, H.-C.; Phillpot, S. R.; Brinkman, K. S.; Shustova, N. B. “Thermodynamics and Electronic Properties of Heterometallic Multinuclear An-MOFs with “Structural Memory”” *J. Am. Chem. Soc.* **2019**, 141, 11628–11640 (**highlighted on the cover**).

77. Leith, G. A.; Berseneva, A. A.; Mathur, A.; Park, K. C.; **Shustova, N. B.\*** “A Multivariate Toolbox for Donor–Acceptor Alignment: MOFs and COFs” *Trends Chem.* **2020**, *2*, 367–382. (highlighted in the special issue: **First Anniversary–Laying Groundwork for the Future; the editor’s choice of Trends in Chemistry papers**).
76. Rice, A. M.; Martin, C. R.; Galitskiy, V. A.; Berseneva, A. A.; Leith, G. A.; **Shustova, N. B.\*** “Photophysics Modulation in Photoswitchable Metal–Organic Frameworks” *Chem. Rev.* **2020**, *120*, 8790–8813.
75. Berseneva, A. A.; Martin, C. R.; Galitskiy, V. A.; Ejegbavwo, O. A.; Ly, R. T.; Rice, A. M.; Dolgoplova E. A.; Smith, M. D.; zur Loye, H.-C.; DiPrete, D. P.; Amoroso, J. W.; **Shustova, N. B.\*** “Boarding-up”: Radiation Damage and Radionuclide Leaching Kinetics in Linker-Capped Metal–Organic Frameworks” *Inorg. Chem.* **2020**, *59*, 179–183. (highlighted in “**Inorganic Chemistry Forum on “Innovative f-Element Chelating Strategies”**”).
74. Shakya, D. M.; Ejegbavwo, O. A.; Rajeshkumar, T.; Senanayake, S. D.; Brandt, A. J.; Farzandh, S.; Acharya, N.; Ebrahim, A. M.; Frenkel, A. I.; Rui, N.; Tate, G. L.; Monnier, J. R.; Vogiatzis, K. D.; **Shustova, N. B.\***; Chen, D. A. “Selective Catalytic Chemistry at Rhodium (II) Nodes in Bimetallic Metal–Organic Frameworks” *Angew. Chem. Int. Ed.* **2019**, *131*, 58, 16533–16537.
73. Dolgoplova, E. A.; Galitskiy, V. A.; Martin, C. R.; Gregory, H. N.; Yarbrough, B. J.; Rice, A. M.; Berseneva, A. A.; Ejegbavwo, O. A.; Stephenson, K. S.; Kittikhunnatham, P.; Karakalos, S. G.; Smith, M. D.; Greytak, A. B.; Garashchuk, S.; **Shustova, N. B.\*** “Connecting Wires: Photoinduced Electronic Structure Modulation in Metal–Organic Frameworks” *J. Am. Chem. Soc.*, **2019**, *141*, 5350–5355.
72. Rice, A. M.; Leith G. A.; Ejegbavwo, O. A.; Dolgoplova, E. A.; **Shustova, N. B.\*** “Heterometallic Metal–Organic Frameworks (MOFs): The Advent of Improving the Energy Landscape” *ACS Energy Lett.*, **2019**, *4*, 1938–1946 (highlighted on the cover).
71. Pandey, S.; Jia, Z.; Demaske, B.; Ejegbavwo, O. A.; Setyawan, W.; Henager, C. H.; Shustova, N. B.; Phillpot, S. R. “Sequestration of Radionuclides in Metal–Organic Frameworks from Density Functional Theory Calculations” *J. Phys. Chem. C* **2019**, *123*, 26842–26855.
70. Williams, D. E.; Martin, C. R.; Dolgoplova, E. A.; Swifton, A.; Godfrey, D. C.; Ejegbavwo, O. A.; Pellechia, P.; Smith, M. D.; **Shustova, N. B.\*** “Flipping the Switch: Fast Photoisomerization in a Confined Environment” *J. Am. Chem. Soc.*, **2018**, *40*, 7611–7622 (highlighted on the cover).
69. Rice, E. A.; Dolgoplova E. A.; Yarbrough, B. J.; Leith G. A.; Martin C. R.; Stephenson, K. S.; Heugh, R. A.; Brandt, A. J.; Chen, D. A.; Karakalos, S. G.; Smith M. D.; Hatzell, K. B.; Pellechia, P. J.; Garashchuk, S.; Shustova, N. B. “Stack the Bowls: Tailoring the Electronic Structure of Corannulene-Integrated Crystalline Materials” *Angew. Chem. Int. Ed.* **2018**, *57*, 11310–11315.
68. Dolgoplova, E. A.; Rice, A. M.; **Shustova, N. B.\*** “Photochemistry and Photophysics of MOFs: Steps Towards MOF-based Sensing Enhancements” *Chem. Soc. Rev.* **2018**, *47*, 4710–4728 (highlighted on the cover).
67. Dolgoplova, E. A.; Rice, A. M.; **Shustova, N. B.\*** “Actinide-based MOFs: A Middle Ground in Solution and Solid-State Structural Motifs” *Chem. Commun. (Emerging Investigator Issue)* **2018**, *54*, 6472–6483 (highlighted on the cover).
66. zur Loye, H.-C.; Besmann, T.; Amoroso, J.; Brinkman, K.; Grandjean, A.; Henager, C. H.; Hu, S.; Mixture, S. T.; Phillpot, S. R.; **Shustova, N. B.**; Wang, H.; Koch, R. J.; Morrison, G.; Dolgoplova, E. “Hierarchical Materials as Tailored Nuclear Waste Forms: A Perspective” *Chem. Mater.* **2018**, *30*, 4475–4488.
65. Baroni, N.; Turshatov, A.; Adams, M.; Dolgoplova, E. A.; Schliiske, S.; Hernandez-Sosa, G.; Wöll, C.; Shustova, N. B.; Richards, B. S.; Howard, I. A. “Inkjet-Printed Photoluminescent Patterns of Aggregation-Induced-Emission Chromophores on Surface-Anchored Metal–Organic Frameworks” *ACS Appl. Mater. Interfaces*, **2018**, *10*, 25754–25762.
64. Dolgoplova, E. A.; Brandt, A. J.; Ejegbavwo, O. A.; Duke, A. S.; Maddumapatabandi, T. D.; Galhenage, R. P.; Larson, B. W.; Reid, O. G.; Ammal, S. C.; Heyden, A.; Chandrashekhar, Mvs; Stavila, V.; Chen, D. A.; **Shustova, N. B.\*** “Electronic Properties of Bimetallic Metal–Organic Frameworks (MOFs): Tailoring the Density of Electronic States through MOF Modularity” *J. Am. Chem. Soc.*, **2017**, *139*, 5201–5209.
63. Dolgoplova, E. A.; Ejegbavwo, O. A.; Martin, C. R.; Smith, M. D.; Setyawan, W.; Karakalos S. G.; Henager, C. H.; zur Loye, H.-C.; **Shustova, N. B.\*** “Multifaceted Modularity: A Key for Stepwise Building of Hierarchical Complexity in Actinide Metal–Organic Frameworks” *J. Am. Chem. Soc.*, **2017**, *39*, 16852–16861.
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61. Rice, A. M.; Dolgoplova, E. A.; **Shustova, N. B.\*** “Fulleretic Materials: Buckyball- and Buckybowl-Based Crystalline Frameworks” *Chem. Mater.* **2017**, *29*, 7054–7061.
60. Dolgoplova, E. A.; Moore, T. C.; Ejegbavwo, O. A.; Pellechia, P.; Smith, M. D.; **Shustova, N. B.\*** “A Metal–Organic Framework as a Flask: Photophysics of Confined Chromophores with a Benzylidene Imidazolinone Core” *Chem. Commun. (Emerging Investigator Issue)*, **2017**, *53*, 7361–7364.

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58. Fellows, B. W.; Rice, A. M.; Williams, D. E.; Dolgoplova, E. A.; Vannucci, A. K.; Pellechia, P.J.; Smith, M. D.; Krause, J. A.; **Shustova, N. B.**\* “Redox-Active Corannulene Buckybowls in a Crystalline Hybrid Scaffold” *Angew. Chem. Int. Ed.* **2016**, *55*, 2195–2199 (**highlighted on the cover**).
57. Williams, D. E.; Godfrey, D. C.; Ermolaeva, E. D. Pellechia, P. J.; Greytak, A. B.; Smith, M. D.; Avdoshenko, S. M.; Popov, A. A.; **Shustova, N. B.**\* “Fulleretic Well-Defined Scaffolds: Donor-Fullerene Alignment Through Metal Coordination and Its Effect on Photophysics” *Angew. Chem. Int. Ed.* **2016**, *55*, 9070–9074.
56. Dolgoplova, E. A.; Rice, A. M.; Smith, M. D.; **Shustova, N. B.**\* “Photophysics, Dynamics, and Energy Transfer in Rigid Mimics of GFP-based Systems” *Inorg. Chem.* **2016**, *55*, 7257–7264.
55. Dolgoplova, E. A.; Moore, T. M.; Fellows, W. B.; Smith, M. D.; **Shustova, N. B.**\* “Photophysics of GFP-related Chromophores Imposed by a Scaffold Design”, *Dalton Trans. (New Talents: Americas)*, **2016**, *45*, 9884–9891.
54. Dolgoplova, E. A.; Williams, D. E.; Greytak, A. B.; Rice, A. M.; Smith, M. D.; Krause, J. A.; **Shustova, N. B.**\* “A Bio-inspired Approach for Chromophore Communication: Ligand-to-Ligand and Host-to-Guest Energy Transfer in Hybrid Crystalline Scaffolds” *Angew. Chem. Int. Ed.* **2015**, *54*, 13639–13643.
53. Williams, D. E.; Dolgoplova, E. A.; Pellechia, P.J.; Palukoshka, A.; Wilson, T. J.; Tan, R.; Maier, J. M.; Tan, R.; Greytak, A. B.; Smith, M. D.; Krause, J. A.; **Shustova, N. B.**\* “A Mimic of the Green Fluorescent Protein  $\beta$ -barrel: Photophysics and Dynamics of Confined Chromophores Defined by a Rigid Porous Scaffold” *J. Am. Chem. Soc.* **2015**, *137*, 2223–2226.
52. Duke, A. S.; Dolgoplova, E. A.; Galhenage, R. P.; Ammal, S. C.; Heyden, A.; Smith, M. D.; Chen, D. A.\*; **Shustova, N. B.**\* “Active Sites in Copper-based Metal-Organic Frameworks: Understanding Substrate Dynamics, Redox Processes, and Valence-Band Structure” *J. Phys. Chem. C* **2015**, *119*, 27457–27466.
51. Williams, D. E.; **Shustova, N. B.**\* “Metal-Organic Frameworks as a Versatile Tool to Study and Model Energy Transfer Processes” *Chem. Eur. J.* **2015**, *21*, 15474–15479.
50. Gardinier, J. R.\*; Hewage, J. S.; Justin Hoffman, Lindeman, S. V.; Williams, D. E.; **Shustova, N. B.**\* “Supramolecular Assembly of Metal-Organic Tubes Constructed from the Ditopic Heteroscorpionate Ligand (4-NH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>)CHpz<sub>2</sub> (pz = Pyrazol-1-yl) and Silver(I)” *Eur. J. Inorg. Chem.* **2016**, 2615–2625.
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47. Whitaker, J. B.; Kuvychko, I. V.; **Shustova, N. B.**; Chen, Y.-S.; Strauss, S. H. Boltalina, O. V. “An elusive fulvene 1,7,11,24-C<sub>60</sub>(CF<sub>3</sub>)<sub>4</sub> and its unusual reactivity” *Chem. Commun.* **2014**, *50*, 1205–1208.
46. **Shustova, N. B.**; Cozzolino, A. F.; Reineke, S.; Baldo, M.; Dincă, M. “Selective Turn-On Ammonia Sensing Enabled by High-Temperature Fluorescence in Metal–Organic Frameworks with Open Metal Sites” *J. Am. Chem. Soc.* **2013**, *135*, 13326–13329.
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  1. Aleshina, V. E.; Borschevskii, A. Ya.; Skokan, E. V.; Arhangelskii, I. V.; Astahov, A. V.; Shustova, N. B. "Fluorination of the Cubic and Hexagonal  $C_{60}$  Modifications by Crystalline Manganese Trifluoride" *Phys. Solid State* **2002**, *44*, 629–630.

## Book Chapters

1. **Chapter 4:** Perfluoroalkylation of Fullerenes, *Handbook of Carbon Nano Materials* (Editors: D'Souza, F. and Kadish, K. M.), World Scientific, **2011**, pp. 102–135.
2. **Chapter 68:** High-Yield Synthesis of a Single Asymmetric Isomer of  $C_{70}(CF_3)_{10}$  by High Temperature Radical Trifluoromethylation *Efficient Preparation of Fluorine Compounds*, (Editor: Roesky, H. W.), John Wiley and Sons, Inc., **2013**.

## Selected Invited Talks

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Northwestern University; Imperial College, London; ETH Zurich; MIT-Harvard; University of California, Berkeley; Cornell University; University of Pennsylvania; Texas A&M University, University of Utah, University of South California, Boston College, University of California, Riverside; University of Pittsburg; Vanderbilt University, Colorado State University, Emory University; Marquette University, Florida State University, Georgia Institute of Technology; Dartmouth College; Brandies University, University of North Carolina, Chapel Hill; University of Iowa; Gordon Conferences (2017, 2018, 2019); MOF (2016, 2018); euro-MOF (2019); ICC-2018.

## Awarded Research Support

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DOE, Catalysis	2021–2023
NSF, DMR	2021–2024
DOE, Catalysis	2021–2022
IAS Hans Fisher Fellowship	2021–2023
DOE EFRC – Center for Hierarchical Waste Form Materials (leading PI)	2020–2024
NSF EPSCOR GEAR	2021–2022
Camille Dreyfus Teaching Scholar Award	2019–2024
NSF CAREER – Division of Materials Research, Solid State and Materials Chemistry	2016–2022
E-conversion Cluster Grant	2021–2024
USC ASPIRE-II Research Grant	2020–2022
McCausland Fellowship	2019–2022
NASA	2020-2021
DOE EFRC – Center for Hierarchical Waste Form Materials (leading PI)	2017–2020
DOE, Catalysis	2018–2021
USC ASPIRE-II Research Grant	2018–2019
Cottrell Scholar Research Grant	2017–2019
Alfred P. Sloan Research Fellowship	2017–2019
DOE/Savannah River National Laboratory	2018–2019
SC EPSCoR-SAN/SC	2018–2019
Savannah River National Laboratory/DOE	2016–2017
ACS PRF	2014–2016
USC ASPIRE-III Research Grant	2014–2015
USC ASPIRE-I Research Grant	2014–2015
EPSCoR IDeA NSF	2015

## Service and Outreach

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International Organization Advisory Committee for MOF-2022	2022
Organizer “nanoGe” Spring Meeting 2022 Symposium in Spain	2022
Editorial board member of Journal of Chemistry	since 2020
Symposium Organizer – Pacific Chem	2021
Chair of the ACS Inorganic Subdivision	2021
Meeting Organizer – <i>NC Photochem</i>	since 2019
Associate Editor – <i>Materials Chemistry Frontiers</i>	2016–2019
ACS National Awards Selection Committee	since 2019
Editorial board member of ACS Applied Materials & Interfaces	since 2019
Symposium Organizer – American Chemical Society, Southeastern Regional Meeting	2016, 2019
University Senate	since 2019
University Fulbright Committee for Undergraduate Students	since 2019
Department of Chemistry Admission Committee	2013–2019
Department of Chemistry Instrumentation Facilities Steering Committee	since 2013
Director of Women-in-Science (Wi-Sci) Educational Program	since 2013
Freshman Advisor	since 2014
Undergraduate Research Advisor (more than 50 undergraduates)	since 2013
Host for Undergraduates from the SC-AMP Outreach Research Program	2018
Host for High School Students from the SPRI Summer Research Program	since 2015
Reviewer for Science, Nature Publishing Group, ACS, RSC, and Wiley-VCH journals	since 2013

## Teaching Experience

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<b>CHEM 111</b>	<i>General Chemistry</i> (Fall 2014, Spring 2015, Fall 2016, Spring 2016, Fall 2017, Spring 2018) Introductory Chemistry Course for ~300 students
<b>CHEM 711</b>	<i>Physical Methods in Inorganic Chemistry</i> (Spring 2019, 2020; Fall 2021) Principles of Group Theory as Applied to Electronic Structure in Inorganic Chemistry and Spectroscopy

- CHEM 719** *Materials for Renewable Energy Applications* (Fall **2013**, Fall **2017**)  
Introduction to fundamental concepts of energy conversion: photovoltaics, light emitting diodes, thermoelectric materials, alternative fuels, electrochemical energy storage, and batteries and capacitors.
- CHEM 713** *Chemistry of Representative Elements* (Fall **2019**, Fall **2020**)