

CURRICULUM VITAE

JOHN F. MITCHELL

Materials Science Division
Argonne National Laboratory
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Credentials

Argonne National Laboratory	Interim Director, Materials Science Division, Feb 2018-
Argonne National Laboratory	Argonne Distinguished Fellow, Jun 2016-
Argonne National Laboratory	Associate Director, Materials Science Division, 2012-2017
Argonne National Laboratory	Senior Chemist, 09/2009-present
Argonne National Laboratory	Chemist, Oct. 2000- Aug 2009
Argonne National Laboratory	Assistant Chemist, Jan 1996- Sept 2000
Argonne National Laboratory	<i>Department of Energy Distinguished Postdoctoral Fellow</i> , Jan 1993 - Jan 1996
University of Chicago	Ph.D., Mar. 1993; M.S., Dec., 1989
Cornell University	B.A. <i>summa cum laude</i> , May, 1987
University of California, Santa Barbara	Adjunct Professor, Materials Science and Engineering Dept., Jun 2013-

Honors and Awards

Crandell Lectureship, University of Texas at Arlington, Oct. 2015

Fellow, University of Chicago Institute for Molecular Engineering, Jan. 2015-Dec. 2017

University of Chicago Distinguished Performance Award (with Ray Osborn, Stephan Rosenkranz), July 2006

Fellow of the American Physical Society, March 2002

Presidential Early Career Award for Scientists and Engineers, April 2000

Department of Energy Outstanding Young Investigator Award, April 1999.

Department of Energy Distinguished Postdoctoral Research Fellow
Argonne National Laboratory, Jan. 1993 – Jan. 1996

Cross Prize for Graduate Teaching and Research in Chemistry, University of Chicago, May 1992

Lovenberg Prize for Outstanding Junior Chemistry Major, Cornell University, May 1986

Sigma Alpha Epsilon Jones-Lawrence Award for Scholastic Excellence (2nd place),
Evanston, IL, August, 1986

American Chemical Society Northeast Regional Scholarship Award
Cornell University, September 1986

Sophomore Chemistry Award
Cornell University, May 1985

Cornell Section American Chemical Society Freshman Chemistry Award, Cornell
University, May 1984

Camille and Henry Dreyfus Foundation National Merit Scholar
Cornell University, 1983-1987

Competitive Funding Awards

1. Department of Energy Basic Energy Sciences New Initiative, "Naturally Layered Manganites" (with J.D. Jorgensen, S.D. Bader), Awarded June 1997, \$750 K/yr.
2. Argonne National Laboratory-University of Chicago Collaborative Research Grants, "Investigation of the Charge-Ordered State in Rare-Earth Manganites" (with T. Rosenbaum), Awarded June 1997
3. Presidential Early Career Award for Scientists and Engineers, FY 2001-2005
4. Argonne National Laboratory Competitive LDRD funding "Surface Spin Polarization for Spintronics," Oct. 2002 – Sept. 2005
5. Leader, DOE Center of Excellence in Synthesis and Processing Project "Spin Polarized Transport in Complex Oxides," \$300 K/year Oct. 2003 – Sept. 2005.
6. DOE Instrumentation Proposal LAB-03-03 "A High-Resolution Powder Diffractometer for the APS," June 2003 – October 2005, \$3.5 M.
7. Ongoing BES funding for Field Work Project "Emerging Materials" 2005-renewed triennially, most recent 2017, \$1.5 M/year
8. DOE Synthesis Equipment Proposal "High Pressure Optical Image Floating Zone Furnace" August 2011, \$900 K
9. Argonne Coordinator for MICCOM Computational Materials Center Proposal, DOE-BES, 2015-2018
10. Several internal Laboratory Directed Research and Development Awards over past decade, totaling in excess of \$1 M.

Select Professional Activities

1. Nominee, American Physical Society Division of Materials Physics Member-at-Large, 2000 election
2. Nominee, American Physical Society Fellowship, sponsored by GMAG, 2001.

3. Reviewer, Ames Laboratory BES funded programs, 2005, 2009, 2011
4. NSLS-II Beamline Review Committee, 2010
5. Associate Editor, Journal of Solid State Chemistry, 2009-
6. Vice Chair, Division of Materials Physics, American Physical Society, 2013-2014.
7. Chair-Elect, Division of Materials Physics, American Physical Society, 2014-2015.
8. Reviewer, NSF MRSEC Competition, 2013-2014
9. Reviewer, Oak Ridge National Laboratory BES-MSED programs, Apr. 2015
10. Reviewer, Cornell MRSEC, May 2015
11. Chair Line, Division of Materials Physics, American Physical Society, 2013-2017
12. Member, DOE PECASE Nomination Committee, Aug. 2015
13. Member, NSF DMR Committee of Visitors, Sept. 2015
14. Member, Univ. of Minnesota MRSEC External Advisory Board, Feb. 2016-
15. Member, Northwestern Univ. MRSEC External Advisory Board, Feb 2016-
16. Chair, Cornell PARADIM NSF Materials Innovation Platform External Advisory Board, May 2016-
17. Panel Chair, BES Basic Research Needs workshop on Synthesis Science (June 2016)
18. Reviewer, Oak Ridge National Laboratory BES-MSED programs, Apr. 2018
19. Science Advisory Committee, GENESIS Energy Frontiers Research Center, 2018-

Professional Societies

American Chemical Society, 1987-present,
American Physical Society, 1993-present,
Materials Research Society, 1993-present

Argonne Service

1. Research Supervisor, Argonne Department of Educational Programs Student Research Program, Argonne National Laboratory, 1998-1999
2. Materials Science Division Safety Task Force, 1999
3. Materials Science Division Retreat Organizing Committee, 1999-2000
4. Soft Materials Search Committee, 2000
5. Synthesis Equipment Committee for Center for Nanoscale Materials, 2000

6. Neutron and X-ray Scattering Group Search Committee, 2001
7. MSD Promotion Committee, 2001
8. MSD Hydrogen Research Coordination Committee, 2003
9. MSD Strategic Planning Meeting Coordinator/Breakout Session Facilitator, Mar. 2004
10. Argonne Performance Evaluation Process Committee, 2008
11. Materials Science Division Safety Review 2008, Chair
12. Energy Sciences Building Science Planning Committee, 2008-2013
13. Argonne National Laboratory Strategic Planning Committee – Leader of New Materials Discovery and Design Panel, 2008-2010
14. APS Beamline 11-BM-B Beamline Advisory Group member, 2009-
15. Materials Design Laboratory Science Planning Committee, 2009-
16. Argonne Major Strategic Initiative Leader “Materials for Energy,” 2010-2015
17. Materials Science Division Management Team, 2010-2017
18. MSD Science Representative, Materials Design Laboratory Building Project
19. Argonne Strategic Initiative Leader “Molecules and Materials to Manufacturing”, 2015-2017
20. Contributor to APS-U Scientific Case, Condensed Matter Physics, 2015
21. Contributor to APS-U Beamline Proposal White Paper, CHEX, 2016
22. Major Initiative Leader, Materials and Chemistry, 2017-

Meeting Organization

"Colossal Magnetoresistive Oxides" Workshop held at Telluride Academy, July 1998.

"Synthesis of Colossal Magnetoresistive Manganites" Workshop held at Argonne National Laboratory, July 1999

"Colossal Magnetoresistive Manganites and Related Oxides" Workshop held at Telluride Academy, July 16-22, 2000

“Magnetoresistive Oxides” American Physical Society DMP/GMAG Focused Topic, March 2002.

Session Organizer, MMM Annual Meeting, Nov. 2002, Session DF "Magnetic Oxides"

"Inhomogeneity in Transition Metal Oxides and Related Compounds" Workshop Berkeley, CA, May 14-16, 2003.

"Chicago-Area Workshop on Materials Synthesis", Argonne, October 2007

"Materials Synthesis Opportunities for Global Energy Challenges" American Association for the Advancement of Science National Meeting, Boston, MA, February 2008.

"Solid State Chemistry of Inorganic Materials" Symposium, Materials Research Society Fall Meeting 2008, Co-Chair

"Superconductivity" Symposium Organizer, American Crystallographic Society Meeting, Toronto, July 2009.

APS Tutorial "Complex Oxides" Organizer, March Meeting 2010, Portland, OR

IEEE/MMM ProComm Member, 2009-2010

APS Focus Session "Bulk Complex Oxides" (co-organizer with D. Khomskii and D. Mandrus), March Meeting 2010, Portland

Telluride Workshop on "Competing Interactions and Colossal Responses in Transition Metal Compounds" July 15-19, 2013.

Telluride Workshop on "Competing Interactions and Colossal Responses in Transition Metal Compounds" June 8-12, 2015.

Telluride Workshop on "Competing Interactions and Colossal Responses in Transition Metal Compounds" June 26-30, 2017.

Talks and Invited Presentations

1. "Electronic Structure of Incommensurately Modulated Insulating Crystals," American Chemical Society National Meeting, August 1993.
2. "The Electronic Origin of Nonstoichiometry in Early Transition Metal Chalcogenides," American Chemical Society Great Lakes Regional Meeting, June 1994.
3. "Colossal Magnetoresistive Oxides: New Tricks for an Old Dog," Illinois Institute of Technology, September 11, 1996.
4. "Synthesis and Structure of Layered Colossal Magnetoresistive Oxides: Adding a New Dimension to the Perovskites," Los Alamos National Laboratory, April 3, 1997.
5. "Synthesis and in-situ Neutron Studies of Structural, Magnetic, and Electronic Transitions in Colossal Magnetoresistive Oxides," American Chemical Society Great Lakes Regional Meeting, May 1997.

6. "Structural, Magnetic, and Electronic Transitions in Colossal Magnetoresistive Oxides," Midwest High Temperature and Solid State Conference, Ann Arbor, MI, June 20, 1997.
7. "Layered Manganites: Structure and Magnetism on Differing Length Scales," JRCAT Workshop on Phase Control of Colossal Magnetoresistive Oxides, Tsukuba Science City, Japan, June 25-27, 1997.
8. "Synthesis, Structure, and the Mn³⁺/Mn⁴⁺ Mixed Valent State in Perovskite and Layered Manganites," Chemistry Divisional Seminar, Argonne National Laboratory, February 2, 1998.
9. "Synthesis and Physical Properties of Naturally Layered Manganites," American Physical Society March Meeting, March 1998.
10. "Crystal and Magnetic Structure of Naturally Layered Manganites at Extreme Doping Levels," JRCAT Workshop on Phase Control of Colossal Magnetoresistive Oxides (Maui, HI), June, 1998.
11. "Crystal and magnetic Structure of Naturally Layered Manganites at Extreme Doping Levels," Telluride Workshop on Colossal Magnetoresistive Oxides, July, 1998.
12. "Intrinsic and Extrinsic Properties of Naturally Layered Manganites," University of Wisconsin MRSEC Workshop on Magnetic Heterostructures, August, 1998.
13. "Naturally Layered Manganites: Intrinsic and Extrinsic Structures and Physics," University of Notre Dame, Sept., 1998
14. "Naturally Layered Manganites: Intrinsic and Extrinsic Structures and Physics," University of Missouri, Columbia, Sept., 1998
15. "Complex Behavior of Naturally Layered Manganites," Science and Technology Center for Superconductivity Workshop, Northwestern University June 25, 1999.
16. "Oxygen Vacancy Structures: A New Route to Metastable CMR Ruddlesden-Popper Phases" International Union of Crystallography Congress, Glasgow, Aug. 4-13, 1999.
17. "Pivotal Role of Mn Mixed Valence in CMR Manganites," University of Oxford, Aug. 16, 1999.
18. "Pivotal Role of Mn Mixed Valence in Naturally Layered Manganites," Materials Science Department, Cornell University, Oct. 28, 1999.
19. "Naturally Layered Manganites: An Expanding View of the Phase Diagram," Materials Research Society Meeting, Boston, December 2, 1999.
20. "Magnetic and Structural Properties of Naturally Layered Manganites," APS March Meeting, Minneapolis, MN, Mar., 2000.
21. "Preparation, Defect Structure, and Magnetic Phase Diagram of Naturally Layered Manganites," CNRS/STCS Workshop, Paris, France, May 4-5, 2000.

22. "Neutron Scattering Investigations of Magnetism and Structure in Layered Perovskite Manganites $\text{SrO} \cdot (\text{La}_{1-x}\text{Sr}_x\text{MnO}_3)_z$," American Chemical Society Meeting, Washington, D.C., Aug., 2000.
23. "Structural and Magnetic States in Layered CMR Manganites," U.S.-Egypt Workshop on Advanced Materials, Cairo, Egypt, Sept. 23-29, 2000.
24. "Structure and Magnetic States in Layered Manganites," National High Magnetic Field Laboratory, Tallahassee, Florida, April 4, 2001.
25. "Magnetic and Orbital States in Highly Doped Bilayer Manganites," International Workshop on Novel Quantum Phenomena in Transition Metal Oxides, Sendai, Japan, August 23-25, 2001.
26. "Heavily Doped Bilayer Manganites: Links among Structure, Charge, and Spin," International Conference on Neutron Scattering, Munich, Germany, September 9-13, 2001.
27. "Perovskite-Based Cobaltites: Impact of Oxygen Content and Ordering on Magnetism and Structure," Telluride Workshop on CMR Manganites and Related Transition Metal Oxides, Telluride, CO, July 2002
28. "Layered CMR Manganites and Cobaltites: Materials Synthesis, Structure, and Properties," Materials Science Department Colloquium, University of Illinois Urbana-Champaign, Nov. 18, 2002.
29. "Layered CMR Manganites and Cobaltites: Materials Synthesis, Structure, and Properties," Chemistry Department Colloquium, Ohio State University, Feb. 26, 2003.
30. "Site-Selective Control of Magnetic and Electronic States in Layered Manganites and Cobaltites," American Physical Society Meeting, Austin, TX, Mar., 2003
31. "Structural Chemistry of Layered Manganite and Cobaltite Perovskites," Department Colloquium, Hahn-Meitner Institute, Berlin, June 3, 2003.
32. "Crystal Growth and Charge-Orbital-Spin States in Bilayer Manganites," American Conference on Crystal Growth and Epitaxy, 15th Annual Meeting, Keystone, CO, July 20-24, 2003.
33. "Materials of the Future," NSLS II Workshop, Brookhaven National Laboratory, Aug. 28-29, 2003.
34. "Steps and Spins: Recent Stories in Magnetic Perovskite Physics," UK Perovskite and Magnetic Oxide Workshop, Liverpool, UK, Oct. 21, 2003.
35. "Steps and Spins: Recent Stories in Magnetic Perovskite Physics," Advanced Light Source, Berkeley, CA, Dec. 4, 2003.
36. "CMR Manganites: Some Unifying Themes and Future Directions," Materials Science Division Colloquium, Dec. 12, 2003.
37. "CMR Manganites: Some Unifying Themes and Future Directions," University of Notre Dame Physics Department, Jan. 30, 2004.

38. "Spin States and Magnetic Order in a Layered Double Perovskite," Telluride Workshop on "CMR Manganites and Related Transition Metal Oxides" June 27 – July 2, 2004, Telluride, CO.
39. "Inhomogeneity on Multiple Length Scales in CMR Manganites," Synchrotron Radiation and Neutrons in Materials Science, Cancun, MX, Aug. 22-26, 2004.
40. "Spin State and Magnetic Order in a Double Perovskite," Orbital 2004, Hahn-Meitner Institute, Berlin, Oct. 4-5, 2004.
41. "Structure and Magnetic Coupling in the Kagomé Lattice Compound YbBaCo₄O₇," Orbital 2005, Technical University of Hamburg, Oct. 5-6, 2005.
42. "Layered Manganites and Cobaltites: What's New?" Brookhaven National Laboratory, April 14, 2006.
43. "Structure and Magnetism in the Kagomé Antiferromagnet RBaCo₄O₇," Science and Technology Center for Superconductivity Workshop on Functional Oxides, Caen, France July 3-4, 2006.
44. "Structure and Magnetism in the Kagomé Antiferromagnet RBaCo₄O₇," Telluride Workshop on Colossal Magnetostrictive Oxides, Telluride, CO July 16-21, 2006.
45. "Why Aren't Half-Doped Bilayer Manganites Charge-Ordered?" ALS User's Meeting, October 9-11, 2006.
46. "Nanomagnetism in the Bulk," LBL-MSD Nanomagnetism Workshop, Berkeley, CA, January 17-19, 2007.
47. "Geometric Frustration in RBaCo₄O₇ (R=Y, Yb): Chemical and Structural Tuning of a Kagomé Antiferromagnet," Advanced Photon Source Users Meeting, Argonne National Laboratory, April 9, 2007.
48. "Tuning into Frustration: Structure and Chemistry of the Kagomé Antiferromagnet YBaCo₄O_{7+x}," International Conference Crystal Growth and Epitaxy, Salt Lake City, UT; August 12-17, 2007.
49. "Tuning into Frustration: Structure and Chemistry of the Kagomé Antiferromagnet YBaCo₄O_{7+x}," International Workshop on Functional Oxides, Univ. California, Santa Barbara, Aug. 20-24, 2007
50. "Tuning into Frustration: Structure and Chemistry of the Kagomé Antiferromagnet YBaCo₄O_{7+x}," Kavli Institute for Theoretical Physics Meeting "Mottmaterials," Univ. California, Santa Barbara (Sept. 10-14, 2007)
51. "Crystal Synthesis of Magnetic Oxides," Materials Science Department Colloquium, UC Santa Barbara, Jan. 24, 2008.
52. "Crystal Synthesis of Magnetic Oxides," Physics Department Colloquium, Montana State University, April 24, 2008.

53. “Crystal Synthesis of Magnetic Oxides or How to Help Your Friendly Neighborhood Physicist” Department of Chemistry, Louisiana State University, July 6, 2008.
54. “Oxide Discovery Synthesis at High Pressure” Solid State Chemistry Gordon Conference, Colby-Sawyer College, New Hampshire, July 30, 2008.
55. “Complex Oxides Structure-Property Overview” J.F. Mitchell, APS March Meeting tutorial session, March 2009.
56. “Magnetic Oxides: Complexity, Frustration, and Grace Under Pressure”; JF Mitchell, H. Zheng, P.G. Radaelli, K.E. Gray, Q. Li, S. Rozenkranz, R. Osborn, T. Varga, P. Schiffer, V. Gopalaran, C. Fennie, A. Kumar, S. Hong, M. Park, Y. Wang, University of Minnesota of Physics, April, 2009.
57. “Magnetic Oxides: Complexity, Frustration, and Grace Under Pressure”; ”; JF Mitchell, H. Zheng, P.G. Radaelli, K.E. Gray, Q. Li, S. Rozenkranz, R. Osborn, T. Varga, P. Schiffer, V. Gopalaran, C. Fennie, A. Kumar, S. Hong, M. Park, Y. Wang I, Oak Ridge National Laboratory Materials Science Division, July 21, 2009.
56. “Magnetic Correlations in the Frustrated Magnet $\text{YBaCo}_4\text{O}_{7+x}$ ”, J.F. Mitchell, H. Zheng, P. Manuel, L.C. Chapon, P.G. Radaelli, O. Chmaissem; Telluride Workshop on Competing Interactions and Colossal Responses in Transition Metal Compounds, August 9-15 2009
57. “Discovery Synthesis of Oxides at High Pressure” J.F. Mitchell, T. Varga, C. Fennie, Q. Li, KE Gray, P. Schiffer, S. Hong, S. Streiffer, ANL-TIFR Materials Workshop, Mumbai, India, Jan. 12, 2010
58. “Magnetic Correlations in $\text{YBaCo}_4\text{O}_{7+x}$: A Frustrated Magnet with a Novel Bipyramidal Chain” J.F. Mitchell, H. Zheng, P. Manuel, L. Chapon, O. Chmaissem, A. Huq, ANL-NCKU Materials Workshop, Tainan, Taiwan, February, 2010
59. “High Pressure Materials: Some Ideas” J.F. Mitchell, Center for Emergent Superconductivity Winter Meeting, Argonne, IL, Jan 7, 2010.
60. “Frustration and Grace Under Pressure: Three Tales from Oxide Physics” J.F. Mitchell, T. Varga, C. Fennie, Q. Li, KE Gray, P. Schiffer, S. Hong, S. Streiffer, P. Manuel, L. Chapon, H. Zheng, Inorganic Materials Conference, Biarritz, France, September 12, 2010
61. “Discovery Synthesis of Oxides at High Pressure” J.F. Mitchell T. Varga, C. Fennie, Q. Li, KE Gray, P. Schiffer, S. Hong, S. Streiffer, Physics of Complex Oxides, Santorini, Greece, June 16, 2010
62. “Impact of Oxygen Ambient on Crystal Growth of RBaCo_4O_7 (R = Y, Lu)” J.F. Mitchell, H. Zheng, Int’l Conference on Crystal Growth 16, Beijing, China, August 2010.

63. “Frustration and Grace Under Pressure: Three Tales from Oxide Physics” J.F. Mitchell, T. Varga, C. Fennie, Q. Li, KE Gray, P. Schiffer, S. Hong, S. Streiffer, P. Manuel, L. Chapon, H. Zheng, nanoGUNE center, San Sebastian, Spain, September 15, 2010
64. “Frustration and Grace Under Pressure: Three Tales from Oxide Physics” J.F. Mitchell, T. Varga, C. Fennie, Q. Li, KE Gray, P. Schiffer, S. Hong, S. Streiffer, P. Manuel, L. Chapon, H. Zheng, Dept. of Physics, Universidad Complutense, Madrid, Spain September 16, 2010
65. “Crystal Synthesis of Magnetic Oxides or How to Help Your Friendly Neighborhood Physicist” Department of Physics, Missouri University of Science and Technology, October 28, 2010.
66. “Materials for Energy and the Science of Synthesis” Argonne National Laboratory *Future States* Lecture, January 27, 2011.
67. “Materials by Design vs. Synthesis by Design” NSF-UCSB sponsored workshop, *Materials by Design*, UC Santa Barbara, March 17-19, 2011.
68. “Materials for Energy and the Science of Synthesis” International School and Symposium on Multifunctional Molecule-based Materials” Argonne National Laboratory, March 13-17, 2011.
69. “Inhomogeneity in Transition Metal Oxides: Get Used to It” Indo-US Workshop on New Functional Materials, Manali, India, June 2-7, 2011.
70. “Crystal Synthesis of Complex Oxides” Nanyang Techological University, Singapore, June 27, 2011
71. “Inhomogeneity in Transition Metal Oxides: Get Used to It” ICMAT 2011, Singapore, June 30, 2011.
72. “Flirting with Frustration in Co- and Fe-based pyrochlore relatives”, Telluride Workshop on Colossal Effects in Transition Metal Compounds, July, 20 2011.
73. “Materials for Energy” SCES 2011, Cambridge, UK, August 29, 2011.
74. “Disorder in Transition Metal Oxides: Controlled and Otherwise,” London Center for Nanotechnology, August 31, 2011.
75. “Crystal Synthesis of Magnetic Oxides” IFW Dresden, October 18, 2011.
76. “Crystal Synthesis of Magnetic Oxides” National Taiwan University-Argonne National Laboratory Workshop on *Materials for Energy*, January 12, 2012.
77. “Materials for Energy” Advanced Photon Source Users Meeting, May 03, 2012.

78. “Floating Zone Growth of Magnetic Oxides” Workshop on “Floating Zone Techniques” IFW Dresden, Feb. 21-22, 2013.
79. “Argonne’s Pathway to Synthesis Science” 2013 Workshop on Opportunities in Materials Synthesis, May 13, 2013 Argonne National Laboratory.
80. “Materials – Superconducting and Otherwise – At Argonne National Laboratory,” BES-CAS Workshop on Superconductivity and Materials, Lawrence Berkeley National Laboratory, June 29, 2013.
81. “Quo Vadis, Iridates?” Telluride Workshop on Competing Interaction in Complex Oxides, July 15-19, 2013
82. “Quo Vadis, Iridates?” American Conference on Crystal Growth and Epitaxy, Keystone, CO July 22-26, 2013.
83. “Quo Vadis, Iridate?” DOE-BES Experimental Condensed Matter Physics Principal Investigator Meeting, Gaithersburg, MD, September 22-25, 2013.
84. “Crystallography and Materials Science: Where the Atoms Are and How to Put them There” American Association for the Advancement of Science Annual Meeting, Chicago, IL Feb. 15, 2014.
85. “Emerging and Emerging Transition Metal Oxides” UIUC Department of Physics seminar, February 28, 2014.
86. “Quo Vadis, Iridates?” Workshop on Complex Oxides, Protaras Cyprus, May 19-24, 2014.
87. “Floating-Zone Crystal Growth: How, What, and Why?” 3rd Annual Brockhouse Summer School on Crystal Growth, McMaster University, Toronto, Canada, May 28-30, 2014.
88. “Superconductivity and Quantum Materials at Argonne” BES-CAS Workshop on Superconductivity and Quantum Materials, Institute of Physics, Beijing, China, August 8, 2014.
89. “Sr₂IrO₄: Gateway to Cuprate Superconductivity?” UCSB Oxide Meeting: Synthesis, Form, and Function” Univ. California, Santa Barbara, August 25-29, 2014.
90. “Synthesis *Is* a Science” BESAC Subcommittee on Materials Design, Grand Challenge Report, Northwestern University, Oct. 21, 2014.
91. “New Materials: What, Why, . . . and How?” Yale University Materials Science Department, Feb 25, 2015.

92. “Sodium Iridates: Progress in Physics and Materials” Workshop on “Spin-Orbit Coupling and Magnetism in Correlated Transition Metal Oxides” Ohio State University, May 4-7, 2015.
93. “Searching for Quantum Spin Liquids in Iridates” Telluride Workshop on Competing Interactions and Colossal Responses in Transition Metal Compounds” Telluride, CO June 8-12, 2015
94. “Searching for Quantum Spin Liquids in Iridates” American Conference on Crystal Growth and Epitaxy, Big Sky, MT Aug 4-7, 2015.
95. Crandell Lecture, University of Texas, Arlington, Oct. 22, 2015
96. “What’s Cooking?” UC Berkeley Condensed Matter Seminar, Nov. 23, 2015
97. “What’s Cooking?” Univ. Tennessee Physics Dept. Colloquium, Feb. 29, 2016
98. “Charge Stripes in the Quasi-2D Nickelate $\text{La}_4\text{Ni}_3\text{O}_8$ ” 2nd Workshop on Floating Zone Techniques, IFW Dresden, Apr. 5, 2016.
99. “What’s Cooking?” Paul Scherrer Inst. Colloquium, Aug. 22, 2016.
100. “Direct Evidence of Bond-Dependent Anisotropic Exchange in Na_2IrO_3 . . . and Something Else” Swiss Physical Society, Lugano, Switzerland, Aug. 25, 2016.
101. “High Pressure Zone Growth of Correlated Electron Oxides” Moore Foundation Quantum Materials Symposium, New York City, Aug 30-Sept 1, 2016.
102. “High Pressure Floating Zone Growth” Single Crystal Growth School, Univ. Maryland, Jan 2017.
103. “Synthesis Science” APS Physics Now Workshop, Riverhead, LI, NY, May 15, 2017
104. “What’s Cooking?” University of British Columbia Quantum Matter Institute, June 4, 2017.
105. “Highly Reduced Nickelates: Marching Ever Closer to Cuprates” Telluride Workshop on Competing Interactions in Transition Metal Compounds, June 26-30, 2017, Telluride, CO.
106. “Highly Reduced Nickelates: Marching Ever Closer to Cuprates” DOE-BES/Chinese Academy of Sciences Workshop on Superconductivity, July 26-28, 2017 Half-Moon Bay, CA.
107. “High Pressure Floating Zone Crystal Growth of Correlated Electron Oxides” American Conference on Crystal Growth and Epitaxy, July 31-Aug 4, 2017, Santa Fe, NM.

108. “High Pressure Floating Zone Crystal Growth of Correlated Electron Oxides” Gordon Research Conference on Neutron Scattering, Aug. 6-11, 2017, Hong Kong.
109. “Highly Reduced Nickelates: Marching Ever Closer to Cuprates” BES Experimental Condensed Matter Physics PI Meeting, Gaithersburg, MD; Sept. 11, 2017.
110. “What’s Cooking?” Northwestern University Physics Dept., Oct. 12, 2017
111. “Quantum Materials: From Design to Synthesis” Innovations in Materials Science Workshop, University of Delaware, Oct. 19, 2017 – PLENARY
112. “High Pressure Floating Zone Growth” Single Crystal Growth School, Univ. Maryland, Jan 2018.
113. “What’s Cooking in Quantum Materials?” Michigan State University Condensed Matter Physics seminar, Apr 30, 2018
114. “High Pressure Floating Zone Growth of Correlated Electron Oxides” BES-MSE Materials Chemistry PI Meeting, PLENARY
115. “High Pressure Floating Zone Growth of Correlated Electron Oxides” Workshop on Synthesis and Exotic Physics of Novel Quantum Materials, Aug 1-3, 2018, Ames, IA.

Publications (Total = 313; 9132 cites; h-index = 54 (ISI))

Journal Articles

1. “Pentacyclo [12.2.2.2^{2,5}.2^{6,9}.2^{10,13}] - 1,5,9,13 - tetracosatetraene and its Reaction with Silver Trifluoromethanesulfonate: Synthesis of a Square-Planar d¹⁰ Organometallic Complex,” McMurry, J.E.; Haley, G.; Matz, J.R.; Clardy, J.C.; Mitchell, J. F. *J. Am. Chem. Soc.* **1986**, *108*, 515.
2. “Carbon Monoxide Cleavage by (silox)₃Ta (silox = tert-Bu₃SiO-),” Lapointe, R.E.; Wolczanski, P. T.; Mitchell, J.F. *J. Am. Chem. Soc.* **1986**, *108*, 6382.
3. “Facile Insertion of Nitriles into Paramagnetic Chromium (III) Alkyls. Crystal Structure of a μ₂-ketimine Complex,” Richeson, D.S.; Mitchell, J.F.; Theopold, K. H. *J. Am. Chem. Soc.* **1987**, *109*, 5868.
4. “Synthesis of 10-Selenatricyclo[3.3.3.0^{3,7}] undec-3(7)-ene. X-ray Structure of an Alkene Containing a Pyramidalized Double Bond,” Hrovat, D.A.; Miyake, F.; Trammel, G.; Gilbert, K.E.; Mitchell, J.F.; Clardy, J.; Borden, W.T. *J. Am. Chem. Soc.* **1987**, *109*, 5524.
5. “Synthesis and Structure Determination of [Cp*₄Cr₄(μ-F)₅Cl₂]PF₆. A Tetrameric Chromium Compound Formed by Fluoride Abstraction from Hexafluorophos-

- phate,” Thomas, B. J.; Mitchell, J. F.; Theopold, K. H.; Leary, J. A. *Organometallic Chem.* **1988**, 348, 333.
6. “ η^2 - (N,C) - Pyridine and μ - $\eta^2(1,2)$: $\eta^2(4,5)$ - Benzene Complexes of (silox)₃Ta (silox = t-Bu₃SiO-),” Neithamer, D.R.; Párkányi, L.; Mitchell, J.F.; Wolczanski, P.T. *J. Am. Chem. Soc.* **1988**, 110, 4421.
 7. “Anthosterone-A and Antohosterone-B, Ring-A contracted steroids from the sponge *anthoracuata graceae*” Tischler, M.; Ayer, S.W.; Andersen, R.J.; Mitchell, J.F.; Clardy, J. *Can. J. Chem.* **1988**, 66, 1173.
 8. “Synthesis and Reaction Chemistry of a New Class of Paramagnetic Chromium (III) Alkyls. Characterization of Complexes Formed by Insertion of Nitriles into the Chromium-Carbon Bond,” Richeson, D.S.; Mitchell, J.F.; Theopold, K.H. *Organometallics* **1989**, 8, 2570.
 9. “Crucial Interplay of Orbital and Cation-Anion Interactions in the Solid State: Distortion of NiO₆ octahedra in BaNiLn₂O₅ Oxides,” Burdett, J.K.; Mitchell, J.F. *J. Am. Chem. Soc.* **1990**, 112, 6571.
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Book Chapters

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