

Brent C. Melot

Professor

Departments of Chemistry, Chemical Engineering, and Materials Science

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Research summary

We are broadly interested in understanding the interplay between spin, charge, and lattice degrees of freedom in the solid state and developing ways to design new and improve existing functional materials. We place a strong emphasis on preparing high purity materials using high-temperature ceramic and hydrothermal methods. We place an equal emphasis on the complete physical characterization, which includes accurately determining the underlying crystal structure, magnetism, electrical transport, dielectric properties, and electrochemical performance. We also frequently use density functional theory (DFT) calculations to bridge our understanding of the nature of chemical bonding to the functional properties of materials.

Employment

November 2022–present Professor of Chemistry, Chemical Engineering, and Materials Science, University of Southern California, Los Angeles, CA

March 2019–November 2022 Associate Professor of Chemical Engineering and Materials Science (by courtesy), University of Southern California, Los Angeles, CA

February 2019–June 2019 Visiting Research Fellow, UK Catalysis Hub Research Complex, at Harwell Rutherford Appleton Laboratory, R92, Harwell Oxford, United Kingdom

April 2018–November 2022 Associate Professor of Chemistry, University of Southern California, Los Angeles, CA

June 2012–March 2018 Assistant Professor of Chemistry, University of Southern California, Los Angeles, CA

November 2010–May 2012 Postdoctoral Research Associate at the Université de Picardie Jules Verne, Amiens, France. Advisor: Jean-Marie Tarascon

Education

2006–2010 PhD in Materials Engineering, Department of Materials, University of California, Santa Barbara. Thesis Title: *Competing Magnetic Interactions in Complex Oxides*.

2002–2006 B.S. Chemical Engineering, Department of Chemical Engineering, University of California, Santa Barbara.

2002–2006 B.S. Chemistry, College of Creative Studies, University of California, Santa Barbara.

Group and Undergraduate Mentoring

Graduate Students (incoming class, terminal degree): Shiliang Zhou (2011, PhD 2017), Abbey Neer (2013, PhD 2018), Kelsey Bass (2013, M.S. 2016), Bethany Seckman (2016, M.S. 2018), Erica Howard

(2014, PhD 2019), Joanna Milam-Guerrero (2015, PhD 2020), Nicholas Bashian (2016, PhD 2020), Taylor Hodgkins (2016, M.S. 2019), Ariel Nessler (2016, PhD 2021), Moises Carrillo (2022), Zahra Zare (2022)

Postdoctoral Fellows (period): Wolfgang Zeier (2013-2014), Ahamed Irshad (2018-present)

Undergraduate Interns (current institution, if known): Nicole Spence (USC, current), Asang Mehta (USC, current), Samantha Abdel-Latif (USC, current), Sabrina Mir (USC, current), Joseph Stiles (Princeton), Lillian Shanahan, Veronika Fischer, Angela Yang, Michelle Zhang, Justin So (USC, Materials Science), Connor Brennan, Daniel Smith, Alessandro Alarcon, Ryan Davis, Myriam Castaneda (REU student, University of La Verne), Jessica Rafson, Beatriz Lopez-Bermudez (University of Michigan). Multiple publications with undergraduate authors.

High School Interns: Raymond Liu, Sabrina Mir, Priscilla Lim, Allyson Ee

Professional activities

Member of the UCSB Materials Research Lab Student Advisory Committee, 2008-2010

Member of the American Physical Society (APS)

Member of the American Chemical Society (ACS)

Member of the Materials Research Society (MRS)

Faculty Adviser for the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)

Symposium Organizer, Interplay of Structure and Transport Properties in Materials for Energy, 2016 Spring Meeting of the ACS, San Diego, CA

Symposium Organizer, Emergent Phenomena in the Solid State, 2017 Spring Meeting of the ACS, San Francisco, CA

Symposium Organizer, Inorganic Chemistry of Lead Halide Perovskites, 2018 Spring Meeting of the ACS, New Orleans, LA

Discussion Leader, Gordon Research Conference on Solid State Chemistry, July 2018

Symposium Organizer, Next-Generation Intercalation Batteries, 2019 Spring Meeting of the MRS, Phoenix, AZ

Invited presentations

50. *Room Temperature Electrochemical Cycling of F-ions in CsMnFeF₆*
North American Solid State Chemistry Conference, University of Calgary, AB, Canada, August 2022
49. *Materials for Li-ion and Beyond, New Paradigms for Energy Storage*
Chemistry Departmental Symposium, University of Florida, FA, April 2022
48. *Materials for Li-ion and Beyond, New Paradigms for Energy Storage*
Chemistry Departmental Symposium, University of South Florida, FA, April 2022
47. *Materials for Li-ion and Beyond, New Paradigms for Energy Storage*
Chemistry Departmental Symposium, Florida State University, FA, April 2022
46. *Electrons, Ions, and Phonons: moving charge through solids*
American Chemical Society, All Virtual Meeting, April 2021
45. *Electrons, Ions, and Phonons: moving charge through solids*
PRiME 2020, Electrochemical Society, October 2020
44. The Minerals, Metals, and Materials Society (TMS), San Diego, CA, February 2020
43. Technical University of Munich, Germany, July 2019
42. 14th International conference on materials chemistry (MC14), Birmingham, UK, July 2019
41. University of Oxford, UK, April 2019
40. University of Liverpool, UK, March 2019
39. Imperial College London, UK, March 2019
38. University College London, UK, February 2019
37. Research Center at Harwell, UK, February 2019

36. Cambridge University, UK, February 2019
35. Cambridge University, February 2019
34. Materials Research Outreach Program, UC Santa Barbara, January 2019
33. Gordon Conference on Inorganic Chemistry, June 2018
32. CIMTEC International Conference on Modern Materials & Technologies, June 2018
31. Chemistry Departmental Colloquium, Colorado State University, Fort Collins, CO February 2018
30. Chemistry Departmental Colloquium, Colorado State University, Fort Collins, CO January 2018
29. Chemistry Departmental Colloquium, University of California, Los Angeles May 2017
28. American Chemical Society Meeting, San Francisco, CA, April 2017
27. Chemistry Departmental Colloquium, University of California, Davis April 2017
26. Institute for Sustainability and Energy Seminar, Northwestern University March 2017
25. Chemistry Departmental Colloquium, University of Illinois, Chicago March 2017
24. Electrochemical Energy Storage Group Seminar, Argonne National Laboratory March 2017
23. Chemistry Departmental Colloquium, University of California, Berkeley February 2017
22. Gordon Conference on Solid State Chemistry, July 2016
21. Chemistry Departmental Colloquium, University of Oregon, April 2016
20. Chemistry Departmental Colloquium, Oregon State University, April 2016
19. American Chemical Society Meeting March 2016, San Diego, CA, USA
18. Symposium on Solid Electrolytes and Interfaces, Materials Research Society, December 2015
17. Chemistry Departmental Colloquium, Johns Hopkins University, November 2015
16. Chemistry Departmental Colloquium, University of Maryland, November 2015
15. Chemical and Engineering Materials Division Colloquium, Oak Ridge National Lab, November 2015
14. Next Generation Solar Cells Session, QuimiCuba, October 2015
13. Chemistry Departmental Colloquium, Texas A & M, October 2015
12. Chemistry Departmental Colloquium, UT Austin, September 2015
11. Chemistry Departmental Colloquium, University of Houston, September 2015
10. Chemistry Departmental Colloquium, California State University Long Beach, February 2015
9. Keynote Speaker on Batteries, RSC Solid State Group meeting, April 2014
8. Materials Science Departmental Colloquium, University of California, Los Angeles, January 2014
7. Materials Science Departmental Colloquium, University of Illinois, Urbana Champaign, December 2013
6. Neutrons and Nano User Meetings, Oak Ridge National Laboratory, USA, August 2013
5. Materials Research Society, Symposium on Materials Aspects of Advanced Lithium Batteries, Fall 2012
4. LANSCE User Group Meeting, Los Alamos National Laboratory, USA September 2012
3. Total Scattering Group Seminar, Los Alamos National Laboratory, USA August 2011
2. Functional Materials Group Seminar, University of Kent, United Kingdom July 2010
1. Functional Inorganic and Hybrid Materials Group Seminar, University of Cambridge, UK, July 2009

Conference presentations

11. Fall Meeting of the Materials Research Society, December 2022, Boston, MA, USA
10. Fall Meeting of the Materials Research Society, December 2016, Boston, MA, USA
9. American Chemical Society Meeting March 2015, Denver, CO, USA
8. Materials Research Society Fall 2014, Boston, MA, USA
7. American Conference on Neutron Scattering June 2014, Knoxville, TN, USA
6. American Chemical Society Meeting March 2013, New Orleans, LA, USA
5. American Physical Society Meeting March 2010, Portland, OR, USA
4. North American Solid State Chemistry Meeting June 2009, Columbus, OH, USA
3. American Physical Society Meeting March 2009, Pittsburgh, PA, USA
2. American Physical Society Meeting March 2008, New Orleans, LA, USA
1. Southern California ACS Undergraduate Research Symposium, April 2006 Santa Barbara, CA, USA

Independent Publications:

86. M. A. Cassingham, Y. G. Goh, E. T. McClure, T. L. Hodgkins, W. Zhang, M. Liang, J. M. Dawlaty, P. I. Djurovich, R. Haiges, P. S. Halasyamani, C. N. Savory, M. E. Thompson, and B. C. Melot Polarizable Anionic Sublattices Can Screen Molecular Dipoles in Noncentrosymmetric Inorganic–Organic Hybrids *ACS Applied Materials & Interfaces* **15** (2023) 18006–18011 [doi]
85. J. L. Andrews, E. T. McClure, A. Irshad, K Jew, D. Robertson, M. J. Lertola, M. J. Wahlia, C. Salamat, A. Dawson, L. F. J. Piper, B. F. Chmelka, S. H. Tolbert, W. C. West, B. S. Dunn, S. R. Narayan, and B. C. Melot Room Temperature Electrochemical Fluoride (de)Insertion into the Defect Pyrochlore CsMnFeF₆ *ACS Energy Letters* **7** (2022) 2340–2348 [doi]
84. J. L. Andrews, M. J. Brady, E. T. McClure, and B. C. Melot The Impact of Structural Deformations on the Performance of Li-ion Insertion Hosts *Chemistry of Materials* **34** (2022) 4809–4820 [doi]
83. R. C. Vincent, Y. Luo, J. L. Andrews, A. Zohar, Y. Zhou, Q. Yan, E. M. Mozur, M. B. Preefer, J. Nelson Weker, A. K. Cheetham, J. Luo, L. Pilon, B. C. Melot, B. Dunn, and R. Seshadri High-Rate Lithium Cycling and Structure Evolution in Mo₄O₁₁ *Chemistry of Materials* (2022) **34** 4122–4133 [doi]
82. A. J. Neer, J. Milam-Guerrero, V. A. Fischer, M. Zheng, N. R. Spence, B. C. Melot, C. Cozzan, M. Gu, J. M. Rondinelli, and C. M. Brown Magnetic field induced dielectric anomalies in cobalt-containing garnets *Inorganic Chemistry* **61** (2022) 5452–5458 [doi]
81. J. W. Stiles, E. T. McClure, N. H. Bashian, B. A. Tappan B. C. Melot Reversible Intercalation of Li-ions in an Earth-Abundant Phyllosilicate Clay *Inorganic Chemistry* **61** (2022) 5757–5761 [doi]
80. A. E. Vaughn, A. Montenegro, E. S. Howard, M. M. Mammetkulyev, S. Falcon, M. Mecklenburg, B. C. Melot, and A. V. Benderskii Vibrational Sum Frequency Generation Spectroscopy of Surface Hydroxyls on Nickel Phyllosilicate Nanoscrolls *Journal of Physical Chemistry Letters* **12** (2021) [doi]
79. N. H. Bashian, M. Zuba, A. Irshad, S. Becwar, J. Vinkeviciute, W. Rahim, K. Griffith, E. T. McClure, J. K. Papp, B. D. McCloskey, D. O. Scanlon, B. F. Chmelka, A. Van der Ven, S. R. Narayan, L. F. J. Piper, B. C. Melot Electrochemical Oxidative Fluorination of an Oxide Perovskite *Chemistry of Materials* **33** (2021) 5757–5768 [doi]
78. J. Milam-Guerrero, M. Zheng, N. R. Spence, M. Falsaperna, S. Calder, S. Lapidus, P. J. Saines, and B. C. Melot Influence of the Cubic Sublattice on Magnetic Coupling Between the Tetrahedral Sites of Garnet *Inorganic Chemistry* **60** (2021) 8500–8506 [doi]
77. J. Milam-Guerrero, M. Zheng, N. R. Spence, S. Calder, S. Lapidus, and B. C. Melot Canting of the magnetic moments on the octahedral site of an iron oxide garnet in response to diamagnetic cation substitution *Inorganic Chemistry* **60** (2021) 6249–6254 [doi]
76. A. J. Martinolich, J. J. Zak, D. N. Agyeman-Budu, S. S. Kim, N. H. Bashian, A. Irshad, S. R. Narayan, B. C. Melot, J. Nelson Weker, and K. A. See Controlling Covalency and Anion Redox Potentials through Anion Substitution in Li-Rich Chalcogenides *Chemistry of Materials* **33** (2021) 378–391 [doi]
75. B. Sun, S. Niu, N. Shulumba, K. L. Page, K. Mahalingam, J. Milam-Guerrero, B. Zhao, R. Haiges, M. Mecklenburg, B. C. Melot, Y.-D. Jho, B. M. Howe, J. Moon, A. Alatas, R. P. Hermann, M. E. Manley, J. Ravichandran, and A. J. Minnich Ultralow and glass-like High frequency atomic tunneling yields ultralow and glass-like thermal conductivity in chalcogenide single crystals *Nature Communications* **11** (2020) 1–9 [doi]
74. E. T. McClure, T. L. Hodgkins, P. I. Djurovich, M. E. Thompson, B. C. Melot Influence of Dimethyl Sulfoxide on the Structural Topology during Crystallization of PbI₂ *Inorganic Chemistry* **59** (2020) 16799–16803 [doi]
73. M. Preefer, Q. Wei, M. Saber, N. Bashian, W. Zhang, G. Lee, J. Milam-Guerrero, R. Vincent, B. C. Melot, A. Van der Ven, R. Seshadri, and B. Dunn Multielectron Redox and Insulator-to-metal Transition Upon Lithium Insertion in the Fast-Charging, Wadsley-Roth Phase PNB₉O₂₅ *Chemistry of Materials* **32** (2020) 4553–4563 [doi]
72. P.-H. T. Nguyen, J. Milam-Guerrero, G. T. Tran, C. J. Bloed, A. J. Neer, A. Nguyen, T. Gredig, A. Huq, S. H. Lapidus, B. C. Melot, and S. Derakhshan Synthesis, Crystal Structure, and Cooperative 3d-5d Magnetism in Rock Salt Type Li₄NiOsO₆ and Li₃Ni₂OsO₆ *Inorganic Chemistry* **59** (2020) 7389–7397 [doi]

71. N. H. Bashian, S. Abdel-Latif, M. Zuba, K. J. Griffith, A. M. Ganose, J. W. Stiles, S. Zhou, D. O. Scanlon, L. F. J. Piper, and B. C. Melot Transition Metal Migration Can Facilitate Ionic Diffusion in Defect Garnet Based Intercalation Electrodes *ACS Energy Letters* **5** (2020) 1448-1455 [[doi](#)]
70. C. J. Hansen, J. J. Zak, A. J. Martinolich, J. S. Ko, N. H. Bashian, B. C. Melot, J. N. Weker, K. A. See, Multielectron Cation and Anion Redox in Li_2FeS_2 and LiNaFeS_2 Cathodes. *Journal of the American Chemical Society* **142** (2020) 6737–6749 [[doi](#)]
69. K. M. Koskela, B. C. Melot, and R. L. Brutchey Solution Deposition of a Bournonite CuPbSbS_3 Semiconductor Thin Film from the Dissolution of Bulk Materials with a Thiol-Amine Solvent Mixture *Journal of the American Chemical Society* **142** (2020) 6173–6179 [[doi](#)]
68. N. H. Bashian, M. B. Preefer, J. Milam-Guerrero, C. Sendi, S. Ahsan, R. Vincent, J. Zak, K. A. See, R. Seshadri, and B. C. Melot. Understanding the Role of Crystallographic Shear Planes on the Electrochemical Behavior of Niobium Oxyfluorides. *Journal of Materials Chemistry A* **8** (2020) 12623–12632 [[doi](#)]
67. A. J. Clough, N. M. Orchanian, J. M. Skelton, A. J. Neer, S. A. Howard, C. A. Downes, L. F. J. Piper, A. Walsh, B. C. Melot, S. C. Marinescu Room Temperature Metallic Conductivity in a Metal–Organic Framework Induced by Oxidation *Journal of the American Chemical Society* **141** (2019) 16323–16330 [[doi](#)]
66. J. Milam-Guerrero, A. J. Neer, and B. C. Melot Crystal Chemistry and Competing Magnetic Exchange Interactions in Oxide Garnets and Spinel *Journal of Solid State Chemistry* **274** (2019) 1–9 [[doi](#)]
65. C.-H. Lai, D. S. Ashby, N. H. Bashian, J. Schoiber, T.-C. Liu, G. S. Lee S.-Y. Chen. P.-W. Wu, B. C. Melot, B. S. Dunn Designing the Charge Storage Properties of Li-Exchanged Sodium Vanadium Fluorophosphate for Powering Implantable Biomedical Devices *Advanced Energy Materials* **9** (2019) 1900226 [[doi](#)]
64. Z. Lebens-Higgins, N. V. Faenza, M. D. Radin, H. Liu, S. Sallis, J. Rana, J. Vinckeviciute, P. J. Reeves, M. Zuba, F. Badway, N. Pereira, K. Chapman, T.-L. Lee, T. Wu, C. P. Grey, B. C. Melot, A. Van Der Ven, G. G. Amatucci, W. Yang, and L. F. J. Piper Revisiting the charge compensation mechanisms in $\text{LiNi}_{0.8}\text{Co}_{0.2-y}\text{Al}_y\text{O}_2$ systems *Materials Horizon* **6** (2019) [[doi](#)]
63. T. Hodgkins, C. N. Savory, K. K. Bass, B. Seckman, D. O. Scanlon, P. I. Djurovich, M. E. Thompson, and B. C. Melot Anionic order and band gap engineering in vacancy ordered triple perovskites *Chemical Communications* **55** (2019) 3164-3167 [[doi](#)]
62. S. Niu, J. Milam-Guerrero, Y. Zhou, K. Ye, B. Zhao, B. C. Melot, J. Ravichandran Thermal Stability Study of Transition Metal Perovskite Sulfides *Journal of Materials Research* **33** (2018) 4135–4143 [[doi](#)]
61. N. Bashian S. Zhou, M. Zuba, A. M. Ganose, J. Stiles, A. Ee, D. Ashby, D. O. Scanlon, L. F. J. Piper, B. Dunn, B. C. Melot, Correlated Polyhedral Rotations in the Absence of Polarons During Electrochemical Insertion of Lithium in ReO_3 *ACS Energy Letters* **3** (2018) 2513–2519 [[doi](#)]
60. J. Milam-Guerrero, C. J. Bloed, P.-H. T. Nguyen, G. T. Tran, W. P. Martin, D. V. Papakostas, J. Toro, M. N. Wilson, J. P. Carlo, G. M. Luke, B. C. Melot, J. Gu, and S. Derakhshan Synthesis, Crystal Structure, and Magnetic Properties of the Highly Frustrated Orthorhombic $\text{Li}_4\text{MgReO}_6$ *Inorg. Chem.* (2017) **56** 11633 [[doi](#)]
59. S. Zhou, E. S. Howard, J. Liu, N. H. Bashian, K. Nolan, S. Krishnamoorthy, G. M. Rangel, M.-T. Sougrati, G. K. S. Prakash, K. Page, and B. C. Melot Hydrothermal Preparation, Crystal Chemistry, and Redox Properties of Iron Muscovite Clay *ACS Appl. Mater. Interfaces* (2017) **9** 34024 [[doi](#)]
58. A. J. Clough, J. Skelton, C. A. Downes, A. de la Rosa, J. W. Yoo, A. Walsh, B. C. Melot, and S. C. Marinescu Metallic Conductivity in a Two Dimensional Cobalt Dithiolene Framework *J. Am. Chem. Soc.* (2017) **139** 10863 [[doi](#)]
57. A. J. Neer, J. Milam-Guerrero, J. E. So, B. C. Melot, K. A. Ross, Z. Hulvey, C. M. Brown, A. A. Sokol, D. O. Scanlon, Ising Magnetism on the Octahedral Sublattice of a Cobalt-containing Garnet and the Potential for Quantum Criticality *Phys. Rev. B.* **95** (2017) 144419 [[doi](#)]
56. Y. Tulchinsky, C. Hendon, K. Lomachenko, E. Borfecchia, B. C. Melot, M. Hudson, J. Tarver, M. Korzynski, A. Stubbs, J. Kagan, C. Lamberti, C. Brown, M. Dinca, Reversible Capture and Release of Elemental Halogens with a Redox-Active Metal-Organic Framework *J. Am. Chem. Soc.* **139** (2017) 5992–5997 [[doi](#)]

55. G. Barim, P. Cottingham, S. Zhou, B. C. Melot, R. L. Brutchey Investigating the Mechanism of Reversible Lithium insertion into Anti-NASICON $\text{Fe}_2(\text{WO}_4)_3$ *ACS Appl. Mater. Interfaces* **9** (2017) 10813–10819 [doi]
54. R. Hoye, P. Schultz, L. Schelhaus, A. Holder, K. Stone, J. Perkins, D. Vigil-Fowler, S. Siol, D. O. Scanlon, A. Walsh, B. C. Melot, R. Kurchin, Y. Wang, J. Shi, F. Marques, J. Berry, W. Tumas, S. Lany, V. Stevanovic, M. Toney, T. Buonassi Perovskite-inspired photovoltaic materials: Toward best practices in materials characterization and calculations *Chem. Mater.* **29** (2017) 1964–1988 [doi]
53. K. K. Bass, L. Evergreen, S. Zhou, S. E. Bradforth, M. E. Thompson, and B. C. Melot Room Temperature Free Exciton Emission in Films of $\text{Cs}_3\text{Bi}_2\text{Br}_9$ *Inorg. Chem.* **56** (2017) 42–45 [doi]
52. C. H. Hendon, F. Pradaux-Caggiano, L. E. Hatcher, W. J. Gee, D. L. Cruickshank, C. C. Wilson, D. R. Carbery, A. Walsh, and B. C. Melot, Magnetic coupling in a hybrid Mn (II) acetylene dicarboxylate *Phys. Chem. Chem. Phys.* **18** (2016) 33329–33334 [doi]
51. M. Marisa, S. Zhou, B. C. Melot, G. Peaslee, J. R. Neilson Paracrystalline Disorder from Phosphate Ion Orientation and Substitution in Synthetic Bone Mineral *Inorganic Chemistry* **55** (2016) 12290–12298
50. S. Zhou, G. Barim, B. J. Morgan B. C. Melot, and R. L. Brutchey Influence of Rotational Distortions on Li- and Na-ion Intercalation in $\text{Fe}_2(\text{MoO}_4)_3$ *Chem. Mater.*, **28** (2016) 4492–4500 [doi]
49. B. Lopez-Bermudez, W. G. Zeier, S. Zhou, D. O. Scanlon, B. J. Morgan, and B. C. Melot Lithium-ion conductivity in $\text{Li}_6\text{Y}(\text{BO}_3)_3$: a thermally and electrochemically robust solid electrolyte *J. Mater. Chem. A* **4** (2016) 6972–6979 [doi]
48. M. M. Butala, K. R. Danks, M. A. Lumley, S. Zhou, B. C. Melot, and R. Seshadri MnO Conversion in Li-ion Batteries: In Situ Studies and the Role of Messtructuring *ACS Appl. Mater. Interfaces* **8** (2016) 6496–6503 [doi]
47. D. Russel, A. J. Neer, B. C. Melot, and S. Derakhshan Long Range Antiferromagnetic ordering in B-site Ordered Double Perovskite; Ca_2ScO_6 *Inorg. Chem.* **155** (2016) 2240–2245 [doi]
46. E. E. Rodriguez, H. Cao, R. Haiges, B. C. Melot Single crystal magnetic structure and susceptibility of CoSe_2O_5 *J. Solid State Chem.* **236** (2016) 39–44 [doi]
45. K. M. Ø. Jensen, X. Yang, J. Vidal Laveda, W. G. Zeier, K. A. See, M. Di Michiel, B. C. Melot, S. A. Corr and S. J. L. Billinge X-Ray Diffraction Computed Tomography for Structural Analysis of Electrode Materials in Batteries *J. Electrochem. Soc.* **162** (2015) A1310–A1314 [doi]
44. S. Zhou, W. G. Zeier, M. Kemei, M. T. Sougrati, M. Mecklenberg, K. Page, and B. C. Melot Hydrothermal preparation and Magnetic Properties of $\text{NaFeSi}_2\text{O}_6$ Nanowires *Inorg. Chem.* **53** (2014) 12396–12401 [doi]
43. K. K. Bass, R. E. McAnally, S. Zhou, P. I. Djurovich, M. E. Thompson, and B. C. Melot Influence of Moisture on the Preparation, Crystal Structure, and Photophysical Properties of Organohalide Perovskites *Chem. Comm.* **50** (2014) 15819–15822 [doi]
42. T. W. Day, W. G. Zeier, D. R. Brown, B. C. Melot, and G. J. Snyder Determining Conductivity and Mobility Values of Individual Components in Multiphase Composite $\text{Cu}_{1.97}\text{Ag}_{0.03}\text{Se}$ *Appl. Phys. Lett.* **105** (2014) 172103 [doi]
41. S. Zhou, G. King, D. O. Scanlon, M. T. Sougrati, and B. C. Melot Low Temperature Preparation and Electrochemical Properties of $\text{LiFeSi}_2\text{O}_6$ *J. Electrochem. Soc.* **161** (2014) A1642–A1647 [doi]
40. W. G. Zeier, S. Zhou, B. Lopez-Bermudez, K. Page, and B. C. Melot Dependence of Li-ion conductivity and activation energies on the crystal structure and ionic radii in $\text{Li}_6\text{MLa}_2\text{Ta}_2\text{O}_{12}$ *ACS Appl. Mater. Interfaces* **6** (2014) 10900–10907 [doi]
39. S. P. Culver, F. A. Rabuffetti, S. Zhou, M. Mecklenburg, Y. Song, B. C. Melot, and R. L. Brutchey Low-Temperature Synthesis of AMoO_4 ($A = \text{Ca}, \text{Sr}, \text{Ba}$) Scheelite Nanocrystals *Chem. Mater.* **25** (2013) 4129–4134 [doi]
38. L. Tao, G. Rousse, J. R. Neilson, B. C. Melot T. M. McQueen, C. Masquelier Magnetic Structures of LiMBO_3 ($M = \text{Mn}, \text{Fe}, \text{Co}$) lithiated transition metal borates *Inorg. Chem.* **52** (2013) 11966–11974 [doi]

Publications During Ph. D. and Postdoctoral Training:

37. P. T. Barton, M. C. Kemei, M. W. Gaultois, S. L. Moffitt, L. E. Darago, R. Seshadri, M. R. Suchomel, B. C. Melot Structural Distortion Below the Néel Temperature in Spinel GeCO_2O_4 *Phys. Rev. B* **90** (2014) 064105 [doi]
36. B. C. Melot, D. O. Scanlon, M. Reynaud, G. Rousse, J.-N. Chotard, M. Henry, and J.-M. Tarascon Chemical and Structural Indicators of Large Redox Potentials in Fe-Based Positive Electrode Materials *ACS Appl. Mater. Interfaces* [doi]
35. M. Reynaud, M. Ati, S. Boulineau, M. T. Sougrati, B. C. Melot, G. Rousse, J.-N. Chotard and J.-M. Tarascon Bimetallic Sulfates $A_2M(\text{SO}_4)_2 \cdot n\text{H}_2\text{O}$ ($A = \text{Li, Na}$ and $M = \text{Transition Metal}$): as New Attractive Electrode Materials for Li- and Na-Ion Batteries *ECS Trans.* **50** (2013) 11–19 [doi]
34. B. C. Melot and J.-M. Tarascon Design and Preparation of Materials for Advanced Electrochemical Storage *Acc. Chem. Res.* **46** (2013) 1226–1238 [doi]
33. N. Recham, G. Rousse, M. T. Sougrati, J.-N. Chotard, C. Frayret, S. Mariyappan, B. C. Melot, J.-C. Jumas, and J.-M. Tarascon Preparation and Characterization of a Stable FeSO_4F -Based Framework for Alkali Ion Insertion Electrodes *Chem. Mater.* **24** (2012) 4363–4370 [doi]
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