

Dr. Boris Kiefer – CV

Appointments:

- 1) Professor, Department of Physics, New Mexico State University, Las Cruces, New Mexico, 08/2016 – present.
- 2) Visiting Associate Research Professor, Department of Chemical and Biological Engineering, University of New Mexico, Albuquerque, New Mexico. 07/2009-07/2016.
- 3) Associate Professor, Physics Department, New Mexico State University, Las Cruces, New Mexico. 08/2009 – 07/2016.
- 4) Assistant Professor, Physics Department, New Mexico State University, Las Cruces, New Mexico. 08/2003 – 07/2009.
- 5) Visiting Researcher, Department of Geosciences, Princeton, New Jersey, 06/01/05-07/01/05 and 06/15/2004-07/31/2004.
- 6) Postdoctoral Fellow, Department of Geosciences, Princeton University, Princeton, New Jersey, 05/2002-08/2003.

Education:

INSTITUTION	FIELD OF STUDY	DEGREE	YEAR
University of Michigan, Ann Arbor, MI	Geology, Mineral Physics	Ph.D.	2002
University of Michigan, Ann Arbor, MI	Geology, Mineral Physics	M.S.	1999
Georg August Universität, Göttingen, Germany	Physics	Diploma	1994

Research interests:

Computational Material science: chemical and physical properties of defects; defect identification; surfaces, interfaces and in bulk materials; materials informatics and materials by design; energy conversion technologies; electrocatalysis; broken symmetries and quantum materials; advanced/additive manufacturing.

Teaching interests:

Quantum Mechanics; Computational Physics; Mathematical Methods; Classical Mechanics; Condensed Matter; Materials Science; Additive Manufacturing.

Awards:

- Gardiner Professorship, Department of Physics; New Mexico State University, 2013-2015.

Professional Development and Service:

- Breakout session lead, LANL-ReACT workshop on Geomaterials, BYU, Provo (UT), 08/10/2018.
- Invited Speaker: Computational Physics; UNM Graduate Symposium 02/11/2017.
- Member: SPS Four Corners Selection Committee for SPS Section Executive Committee (2015).
- Keynote, entitled: “Energy in the 21st Century – Challenges and Opportunities”, CEET workshop, Seviellleta, NM, 03/11/2010.
- “Energy for the 21st Century – Why Should we Care?” Journal club, University of New Mexico, 02/22/2010.
- Density-Functional-Theory (DFT) 2-day short course taught at UNM, 08/10-08/11/2009.
- Lecturer at the LANSCE Summer School, 07/14/2009.
- Lecturer at the LANSCE Neutron School, 01/08/2014.

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- Breakout-session leader at the Workshop on Long Range Plan for High Pressure Earth Sciences. March 2-4, 2009, Tempe, Arizona.
- Society of Physics Students co-advisor (2006-2009, 2011-2017).
- Lecturer at VLAB summer school 05/20/06 -- 06/04/06 and 07/28/08 – 08/01/08.

Computing Skills:

Fortran 77/90/95, shell-scripting (bash, csh, tcsh).

Thesis Advisor/research mentor:

Sharad Mahatara, Fall 2018 – present.

Galen Helms, MS, Fall 2017 – Spring 2019.

Seyedayat Ghazisaeed, PhD, Fall 2014 – present.

Sheng Deng, MS, Chemical Engineering, NMSU, Fall 2013 – Spring 2015.

Nalin Fernando, MS, Physics Department, New Mexico State University, M. S. Summer 2013.

Sadia Kabir, MS, Department of Chemical and Nuclear Engineering, University of New Mexico, Fall 2013.

Disoj Neupane, MS, Physics Department, New Mexico State University, M.S. Summer 2013.

Shyam Kattel PhD, Physics Department, New Mexico State University, graduated 08/2012.

Sufian Alnemrat PhD, Physics Department, New Mexico State University, graduated 08/2012.

Rose Perea, MS, Physics Department, New Mexico State University, graduated 08/ 2010.

Yahya Al-Khatatbeh, PhD, Physics Department, New Mexico State University, graduated 08/2010.

Ben Eimer, PhD, Physics Department, New Mexico State University, graduated 08/2006.

Professional Memberships:

American Physical Society; Electrochemical Society of America, Chemical Society of America; Materials Research Society.

Publications (reprints are available upon requests):

Pateras, T., Harder, R., Manna, S., Kiefer, B., Sandberg, R., Trugman, T., Lookman, T., Kim, J. W., de la Venta, J., Fullerton, E. E., Shpyrko, O. G., and Fohntung, E. E., “Room temperature giant magnetostriction in single-crystal nickel nanowires Anastasios”, NPG Asia Materials, accepted, 07/26/2019.

Karpov, D. et al., Liu, Z., Kumar, A., Kiefer, B., Harder, R., Lookman, T., and Fohntung, E. E., “Nanoscale topological defects and improper ferroelectric domains in multiferroic barium hexaferrite nanocrystals”, Physical Review B, accepted, 07/2019.

Steciuk, G., Palatinus, L., Ghazisaeed, S., Kiefer, B., Majzlan, J., and Plaisl, J., “The crystal structure of vyacheslavite, $UIV(PO_4)(OH)$: a precession electron diffraction tomography (PEDT) study and DFT calculations”, in press, 06/2019.

HariPriya, G. R., Kumar, M. N., Pradheesh, R., Martinez, L. M., Saiz, C. L., Singamaneni, S. R., Manuel, P., Senyshyn, Chatterji, Sankaranarayanan, V., Sethupathi, K., **Kiefer, B.**, Nair, H. S., “Contrasting the magnetism in $Sr_{2-x}La_xFeCoO_6$ ($x=0,1,2$) double perovskites using neutron diffraction, electron paramagnetic resonance and density-functional-theory, Physical Review B, in press, 04/2019.

Ghazisaeed, A., Kiefer, B., and Plasil, J., “Revealing hydrogen atoms in a highly-absorbing material: An X-ray diffraction study and TORQUE method calculations for lead–uranyl–oxide mineral curite”, RSC Advances, in press, 03/2019.

Benner, E. M., Vangara, R., Petsev, D. N., **Kiefer, B.**, Prichard, J., van Swol, F. and Maguire, J. F.. Multiscale Simulation of Aluminum Corrosion and Fatigue: An Exploratory Study., submitted to Corrosion, 07/2018.

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- Ghazisaeed, A., Majzlan, J., Plasil, J., and **Kiefer, B.**, “A Simple Method for the Prediction of the Orientation of H₂O in Ionic Crystals”. *Journal of Applied Crystallography*, Volume 51(4), 1116-1124 (2018).
- Mi, Z., Shieh, S. R., Kavner, A., **Kiefer, B.**, Wenk, H.-R., and Duffy, T. S., "Strength and Texture of NaCl to 56 GPa", *Journal of Applied Physics*, in press, 03/2018.
- Arveson, S. M., **Kiefer, B.**, Liu, A., and Lee, K. K. L., “Thermally-induced coloration of KBr at high pressure”, *Physical Review B*, 97, 094103 (2018).
- Hu, Y., **Kiefer, B.**, Bina, C. R., Zhang, D., and Dera, P., “High-pressure γ -CaMgSi₂O₆: Is penta-coordinated silicon common in the Earth’s mantle?”, *Geophysical Research Letters* 44(22), 11340-11348 (2017).
- Nakotte, H., Silkwood, C., Page, K., Wang, H. W., Old, D., **Kiefer, B.**, Manna, S., Karpov, D., Fohntung, E., and Fullerton, E. E., “Pair Distribution Function Analysis Applied to Decahedral Gold Nanoparticles”, *Physica Scripta*, 92, 114002 (2017).
- Majzlan, J., Grevel, K.-D., **Kiefer, B.**, Nielsen, U. G., Grube, E., Dachs, E., Benisek, A., White, A., and Johnson, M., “Thermodynamics and crystal chemistry of rhomboclase, (H₅O₂)Fe(SO₄)·2H₂O, and the phase (H₃O)Fe(SO₄)₂”, *American Mineralogist*, 102(3), 643 – 654 (2017).
- Kiefer, B.**, and Serrano, E., “Assessing the Long Term Impact of a Statewide Nanoscience Education Program”, *Journal of STEM Education*, 17(3b), 55 – 63 (2016).
- Karpov, D., dos Santos Rolo, K., Rich, H., Kryuchkov, Y., **Kiefer, B.**, and Fohntung, E., “Birefringent Coherent Diffraction Imaging”, *Spintronics IX*, Proc. of SPIE, 9931, doi: 10.1117/12.2235865 (2016).
- Plasil, J., Majzlan, J., Wierzbicka-Wieczorek, and **Kiefer, B.**, “Crystal structure, thermal behavior and parageneses of koninckite, FePO₄·3H₂O”, *Mineralogical Magazine*, 79, 1161-1175, 10.1180/minmag.2015.079.5.10 (2016).
- Kabir, S., Artyushkova, K., Serov, A., **Kiefer, B.**, and Atanassov, P., “Binding Energy Shifts for Nitrogen-containing Graphene-Based Electrocatalysts - Experiment and DFT Calculations”, *Surface and Interface Analysis*, 48(5), 293 – 300 (2016).
- Kabir, S., Artyushkova, K., Atanassov, P., and **Kiefer, B.** Computational and Experimental Evidence for a New Fe-N₃/C Moiety Family in Non-PGM Electrocatalysts, *Physical Chemistry Chemical Physics*, 17(27), 17885-17889 (2015).
- Johns, T. R., Goeke, R. S., Thüne, P. C., Niemantsverdriet, J. W., **Kiefer, B.**, Kim, C., Balogh, M., and Datye, A. K., “Relating adatom emission to improved durability of Pt-Pd diesel oxidation catalysts”, *Journal of Catalysis*, 328, 151-164 (2015).
- Atanassov, P., Martinez, U., Rojas-Carbonell, S., Halevi, B., Artyushkova, K., **Kiefer, B.**, Sakamoto, T., Tanaka, H., Asazawa, K., and Datye, A. K., "Ni-La Electrocatalysts for Direct Hydrazine Anionic Fuel Cells", *Journal of the Electrochemical Society*, 161(13), H3106-H3111, doi: 10.1149/2.0191413jes (2014).
- Peterson, E. J., DeLaRiva, A. T., Lin, S., Johnson, R. S., Guo, H., Miller, J. T., Kwak, J.-H., Peden, C. H. F., **Kiefer, B.**, Allard, L. F., *Ribeiro*, F. H., and Datye, A. K., “Low Temperature Carbon Monoxide Oxidation Catalyzed by Regenerable Atomically Dispersed Palladium on Alumina”, *Nature Communications*, 5, article number 4885 (2014).
- Matanovic, I., Atanassov, P., **Kiefer, B.**, Garzon, F. H., and Henson, N. J., “Applicability of Density Functional Theory in Reproducing Accurate Vibrational Spectra and Surface Bound Species”, *Journal of Computational Chemistry*, *J. Comput. Chem.* 35, 1921-1929 (2014).
- Kattel, S., Atanassov, P., and **Kiefer, B.** “Density Functional Theory Study of Oxygen Reduction Reaction Mechanism in Doped Graphene Electrocatalyst”, *J. Mater. Chem. A*, DOI: 10.1039/C4TA01460J (2014).
- Kattel, S., Atanassov, P., and **B. Kiefer**, “Density Functional Theory Study of Oxygen Reduction Reaction on Non-PGM Electrocatalyst”, *Phys. Chem. Chem. Phys.*, DOI: 10.1039/C4CP01634C (2014).

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- Alnemrat, S., Hooper, J. P., Vassiliev, I., and **Kiefer, B.**, “The role of equilibrium volume and magnetism on the stability of iron phases at high pressures”, *J. Phys.: Condens. Matter*, 26, 046001 (2014).
- Tschauner, O., **Kiefer, B.**, Tetard, F., Tait, K., Bourguille, J., Zerr, A., Dera, P., McDowell, A., Knight, J., and Clark, S.: “Elastic moduli and Hardness of highly incompressible platinum perpnictide PtAs₂: Implications on the hardness of noble metal pernitrides”, *Applied Physics Letters*, 103 (10), DOI: 10.1063/1.4819143 (2013).
- Artyushkova, K., **Kiefer, B.**, Halevi, B., Knop-Gericke, A., Schlögl, R., and Atanassov, P., “Density functional theory calculations of XPS binding energy shift for nitrogen-containing graphene-like structures”, *Chem. Commun.*, 49, 2539-2544, DOI: 10.1039/C3CC40324F (2013).
- Kattel, S., Atanassov, P., and **Kiefer, B.**, “Catalytic activity of Co-N_x/C electrocatalyst for oxygen reduction reaction: a density functional theory study”, *Physical Chemistry Chemical Physics*, 15(1), 148-153 (2013).
- Kattel, S., P. Atanassov, and **Kiefer, B.**. “Density-functional-theory prediction of Ni-N_x electrocatalyst reactivity in oxygen reduction reaction”. *J. Phys. Chem. C*, [http: DOI: 10.1021/jp3044708](http://dx.doi.org/10.1021/jp3044708) (2012).
- Al-Khatatbeh, Y., Lee, K., and **Kiefer, B.**, “Compressibility of nanocrystalline TiO₂ anatase”, *J. Phys. Chem. C*, 116, 21635 (2012).
- Wang, Y., Panzik, J. E., **Kiefer, B.**, and Lee, K. K. M., “From soft to superhard: The structural transformations of graphite under compression and decompression”, *Scientific Reports*, 2, 520 (2012).
- Kattel, S., **Kiefer, B.**, and Atanassov, P.. “Stability, Electronic and Magnetic Properties of In-Plane Defects in Graphene: A *First- Principles* Study”. *J. Phys. Chem. C*, 116(14), DOI: 10.1021/jp2121609 (2012).
- Martinez, U., Asazawa, K., Halevi, B., Falase, A., **Kiefer, B.**, Serov, A., Padilla, M., Olson, T., Datye, A., Tanaka, H., and Atanassov, P., “Aerosol-derived Ni_{1-x}Zn_x electrocatalyst for direct hydrazine fuel cells”, *Phys. Chem. Chem. Phys.*, 14, DOI: 10.1039/C2CP40546F (2012).
- Halevi, B., Peterson, E. J., DeLariva, A., Roy, A., Jeroro, E., Gao, F., Wang, Y., Vohs, J. M., **Kiefer, B.**, Kunkes, E., Havecker, M., Behrens, M., Schlögl, R., and Datye, A. K., “Catalytic reactivity of face centered cubic PdZn for the steam reforming of methanol”, *Journal of Catalysis*, 291, 44-54 (2012).
- Montgomery, J. M., **Kiefer, B.**, and Lee, K. K. M., “Determining the phase transition boundary in highly ordered pyrolytic graphite with time-dependent resistance measurements”, *Journal of Applied Physics*, 110, 043725 (2011).
- Adak, S., Nakotte, H., de Chatel, P. F., and **Kiefer, B.**, “Uranium at High Pressure from First Principles”, *Physica B*. DOI: 10.1016/j.physb.2011.05.057 (2011).
- Konopka, D., **B.Kiefer**, Y.-B. Jiang, T. Ward., P. Atanassov, “Electrochemical Studies and DFT of the Niobia Passivation of the Pt Surface”, *Journal of the Electrochemical Society*, 158(7), DOI: 10.1149/1.3591126 (2011).
- Tschauner, O., **Kiefer, B.**, Nicol, M., Sinogeikin, S., Kumar, R., Cornelius, A., “Lithium hydroxide dihydrate – a new type of icy material at high pressure”, *Journal of Chemical Physics*, 134(4), DOI: 10.1063/1.3543797 (2011).
- Al-Khatatbeh, Y., Lee, K. K. M., and **Kiefer, B.**, “Phase diagram and mechanical strength of HfO₂ up to 105 GPa”, *Physical Review B*, 144106 (2010).
- Olson, T. S., Pylypenko, S., Kattel, S., Atanassov, P., and **Kiefer, B.**, “Selectivity of Non-Platinum Oxygen Reduction Catalysts in the Presence of Methanol and Formic Acid”, *The Journal of Physical Chemistry C*, 114 (35), 15190-15195 (2010).
- Halevi, B., Peterson, E. J., DeLariva, A., Jeroro, E., Lebarbier, V. M., Wang, Y., Vohs, J. M., **Kiefer, B.**, Kunkes, E., Havecker, M., Behrens, M., Schlögl, R., Datye, A. K., “Aerosol-Derived Bimetallic Alloy Powders: Bridging the Gap”, *Journal of Physical Chemistry C*, 114 (40), 17181-17190 (2010).
- Peterson, E. J., Halevi, B., **Kiefer, B.**, Datye, A. K., Peterson, J., Daemen, L., and Nakotte, H., “Aerosol synthesis and Rietveld analysis of tetragonal (̲₁) PdZn”, *Journal of Alloys and Compounds*, doi:10.1016/j.allcom.2010.09.149 (2010).

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- Martinez, U., Asazawa, K., Halevi, B., Olson, T., **Kiefer, B.**, Datye, A., Tanaka, H., and Atanassov, P., “Bimetallic Ni Alloys for the Electrooxidation of Hydrazine in Alkaline Media”, *Electrochemical Society Transactions*, 33(1), 1673 (2010).
- Konopka, D., **Kiefer, B.**, Jiang, Y.-B., Ward, T., and Atanassov, P., “Electrochemical and DFT Analysis of Deactivation of Pt Supported on Niobia”, *Electrochemical Society Transactions*, 33(1), 191 (2010).
- Kattel, S., **Kiefer, B.**, and Atanassov, P., “Defects on Graphene with and without Nitrogen”, *Electrochemical Society Transactions*, 33(1), 551, (2010).
- Al-Khatatbeh, Y., Lee, K. K. M., and **Kiefer, B.**, “Phase relations and hardness trends of ZrO₂ phases at high pressure”, *Physical Review B*, 81, 214102 (2010).
- Tschauner, O., **Kiefer, B.**, McClure, J., and Sinogeikin, S., Possible formation of crystalline Sodium carbide carbonate Na₂(CO)CO₃ at high pressures, *Journal of Physics, Conference Series*, 215, 012130 (2010).
- Al-Khatatbeh, Y., Lee, K. K. M., and **Kiefer, B.**, High-Pressure behavior of TiO₂ as determined by experiment and theory, *Physical Review B*, 79, 134114 (2009).
- Henry P. S., **Kiefer, B.**, Martin, C. D., Boateng, N., Frank, M. R., and Meng, Y., P-V Equation of State for Fe₂P and Pressure-Induced Phase Transition in Fe₃P, *High Pressure Research*, 28, 375-384 (2008).
- Kubo, A., Wang, Y., Runge, C. E., Uchida, T., **Kiefer, B.**, Nishiyama, N., and Duffy, T. S., Melting curve of silicon to 15 GPa determined by angle-dispersive diffraction using Kawai-type apparatus with xray transparent sintered diamond anvils. *Journal of Physics and Chemistry of Solids*, 69, 2255 –2260 (2008).
- Kubo, A., **Kiefer, B.**, Shim, S.-H., Shen, G., Prapapenka, V. B., Cava, R. J., and Duffy, T. S., Rietfeld structure refinement of MgGeO₃ post-perovskite phase to 1 Mbar, *American Mineralogist*, 93, 965–976 (2008).
- Tschauner, O., **Kiefer, B.**, Liu, H., Somayazulu, M, Luo, S. N., Possible structural polymorphism in Al-bearing magnesiumsilicate post-perovskite, *American Mineralogist*, 93, 533-539 (2008).
- Tschauner, O., **Kiefer, B.**, Lee, Y., Pravica, M., Nicol, M., and E. Kim, Structural transition of PETN-I to a ferroelastic orthorhombic phase PETN-III at elevated pressures, *Journal of Chemical Physics*, 127, 094502 (2007).
- Stixrude, L., Lithgow-Bertelloni, C., **Kiefer, B.**, and Fumagalli, P., Phase stability and shear softening in CaSiO₃ perovskite at high pressure, *Physical Review B*, 75, 024108 (2007).
- Runge, C. E., Kubo, A., **Kiefer, B.**, Meng, Y., Prakapenka, V. B., Shen, G., Cava, R. J., and Duffy, T. S., Equation of state of MgGeO₃ perovskite to 65 GPa: Comparison with the post-perovskite phase, *Physics and Chemistry of Minerals*, 33, 699-709 (2006).
- Majzlan, J., and **B. Kiefer**. An X-ray and neutron diffraction and *ab-initio* study of the crystal structure of ferricopiapite, Fe_{14/3}(SO₄)₆(OH)₂(H₂O)₂₀, *Canadian Mineralogist*, 44, 1227-1237, 2006.
- Kubo, A., **B. Kiefer**, G. Shen, V. B. Prapapenka, R. J. Cava, and T. S. Duffy, Stability and equation of state of the post-perovskite phase in MgGeO₃ to 2 Mbar. *Geophysical Research Letters*, 33, L12S12 (2006).
- Kiefer, B.**, S. R. Shieh, T. S. Duffy, and T. Sekine, Strength, elasticity, and equation of state of nanocrystalline silicon nitride (γ -Si₃N₄) to 68 GPa. *Physical Review B*, 72, 014102 (2005).
- Kiefer, B.**, and T. S. Duffy, Finite-element Simulations of the Laser-Heated Diamond Anvil Cell. *Journal of Applied Physics*, 97, 114902 (2005).
- Wentzcovitch R. M., L. Stixrude, B. B. Karki, and **B. Kiefer**. Akimotoite to perovskite phase transition in MgSiO₃, *Geophysical Research Letters*, 31, L10611 (2004).
- van Keken P. E., **Kiefer, B.**, and S. M. Peacock, High-resolution models of subduction zones: Implications for mineral dehydration reactions and the transport of water into the deep mantle, *Geochem. Geophys. Geosyst.*, 3, 1056, doi:10.1029/2001GC000256 (2002).
- Kiefer, B.**, L. Stixrude and R. Wentzcovitch. Elasticity of (Mg,Fe)SiO₃ Perovskite at High Pressures. *Geophysical Research Letters*. 29, 1539-1539 (2002).
- Kiefer, B.**, L. Stixrude, J. Hafner, and G. Kresse. Structure and Elasticity of Wadsleyite at High Pressures. *American Mineralogist*. 86, 1387-1395 (2001).

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- Kiefer, B.** and L. Stixrude. Thermoelastic Properties of (Mg,Fe)SiO₃ Perovskite. In: Materials Research Society Symposium Proceedings, 718, D6.1.1-D6.1.6 (2002).
- Kiefer, B.**, L. Stixrude, and R. Wentzcovitch. Normal and Inverse Ringwoodite at High Pressure. *American Mineralogist*. 84, 288-293 (1999).
- Stixrude, L., R. M. Wentzcovitch, C. da Silva, and **B. Kiefer**. Ab-initio investigation of the high pressure elasticity of Mg₂SiO₄ forsterite and ringwoodite. *Materials Research Society Symposium Proceedings* 499, 15-25 (1998).
- Kiefer, B.**, L. Stixrude, and R. Wentzcovitch. Calculations of elastic constants of Mg₂SiO₄ at high pressures. *Geophysical Research Letters*. 24. 2841-2844 (1997).

Publications in Review/submitted:

- Dutta, R., **Kiefer, B.**, Greenberg, E., Prakapenka, V. B. , and Duffy, T. S., “High-pressure behavior of AO₂ (A = Sn, Pb, Hf) compounds beyond 2 MBar”, submitted to *The Journal of Physical Chemistry Letters*, submitted (07/2019).

Publications in preparation:

- Ghazisaeed, S., Md, M., Nakotte, H., and **Kiefer, B.**, “Prediction of energetically degenerate structures in Prussian Blue Analogues by performing the *ab-initio* calculations on nickel hexacyanoferrate compound”, to be submitted to the *Journal of Applied Crystallography* (08/2019).
- Plasil, J., Ghazisaeed, S., **Kiefer, B.**, and S. Philippo. Hydrogen bonding in the crystal structure of phurcalite, Ca₂[(UO₂)₃O₂(PO₄)₂]·7H₂O: Single-crystal X-ray study and Torque calculations”, to be submitted to *Acta Crystallographica*, 07/2019.
- Helms, G., Sevostianov, I., and **Kiefer, B.**, “Infill Induced Young’s Modulus Variations in 3D printed ABS”, to be submitted to *International Journal of Engineering Science* (08/2019).
- Helms, G. and **B. Kiefer**, “Probing Maxwell’s Equations with a 3D Printer”, to be submitted to the *American Journal of Physics*, 08/2019.
- Mahatara, S., and **B. Kiefer**, “Thickness Dependent Topological Behavior in Ultrathin PbO₂ films”, to be submitted to *Physical Review Letters*, 08/2019.

Conference/workshop/talks for the last three years:

- Kiefer, B.**, “Materials Chemistry of Prussian Blue Analogs”, APS Four Corners Meeting, University of Utah, 04/24/2019.
- Kiefer, B.**, “Giant Carbon Fullerenes for Target Specific Drug Delivery”. APS Four Corners Meeting, University of Utah, Salt Lake City, 10/11-10/12/2018.
- Ghazisaeed, A., Plasil, J., **Kiefer, B.**, “Water Binding Geometries in Complex Oxides as Determined by Rotational Equilibrium”. APS Four Corners Meeting, University of Utah, Salt Lake City, 10/11-10/12/2018.
- Helms, G., Sevostianov, I., and **Kiefer, B.**, “Lighter is better? Mechanical Properties of 3D Printed Plastics”. APS Four Corners Meeting, University of Utah, Salt Lake City, 10/11-10/12/2018.
- Mahatara, S., Supka, A., **Kiefer, B.**, Lyons, T., Liyanage, L., D’Amico, P., Al Orabi, R., Gopal, P., Toher, C., Calzolari, A., Curtarolo, S., Nardelli, M. B., and Fonari, M., “Zero Temperature Quantities controlling the Ferroelectric Curie Temperature”. APS Four Corners Meeting, University of Utah, Salt Lake City, 10/11-10/12/2018.
- Kiefer, B.**, “Materials Research and Education for a Better Future“, Center for High Technology Materials, University of New Mexico, 12/2017.
- Kiefer, B.**, “Defects and Their Prosperities in Ionic Solids”, Sandia National Laboratories, 11/2017.
- Kiefer, B.**, “Moving Forward – Shaping the Future”, Department of Physics, University of Texas El Paso, 11/2017.
- Ghazisaeed, S., and **Kiefer, B.**, “Torque, a Software Package to Predict Water Orientation in Ionic Solids”, American Physical Society – Four Corners Meeting, 10/19-10/20/2017.

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- Kiefer, B.**, “Shape the Future – Why wait”, Department of Physics, University of New Mexico, 09/2017.
- Kiefer, B.**, “DFT of 2D Materials for Energy Applications”, Invited, Graduate Symposium Engineering, University of New Mexico, 02/2017.
- Ghazisaeed, S., and **Kiefer, B.**, “Fast Method for the Prediction of Intercrystalline Water Molecule Orientation in Ionic Crystals”, American Physical Society - Four Corners Meeting, 10/21-10/22/2016.
- Mbatang, R., Djiani, D., Karpov, D., Page, K., Wang, H., Olds, D., **Kiefer, B.**, and Fohtung, E., “Analysis of Topological Defects in Multiferroics”, American Physical Society - Four Corners Meeting, 10/21-10/22/2016.
- Hu, Y., **Kiefer, B.**, and Dera, P., “High-pressure $g\text{-CaMgSi}_2\text{O}_6$: Is penta-coordinated silicon common in the Earth mantle?”, submitted to AGU Fall Meeting 2016.
- Majzlan, J., Grevel, K.-D., **Kiefer, B.**, Dachs, E., Benisek, A., Grube, E., Nielsen, U. G., “Thermodynamics and crystal chemistry of rhomboclase, $(\text{H}_5\text{O}_2)\text{Fe}(\text{SO}_4)\cdot 2\text{H}_2\text{O}$, and the phase $(\text{H}_3\text{O})\text{Fe}(\text{SO}_4)_2$ ”, European Mineralogical Congress, 2016.
- Kiefer, B.** and E. Fohtung, “Interstitial Functionalization of elemental Si”, American Physical Society March Meeting, 2016.
- Atanassov, P., Serov, A., Artyushkova, K., Matanovic, I., **Kiefer, B.**, and Halevi, B. “Non-Platinum Group Metal Catalysts for Oxygen Reduction in Fuel Cell Applications”, Electrochemical Society Fall Meeting, 2015.
- Atanassov, P., Serov, A., Artyushkova, A., Matanovic, I., **Kiefer, B.**, and Halevi, B., “Non-Platinum Group Metal Electrocatalysts: Successes and Challenges”. Challenges Towards Zero Pt for Oxygen Reduction, 09/2015.
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