

CURRICULUM VITAE

ALEXANDER M. RUZICKA

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Education

Ph.D.	1996	Planetary Sciences, University of Arizona. Tucson, AZ
M.S.	1988	Earth and Space Sciences, SUNY Stony Brook, NY
B.S.	1982	Geology, University of Minnesota, Minneapolis, MN
B.S.	1982	Geophysics, University of Minnesota, Minneapolis, MN

Employment

- Professor, Portland State University, Department of Geology, 2016-current
- Associate Professor, Portland State University, Department of Geology, 2012-2016
- Assistant Professor, Portland State University, Department of Geology, 2006-2012
- Research Assistant Professor, Portland State University, Department of Geology, 2001-2006
- Assistant Professor, Portland State University, Department of Geology, 2000
- Instructor, Portland Community College, Portland, 1999-2002
- Postdoctoral Research Fellow, University of Tennessee, Knoxville, 1996-1999
- Graduate Research Associate, University of Arizona, Tucson, 1991-1996
- Graduate Research Assistant, University of Arizona, Tucson, 1986-1991
- Graduate Teaching Assistant, University of Arizona, Tucson, 1987
- Graduate Research Assistant, SUNY Stony Brook, 1982-1985

Dissertation

Petrologic-kinetic studies of meteorites, 1996, Advisor William V. Boynton.

Refereed Publications

Ruzicka A.M., R.C. Hugo, J.M. Friedrich and M.T. Ream (2023) Accretion of warm chondrules in weakly metamorphosed ordinary chondrites and their subsequent reprocessing inferred from Electron Backscatter Diffraction (EBSD), petrographic and micro-tomography data. Submitted to *Geochimica et Cosmochimica Acta*, November.

Ruzicka A.M., J.M. Friedrich, M.L. Hutson, J.W. Strasser, R.J. Macke, M.L. Rivers, R.C. Greenwood, K. Ziegler and R.N. Pugh (2020) Shock compaction heating and collisional processes in the production of type 3 ordinary chondrites: Lessons from the (nearly) unique L3 chondrite melt breccia Northwest Africa 8709. *Meteorit. Planet. Sci.* 55, 1418-1438. <https://doi.org/10.1111/maps.13567>

Hugo R.C., **A.M. Ruzicka** and A.E. Rubin (2020) Mesoscale and microscale shock effects in the LL6 (S4) chondrites Saint-Severin and Elbert: A tale of two breccias. *Meteorit. Planet. Sci.* 55 (6), 1418-1438. <https://doi.org/10.1111/maps.13304>

Ruzicka A.M., R.C. Greenwood, K. Armstrong, K.L. Schepker and I.A. Franchi (2019) Petrology and oxygen isotope composition of large igneous inclusions in ordinary chondrites: Early solar system igneous processes and oxygen reservoirs. *Geochim. Cosmochim. Acta*, 266, 497-528. <https://doi.org/10.1016/j.gca.2019.01.017>

- Ruzicka A.M.** and R.C. Hugo (2018) Electron Backscatter Diffraction (EBSD) study of seven heavily metamorphosed chondrites: Deformation systematics and variations in pre-shock temperature and post-shock annealing. *Geochim. Cosmochim. Acta*, 234, 115-147. <https://doi.org/10.1016/j.gca.2018.05.014>
- Ruzicka A.M.**, M. Hutson, J.M. Friedrich, M.L. Rivers, M.K. Weisberg, D.S. Ebel, K. Ziegler, D. Rumble III and A.A. Dolan (2017) Petrogenesis of Miller Range 07273, a new type of anomalous melt breccia: Implications for impact effects on the H chondrite asteroid. *Meteorit. Planet. Sci.* **52**, 1063-1990.
- Ruzicka A.**, H. Haack, E. Scott, and N. Chabot (2017) Iron and stony-iron meteorites: evidence for the formation, crystallization and early impact histories of differentiated planetesimals. In *Planetesimals: Early Differentiation and Consequences for Planets*, Chapter 7 (Cambridge University Press).
- Friedrich J.M., **A. Ruzicka**, R.J. Macke, J.O. Thostenson, R.A. Rudolph, M.L. Rivers and D.S. Ebel (2017) Relationships among physical properties as indicators of high temperature deformation or post-shock thermal annealing in ordinary chondrites. *Geochim. Cosmochim. Acta* **203**, 157-174.
- Ruzicka A.**, R. Brown, J. Friedrich, M. Hutson. R. Hugo and M. Rivers (2015) Shock-induced mobilization of metal and sulfide in planetesimals: Evidence from the Buck Mountains 005 (L6 S4) dike-bearing chondrite. *Am. Mineralogist* **100**, Special Collection: Building Planets: The Dynamics and Geochemistry of Core Formation, 2725-2738.
- Ruzicka A.**, R. Hugo and M. Hutson (2015) Deformation and thermal histories of ordinary chondrites: Evidence for post-deformation annealing and syn-metamorphic shock. *Geochim. Cosmochim. Acta* **163**, 219-233.
- Ruzicka A.** (2014) Silicate-bearing iron meteorites and their implications for the origin of asteroidal parent bodies. *Chemie der Erde* **74**, 3-48 (Invited Review).
- Friedrich J.M., **A. Ruzicka**, M.L. Rivers, D.S. Ebel, J.O. Thostenson and R.A. Rudolph (2013) Metal veins in the Kernouve (H6 S1) chondrite: Evidence for pre- or syn-metamorphic shear deformation. *Geochim. Cosmochim. Acta* **116**, 71-83.
- Hutson M., **A. Ruzicka**, T. Jull, J. Smaller and R. Brown (2013) Stones from Mohave County, Arizona: Multiple falls in the "Franconia strewn field". *Meteorit. Planet. Sci.* **48**, 365-389.
- Ruzicka A.** (2012) Chondrule formation by repeated evaporative melting and condensation in collisional debris clouds around planetesimals. *Meteorit. Planet. Sci.* **47**, 2218-2236.
- Ruzicka A.**, M. Hutson, C. Floss and A. Hildebrand (2012) Large silica-rich igneous-textured inclusions in the Buzzard Coulee chondrite: Condensates, differentiates, or impact melts? *Meteorit. Planet. Sci.* **47**, 1809-1829.
- Ruzicka A.**, C. Floss and M. Hutson (2012) Amoeboid olivine aggregates (AOAs) in the Efremovka, Leoville and Vigarano (CV3) chondrites: A record of condensate evolution in the solar nebula. *Geochim. Cosmochim. Acta* **79**, 79-105.
- Ruzicka A.**, C. Floss and M. Hutson (2012) Agglomeratic olivine (AO) objects in ordinary chondrites: Accretion and melting of dust to form ferroan chondrules. *Geochim. Cosmochim. Acta* **76**, 103-124.
- Jamsja N. and **A. Ruzicka** (2010) Shock and thermal history of NWA 4859, an annealed impact-melt breccia of LL-chondrite parentage containing unusual igneous features and pentlandite. *Meteorit. Planet. Sci.* **45**, 828-849.
- Ruzicka A.** and M. Hutson (2010) Comparative petrology of silicates in the Udei Station (IAB) and Miles (IIE) iron meteorites: Implications for the origin of silicate-bearing irons. *Geochim. Cosmochim. Acta* **74**, 394-433.
- Ruzicka A.**, C. Floss and M. Hutson (2008) Relict olivine grains, chondrule recycling, and implications for the chemical, thermal, and mechanical processing of nebular materials. *Geochim. Cosmochim. Acta* **72**, 5530-5557.

- Hutson M., **A. Ruzicka**, R. Pugh, L. Sloan and E. Thompson (2007) Complex brecciation and shock effects in the Buck Mountain Wash (H3-5) chondrite. *Meteorit. Planet. Sci.* **42**, 963-978.
- Ruzicka A.**, H. Hiyagon, M. Hutson and C. Floss (2007) Relict olivine, chondrule recycling, and the evolution of nebular oxygen reservoirs. *Earth Planet. Sci. Lett.* **257**, 274-289.
- Ruzicka A.** and M. Hutson (2006) Differentiation and evolution of the IVA meteorite parent body: Clues from pyroxene geochemistry in the Steinbach stony-iron. *Meteorit. Planet. Sci.* **41**, 1959-1987.
- Ruzicka A.**, M. Hutson and C. Floss (2006) Petrology of silicate inclusions in the Sombroere ungrouped iron meteorite: Implications for the origins of IIE-type silicate-bearing irons. *Meteorit. Planet. Sci.* **41**, 1797-1831.
- Ruzicka A.**, M. Killgore, D.W. Mittlefehldt and M.D. Fries (2005) Portales Valley: Petrology of a metallic-melt meteorite breccia. *Meteorit. Planet. Sci.* **40**, 261-296.
- Ruzicka A.**, G.A. Snyder and L.A. Taylor (2002) Response to the comment by G. Dreibus and H. Wänke on "Comparative geochemistry of basalts from the Moon, Earth, HED asteroid, and Mars: Implications for the origin of the Moon" (2001). *Geochim. Cosmochim. Acta* **66**, 2633-2635
- Ruzicka A.**, G.A. Snyder and L.A. Taylor (2001) Comparative geochemistry of basalts from the Moon, Earth, HED asteroid, and Mars: Implications for the origin of the Moon. *Geochim. Cosmochim. Acta* **65**, 979-997.
- Snyder G.A., D.-C. Lee, **A. Ruzicka**, M. Prinz, L.A. Taylor and A.N. Halliday (2001) Hf-W, Sm-Nd, and Rb-Sr isotopic evidence of late impact fractionation and mixing of silicates on iron meteorite parent bodies. *Earth Planet. Sci. Lett.* **186**, 311-324.
- Hutson M. and **A. Ruzicka** (2000) A multi-step model for the origin of E3 (enstatite) chondrites. *Meteorit. Planet. Sci.* **35**, 601-608.
- Ruzicka A.**, G.A. Snyder and L.A. Taylor (2000) Crystal-bearing lunar spherules: Impact melting of the Moon's crust and implications for the origin of meteoritic chondrules. *Meteorit. Planet. Sci.* **35**, 173-192.
- Ruzicka A.**, G.A. Snyder and L.A. Taylor (2000) Geochemical and isotopic evidence bearing on the origin of large, igneous-textured inclusions in ordinary chondrites. *Antarct. Meteorite Res.* **13**, 19-38.
- Ruzicka A.**, G.W. Fowler, G.A. Snyder, M. Prinz, J.J. Papike and L.A. Taylor (1999) Petrogenesis of silicate inclusions in the Weekeroo Station IIE iron meteorite: Differentiation, remelting, and dynamic mixing. *Geochim. Cosmochim. Acta* **63**, 2123-2143.
- Ruzicka A.**, L.R. Riciputi, L.A. Taylor, G.A. Snyder, J. Greenwood, R.A. Keller, G.P. Bulanova, and H.J. Millidge (1999) Petrogenesis of mantle-derived sulfide inclusions in Yakutian diamonds: Chemical and isotopic disequilibrium during quenching from high temperatures, In *7th International Kimberlite Conference*, Cape Town, South Africa, 741-749.
- Ruzicka A.** (1998) Growth of mineral zones by diffusion-controlled reactions: Theory and application to mesosiderites. *Am. J. Sci.* **298**, 1-35.
- Ruzicka A.**, G.A. Snyder and L.A. Taylor (1998) Mega-chondrules and large, igneous-textured clasts in Julesberg (L3) and other ordinary chondrites: Vapor-fractionation, shock-melting, and chondrule formation. *Geochim. Cosmochim. Acta* **62**, 1419-1442.
- Ruzicka A.**, G.A. Snyder and L.A. Taylor (1998) Giant Impact and Fission Hypotheses for the Origin of the Moon: A Critical Review of Some Geochemical Evidence. *Intl. Geol. Rev.* **40**, 851-864.
- Ruzicka A.** (1997) Mineral layers around coarse-grained, Ca-Al-rich inclusions in CV3 carbonaceous chondrites: Formation by high-temperature metasomatism. *J. Geophys. Res. Planets* **102**, 13387-13402.

- Ruzicka A.**, G.A. Snyder and L.A. Taylor (1997) Vesta as the howardite, eucrite, and diogenite parent body: Implications for the size of a core and for large-scale differentiation. *Meteorit. Planet. Sci.* **32**, 825-840.
- Ruzicka A.**, D.A. Kring, D.H. Hill, W.V. Boynton, R.N. Clayton and T.K. Mayeda (1995) Silica-rich orthopyroxenite in the Bovedy chondrite. *Meteoritics* **30**, 57-70.
- Ruzicka A.** (1995) Nullarbor 018: A new L6 chondrite from Australia. *Meteoritics* **30**, 102-105.
- Ruzicka A.**, W.V. Boynton and J. Ganguly (1994) Olivine coronas, metamorphism and the thermal history of the Morristown and Emery mesosiderites. *Geochim. Cosmochim. Acta* **58**, 2725-2741.
- Ruzicka A.** (1990) Deformation and thermal histories of chondrules in the Chainpur (LL3.4) chondrite. *Meteoritics* **25**, 101-113.

Non-refereed Publications

- Ruzicka A.M.**, J.M. Friedrich, and R.C. Hugo (2023) Northwest Africa 11351 (LL3-6): A case study for a shock-induced petrofabric. *86th Annual Meeting of the Meteoritical Society, 2023*, Abstract #6284
- Karner J.M., M.D. Fries, M.L. Hutson, **A. M. Ruzicka**, D. Sheikh, and M. Terlaga (2023) The fall and recovery of the Great Salt Lake meteorite (2023). *86th Annual Meeting of the Meteoritical Society, 2023*, Abstract #6307.
- Sheikh D. and **A.M. Ruzicka** (2023) Felsite "frenzy" in lunar meteorite Bechar 009: Constraining the role of silicate liquid immiscibility (SLI) on lunar felsite petrogenesis. *86th Annual Meeting of the Meteoritical Society, 2023*, Abstract #6219.
- Sheikh D., **A. Ruzicka**, M. Hutson and C. Zlimer (2023) Pink Spinel Anorthosite (PSA) clasts in lunar dimict breccia Northwest Africa 15500: Evidence for a petrogenetic link between PSA and Mg-suite. *54th Lunar Planet. Sci. Conf., 2023*, Abstract #2066.
- Welzenbach L.C., M.D. Fries, G. Costin, R.C. Greenwood, W.J. Cooke, D. Moser, S. Hicks, E. Rasmussen, E.E. Satterwhite, K. Richter, D. Sheikh, **A.M. Ruzicka**, M.L. Hutson, R. Vargas, M. Stream, S.A. Eckley, R.A. Ziegler, and F.M. McCubbin (2023). The Cranfield meteorite: An H3-5 (regolith?) breccia. *54th Lunar Planet. Sci. Conf., 2023*, Abstract #2860.
- Ruzicka A.M.** and R.C. Hugo (2022b) A robust Electron Backscatter Diffraction annealing metric for olivine. *85th Annual Meeting of the Meteoritical Society, 2022*, Abstract #6179. LPI Contribution No. 2695.
- Sheikh D., **A.M. Ruzicka**, M.L. Hutson and M. Stream (2022) Dunite clast in lunar meteorite Northwest Africa (NWA) 14900: Mantle derived? *85th Annual Meeting of the Meteoritical Society, 2022*, Abstract #6077. LPI Contribution No. 2695.
- Hutson M.L., **A.M. Ruzicka**, M.D. Fries, J.M. Friedrich and K. Ziegler (2022) More evidence for unique aqueous alteration on the L-chondrite parent body. *85th Annual Meeting of the Meteoritical Society, 2022*, Abstract #6065. LPI Contribution No. 2695.
- Welzenbach L.C., M.D. Fries, W.J. Cooke, D. Moser, S. Hicks, E. Rasmussen, C.E. Satterwhite, K. Richter, D. Sheikh, **A.M. Ruzicka**, M.L. Hutson, R. Vargas, M. Stream, S.A. Eckley, R.A. Ziegler, and F.M. McCubbin (2022) Rapid recovery of a new chondrite meteorite near Natchez, Mississippi. *85th Annual Meeting of the Meteoritical Society, 2022*, Abstract #6361. LPI Contribution No. 2695.
- Sheikh D., **A. Ruzicka**, M. Hutson, A. Greshake, E. Thompson and P. Thompson (2022) Northwest Africa 14446: A unique lunar dimict breccia composed of distinct feldspathic crystalline melt breccia lithologies. *53rd Lunar Planet. Sci. Conf. 2022*, Abstract #1085.
- Frye J.K. and **A.M. Ruzicka** (2022) Electron Backscatter Diffraction (EBSD) analysis of ureilites Northwest Africa 11993, 12433, 7630 and 7304: Clues to petrogenesis from deformation-thermal parameters and rock fabrics. *53rd Lunar Planet. Sci. Conf.*, Abstract

- #1760.
- Ruzicka A.M.** and R.C. Hugo (2022a) Model deformation temperatures derived from EBSD data for olivine in type 6 ordinary chondrites and ureilites. *53rd Lunar Planet. Sci. Conf.*, Abstract #1757.
- Ruzicka A.M.** and R.C. Hugo (2021) Probing the thermal and deformation histories of chondrules in a cluster chondrite lithology of Northwest Africa 5205 with Electron Backscatter Diffraction (EBSD) techniques. *84th Annual Meeting of the Meteoritical Society, 2021*, Abstract #6109. LPI Contribution No. 2609
- Hugo R.C. and **A.M. Ruzicka** (2021) Untangling the history of a chondrule in Northwest Africa 5205 (LL3.2) with Electron Backscatter Diffraction and Transmission Electron Microscopy. *84th Annual Meeting of the Meteoritical Society, 2021*, Abstract #6258. LPI Contribution No. 2609.
- Hutson M.H., **A.M. Ruzicka** and R.N. Pugh (2021) Harold (a) and Harold (b): Two new meteorites from Ness County, Kansas. *84th Annual Meeting of the Meteoritical Society, 2021*, Abstract #6064. LPI Contribution No. 2609.
- Ruzicka A.M.**, M.L. Hutson and K. Ziegler (2021) Lunar meteorite Northwest Africa 13531: Chip off of a different kind of block. *52nd Lunar Planet. Sci. Conf. 2021*, Abstract #2234. LPI Contribution 2548. <https://www.hou.usra.edu/meetings/lpsc2021/pdf/2234.pdf>
- Ruzicka A.M.**, S. Goudy and R.C. Hugo (2020) Role of hot accretion and deformation in producing cluster and type 3 ordinary chondrites. *51st Lunar Planet. Sci. Conf.*, Abstract #1308.
- Goudy S.P. and **A. Ruzicka** (2019) Cluster chondrite accretion temperatures determined with electron backscatter diffraction. *Goldschmidt Abstracts, 2019*.
- Goudy S.P. and **A.M. Ruzicka** (2019) Relations between accretional deformation and temperature in cluster chondrite chondrules. *82nd Annual meeting of the Meteoritical Society, 2019*, Abstract #6105. LPI Contrib. No. 2157.
- Hutson M.L., **A.M. Ruzicka** and S. Tutorow (2019) Abundant water in ordinary chondrites: Evidence from a clast with unique alteration assemblage in the Northwest Africa (NWA) 12380 (L3) chondrite. *50th Lunar Planet Sci. Conf.*, Abstract #1764.
- Crowther S.A., J.D. Gilmour and **A.M. Ruzicka** (2019) Iodine-xenon systematics of large igneous inclusions in ordinary chondrite meteorites. *50th Lunar Planet. Sci. Conf.*, Abstract #2629.
- Ruzicka A.M.**, Hellmann J.L. and T. Kleine (2018) Hf-W chronology of large igneous inclusions from ordinary chondrites. *49th Lunar Planet. Sci. Conf.*, Abstract #1714.
- Ruzicka A.M.**, and R.C. Hugo (2017) EBSD Analyses of Seven Ordinary Chondrites: Deformation Metrics and Implications for Parent Body Thermal Histories. *Meteorit. Planet. Sci.*, Abstract #6368.
- Hugo R.C., **A.M. Ruzicka** and A. Rubin (2017) Elbert and Saint-Severin: LL6(S4) Chondrites with Contrasting Shock Histories. *Meteorit. Planet. Sci.*, Abstract #6298.
- Crowther S.A., J.D. Gilmour and **A.M. Ruzicka** (2017) First I-Xe age of a new suite of large igneous inclusions in ordinary chondrites. *Meteorit. Planet. Sci.*, Abstract #6284.
- Ruzicka A.**, J. Grossman, A. Bouvier, and C.B. Agee (2017) The Meteoritical Bulletin, No. 103, *Meteorit. Planet. Sci.* **52**, 1014.
- Ruzicka A.**, K. Schepker and Y. Guan (2017) Trace element compositions bearing on the origins of large igneous inclusions in ordinary chondrites. *48th Lunar Planet. Sci. Conf.*, Abstract #2477.
- Hutson M. and **A. Ruzicka** (2017) Miller Range 07273: An unusual chondritic melt breccia. *48th Lunar Planet. Sci. Conf.*, Abstract #2942.
- Ruzicka A.M.**, K.L. Schepker, R.C. Greenwood and I.A. Franchi (2016) Combined chemical-oxygen isotope study of large igneous inclusions in ordinary chondrites. *47th Lunar Planet. Sci. Conf.*, Abstract #2230.

- Hutson M.L., **A.M. Ruzicka**, K.R. Farley, K.L. Schepker, R.C. Hugo and L.E. Likkell (2016) Carbides in ordinary chondrites revisited. *47th Lunar Planet. Sci. Conf.*, Abstract #1377.
- Ruzicka A.**, J. Grossman, A. Bouvier, C. Herd, and C.B. Agee (2015) The Meteoritical Bulletin, No. 102. *Meteorit. Planet. Sci.* **50**, 1662. Full electronic article 248 pp.
- Ruzicka A.**, J. Grossman, A. Bouvier, C. Herd, and C.B. Agee (2015) The Meteoritical Bulletin, No. 101. *Meteorit. Planet. Sci.* **50**, 1661. Full electronic article 136 pp.
- Strait M.M., A.N. Clayton, S.J. Jack, **A.M. Ruzicka**, G.J. Flynn and D.D. Durda (2015) Chemical composition of artificially hydrated ordinary chondrites. *Meteorit. Planet. Sci.*, Abstract #5324.
- Ruzicka A.M.**, M. Hutson, J.M. Friedrich, P.A. Bland and R. Pugh (2015) Northwest Africa 8709: A rare but revealing type 3 ordinary chondrite melt breccia. *Meteorit. Planet. Sci.*, Abstract #5348.
- Ruzicka A.M.**, P.M. Clay, R. Hugo, K.H. Joy and H. Busemann (2015) Contrasting early and late shock effects on the L chondrite parent body: Evidence from Ar ages and olivine microstructures for two meteorites. *Meteorit. Planet. Sci.*, Abstract #5177.
- Farley K.R. and **A.M. Ruzicka** (2015) NWA 8614: The least heated winonaite? *46th Lunar Planet. Sci. Conf.*, Abstract #1821.
- Hutson M.L., R.N. Pugh and **A.M. Ruzicka** (2015) Lessons learned from meteorite public outreach and education in the Pacific Northwest. *46th Lunar Planet. Sci. Conf.*, Abstract #1690.
- Armstrong K. and **A.M. Ruzicka** (2015) Major-element geochemistry of large, igneous-textured inclusions in ordinary chondrites. *46th Lunar Planet. Sci. Conf.*, Abstract #1572.
- Ruzicka A.**, J.M. Friedrich, R. Hugo and M. Hutson (2015) Macro- and microstructures in ordinary chondrites: Implications for impact deformation and annealing processes. *46th Lunar Planet. Sci. Conf.*, Abstract #1544.
- Hutson M.L., **A.M. Ruzicka** and M. Nazari (2014) Diverse and unusual O-chondrites from the Lut desert, Iran. *Meteorit. Planet. Sci.*, Abstract #5180.
- Ruzicka A.** and R. Hugo (2014) Microstructures in olivine from ordinary chondrites: Evidence for post-shock thermal annealing and syn-metamorphic shock. *45th Lunar Planet. Sci. Conf.*, Abstract #1306.
- Ruzicka A.**, J.N. Grossman and L. Garvie (2014) The Meteoritical Bulletin, No. 100, 2014 June. *Meteorit. Planet. Sci.* **49**, E1-E101.
- Brown R.A., **A.M. Ruzicka**, M. Hutson, J.M. Friedrich and M.L. Rivers (2013) Micro-tomography and electron microscopy of a shock dike in the Buck Mountains 005 L6 chondrite. Abstract, American Geophysical Union.
- Brown R., **A.M. Ruzicka**, M. Hutson, J.M. Friedrich and M.L. Rivers (2013), Micro-tomography and electron microscopy of a shock dike in the Buck Mountains 005 L6 chondrite, Abstract P31B-1808 presented at 2013 Fall Meeting, AGU, San Francisco, Calif., 9-13 Dec.
- Ruzicka A.** and M. Hutson (2013) Evidence from silicate-bearing irons for the nature of asteroidal differentiation. *Workshop on Planetsimal Formation and Differentiation*, Carnegie Institution of Science, Washington D.C. October 27-29.
- Armstrong K. and **A. Ruzicka** (2013) Survey of large, igneous-textured inclusions in O-chondrites. *Meteorit. Planet. Sci.*, Abstract #5278.
- Likkell L., **A.M. Ruzicka**, M. Hutson, K. Schepker, and T.R. Yeager (2013) Cohenite in chondrites: Further support for a shock-heating origin. *Meteorit. Planet. Sci.*, Abstract #5145.
- Brown R., **A. Ruzicka**, J. Friedrich, M. Hutson and M. Rivers (2013) A shock melt dike in 3D: Shear and melt migration in the Buck Mountains 005 L6 chondrite. *Meteorit. Planet. Sci.*, Abstract #5078.
- Ruzicka A.**, M. Hutson, N. Jamsja and T. Stout (2013) Anhydrous and hydrous R chondrites:

- Evidence from NWA 6491, 6492 and the newly discovered NWA 7514. *44th Lunar Planet. Sci. Conf.*, Abstract #1168.
- Claydon J.L., **A. Ruzicka**, S. A. Crowther, M. Y. P. Lee, A. Bischoff, H. Busemann and J. D Gilmour (2013). First I-Xe ages of Rumuruti chondrites and the thermal history of their parent body. *44th Lunar Planet. Sci. Conf.*, Abstract #2211.
- Hutson M., **A. Ruzicka**, and R. Brown (2013) A pyroxene-enriched shock melt dike in the Buck Mountains 005 (L6) chondrite. *44th Lunar Planet. Sci. Conf.*, Abstract #1186.
- Friedrich J.M., **A. Ruzicka**, D.S. Ebel., J.O. Thostenson, R.A. Rudolph and M.L. Rivers (2012) Early microstructures of asteroidal building blocks from 3D petrography: A compaction and porosity perspective. *Asteroids, Comets, Meteors (ACM) 2012*, Abstract #6205.
- Ruzicka, A.**, M. Hutson, C. Floss and A. Hildebrand (2012) Large, silica-rich igneous-textured inclusions in the Buzzard Coulee (H4) chondrite. *43rd Lunar Planet. Sci. Conf.*, Abstract #1630.
- Friedrich J.M., **A. Ruzicka**, D. S. Ebel, J. Thostenson, R. A. Rudolph, M. L. Rivers, R. J. Macke and D. T. Britt (2012) Three Dimensional Petrography of Kernouvé: A Story of Vein Formation, Compaction, and Metamorphism. *43rd Lunar Planet. Sci. Conf.*, Abstract #1197.
- Ruzicka A.** and Hutson M. (2011) Agglomeratic olivine (AO) objects: Melting of dust to create Type II chondrules. *Workshop on Formation of the First Solids of the Solar System*, Abstract #9020.
- Ruzicka A.** and R. Hugo (2011) A shocking tale: TEM observations of deformed olivine in ordinary chondrites. *Meteorit. Planet. Sci.* **46**, Abstract #5368.
- Jamsja N., **A.M. Ruzicka** and M. Fries (2011) New insights on hydrous phases in R chondrites NWA 6491 and 6492. *Meteorit. Planet. Sci.* **46**, Abstract #5377.
- Ruzicka A.** (2011) 2011 Service Award for Richard Norman Pugh. *Meteorit. Planet. Sci.* **46**, 932-934.
- Hauver K. and **A. Ruzicka** (2011) Cohenite in NWA 5964 (L3-6 melt breccia): A possible product of shock-induced contact metamorphism. *42nd Lunar Planet. Sci. Conf.*, Abstract #2627.
- Jamsja N. and **A. Ruzicka** (2011) Presence of hydrous phases in two R chondrites, Northwest Africa 6491 and 6492. *42nd Lunar Planet. Sci. Conf.*, Abstract #2324.
- Ruzicka A.**, M.L. Hutson and C. Floss (2011) Amoeboid olivine aggregate condensates and the origin of the refractory element fractionation. *42nd Lunar Planet. Sci. Conf.*, Abstract #1336.
- Hutson M.L., R.N. Pugh and **A. Ruzicka** (2011) Meteorites on the road: Taking meteorite science to rural communities. *42nd Lunar Planet. Sci. Conf.*, Abstract #1269.
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Presentations at Professional Meetings (2000-2023)

- 2023 Oral presentation at the 86th Annual Meeting of the Meteoritical Society, for "Northwest Africa 11351 (LL3-6): A case study for a shock-induced petrofabric" (lead speaker, with J.M. Friedrich and R.C. Hugo).
- 2023 Oral presentation at the 86th Annual Meeting of the Meteoritical Society, for "Felsite "frenzy" in lunar meteorite Bechar 009: Constraining the role of silicate liquid immiscibility (SLI) on lunar felsite petrogenesis" (with lead speaker D. Sheikh).

- 2023 Oral presentation at the 86th Annual Meeting of the Meteoritical Society, for “The fall and recovery of the Great Salt Lake meteorite” (with lead speaker J.M. Karner, and M.D. Fries, M.L. Hutson, D. Sheikh, and M. Terlaga).
- 2023 Oral presentation at the 85th Annual Meeting of the Meteoritical Society, for “The Cranfield meteorite: An H3-5 (regolith?) breccia” (with lead speaker L.C. Welzenbach, and M.D. Fries, G. Costin, R.C. Greenwood, W.J. Cooke, D. Moser, S. Hicks, E. Rasmussen, E.E. Satterwhite, K. Richter, D. Sheikh, M.L. Hutson, R. Vargas, M. Stream, S.A. Eckley, R.A. Ziegler, and F.M. McCubbin).
- 2023 Oral presentation at the 54th Lunar and Planetary Science Conference, for “Pink Spinel Anorthosite (PSA) clasts in lunar dimict breccia Northwest Africa 15500: Evidence for a petrogenetic link between PSA and Mg-suite” (with lead speaker D. Sheikh, and M. Hutson and C. Zlmen).
- 2022 Oral presentation at the 85th Annual Meeting of the Meteoritical Society, for “A robust Electron Backscatter Diffraction annealing metric for olivine” (lead speaker, with R.C. Hugo).
- 2022 Poster presentation at the 85th Annual Meeting of the Meteoritical Society, for “More evidence for unique aqueous alteration on the L-chondrite parent body” (with M.L. Hutson, M.D. Fries, J.M. Friedrich and K. Ziegler).
- 2022 Oral presentation at the 85th Annual Meeting of the Meteoritical Society, for “Dunite clast in lunar meteorite Northwest Africa (NWA) 14900: Mantle derived?” (with lead speaker D. Sheikh, and M.L. Hutson, M. Stream).
- 2022 Oral presentation at the 85th Annual Meeting of the Meteoritical Society, for “Rapid recovery of a new chondrite meteorite near Natchez, Mississippi” (with lead speaker L.C. Welzenbach, and M.D. Fries, W.J. Cooke, D. Moser, S. Hicks, E. Rasmussen, C.E. Satterwhite, K. Richter, D. Sheikh, M.L. Hutson, R. Vargas, M. Stream, S.A. Eckley, R.A. Zeigler, and F.M. McCubbin).
- 2022 Oral presentation at the 53rd Lunar and Planetary Science Conference, for “Model deformation temperatures derived from EBSD data for olivine in type 6 ordinary chondrites and ureilites” (lead speaker, with R.C. Hugo).
- 2022 Poster presentation at the 53rd Lunar and Planetary Science Conference, for “Electron Backscatter Diffraction (EBSD) analysis of ureilites Northwest Africa 11993, 12433, 7630 and 7304: Clues to petrogenesis from deformation-thermal parameters and rock fabrics” (with J.K. Frye).
- 2022 Poster presentation at the 53rd Lunar and Planetary Science Conference, for “Northwest Africa 14446: A unique lunar dimict breccia composed of distinct feldspathic crystalline melt breccia lithologies” (with D. Sheikh, M. Hutson, A. Greshake, E. Thompson and P. Thompson).
- 2021 Oral presentation at the 84th Annual Meeting of the Meteoritical Society, for “Probing the thermal and deformation histories of chondrules in a cluster chondrite lithology of Northwest Africa 5205 with Electron Backscatter Diffraction (EBSD) techniques” (lead speaker, with R.C. Hugo).
- 2021 Oral presentation at the 84th Annual Meeting of the Meteoritical Society, for “Untangling the history of a chondrule in Northwest Africa 5205 (LL3.2) with Electron Backscatter Diffraction and Transmission Electron Microscopy” (with lead speaker R.C. Hugo).
- 2021 Poster presentation at the 52nd Lunar and Planetary Science Conference, for “Lunar meteorite Northwest Africa 13531: Chip off of a different kind of block” (with M.L. Hutson, K. Ziegler).
- 2020 Scheduled oral presentation at the 51st Lunar and Planetary Science Conference, for “Role of hot accretion and deformation in producing cluster and type 3 ordinary chondrites” (with Secana Goudy and Richard Hugo). *This Conference*

- was cancelled owing to the Coronavirus pandemic.*
- 2019 Poster presentation at the 50th Lunar and Planetary Science Conference, for “Abundant water in ordinary chondrites: Evidence from a clast with unique alteration assemblage in the Northwest Africa (NWA) 12380 (L3) chondrite” (with M. Hutson and S. Tutorow).
- 2019 Poster presentation at the 50th Lunar and Planetary Science Conference, for “Iodine-xenon systematics of large igneous inclusions in ordinary chondrites” (with S.A. Crowther and J.D. Gilmour).
- 2018 Poster presentation at the 49th Lunar and Planetary Science Conference, for “Hf-W chronology of large igneous inclusions from ordinary chondrites” (with J. Hellman and T. Kleine).
- 2017 Oral presentation at the Annual Meeting of the Meteoritical Society, for “EBSD Analyses of Seven Ordinary Chondrites: Deformation Metrics and Implications for Parent Body Thermal Histories” (lead speaker, with R. Hugo).
- 2017 Poster presentation at the 80th Annual Meeting of the Meteoritical Society, for “Elbert and Saint-Severin: LL6(S4) Chondrites with Contrasting Shock Histories” (with R. Hugo, A. Rubin).
- 2017 Oral presentation at the Meeting of the Meteoritical Society, for “First I-Xe age of a new suite of large igneous inclusions in ordinary chondrites” (with lead speaker S.A. Crowther, J.D. Gilmour).
- 2017 Poster presentation at the 48th Lunar and Planetary Science Conference, for “Trace element compositions bearing on the origins of large igneous inclusions in ordinary chondrites” (with K. Schepker and Y. Guan).
- 2017 Poster presentation at the 48th Lunar and Planetary Science Conference, for “Miller Range 07273: An unusual chondritic melt breccia” (with M. Hutson).
- 2016 Poster presentation at the 47th Lunar and Planetary Science Conference, for “Combined chemical-oxygen isotope study of large igneous inclusions in ordinary chondrites” (with K.L. Schepker, R.C. Greenwood, I.A. Franchi).
- 2016 Poster presentation at the 47th Lunar and Planetary Science Conference, for “Carbides in ordinary chondrites revisited” (with M.L. Hutson, K.R. Farley, R.C. Hugo, L.E. Likkell).
- 2015 Oral presentation at the *76th Annual Meeting of the Meteoritical Society*, for “Contrasting early and late shock effects on the L chondrite parent body: Evidence from Ar ages and olivine microstructures for two meteorites” (lead speaker, with P.M. Clay, R. Hugo, K.H. Joy, H. Busemann).
- 2015 Poster presentation at the *76th Annual Meeting of the Meteoritical Society*, for “Northwest Africa 8709: A rare but revealing type 3 ordinary chondrite melt breccia” (with M. Hutson, J.M. Friedrich, P.A. Bland, R. Pugh).
- 2015 Poster presentation at the *76th Annual Meeting of the Meteoritical Society*, for “Chemical composition of artificially hydrated ordinary chondrites” (with M.M. Strait, A.N. Clayton, S.J. Jack, G.J. Flynn, D.D. Durda).
- 2015 Poster presentation at the *46th Lunar and Planetary Science Conference*, for “Macro- and microstructures in ordinary chondrites: Implications for impact deformation and annealing processes” (with J. Friedrich, R. Hugo, M. Hutson).
- 2015 Poster presentation at the *46th Lunar and Planetary Science Conference*, for “Major-element geochemistry of large, igneous-textured inclusions in ordinary chondrites” (with K. Armstrong).
- 2015 Poster presentation at the *46th Lunar and Planetary Science Conference*, for “Lessons learned from meteorite public outreach and education in the Pacific Northwest” (with M. Hutson, R. Pugh).
- 2015 Poster presentation at the *46th Lunar and Planetary Science Conference*, for

- 2014 “NWA 8614: The least heated winonaite?” (with K. Farley)
Oral presentation at the *45th Lunar and Planetary Science Conference*, The Woodlands, for “Microstructures in olivine from ordinary chondrites: Evidence for post-shock thermal annealing and syn-metamorphic shock” (lead speaker, with R. Hugo).
- 2013 Oral presentation at the *Workshop on Planetary Formation and Differentiation*, Carnegie Institution of Science, Washington D.C. October 27-29, for “Evidence from silicate-bearing irons for the nature of asteroidal differentiation” (lead speaker, with M. Hutson).
- 2013 Oral presentation at the *75th Annual Meeting of the Meteoritical Society*, for “A shock melt dike in 3D: Shear and melt migration in the Buck Mountains 005 L6 chondrite” (lead speaker, with R. Brown, J. Friedrich, M. Hutson and M. Rivers).
- 2013 Oral presentation at the *44th Lunar and Planetary Science Conference*, the Woodlands, TX, for “Anhydrous and hydrous R chondrites: Evidence from NWA 6491, 6492 and the newly discovered NWA 7514” (lead speaker, with M. Hutson, N. Jamsja, and T. Stout).
- 2012 Poster presentation at *Asteroids, Comets, Meteors (ACM) 2012 conference*, Nigata, Japan, for “Early microstructures of asteroidal building blocks from 3D petrography: A compaction and porosity perspective” (with J. Friedrich, D.S. Ebel, J.O. Thostenson, R.A. Rudolph and M.L. Rivers).
- 2012 Oral presentation at the *43rd Lunar and Planetary Science Conference*, The Woodlands, TX, for “Large, silica-rich igneous-textured inclusions in the Buzzard Coulee (H4) chondrite” (lead speaker, with M. Hutson, C. Floss, A. Hildebrand).
- 2011 Poster presentation at the *Workshop on Formation of the First Solids of the Solar System*, Kauai, Hawaii, for “Agglomeratic olivine (AO) objects: Melting of dust to create Type II chondrules” (with M. Hutson).
- 2011 Oral presentation at the *74th Annual Meeting of the Meteoritical Society*, Greenwich, England, for “2011 Service Award for Richard Norman Pugh” (award citation for Cascadia Meteorite Laboratory member).
- 2011 Oral presentation at the *74th Annual Meeting of the Meteoritical Society*, Greenwich, England, for “A shocking tale: TEM observations of deformed olivine in ordinary chondrites” (lead speaker, with R. Hugo).
- 2011 Poster presentation at the *74th Annual Meeting of the Meteoritical Society*, Greenwich, England, for “New insights on hydrous phases in R chondrites NWA 6491 and 6492” (with N. Jamsja).
- 2011 Oral presentation at the *42nd Lunar and Planetary Science Conference*, The Woodlands, TX, “Amoeboid Olivine Aggregate Condensates and the Origin of the Refractory Element Fractionation” (lead speaker, with M. Hutson and C. Floss).
- 2011 Poster presentation at the *42nd Lunar and Planetary Science Conference*, The Woodlands, TX, “Cohenite in NWA 5964 (L3–6 Melt Breccia): A Possible Product of Shock-Induced Contact Metamorphism” (with K.L. Hauver).
- 2011 Poster presentation at the *42nd Lunar and Planetary Science Conference*, The Woodlands, TX, “Presence of Hydrous Phases in Two R Chondrites, Northwest Africa 6491 and 6492” (with N. Jamsja).
- 2011 Poster presentation at the *42nd Lunar and Planetary Science Conference*, The Woodlands, TX, “Meteorites on the Road: Taking Meteorite Science to Rural Communities” (with M. L. Hutson and R. N. Pugh).
- 2010 Poster presentation at the *73rd Annual Meeting of The Meteoritical Society*, New York City, NY, for “Classification of four new irons, including common (IIAB) and uncommon (IIIF, unusual IAB) types” (lead author, with M. Hutson and S.A).

- Kissin).
- 2010 Oral presentation at Lunar and Planetary Science Conference, The Woodlands, TX, for “Accretion and melting of dust to form ferroan chondrules in ordinary chondrites” (lead speaker, with C. Floss, M. Hutson).
- 2010 Poster presentation at Lunar and Planetary Science Conference, The Woodlands, TX, for “Jungo 001, Jungo 002, Jungo 003, and Big Horn Mountains: Four new chondrites from Nevada and Arizona which contain a variety of unusual petrographic features” (with M. Hutson).
- 2010 Poster presentation at Lunar and Planetary Science Conference, The Woodlands, TX, for “X-ray diffraction as a tool for the classification of equilibrated ordinary chondrites” (with T.J. Schepker).
- 2009 Poster presentation at Lunar and Planetary Science Conference, The Woodlands, TX, for “Olivine microstructures in the Miller Range 99301 (LL6) ordinary chondrite” (with M. Hutson, R. Hugo, A.E. Rubin).
- 2009 Poster presentation at Lunar and Planetary Science Conference, The Woodlands, TX, for “A first look at the Buzzard Coulee (H4) chondrite, a recently observed fall from Saskatchewan” (with M. Hutson, E.P. Milley, A.R. Hildebrand).
- 2008 Poster presentation at the Annual Meeting of the Meteoritical Society, Matsue, Japan, for “Trace-element analyses of pyroxene and plagioclase in three HED meteorites” (with T.J. Schepker).
- 2008 Oral presentation at Lunar and Planetary Conference, Houston, TX, for “Amoeboid olivine aggregates (AOAs) in the Efremovka (CV_R) chondrite: First SIMS trace-element results” (lead speaker, with C. Floss, M. Hutson).
- 2007 Poster presentation at the Annual Meeting of the Meteoritical Society, Tucson, AZ, for “XRD as a tool to constrain olivine composition: Applications to H- and L-chondrites” (with T.J. Schepker).
- 2007 Poster presentation at the Annual Meeting of the Meteoritical Society, Tucson, AZ, for “The case against Mercury as the angrite parent body” (with M. Hutson).
- 2007 Poster presentation at the Annual Meeting of the Meteoritical Society, Tucson, AZ, for “Annealing after shock: Evidence from olivine microstructures in Portales Valley” (with M. Hutson, R. Hugo).
- 2006 Oral presentation at the Annual Meeting of the Meteoritical Society, Zürich, Switzerland, for “Trace-element compositions of normal, dusty, and clear olivine in Chainpur chondrules” (lead speaker, with C. Floss, M. Hutson).
- 2006 Poster presentation at the Annual Meeting of the Meteoritical Society, Zürich, Switzerland, for “NWA 2999 and other angrites: No compelling evidence for a mercurian origin” (with M. Hutson).
- 2006 Poster presentation at the Lunar and Planetary Science Conference, Houston, TX, for “Public outreach and education with meteorites involving a museum exhibit, website, and teacher workshops” (with M. Hutson, R.N. Pugh).
- 2005 Oral presentation at the Annual Meeting of the Meteoritical Society, Gatlinburg, TN, for “Geochemical constraints for the origin of the Steinbach (IVA) stony-iron meteorite” (lead speaker, with M. Hutson).
- 2005 Poster presentation at the Annual Meeting of the Meteoritical Society, Gatlinburg, TN, for “Carbon and mineral phase distribution on a CV3 dark inclusion boundary – A confocal raman imaging study” (with M. Fries, A. Steele).
- 2005 Oral presentation at the Workshop on Oxygen in Asteroids and Meteorites, Flagstaff, AZ, for “Relict olivine, chondrule recycling, and evolution of oxygen reservoirs” (lead speaker, with H. Hiyagon, C. Floss).
- 2005 Poster presentation at the Lunar and Planetary Science Conference, Houston, TX, for “Filter-press differentiation: A newly-recognized fractionation mechanism

- for silicate inclusions in Sombrerete and possibly in other iron meteorites” (with C. Floss, M. Hutson).
- 2004 Oral presentation at the Lunar and Planetary Science Conference, Houston, TX, for “Forsterite and olivine in Sahara-97210 (LL3.2) and Chainpur (LL3.4) chondrules: Compositional evolution and the influence of melting” (lead speaker, with C. Floss).
- 2004 Poster presentation at the Lunar and Planetary Science Conference, Houston, TX, for “Relict forsterite in chondrules: Implications for cooling rates” (with S. Greeney).
- 2003 Oral presentation at the Annual Meeting of the Meteoritical Society, Münster, Germany, for “Origin of silicate inclusions in the Miles (IIE) iron: Minimal partial melting, maximal fractional crystallization” (lead speaker, with T. Lindsay, M. Killgore).
- 2003 Oral presentation at the Annual Meeting of the Meteoritical Society, Münster, Germany, for “Evidence for silicate liquid immiscibility within silicate inclusions during rapid cooling of the Sombrerete (Ungrouped) iron meteorite” (lead speaker, with M. Hutson).
- 2003 Oral presentation at the Lunar and Planetary Science Conference, Houston, TX, for “Relict forsterite and igneous olivine grains in Chainpur (LL3.5) chondrules: Major- and trace-element evidence for vapor-fractionation and igneous partitioning” (lead speaker, with C. Floss).
- 2002 Oral presentation at the Lunar and Planetary Science Conference, Houston, TX, for “Trace-element abundances in the Portales Valley meteorite: Evidence for geochemical fractionations” (lead speaker, with M. Killgore).
- 2000 Oral presentation at the Annual Meeting of the Meteoritical Society, Chicago, IL, for “Portales Valley: Not just another ‘ordinary’ chondrite” (lead speaker, with M. Killgore, J. Boesenberg, M. Prinz).
- 2000 Poster presentation at the Annual Meeting of the Meteoritical Society, Chicago, IL, for Portales Valley: Discovery of a large graphite nodule” (with J. McHone, M. Killgore).

Honors, Grants, and Fellowships

(Dollar amounts have been rounded to the nearest thousand.)

- 2023 **PI of subaward** to Oregon / NASA Space Grant program for “Unlocking research opportunities for students and the Cascadia Meteorite Laboratory” (October 1, 2023-May 31, 2024). Subaward \$9K.
- 2022 **PI of subaward** to Oregon / NASA Space Grant program for “Taking students to the Moon, Mars, and beyond through meteorite classification and research” (July 1, 2022- June 30, 2023). Subaward \$15K.
- 2021 **PI of awarded PSU Faculty Development Grant** for “A new direction in meteorite research at PSU”. \$14K.
- 2021 **PI of subaward** to Oregon / NASA Space Grant program for “Not just a pile of rocks: Unleashing the potential of the Cascadia Meteorite Laboratory collection” (June 1, 2021-May 31, 2022). Subaward \$15K.
- 2019 **PI of subaward** to Oregon / NASA Space Grant program for “Administration of the Oregon Space Grant Consortium Faculty Research Awards Program” (May 15, 2019-February 22, 2020). Subaward \$20K.
- 2019 **PI of awarded NASA grant** for “The deformation-heat connection: Evaluating hot accretion, lithification mechanisms, and heat sources in ordinary chondrites”

- (3 years starting 2019). \$357K.
- 2016 Named **Fellow of the Meteoritical Society**.
- 2014 **Collaborator of awarded NASA grant** for “Chondritic materials as products of asteroidal processing” (3 years starting 2014, PI Alan Rubin, Subaward PI Alex Ruzicka, NASA Cosmochemistry program). Subaward \$90K.
- 2014 **PI (with R. Hugo) of awarded PSU ERPDF grant** for “Understanding the origin of iron carbides in meteorites”. \$2K.
- 2013 **PI of awarded NASA grant** for “The origin of large, igneous-textured inclusions in ordinary chondrites” (3 years, starting 2013, NASA Cosmochemistry program, extension through 2017). \$322K.
- 2012 **PI of awarded NASA grant** for “Acquisition of an Electron Back Scatter Detector for the Zeiss Sigma SEM at Portland State University” (NASA Planetary Major Equipment program, award period 2012-2014 with 1 year extension to 2015). \$132K.
- 2010 **PI of awarded NASA grant** for “Shock histories of chondrites as revealed by combined microstructural (TEM), petrographic, and X-ray microtomography (μ CT) analysis” (award period 2010-2013 with 2 year extension to 2015, NASA Origins of Solar Systems program). \$123K.
- 2010 **PI of awarded NASA grant** for “Meteorites on the Road, II: Expanding NASA Outreach in the Pacific Northwest” (award period 2010-2013 with 1 year extension to 2014, NASA Supplemental Outreach program). \$30K.
- 2010 **Co-I of submitted NASA grant** (declined) for “Primary Amines and the Magnetite-associated Delta ^{17}O from Primitive Chondrites”, P.I. Radu Popa, \$353K (3 years, NASA Cosmochemistry program)
- 2009 **PI of awarded PSU Faculty Development Grant** for “Shock and Awe: Collisions and Heating in the Early Solar System”. \$11K.
- 2009 **Collaborator of awarded NASA grant** for “Constraints on Solar-System Processes from Geochemical Studies of Asteroidal and Nebular Materials” (3 years, PI Alan Rubin, NASA Cosmochemistry program)
- 2009 **Outstanding Researcher Award** in Earth Sciences from the Columbia-Willamette Chapter of Sigma Xi.
- 2008 **Co-I of submitted NASA Astrobiology Institute (NAI) Grant** (declined) for “Astrogeochemistry at PEARL: From molecules to Microbes... and back”, \$7.7M total, \$4.7M for PSU (5 years, PI Niles Lehman).
- 2006 **PI of awarded NASA Grant** for “Meteorites on the road: Taking meteorite science to rural communities” (award period 2006-2009 with one-year extension to 2010, NASA Supplemental Education/Public Outreach program). \$35K.
- 2006 **PI of awarded NASA Grant** for "Evolution of primordial matter: Aggregational olivine inclusions in carbonaceous and ordinary chondrites" (award period 2006-2009 with one-year extension to 2010, NASA Origins program). \$132K.
- 2006 **Co-I of NASA Discovery Program Proposal Authorization** for “The Hera Mission: Near-Earth Asteroid Sample Return” (PI Derek Sears) (not selected for authorization).
- 2005 **PI of awarded PSU Faculty Development Grant** for “Laying the groundwork for a vibrant program in meteorite science at PSU”. \$10K.
- 2003 **PI of awarded NASA Grant** for "Public outreach and education with meteorites involving a museum exhibit, website, and teacher workshops" (award period 2004-2006 with one year extension to 2007, NASA Supplemental Education/Public Outreach program). \$37K.

- 2003 **PI of awarded NASA Grant** for "From grains to chondrules and beyond: The origin of 'relict' olivine grains in ordinary chondrites" (award period 2003-2006 with one-year extension to 2007, NASA Origins program). \$99K.
- 2003 **PI of awarded NASA Grant** for "Asteroidal differentiation: Origin and petrogenesis of silicate inclusions in iron meteorites" (award period 2003-2006 with one-year extension to 2007, NASA Cosmochemistry program). \$165K.
- 2002 **PI of awarded PSU Faculty Development Grant** for "Trace-element study of silicates in an iron meteorite: Seed money for a research program". \$10K.
- 2001 **PI of Oregon / NASA Space Grant** for "Microbial colonization in meteorites: A proof-of-concept study". \$7K.
- 1999-1996 **Co-I**, NASA research proposals, with P.I. Lawrence Taylor (1996, 1997, 1998, 1999).
- 1996 **Recipient of the Gerard P. Kuiper Memorial Award** from the Department of Planetary Sciences, University of Arizona, for exceptional achievement in graduate studies.
- 1988-1986 **Graduate Student Scholarship**, University of Arizona.
- 1982 **NASA Planetary Geology Undergraduate Research Fellow**.

Teaching, Mentoring and Curricular Achievements

- Current-2023 **Faculty Thesis Advisor** to M.S. Geology student Vincent Mugica (thesis topic: shock melt veins in chondrites).
- Current-2023 **Faculty Thesis Advisor** to MS. Geology student Benjamin Agyemang (thesis topic: petrofabrics in ureilite meteorites).
- Current-2022 **Faculty Thesis Advisor** to M.S. Geology student George Anim (thesis topic: deformation in shergottite meteorites).
- Current-2021 **Faculty Thesis Advisor** to Ph.D. Earth, Environment & Society student Daniel Sheikh (thesis topic: Petrology of lunar highland lithologies).
- 2021-2020 **Faculty Thesis Advisor** to Ph.D. Earth, Environment & Society student Michael Ream (thesis topic: Evaluation of shock compaction heating as a heat source in weakly-metamorphosed ordinary chondrites).
- 2022-2020 **Faculty Thesis Advisor** to M.S. Geology student James Frye (thesis topic: high-temperature deformation of ureilite achondrites).
- 2021-2018 **Faculty Thesis Advisor** to M.S. Geology student Kimberly Maccini (thesis topic: Chromite-plagioclase assemblages in ordinary chondrites).
- 2019-2017 **Faculty Thesis Advisor** to M.S. Geology student Secana Goudy (thesis: "Assessment of cluster chondrite accretion temperature using electron backscatter diffraction and implications for chondrule formation models", awarded July 2019).
- 2019-2014 **Faculty Thesis Advisor** to M.S. Geology student Karla Farley (thesis: "Distribution and origin of carbides in ordinary chondrites", awarded June 2019).
- 2019-2018 **Faculty Advisor** to B.S. Geology student Robert Kostynick (Geology honors thesis: "Bleached chondrules and the possible influence of aqueous alteration", awarded June 2019).
- 2019-2015 **Faculty Thesis Advisor** to M.S. Geology student Michael Ream (thesis: "Geothermometry of H6 and L6 chondrites and the relationship between impact processing and retrograde metamorphism", awarded June 2019).
- 2019 **New course developed**, "Frontiers of Planetary Science" (G410-510, now G457/557), and taught for first time at PSU.
- 2018-2017 **Member of Ph.D. Advisory Committee** for Emily Cahoon.

2018-2017 **Faculty Advisor** to B.S. Geology Student Kyle Bocian (research topic: classification of two eucrite meteorites”).

2017-2014 **Faculty Thesis Advisor** to Ph.D. Earth, Environment & Society student Kristy Schepker (research topic: “Origins of large Igneous inclusions in Ordinary chondrites based on trace element trends”).

2017 **Faculty Advisor** to B.S. Geology student Kirben Smoody (research topic: classification of three ordinary chondrites).

2017 **Faculty Advisor** to B.S. Geology student Mountain Barber (research topic: classification of a ureilite).

2017-2016 **Faculty Advisor** to B.S. students Monique Soiseth and Amy Seufert (topic: classification of two veined and heavily shocked ordinary chondrites)

2016 **Member of M.S. Thesis Committee** for Eric Schaeffer.

2016 **Reading and Conference**, “Mars Surface Exploration”, B.S. students Peter Bucu, Alex Narath, Monique Soiseth, Amy Seufert, Travis Shiprack, Abram Morphew (Spring 2016).

2016 **Faculty Advisor** to Westview High School student Nishit Mishra (research topic: classification of two eucrite meteorites”).

2015-2010 **Faculty Advisor** to B.S. Geology student and graduate Ryan Brown.

2014-2012 **Faculty Advisor** to University Honors student Karla Farley (thesis: “Classification of four meteorite samples”, presented May, 2014).

2014-2009 **Faculty Advisor** to M.S. Geology student Kristy Schepker (thesis: “Complex thermal histories of L melt breccias NWA 5964 and NWA 6580”, awarded June, 2014).

2014-2011 **Faculty Advisor** to M.S. Geology student Katherine Armstrong (thesis: “Chemical and petrographic survey of large, igneous-textured inclusions in ordinary chondrites”, awarded December, 2014).

2014-2009 **Faculty Advisor** to M.S. Geology student T.J. Schepker (research topic: “Evaluating the relative importance of metamorphism in affecting mineral compositions in eucrite meteorites”).

2014 **Faculty Advisor** to B.S. student John Dandridge (research topic: using scanning electron microscopy for meteorite classification).

2012 **Reading and Conference**, “Io”, B.S. students Ashley Sladky and Lisa Jackson (Spring 2012).

2011-2010 **Faculty Advisor** to McNair Scholar & Oregon Space Grant Undergraduate Researcher Niina Jamsja (B.S. student). Topic: Petrographic and microchemical study of two R chondrites.

2011-2009 **Member of Ph.D. Advisory Committee** for Arron Steiner.

2011 **Member of Ph.D. Advisory Committee** for Susan Wacaster.

2010 **Reading and Conference**, “Exoplanets”, M.S. students James Mueller, Kristy Hauver, T.J. Schepker (Fall, 2010).

2010-2008 **Faculty Advisor** to B.S. student Kristy Hauver for PSU Scholarly and Creative Activity Grant.

2009 **M.S. Thesis Committee** for Hollie Oakes-Miller. Thesis: “Biosignature preservation in phototrophic streamer mats from a silica depositing hot spring, Queens laundry, Yellowstone National Park”

2009 **Reading and Conference**, “Titan”, B.S. students Don Miller and Glen Foster (Spring, 2009).

2009 **M.S. Thesis Defense Committee** for Aspen Gillam. Thesis: “Andesites/dacites of the oceanic Narcondam volcano, Andaman Sea: Modification of tholeiitic arc basalts by crustal contamination and

2009-2008	amphibole-dominated fractionation (presented May 2009).
2009-2008	Chair of Ph.D. Advisory Committee for Tessa Harden.
	Thesis Faculty Advisor to B.S. Geology student T.J. Schepker. (Geology Honors Thesis: "X-ray diffraction as a tool for chondrite classification", awarded June 2009).
2008	Reading and Conference , B.S. students Kristy Hauver and Niina Jamsja (Fall, 2008).
2008	Faculty Advisor to McNair Scholar & B.S. student Kristy Hauver.
2008-2006	Chair of Ph.D. Advisory Committee for Hollie Oakes-Miller (Summer 2006-Winter 2008).
2008-2006	Member of Ph.D. Advisory Committee for Frank Granshaw (Fall 2006-Spring 2008).
2007	Faculty Advisor to B.S. student T.S. Schepker for Scholarly and Creative Activity Grant.
2006	Reading and Conference , B.S. students Julie Ryan and Robert McGown (Spring 2006).
2005	Reading and Conference , M.S. student Douglas McCarty (Winter 2005).
2005	Faculty Advisor to visiting Harvey Mudd B.S. student Randy Goosen. RUI Project: SEM studies of basaltic, possibly meteoritic, samples. (Summer 2005).
2005	Thesis Faculty Advisor to B.S. Honors Thesis student Karen Carroll. Thesis: "Initial petrologic study and classification of three northwest African meteorites" (presented June 2005).
2004	New course developed , "Meteorites" (G446-546), and taught for first time at PSU.
2004	Member of M.S. Thesis Committee for Melinda Woods. Thesis: "Compositional and mineralogical relationships between mafic inclusions and host lavas as key to andesite petrogenesis at Mount Hood volcano Oregon" (presented July 2004).
2004	Reading and Conference , Karen Carroll (Fall 2004).
2004	Minor in Space and Planetary Sciences approved by university (contributed to effort led by M. Cummings).
2004-2003	Thesis Faculty Advisor for M.S. Geology student Sean Greeney (thesis: "Compositional gradients in relict olivine grains: Implications for thermal histories of chondrules in Type 3 ordinary chondrites", awarded June, 2004).
2002	B.S. Honors Thesis Committee for Sam Rigby. Thesis: "Origin of the Ce anomaly in a Green Ridge lava flow, Cascade Range, Oregon (presented June 2002).

Community Outreach Achievements

Ongoing	Grassroots fundraising for the Cascadia Meteorite Laboratory (CML). Total raised for CML-related accounts between 2004-2020 as of September 2020 approximately \$307K , including \$169K for E.F. Lange Endowment (meteorite curation); \$19K for CML Geology account; \$119K for CML PSU Foundation account. Median individual contribution ~\$100.
Ongoing	Responded to numerous phone and global public email inquiries regarding possible meteorites, as well as fireballs and general information about meteorites.
2023	Guest radio appearance on 15-minute KPSU program PDX-Earth Link, Geminid

- meteor shower.
- 2020 **Public lecture** to Coriba PSU Geology club, “Meteorites: Misconceptions, Reality, and Their Value”.
- 2019 **Public lecture** to Evergreen Aviation and Space Museum, July 20, 2019, 50th Anniversary of the Apollo 11 landing, “The legacy of Apollo: What we’ve learned about the Moon and our place in the cosmos”.
- 2017 **Public lecture** for OMSI Science Pub, “Meteorites: Misconceptions, Reality, and Their Value”.
- 2015 **Public lecture** to the Geological Society of the Oregon Country, “Meteorite Discoveries: Greatest Hits”.
- 2013 **Popular press article published** about Alex Ruzicka. Shepard, D. (2013) “Passionate professors pass on inspiration”, *The Daily Vanguard* (PSU student newspaper), May 15 2013.
- 2012 **Guest radio appearance** on 1 hour KPSU program “Faculty Friday” (November 2012).
- 2012 **Popular press article published** about the Cascadia Meteorite Laboratory. G. Shaw (2012), “PSU’s public meteorite lab”, *The Daily Vanguard* (PSU student newspaper), July 17 2012.
- 2010 **Contributed to formal press release**, “Oregon’s sixth meteorite, named Fitzwater Pass, is discovered to be a rare type of iron”, Portland State University (September 27, 2010).
- 2010 **Popular press articles published** about Cascadia Meteorite Laboratory and Fitzwater Pass meteorite, including front page *Oregonian* story by Richard Cockle (September 21, 2010).
- 2010 **Contributed to formal press release**, “Portland State University researchers report the discovery of Morrow County, Oregon’s fifth official meteorite”, Portland State University (May 29, 2010).
- 2009 **Appeared on TV** (local, regional, and national news feeds) in story about donation of new Texas meteorite (Ash Creek) to Cascadia Meteorite Laboratory (March 5, 2009)
- 2008 **Contributed to formal press release**, “Meteorite bounty on track for Canadian record—Thousands of space rocks to yield clues about asteroid from November 20 impact”, University of Calgary (Dec. 22, 2008). This press-release included mention of work on a new meteorite by the Cascadia Meteorite Laboratory.
- 2008 **Two popular press articles published** about Cascadia Meteorite Laboratory, including [1] KGW Staff (2008) “PSU prof still hunting for NW meteorite site”, March 10, 2008, http://www.kgw.com/lifestyle/stories/kgw_030708_news_meteor_hunt.30731785.html and [2] [2] Chown, K. (2008) “In Search of Meteorites”, *The Daily Vanguard* (PSU student newspaper), March 7, 2008; updated on-line July 14, 2008.
- 2007 **Showed meteorite display** and information about the Cascadia Meteorite Laboratory at the NSF Grants Workshop hosted at PSU (November, 2007).
- 2007 **Wrote invited letter of support** for education/public outreach partner, Libraries of Eastern Oregon (LEO), for a successful proposal entitled “A Sense of Place” (February, 2007), which helped fund meteorite outreach efforts for Cascadia Meteorite Laboratory member Dick Pugh.
- 2007 **Gave presentation** to teachers at Gregory Heights Middle School, Portland Public Schools, to invite participation in Education/Public Outreach activities (with D. Pugh, February, 2007).
- 2007 **Gave presentation** at PSU to 3rd-6th graders for the Talented-and-Gifted (TAG) program, Portland Public Schools (January, 2007).
- 2006 **Gave presentation** at PSU to 7th graders from Sellwood School, Portland Public

- Schools (with D. Pugh, December, 2006).
- 2006 **Participated in NASA Digital Learning Network Video Conference**, at Vernon Elementary School, Portland (December, 2006).
- 2005 **E.F. Lange Endowment established at PSU** (supported an effort led by CML member Dick Pugh). This PSU Foundation account is intended to support meteorite curation at PSU (September, 2005).
- 2005 **Three popular press articles published** about the Cascadia Meteorite Laboratory, including [1] Chenoweth, A. (2005) A souvenir from space. *The Daily Vanguard*, Portland State University, May 12, 2005, pp. 1-2. [2] Meteor now believed to be the demise of dinosaurs. *The Daily Vanguard*, Portland State University, May 12, 2005, p. 2. [3] Russel, L. (2005) Out of this world. *Lake Oswego/West Linn Neighbors*, Jan. 6, 2005, pp. B1-B2.
- 2004 **Appeared on TV** in news story about donation of the Salem meteorite to the Cascadia Meteorite Laboratory by James P. Price, the police officer who picked up the rock in 1981.
- 2004 **Three popular press articles published** about the Cascadia Meteorite Laboratory, including [1] Hill, R.L. (2004) "Mad about meteorites". *Oregonian*, Dec. 8, 2004, pp. E11-E12. [2] "A rock collection from out of this world". *PSU Magazine*, Fall 2004, p. 4. and [3] Jarreau-Danner, B. (2004) "Scientists hope to find first Eastern Oregon meteorite". *Destination Harney County 2004*, p. 77.
- 2004 **Public lecture** to Columbia-Willamette Chapter of Sigma-Xi, PSU (with M. Hutson and D. Pugh, November, 2004)
- 2004 **Completed long-term (10 year) public exhibit** on meteorites and impact phenomena at the Rice Northwest Museum of Rocks and Minerals, in Hillsboro, OR (with M. Hutson, July, 2004).
- 2004 **Conducted workshop for Portland Public Schools teachers**, Portland (June, 2004).
- 2004 **Public lecture** to the Rose City Astronomers at Oregon Museum of Science and Industry (OMSI), Portland, OR (May, 2004)
- 2004 **Appeared on TV** (local, regional, and national newsfeeds) to discuss President Bush's Moon Exploration Initiative (January, 2004).

Significant Professional Development Activities

- Current-2003 **Director & cofounder (with M. Hutson and D. Pugh) of the Cascadia Meteorite Laboratory (CML)** at PSU. Among other achievements, the CML and PSU now has the largest public repository of meteorites in the Northwest quadrant of the US (north of Los Angeles and Phoenix and west of Chicago), with around 1300 different meteorites and impactites grown from a single individual prior to 2003).
- 2007-2005 **Science Team member for Hera**, a proposed NASA asteroid sample return mission.

Governance and Other Professional Related Governancy Activities for the University, College, Department

- Current-2019 **Graduate Student Coordinator** for the Geology Department.
- Current-2019 **Member, Graduate Curriculum Committee (GCC)**, Geology Department.

Current-2019 2020	Member, Curriculum Committee , College of Liberal Arts & Sciences. Chair, Promotion and Tenure Committee (K. Cruikshank Emeritus) , Department of Geology, PSU.
2019	Chair, Promotion and Tenure Committee (J. Fink PTR) , Department of Geology, PSU.
2019	Member, Promotion and Tenure Committee (J. Bershaw tenure) , Department of Geology, PSU.
2019	Member, Promotion and Tenure Committee (R. Perkins PTR) , Department of Geology, PSU.
2018	Member, Promotion and Tenure Committee (A. Booth tenure) , Department of Geology, PSU.
2018	Chair, Promotion and Tenure Committee (A. Fountain Emeritus) , Department of Geology, PSU.
2018	Member, Promotion and Tenure Committee (A. Streig tenure) , Department of Geology, PSU.
2017	Chair, Promotion and Tenure Committee (J. Bershaw tenure and N. Price tenure) , Department of Geology, PSU.
2016	Member, Ad Hoc Committee, for Academic Program Review of the Department of Geology , assisted in report writing (with Chair M. Streck, D. Percy), Department of Geology, PSU.
2016	Member, Admissions Committee for the School of the Environment , PSU.
2016	Chair, Promotion and Tenure Committee (K. Cruikshank PTR) , Department of Geology, PSU.
2016	Member, Promotion and Tenure Committee (A. Fountain PTR) , Department of Geology, PSU.
2017-2015	Graduate Council , PSU.
2015-2014	Chair, Promotion and Tenure Committee (R. Perkins tenure) , Department of Geology, PSU.
2012-2010	Member, Curriculum Committee for the School of the Environment , PSU.
2012-2010	Member, UNST Council , PSU.
2011-2007	Chair, Ad Hoc Website Committee , Department of Geology; led effort to create new website for the department, one of the first at PSU to use new Drupal management system.
2010-2004 2007	Faculty Development Committee , PSU. Core faculty at PSU involved in internal proposal submitted to university entitled, "PSU Strategic Initiative—Astrobiology and Planetary Science Institute" for interdepartmental entity at PSU (February 2007).
2005-2004	Faculty Grievance Committee , PSU.

Professional Service

Ongoing	Peer Reviewer of journal articles submitted to <i>Meteoritics and Planetary Science</i> ; <i>Geochimica et Cosmochimica</i> ; <i>Earth and Planetary Science Letters</i> ; <i>Icarus</i> ; <i>Science</i> ; <i>Astrobiology</i> ; <i>Earth, Moon and Planets</i> ; <i>Geoscience Frontiers</i> (average ~4-5 articles per year 2001-2008, average ~3-4 articles per year after 2008—start <i>Meteoritics & Planetary Science Associate Editor</i> duties).
Current-2023	Chair, McKay Committee of the Meteoritical Society.
Current-2012	Oregon Space Grant Consortium Affiliate . Represents Portland State

	University to the Oregon Space Grant Consortium.
Current-2005	Reviewer for NASA Lunar Advanced Science Exploration Research program, Cosmochemistry program, Origins of Solar Systems program, Planetary Geology & Geophysics program, NASA EPOESS (Education/Outreach) program, NASA Postdoctoral program, NASA Emerging Worlds program.
Current-1997	Session Co-Chair in science conferences (Lunar and Planetary Science Conference, Annual Meeting of the Meteoritical Society). Examples: (a) 49 th Lunar and Planetary Science Conference, 2018, session: “Chondrites and their components II: metal and organics”; (b) 45 th Lunar and Planetary Science Conference, 2014, session: “Chondrite parent body processes”; (c) 74 th Annual Meeting of the Meteoritical Society, 2011, session: “Shock processes”; (d) 41 st Lunar and Planetary Science Conference, 2010, session: “Formation of the building blocks of planetary bodies”.
2022-2019	Chair (2022-2021) and Member (2020-2019), Joint Publication Committee (JPC) of the Geochemical Society and the Meteoritical Society. Provides input on Associate Editors for <i>Geochimica et Cosmochimica Acta</i> .
2021-2008	Associate Editor , <i>Meteoritics and Planetary Science</i> (named November 2008 for indefinite term). As of September 2020, 85 papers (~8 per year) handled as Associate Editor.
2019-2012	Panel Reviewer , NASA Cosmochemistry program (once), NASA Origins of Solar Systems program (twice), NASA Laboratory Analysis of Returned Samples program (once), NASA Lunar Advanced Science Exploration Research program (once), NASA Emerging Worlds (once, panel chair).
2017-2010	Nomenclature Committee , Meteoritical Society (two consecutive 3-year terms starting Jan. 2010).
2015	Program Committee , Annual Meeting of the Meteoritical Society, Berkeley, CA (Spring-Summer, 2015).
2015	Reviewer for research achievements of a nominee for the Indian National Science Academy, Dehli, India (Spring 2015).
2015	Reviewer for NASA Postdoctoral Program (Spring 2015).
2015	Chair, Ad Hoc Dense Collection Area (DCA) Subcommittee , Nomenclature Committee, Meteoritical Society.
2014	Reviewer for DFG (German) proposal (Spring, 2014).
2014-2012	Chair, Membership Committee , Meteoritical Society (3 year term starting Jan. 2012).
2011-2010	Ad Hoc Search Committee , for Editor of the Meteoritical Bulletin, Nomenclature Committee, Meteoritical Society.
2011-2009	Member, Membership Committee , Meteoritical Society (3-year term starting Jan. 2009).
2009	Bid made to Council of the Meteoritical Society for Portland to host the 2013 Annual Meeting of the Meteoritical Society.
2006	Reviewer for two book chapters (Meteorites in the Early Solar System II).
2004-2002	Program Committee , Lunar and Planetary Science Conference.
2008-2001	Board Member , Columbia-Willamette Chapter of Sigma Xi, the scientific research society.
2002-2001	Board of Editors , Astrobiology.

Membership in Professional Societies

Member of the Meteoritical Society, Sigma Xi.

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[Both websites designed and maintained by Alex Ruzicka]