

CURRICULUM VITAE

ALEXANDER M. RUZICKA

May 26, 2018

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. 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. doi 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**, 1063-1090.
- 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 Sombroete 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.L. Hellmann 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. Likkel (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 Planetesimal 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.
- Likkel 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.

- Pugh R.N., M. Hutson and A. Ruzicka (2010) Oregon's two new meteorites: Morrow County and Fitzwater Pass. Submitted to *Oregon Academy of Sciences* (Dec. 23, 2010).
- Ruzicka A., M. Hutson and S.A. Kissin (2010) Classification of four new irons, including common (IIAB) and uncommon (IIIF, unusual IAB) types. *73rd Annual Meeting of the Meteoritical Society*, Abstract #5330.
- Ruzicka A., C. Floss and M. Hutson (2010) Accretion and melting of dust to form ferroan chondrules in ordinary chondrites. *Lunar Planet. Sci. XXXXI*, Abstract #1956. Lunar and Planetary Institute.
- Hutson M.L. and A.M. Ruzicka (2010) 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. *Lunar Planet. Sci. XXXXI*, Abstract #1878. Lunar and Planetary Institute.
- Schepker T.J. and A. Ruzicka (2010) X-ray diffraction as a tool for the classification of equilibrated ordinary chondrites. *Lunar Planet. Sci. XXXXI*, Abstract #2644. Lunar and Planetary Institute.
- Hildebrand A.R., E.P. Milley, P.G. Brown, P.J. McCausland, W.M. Edwards, M. Beech, A. Ling, G. Sarty, M. Paulson, L.A. Maillet, S.F. Jones, M.R. Stauffer, M.L. Hutson and A.M. Ruzicka (2009) A bright multiple fragmentation fireball and meteorite fall at Buzzard Coulee, Saskatchewan, Canada, November 20, 2008. *EOS Trans. AGU*, **90** (22), Jt. Assem. Suppl., Abstract MA12A-01.
- Hutson M. L., R. Hugo, A.M. Ruzicka and A.E. Rubin (2009) Olivine microstructures in the Miller Range 99301 (LL6) ordinary chondrite. *Lunar Planet Sci. XXXX*, Abstract #1081, Lunar and Planetary Institute.
- Hutson M.L., A.M. Ruzicka, E.P. Milley and A.R. Hildebrand (2009) A first look at the Buzzard Coulee (H4) chondrite, a recently observed fall from Saskatchewan. *Lunar Planet Sci. XXXX*, Abstract #1893, Lunar and Planetary Institute.
- Ruzicka A. and T.J. Schepker (2008) Trace-element analyses of pyroxene and plagioclase in three HED meteorites. *Meteorit. Planet. Sci.* **43**, Abstract #5310.
- Ruzicka A., C. Floss and M. Hutson (2008) Amoeboid olivine aggregates (AOAs) in the Efremovka (CV_R) chondrite: First SIMS trace-element results. *Lunar Planet Sci. XXXIX*, Abstract #1764, Lunar and Planetary Institute.
- Schepker T.J. and A. Ruzicka (2007) XRD as a tool to constrain olivine composition: Applications to H- and L-chondrites. *Meteorit. Planet. Sci.* **42**, Abstract #5316.
- Hutson M. L. and A. Ruzicka (2007) The case against Mercury as the angrite parent body. *Meteorit. Planet. Sci.* **42**, Abstract #5238.
- Hutson M., R. Hugo, A. Ruzicka and M. Killgore (2007) Annealing after shock: Evidence from olivine microstructures in Portales Valley. *Meteorit. Planet. Sci.* **42**, Abstract #5072.
- Ruzicka A. and M. Hutson (2006) NWA 2999 and other angrites: No compelling evidence for a mercurian origin. *Meteorit. Planet. Sci.* **41**, Abstract #5080.
- Ruzicka A., C. Floss and M. Hutson (2006) Trace-element compositions of normal, dusty, and clear olivine in Chainpur chondrules. *Meteorit. Planet. Sci.* **41**, Abstract #5266.
- Hutson M.L., R.N. Pugh and A.M. Ruzicka (2006) Public outreach and education with meteorites involving a museum exhibit, website, and teacher workshops. *Lunar Planet. Sci. XXXVII*, Abstract #1095, Lunar and Planetary Institute.
- Ruzicka A. and M. Hutson (2005) Geochemical constraints for the origin of the Steinbach (IVA) stony iron meteorite. *Meteorit. Planet. Sci.*, **40**, A133 (Abstract #5279).
- Fries M., A. Steele and A. Ruzicka (2005) Carbon and mineral phase distribution on a CV3 dark inclusion boundary – A confocal raman imaging study. *Meteorit. Planet. Sci.*, **40**, A52 (Abstract #5236).
- Ruzicka A., H. Hiyagon and C. Floss (2005) Relict olivine, chondrule recycling, and evolution of oxygen reservoirs. *Workshop on Oxygen in Asteroids and Meteorites*, Abstract #1422,

- Lunar and Planetary Institute.
- Ruzicka A. and M. Hutson (2005) Filter-press differentiation: A newly-recognized fractionation mechanism for silicate inclusions in Sombrerete and possibly in other iron meteorites. *Lunar Planet. Sci. XXXVI*, Abstract #1169, Lunar and Planetary Institute (CD-ROM).
- Ruzicka A. and M. Hutson (2005) Portales Valley: Not just another ordinary chondrite. Manuscript published electronically, Planetary Science Research Discoveries (PSRD), University of Hawai'i, <http://www.psr.d.hawaii.edu/Sept05/PortalesValley.html>
- Ruzicka A. and C. Floss (2004) Forsterite and olivine in Sahara-97210 (LL3.2) and Chainpur (LL3.4) chondrules: Compositional evolution and the influence of melting. *Lunar Planet. Sci. XXXV*, Abstract #1422, Lunar and Planetary Institute (CD-ROM).
- Greeney S. and A. Ruzicka (2004) Relict forsterite in chondrules: Implications for cooling rates. *Lunar Planet. Sci. XXXV*, Abstract #1426, Lunar and Planetary Institute (CD-ROM).
- Pugh R., A. Ruzicka, M. Hutson and B. Schmeer (2004) Eyewitness reports for the June 3, 2004 Pacific Northwest Fireball. Electronic publication by the "June 3, 2004 Fireball project" at <http://astrowww.phys.uvic.ca/%7Eatum/fireball/ruzicka.pdf>
- Ruzicka A. and M. Hutson (2003) Evidence for silicate liquid immiscibility within silicate inclusions during rapid cooling of the Sombrerete (Ungrouped) iron meteorite. *Meteorit. Planet. Sci.*, **38**, A129.
- Lindsay T., A. Ruzicka and M. Killgore (2003) Origin of silicate inclusions in the Miles (IIE) iron: Minimal partial melting, maximal fractional crystallization. *Meteorit. Planet. Sci.*, **38**, A102.
- Ruzicka A. and C. Floss (2003) Relict forsterite and igneous olivine grains in Chainpur (LL3.5) chondrules: Major- and trace-element evidence for vapor-fractionation and igneous partitioning. *Lunar Planet. Sci. XXXIV*, Abstract #1243, Lunar and Planetary Institute (CD-ROM).
- Ruzicka A. and M. Killgore (2002) Trace-element abundances in the Portales Valley meteorite: Evidence for geochemical fractionations. *Lunar Planet. Sci. XXXIII*, Abstract #1918, Lunar and Planetary Institute (CD-ROM).
- Ruzicka A. (2001) Book Review: "The Moon: Resources, Future Development and Colonization", by D. Shrunk, B. Sharpe, B. Cooper, and M. Thangavelu. *Meteorit. Planet. Sci.* **36**, 474.
- Ruzicka A., M. Killgore, J. Boesenberg and M. Prinz (2000) Portales Valley: Not just another "ordinary" chondrite. *Meteorit. Planet. Sci.* **35**, A139-A140.
- Ruzicka A., J.F. McHone and M. Killgore (2000) Portales Valley: Discovery of a large graphite nodule. *Meteorit. Planet. Sci.* **35**, A140.
- Ruzicka A., H. Hiyagon, M. Prinz and L.A. Taylor (2000) Forsteritic olivine grains in unequilibrated ordinary chondrites: Additional evidence for a link between ordinary and carbonaceous chondrites. *Lunar Planet. Sci. XXXI*, Abstract #1312, Lunar & Planetary Institute (CD-ROM).
- Ruzicka A. (2000) Magnetic lineations on Mars: Evidence for plate tectonics, or for magnetic eolian deposits? *Lunar Planet. Sci. XXXI*, Abstract #1575, Lunar & Planetary Institute (CD-ROM).
- Ruzicka A., G.A. Snyder and L.A. Taylor (1999) Origins of large, igneous-textured inclusions in ordinary chondrites. *Antarctic Meteorites XXIV*, pp. 160-162.
- Hutson M. and A. Ruzicka (1999) A simple three-step model for the origin of the enstatite chondrites. *Antarctic Meteorites XXIV*, pp. 40-42.
- Ruzicka A., E.A. Jerde, G.A. Snyder and L.A. Taylor (1999) A large, igneous-textured inclusion containing co-existing enstatite and ferroan olivine in the LEW 86018 (L3.1) chondrite. *Lunar Planet. Sci. Conf. XXX*, Abstract #1502, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., J.S. Boesenberg, G.A. Snyder, M. Prinz and L.A. Taylor (1999) Rare-earth-element

- abundances of clasts and matrix in the Lamont mesosiderite: Complex spatial variations. *Lunar Planet Sci. Conf. XXX*, Abstract #1516, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., J.S. Boesenberg, G.A. Snyder, M. Prinz and L.A. Taylor (1999) Petrogenesis of the Lamont mesosiderite: Evidence from petrography and pyroxene clast zoning systematics. *Lunar Planet Sci. Conf. XXX*, Abstract #1513, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., G.A. Snyder, M. Prinz and L.A. Taylor (1999) Portales Valley: A new metal-phosphate-rich meteorite with affinities to Netschaëvo and H-group chondrites. *Lunar Planet Sci. Conf. XXX*, Abstract #1645, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., M.E. Bennett III, A.D. Patchen, G.A. Snyder and L.A. Taylor (1999) Widmannstätten texture in the Portales Valley meteorite: Slow (but not unusually slow) cooling at low temperatures. *Lunar Planet Sci. Conf. XXX*, Abstract #1616, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A. (1998) Book Review: "Dana's New Mineralogy – The system of mineralogy of James Dwight Dana and Edward Salisbury Dana, Eighth Edition", edited by R. V. Gaines, H. Catherine, W. Skinner, E.E. Foord, B. Mason and A. Rosenzweig. *Meteorit. Planet. Sci.* **33**, 949.
- Ruzicka A., G.A. Snyder and L.A. Taylor (1998) Equilibration temperatures of large, sodium-poor melt inclusions in ordinary chondrules. *Meteorit. Planet. Sci.* **33**, A132-A133.
- Ruzicka A., G.W. Fowler, G.A. Snyder, J.J. Papike and L.A. Taylor (1998) Trace-element constraints on melting and mixing processes affecting IIE silicate inclusions: A reconnaissance SIMS study. *Lunar Planet. Sci. Conf. XXIX*, Abstract #1151, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., M. Prinz, G.A. Snyder and L.A. Taylor (1998) Major-element compositions and mineralogies of silicate inclusions in IIE iron meteorites: Impact-induced or "planetary" differentiation? *Lunar Planet. Sci. Conf. XXIX*, Abstract #1155, Lunar and Planetary Institute, Houston (CD-ROM).
- Snyder G.A., D.-C. Lee, A.M. Ruzicka, L.A. Taylor, A.N. Halliday and M. Prinz (1998) Evidence of late impact fractionation and mixing of silicates on iron meteorite parent bodies: Hf-W, Sm-Nd, and Rb-Sr isotopic studies of silicate inclusions in IIE irons. *Lunar Planet. Sci. Conf. XXIX*, Abstract # 1142, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., L.R. Riciputi, G.A. Snyder, A.D. Patchen and L.A. Taylor (1998) Oxygen isotopic composition of olivine in ureilites: Possible evidence for millimeter-scale variations. *Lunar Planet. Sci. Conf. XXIX*, Abstract #1176, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., A.D. Patchen, G.A. Snyder and L.A. Taylor (1998) Lunar chondrule petrography and mineral chemistry: Rims, relict grains, and metasomatism. *Lunar Planet. Sci. Conf.*, XXIX, Abstract # 1436, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., G.A. Snyder, A.D. Patchen and L.A. Taylor (1998) Lunar chondrules: Impact-melting of highland lithologies. *Lunar Planet. Sci. Conf.*, XXIX, Abstract #1434, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., G.A. Snyder and L.A. Taylor (1998) The shergottite-Nakhla connection: Forming nakhlites as cumulates of shergottitic melts. *Lunar Planet. Sci. Conf.*, XXIX, Abstract #1129, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., G.A. Snyder and L.A. Taylor (1998) Rare-earth-element modelling of nakhlites: Constraints on the proportion of trapped melt. *Lunar Planet. Sci. Conf.*, XXIX, Abstract #1154, Lunar and Planetary Institute, Houston (CD-ROM).
- Snyder G.A., A. Ruzicka and L.A. Taylor (1998) Trapped liquid and planetary differentiation

- processes: The Moon. *Lunar Planet. Sci. Conf.*, XXIX, Abstract #1143, Lunar and Planetary Institute, Houston (CD-ROM).
- Ruzicka A., G.A. Snyder and L.A. Taylor (1997) Could eucrites have formed as residual liquids in a magma ocean? *Lunar Planet. Sci. XXVIII*, 1213-1214.
- Ruzicka A., G.A. Snyder and L.A. Taylor (1997) Formation of eucrites and diogenites in a magma ocean on the HED parent body. *Lunar Planet. Sci. XXVIII*, 1215-1216.
- Ruzicka A., G.A. Snyder and L.A. Taylor (1997) Large chondrules and lithic clasts in Julesberg (L3) and other ordinary chondrites: Bulk-chemical characterization. *Lunar Planet. Sci. XXVIII*, 1217-1218.
- Ruzicka A., G.A. Snyder and L.A. Taylor (1997) Large chondrules and lithic clasts in Julesberg (L3) and other ordinary chondrites: Petrographic and mineral-chemical characterization. *Lunar Planet. Sci. XXVIII*, 1219-1220.
- Ruzicka A., G.A. Snyder and L.A. Taylor (1997) Na-Al-rich chondrules: Droplets produced by incipient shock-melting? *Lunar Planet. Sci. XXVIII*, 1221-1222.
- Ruzicka A., G.A. Snyder and L.A. Taylor (1996) Asteroid 4-Vesta as the HED parent body: Implications for the size of a metallic core and for magma ocean crystallization. In *Workshop on Evolution of Igneous Asteroids: Focus on Vesta and the HED meteorites*, LPI Tech. Report No. 96-02, pp. 23-24, Houston, TX.
- Ruzicka A., G.A. Snyder and L.A. Taylor (1996) The composition of the Eucrite Parent Body: Implications for the origin of the Moon and for planetary accretion. In *Workshop on Evolution of Igneous Asteroids: Focus on Vesta and the HED meteorites*, LPI Tech. Report No. 96-02, pp. 24-25, Houston, TX.
- Ruzicka A. and W.V. Boynton (1995) Quantitative models of CAI rim layer growth. *Meteoritics* **30**, 570.
- Ruzicka A. and W.V. Boynton (1995) Fine-grained CAIs in Efremovka and Leoville: In-situ layer growth and confirmation of a link to rims on coarse-grained CAIs. *Lunar Planet. Sci. XXVI*, 1207-1208.
- Ruzicka A. and W.V. Boynton (1994) Origin of CAI rims by vaporization and metasomatism. *Meteoritics* **29**, 526.
- Ruzicka A. and W.V. Boynton (1993) The anatomy and bulk composition of CAI rims in the Vigarano (CV3) chondrite. *Meteoritics* **28**, 426.
- Ruzicka A. and W.V. Boynton (1993) The trace element composition of a silica-rich clast in the Bovedy (L3/4) chondrite. *Meteoritics* **28**, 426-427.
- Ruzicka A. and W.V. Boynton (1992) Microfaulting of CAI rim layers and relationship to the fabric of the Leoville (CV3) chondrite. *Lunar Planet. Sci. XXIII*, 1191-1192.
- Ruzicka A. and W.V. Boynton (1992) A distinctive silica-rich, sodium-poor igneous clast in the Bovedy (L3) chondrite. *Meteoritics* **27**, 283.
- Ruzicka A. and W.V. Boynton (1992) The origin of silica-rich chondrules and clasts in ordinary and carbonaceous chondrites. *Meteoritics* **27**, 284.
- Ruzicka A. and W.V. Boynton (1991) A survey of CAIs in Leoville and Vigarano: Rim layers, brecciation, metamorphism, and alteration. *Meteoritics* **26**, 390-391.
- Ruzicka A. and W.V. Boynton (1991) Zone sequences, widths and compositions of olivine coronas in mesosiderites. *Meteoritics* **26**, 391.
- Ruzicka A. and W.V. Boynton (1990) The formation of olivine coronas in mesosiderites. *Meteoritics* **25**, 403.
- Ruzicka A. (1988) The geology of Ariel. *Lunar Planet. Sci. XIX*, 1009-1010.
- Ruzicka A. (1986) Pre-agglomeration metamorphism of chondrules in the Chainpur chondrite. *Meteoritics* **21**, 498-499.
- Ruzicka A. (1986) Deformation histories of chondrules in the Chainpur chondrite. *Meteoritics* **21**, 499.
- Dodd R.T., E. Jarosewich and A. Ruzicka (1984) Fe-Ni-S variation in L-chondrites. *Lunar*

Planet. Sci. XV, 228-229.

Ruzicka A. (1982) Callisto: A lunar-like bombardment? In *Advances in Planetary Geology*, May 1984, 160-166.

Ruzicka A. and R.G. Strom (1982). Spatial distribution of craters on the moon and Callisto. In *Reports of the Planetary Geology Program-- 1982*, NASA Tech. Memo. 85127, 105-107.

Presentations at Professional Meetings (2000-2018)

- 2018 Poster presentation at the 49th Lunar and Planetary Science Conference, for “Hf-W chronology of large igneous inclusions from ordinary chondrites” (lead author, with J. Hellman and T. Kleine).
- 2017 Oral presentation at the Meeting of the Meteoritical Society, for “EBSD Analyses of Seven Ordinary Chondrites: Deformation Metrics and Implications for Parent Body Thermal Histories” (lead author, 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 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” (lead author, 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” (lead author, 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 author, 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” (lead author, 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” (lead author, 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 “NWA 8614: The least heated winonaite?” (with K. Farley)
- 2014 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” (with R. Hugo).
- 2013 Oral presentation at the *Workshop on Planetsimal 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” (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” (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” (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” (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” (lead author, 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” (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" (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” (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” (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” (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” (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” (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 Sombrefete and possibly in other iron meteorites” (lead

- author, 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” (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” (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 Sombrosette (Ungrouped) iron meteorite” (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” (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” (with M. Killgore).
- 2000 Oral presentation at the Annual Meeting of the Meteoritical Society, Chicago, IL, for “Portales Valley: Not just another ‘ordinary’ chondrite” (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” (lead author, with J. McHone, M. Killgore).

Honors, Grants, and Fellowships

- 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).
- 2014 **PI (with R. Hugo) of awarded PSU ERPDF grant** for “Understanding the origin of iron carbides in meteorites”.
- 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).
- 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).
- 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)..
- 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).
- 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 (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”.
- 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” (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).
- 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).
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”.
- 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).
- 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).
- 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).
- 2002 **PI of awarded PSU Faculty Development Grant** for "Trace-element study of silicates in an iron meteorite: Seed money for a research program".
- 2001 **PI of Oregon Space Grant** for "Microbial colonization in meteorites: A proof-of-concept study".
- 1996-1999 **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.
- 1986-1988 **Graduate Student Scholarship**, University of Arizona.
- 1982 **NASA Planetary Geology Undergraduate Research Fellow.**

Teaching, Mentoring and Curricular Achievements

- 2018 **Faculty Advisor** to B.S. student Robert Kostynick (topic: classification five ordinary chondrites).
- 2017-current **Faculty Thesis Advisor** to M.S. student Shawn Goudy (topic: cluster chondrites).
- 2017 **Faculty Advisor** to B.S. student Kirben Smoody (topic: classification of

three ordinary chondrites).

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

2017-current **Member of Ph.D. Advisory Committee** for Emily Cahoon.

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

2016-2017 **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 (topic: classification of two eucrite meteorites”).

2015-current **Faculty Thesis Advisor** to M.S. student Michael Ream (topic: Thermal histories of ordinary chondrites).

2014-current **Faculty Thesis Advisor** to Ph.D. student Kristy Schepker (topic: “Large Igneous inclusions in ordinary chondrites: Their trace element trends and possible origins”).

2014-current **Faculty Thesis Advisor** to M.S. student Karla Farley (topics: winonaite NWA 8614; “Carbides in ordinary chondrites”).

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

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

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

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

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

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

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

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

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

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

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

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 amphibole-dominated fractionation (presented May 2009).
2008-2010	Faculty Advisor to B.S. student Kristy Hauver for PSU Scholarly and Creative Activity Grant.
2008-2009	Chair of Ph.D. Advisory Committee for Tessa Harden.
2008-2009	Thesis Faculty Advisor to B.S. Honors Thesis student T.J. Schepker. Thesis: “X-ray diffraction as a tool for chondrite classification” (presented May 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.
2007	Faculty Advisor to B.S. student T.S. Schepker for Scholarly and Creative Activity Grant.
2006-2008	Chair of Ph.D. Advisory Committee for Hollie Oakes-Miller (Summer 2006-Winter 2008).
2006-2008	Member of Ph.D. Advisory Committee for Frank Granshaw (Fall 2006-Spring 2008).
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).
2003-2004	M.S. Thesis Advisor for Sean Greeney. Thesis: “Compositional gradients in relict olivine grains: Implications for thermal histories of chondrules in Type 3 ordinary chondrites” (presented May 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 2004-2018 as of March 2018 approximately \$213K , including \$104K for E.F. Lange Endowment (meteorite curation); \$19K for CML Geology account; \$90K 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.
- 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

- 2005-2007 **Science Team member for Hera**, a proposed NASA asteroid sample return mission.
- 2003-current **Director & cofounder (with M. Hutson and D. Pugh) of the Cascadia Meteorite Laboratory (CML)** at PSU.

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

- 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.
2015-2017	Graduate Council, PSU.
2014-2015	Chair, Promotion and Tenure Committee (R. Perkins tenure), Department of Geology, PSU.
2010-2012	Member, Curriculum Committee for the School of the Environment, PSU.
2010-2012	Member, UNST Council, PSU.
2007-2011	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.
2007	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).
2006-current	Member, committees for the Department of Geology, including the Committee-of-the-Whole.
2004-2010	Faculty Development Committee, PSU.
2004-2005	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</i> Associate Editor duties).
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).
2012-current	Oregon Space Grant Consortium Affiliate representing Portland State University.
2012-2014	Chair, Membership Committee, Meteoritical Society (3 year term starting Jan. 2012).
2012-2014	Panel Reviewer, NASA Cosmochemistry program (once), NASA Origins of Solar Systems program (twice), NASA Laboratory Analysis of Returned Samples program (once), and NASA Lunar Advanced Science Exploration Research program (once).
2010-current	Nomenclature Committee, Meteoritical Society (two consecutive 3-year terms starting Jan. 2010).
2010-2011	Ad Hoc Search Committee, for Editor of the Meteoritical Bulletin, Nomenclature Committee, Meteoritical Society.
2009	Bid made to Council of the Meteoritical Society for Portland to host the 2013 Annual Meeting of the Meteoritical Society.
2008-current	Associate Editor, <i>Meteoritics and Planetary Science</i> (named November

2008 for indefinite term). As of April 2018, 73 papers (~8 per year) handled as Associate Editor.

2009-2011 **Member, Membership Committee**, Meteoritical Society (3-year term starting Jan. 2009).

2006 **Reviewer** for two book chapters (Meteorites in the Early Solar System II).

2005-current **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

2002-2004 **Program Committee**, Lunar and Planetary Science Conference.

2001-current **Board of Editors**, Astrobiology.

2001-2008 **Board Member**, Columbia-Willamette Chapter of Sigma Xi, the scientific research society.

1997-current **Session Co-Chair** in science conferences (Lunar and Planetary Science Conference, Annual Meeting of the Meteoritical Society). Recent examples: (a) 41st Lunar and Planetary Science Conference, 2010, session: "Formation of the building blocks of planetary bodies"; (b) 74th Annual Meeting of the Meteoritical Society, 2011, session: "Shock processes", (c) 45th Lunar and Planetary Science Conference, 2014, session: "Chondrite parent body processes"; (d) 49th Lunar and Planetary Science Conference, 2018, session: "Chondrites and their components II: metal and organics".

Membership in Professional Societies

Member of the Meteoritical Society, Sigma Xi.

Contact Information for Alex Ruzicka

Portland State University
 Department of Geology
 1721 SW Broadway, P.O. Box 751
 Portland, OR 97207-0751
 Tel (503) 725-3372
 Fax (503) 725-3025
 email ruzicka@pdx.edu

Website (Alex) <http://web.pdx.edu/~ruzicka/>

Website (CML) <http://meteorites.pdx.edu>

[Both websites designed and maintained by Alex Ruzicka]