*Eleanor and John R. McMillan Professor of Geology and Geochemistry*

*California Institute of Technology*

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• *Address*

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• *Research Interests*

Igneous petrology, thermodynamic models of magmatic processes, experimental investigation of natural and synthetic materials with static and dynamic high-pressure measurements

• *Education*

Ph.D., Geology, Caltech, May 28, 1997

M.S., Geology, Caltech, 1993

A.B., Geological Sciences, *summa cum laude*, Harvard, 1991

• *Positions held*

2010-2016 Professor of Geology and Geochemistry, Caltech

2005-2010 Associate Professor of Geology and Geochemistry, Caltech

1999-2005 Assistant Professor of Geology and Geochemistry, Caltech

1997-99 Postdoctoral Research Fellow, Lamont-Doherty Earth Observatory of Columbia University.

1991-97 Graduate Student, Geological and Planetary Sciences, Caltech (advisor E. M. Stolper)

1990 Research assistant, Earth and Space Sciences, UCLA (advisor W. M. Kaula).

1989 Research assistant, Earth and Space Sciences, UCLA (advisor D. D. Jackson).

• *Honors and awards*

Fellow of the Mineralogical Society of America, 2018

ASCIT Teaching Award, Caltech Undergraduate Academics and Research Council, 2017

Caltech Graduate Student Council Teaching Award, 2016

Richard P. Feynman Prize for Excellence in Teaching, 2012

Plenary lecturer, Cologne Goldschmidt Conference, 2007

James B. Macelwane Medal and Fellow of the American Geophysical Union, 2005

F. W. Clarke Medal of the Geochemical Society, 2003

Alfred P. Sloan Foundation Fellowship, 2003-2005

National Science Foundation CAREER grant, 2003-2007

Lamont-Doherty Postdoctoral Research Fellowship, 1997-1999

F. Beach Leighton Fellowship, Caltech, 1996-1997

Richard H. Jahns Teaching Prize, Caltech Geology and Planetary Science, 1995

Outstanding Student Paper, AGU Tectonophysics section, 1995 Spring Meeting

NSF Graduate Fellowship, 1991-1994

Phi Beta Kappa, 1990

• *Professional Membership*s

Mineralogical Society of America (Fellow)

American Geophysical Union (Fellow)

Geochemical Society

American Physical Society

• *Professional Service*

Associate Editor, American Mineralogist, 2004-2009

Associate Editor, G3, since 2012

Special Issue Guest Editor, PEPI and G3

Mineralogical Society of America MSA Award Committee

Geochemical Society Goldschmidt Medal Committee (Chair)

***Publications***

*Refereed Papers (h-index* 39 according to Google Scholar)

1. Kaula W. M. & Asimow P. D. (1991) Tests of random-density models of terrestrial planets. *Geophysical Research Letters*, **18**:909-912.
2. Asimow P. D. & Wood J. A. (1992) Fluid outflows from Venus impact craters: Analysis from Magellan data. *Journal of Geophysical Research*, **97**:13643-13665.
3. Asimow P. D., Hirschmann M. M., Ghiorso M. S., O'Hara M. J., & Stolper E. M. (1995) The effect of pressure-induced solid-solid phase transitions on decompression melting of the mantle. *Geochimica et Cosmochimica Acta*, **59**:4489-4506.
4. Asimow P. D., Hirschmann M. M. & Stolper E. M. (1997) An analysis of variations in isentropic melt productivity*. Philosophical Transactions of the Royal Society of London, Series A*, **355**:255-281.
5. Hirschmann M. M., Ghiorso M. S., Wasylenki L. E., Asimow P. D. & Stolper E. M. (1998) Calculations of Peridotite Partial Melting from Thermodynamic Models of Minerals and Melts. I. Methods and comparison to experiments, *Journal of Petrology*, **39**:1091-1115.
6. Gaetani G. A., Asimow P. D. & Stolper E. M. (1998) Determination of the Partial Molar Volume of SiO2 in Silicate Liquids at Elevated Pressures and Temperatures: a New Experimental Approach, *Geochimica et Cosmochimica Acta*, **62**:2499-2508.
7. Asimow P. D. & Ghiorso M. S. (1998) Algorithmic Modifications Extending MELTS to Calculate Subsolidus Phase Relations, *American Mineralogist*, **83**:1127-1132.
8. Asimow P. D. & Stolper E. M. (1999) Steady-state Mantle-Melt Interactions in One Dimension. 1: Equilibrium transport and Melt focusing, *Journal of Petrology*, **40**:475-494.
9. Hirschmann M. M., Asimow P. D., Ghiorso M. S. & Stolper E. M. (1999) Calculation of Peridotite Partial Melting from Thermodynamic Models of Minerals and Melts. III. Controls on Isobaric Melt Production and the Effect of Water on Melt Production*, Journal of Petrology*, **40**:831-851.
10. Asimow P. D. (1999) A Model that Reconciles Major- and Trace-element Data from Abyssal Peridotites, *Earth and Planetary Science Letters*, **169**:303-319.
11. Asimow P. D. (1999) Melting the Mantle, in H. Sigurdsson, editor, *Encyclopedia of Volcanoes*, Academic Press.
12. Asimow P. D., Hirschmann M. M. & Stolper E. M. (2001) Calculations of Peridotite Partial Melting from Thermodynamic Models of Minerals and Melts. IV. Adiabatic Decompression and the Composition and Mean Properties of Mid-ocean Ridge Basalts*, Journal of Petrology*, **42**:963-998.
13. Asimow P. D. (2002) Steady-state Mantle-Melt Interactions in One Dimension. II: Thermal Interactions and Irreversible Terms, *Journal of Petrology*, **43**:1707-1724.
14. Luo S.-N., Mosenfelder J. L., Asimow P. D. & Ahrens T. J. (2002) Stishovite and its implications in geophysics: New results from shock-wave experiments and theoretical modeling, *Physics-Uspekhi*, **45**:3-7 or, in Russian, *Uspekhi Fizicheskikh Nauk* **172**:475-480.
15. Luo S.-N., Mosenfelder J. L., Asimow P. D. & Ahrens T. J. (2002) Direct Shock Wave Loading of Stishovite to 235 GPa: Implications for Perovskite Stability Relative to Oxide Assemblage at Lower Mantle Conditions, *Geophysical Research Letters* **29**:10.1029/2002GL015627.
16. Asimow P. D. and Langmuir, C. H. (2003) The importance of water to oceanic mantle melting regimes, *Nature*, **421**:815-820.
17. Su Y.-J., Langmuir C. H. and Asimow P. D. (2003) PetroPlot, a plotting and data management tool set for Microsoft Excel, *Geochemistry Geophysics Geosystems* **4**:10.1029/2002GC000323.

*Papers continued*

1. Luo S.-N., Ahrens T. J. & Asimow P. D. (2003) Polymorphism, superheating and amorphization of silica upon shock loading and release, *Journal of Geophysical Research* **108**:10.1029/2002JB002317.
2. Luo S.-N., Tschauner O., Asimow P. D., & Ahrens T. J. (2004) A new dense silica polymorph: a possible link between tetrahedrally and octahedrally coordinated silica, *American Mineralogist* **89**(2-3):455-461.
3. Asimow P. D., Dixon J. E. & Langmuir, C. H. (2004) A hydrous melting and fractionation model for mid-ocean ridge basalts: Application to the Mid-Atlantic Ridge near the Azores, *Geochemistry Geophysics Geosystems* **5**(1):Q01E16, doi:10.1029/2003GC000568.
4. Staneff, G. D., Asimow P. D. & Caillat T. (2004) Synthesis and thermoelectric properties of Ce(Ru0.67Rh0.33)4Sb12, in Nolas, G.S., Yang J., Hogan T. P. & Johnson D. C. (Eds), *Thermoelectric Materials 2003 – Research and Applications*, Materials Research Society Symposium Proceedings **793**, pp. 101-106. Warrendale, PA: Materials Research Society.
5. Cooper K. M., Eiler J. M, Asimow P. D., & Langmuir C. H. (2004) Oxygen isotope evidence for the origin of enriched mantle beneath the mid-Atlantic Ridge, *Earth and Planetary Science Letters* **220**:297-316.
6. Luo S.-N., Akins J. A., Ahrens T. J. & Asimow P. D. (2004) Shock-compressed MgSiO3 glass, enstatite, olivine, and quartz: Optical emission, temperatures, and melting, *Journal of Geophysical Research*, **109**(B5):B05205, doi: 10.1029/2003JB002860.
7. Luo, S.-N., Swift D. C, Tierney T., Xia K., Tschauner O. and Asimow P. D. (2004), Time-resolved X-ray diffraction investigation of superheating-melting behavior of crystals under ultrafast heating, in *Shock Compression of Condensed Matter--2003: Proceedings of the Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter*, edited by M.D. Furnish, Y.M. Gupta and J.W. Forbes, American Institute of Physics, AIP Conference Proceedings **706**:95-98.
8. Akins J. A., Luo S.-N., Asimow P. D. & Ahrens T. J. (2004) Shock-induced melting of MgSiO3 perovskite and implications for melts in Earth’s lowermost mantle, *Geophysical Research Letters* 39, L14612, doi:10.1029/2004GL020237.
9. Asimow P. D. and Longhi J. (2004) The significance of multiple saturation points in the context of polybaric near-fractional melting, *Journal of Petrology* **45**:2349-2367, doi:10.1093/petrology/egh043.
10. Asimow P. D. (2004) Igneous Processes, in Selley R. C., Cocks R. & Plimer I.R. (Eds.), *Encyclopedia of Geology*, Academic Press.
11. Luo S.-N., Swift D. C, Tierney T.E. IV, Paisley D. L., Kyrala G.A., Johnson R. P., Hauer A. A., Tschauner O. and Asimow P. D. (2004) Laser-induced shock waves in condensed matter: Some techniques and applications. *High Pressure Research*, 24(4):409-422.
12. Tschauner O., Luo S.-N., Asimow P. D., Ahrens T. J., Swift D. C., Tierney T. E., Paisley D. L. and Chipera S. J. (2004) Shock-synthesized glassy and solid silica: intermediates between four and six-fold coordination. *High Pressure Research*, 24(4):471-479.
13. Zeng L., Saleeby J. B. & Asimow P. (2005) Nd isotopic disequilibrium during crustal anatexis: a record from the Goat Ranch migmatite complex, southern Sierra Nevada, California. *Geology* 33:53-56, doi: 10.1130/G20831.1.
14. Smith P. M. & Asimow P. D. (2005) Adiabat\_1ph: a new public front-end to the MELTS, pMELTS, and pHMELTS models, *Geochemistry Geophysics Geosystems*, **6**(2):Q02004, doi:10.1029/2004GC000816.

*Papers continued*

1. Luo S.-N., Tschauner O., Tierney T.E. IV, Swift D. C., Chipera S. J. and Asimow P. D. (2005) Novel crystalline carbon cage structure synthesized from laser-driven shock wave loading of graphite. *Journal of Chemical Physics*, **123**, 024703.
2. Zeng L., Asimow P. D. & Saleeby J. B. (2005) Coupling of anatectic reactions and dissolution of accessory phases and the Sr and Nd isotope systematics of anatectic melts from a metasedimentary source, *Geochimica et Cosmochimica Acta* **69**(14):3671-3682.
3. Akber-Knutson S., Steinle-Neumann G. and Asimow P. D. (2005) The effect of Al on the sharpness of the MgSiO3 perovskite to post-perovskite phase transition. *Geophysical Research Letters* **32**(14):L14303, doi:10.1029/2005GL023192.
4. Asimow P. D., Stein L. C., Mosenfelder J. L. and Rossman G. R. (2006) Quantitative polarized infrared analysis of trace OH in populations of randomly oriented mineral grains. *American Mineralogist* **91**:278-284.
5. Mosenfelder J. L., Deligne N.I., Asimow P. D. and Rossman G. R. (2006) Hydrogen incorporation in olivine from 2-12 GPa. *American Mineralogist* **91**:285-294.
6. Tschauner O., Luo S.-N., Asimow P. D. and Ahrens T. J. (2006) Recovery of stishovite structure at ambient pressure out of shock-generated amorphous silica. *American Mineralogist* **91**:1857-1862. doi: 10.2138/am.2006.2015.
7. Miller S. A., Asimow P. D. and Burnett, D. S. (2006) Determination of melt influence on divalent element partitioning between Anorthite and CMAS melts, *Geochimica et Cosmochimica Acta* **70**:4258-4274, doi:10.1016/j.gca.2006.06.1547.
8. Mosenfelder J. L., Sharp T. G., Asimow P. D. and Rossman G. R. (2006) Hydrogen incorporation in natural mantle olivines, in S. Jacobsen and S. van der Lee (Eds.), *Earth’s Deep Water Cycle*, AGU Monograph **168**: 45-46.
9. Baxter E. F., Asimow P. D. and Farley K. A. (2007) Grain boundary partitioning of Ar and He. *Geochimica et Cosmochimica Acta* **71**(2): 434-451. doi: 10.1016/j.gca.2006.09.011.
10. Herzberg C., Asimow P. D., Arndt N., Niu Y., Lesher C. M., Fitton J. G., Cheadle M. J. & Saunders A. D. (2007) Temperatures in Ambient Mantle and Plumes: Constraints from Basalts, Picrites and Komatiites, *Geochemistry, Geophysics, Geosystems* **8**, Q02006. doi: 10.1029/2006GC001390.
11. Mosenfelder J. L., Asimow P. D. and Ahrens T. J. (2007) Thermodynamic properties of Mg2SiO4 liquid at ultra-high pressures from shock measurements to 200 GPa on forsterite and wadsleyite. *Journal of Geophysical Research* **112**, B06208, doi:10.1029/2006JB004364.
12. Miller, S. A., Burnett, D. S., Asimow P. D., and I. Hutcheon (2007) Experimental study of radium partitioning between anorthite and melt at 1 atm. *American Mineralogist* **92**(8-9):1535-1538.
13. Stolper E. M. and Asimow P. D. (2007) Insights into mantle melting from graphical analysis of one-component systems. *American Journal of Science* **307**(8): 1051-1139.
14. Kelsey, K., Stebbins J. F., Du L.-S., Mosenfelder, J. L., Asimow P. D. and Geiger, C. (2008) Cation order/disorder behavior and crystal chemistry of pyrope-grossular garnets: An 17O 3QMAS and 27Al MAS NMR spectroscopic study. *American Mineralogist* **93**(1):134-143. doi: 10.2138/am.2008.2623.
15. Baziotis I., Mposkos E. & Asimow P. D. (2008) Geochemistry of ultramafic rocks from the ultra-high pressure metamorphic Kimi complex in East Rhodope (N.E. Greece): petrological evidence from major and trace element relations and geochemical modeling. *Journal of Petrology* **85**:885-909*,* doi:10.1093/petrology/egn010. (*This paper awarded first prize by the Academy of Athens*)

*Papers continued*

1. Gaetani, G. A., Asimow P. D. and Stolper, E. M. (2008) Titanium coordination and rutile saturation in eclogite partial melts at upper mantle conditions, *Earth and Planetary Science Letters* **272**:720-729, doi: 10.1016/j.epsl.2008.06.002.
2. Herzberg C. & Asimow P. D. (2008) Petrology of some ocean island basalts: PRIMELT2.XLS software for primary magma calculation. *Geochemistry Geophysics Geosystems* **9**, Q09001, doi: 10.1029/2008GC002057.
3. Asimow P. D., Sun D. & Ahrens T. J. (2009) Shock compression of preheated Molybdenum to 300 GPa. *Physics of the Earth and Planetary Interiors* **174**:302-308. doi:10.1016/j.pepi.2008.08.004.
4. Mosenfelder J. L., Asimow P. D., Frost D. J., Rubie D. C. & Ahrens T. J. (2009) The MgSiO3 system at high pressure: thermodynamic properties of perovskite, postperovskite and melt from global inversion of shock and static compression data. *Journal of Geophysical Research* **114**, B01203. Doi:10.1029/2008JB005900.
5. Hebert L. B., Antoshechkina P., Asimow P. D. & Gurnis M. C. (2009) Emergence of a low-viscosity channel through the coupling of flow and thermodynamics in a subduction zone. *Earth and Planetary Science Letters* **278**(3-4):243-256. Doi:10.1016/j.epsl.2008.12.013.
6. Kelsey K. E., Stebbins J. F., Singer D. M., Brown G. E., Mosenfelder J. L. and Asimow P. D. (2009) Cation field strength effects on high pressure aluminosilicate glass structure: Multinuclear NMR and La XAS results. *Geochimica et Cosmochimica Acta* **73**:3914-3933. doi:10.1016/j.gca.2009.03.040.
7. Zeng L., Liang F., Asimow P. D., Chen F. and Chen J. (2009) Partial melting of deeply subducted continental crust and the formation of quartzofeldspathic polyphase inclusions in the Sulu UHP eclogites. *Chinese Science Bulletin* **54**:2580-2594. Doi: 10.2007/s11434-009-0426-6.
8. Bézos A., Escrig S., Langmuir C. H., Michael P. J. & Asimow P. D. (2009) Origins of chemical diversity of back-arc basin basalts: a segment-scale study of the Northern Eastern Lau Spreading Center. *Journal of Geophysical Research* **114**:B06212*.* Doi: 10.1029/2008JB005924.
9. Kelsey K. E., Stebbins J. F., Mosenfelder J. L. and Asimow P. D. (2009) Simultaneous aluminum, silicon, and sodium coordination changes in 6 GPa sodium aluminosilicate glasses. *American Mineralogist* **94**:1205-1215*,* doi: 10.2138/am.2009.3177.
10. Tschauner O., Asimow P. D., Kostandova N., Ahrens T. J., Sinogeikin S., Ma C., Liu Z., Fakra S. and Tamura N. (2009) Ultrafast growth of wadsleyite in shocked melts – implications for accretion rates in the solar nebula. *Proceedings of the National Academy of Science* **106**:13691-13695, doi: 10.1073/pnas.0905751106.
11. Hebert L. B., Asimow P. D. and Antoshechkina, P. (2009) Fluid source-based modeling of melt initiation within the subduction zone mantle wedge: Implications for geochemical trends in arc lavas. *Chemical Geology* **266**(3-4):306-319. Doi: 10.1016/j.chemgeo.2009.06.017.
12. Dauphas N., Craddock P. R., Asimow P. D., Bennett V. C., Nutman A. P. and Ohnenstetter D. (2009) Iron isotopes may reveal the redox conditions of mantle melting from Archean to present. *Earth and Planetary Science Letters* **288**(1-2):255-267. Doi:10.1016/j.epsl.2009.09.029.
13. Fat’yanov O. V., Asimow P. D. and Ahrens T. J. (2010) Shock temperatures of preheated MgO, in *Shock Compression of Condensed Matter—2009: Proceedings of the Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter.*
14. Ahrens T. J., Asimow P. D. and Mosenfelder J. L. (2010) Advances in shock compression of mantle minerals and implications, in *Shock Compression of Condensed Matter—2009: Proceedings of the Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter.*

*Papers continued*

1. Asimow, P. D. and Ahrens T. J. (2010) Shock compression of liquid silicates to 125 GPa: the anorthite-diopside join. *Journal of Geophysical Research* **115**:B10209. Doi: 10.1029/2009JB0007145.
2. Wang Z. R., Eiler J. M., Asimow P D., Garcia M. O. and Takahashi E. (2010) Oxygen isotope constraints on the structure and evolution of the Hawaiian plume. *American Journal of Science* **310**(8): 683-720. Doi: 10.2475/08.2010.01.
3. Balta J. B., Asimow P. D. and Mosenfelder J. L. (2011) Hydrous, low-carbon melting of garnet peridotite. *Journal of Petrology* **52**(11):2079-2105. Doi:10.1038/petrology/eg4040.
4. Balta J. B., Asimow P. D. and Mosenfelder J. L. (2011) Manganese partitioning during hydrous melting of peridotite. *Geochimica et Cosmochimica Acta* **75**:5819-5833. Doi:10.1016/j.gca.2011.05.026.
5. Balta J. B., Beckett J. R. and Asimow P. D. (2011) Thermodynamic properties of alloys of gold-74/palladium-26 with variable amounts of iron and the use of Au-Pd-Fe alloys as containers for experimental petrology. *American Mineralogist* **96**(10):1467-1474*.* Doi:10.2138/am.2011.3637.
6. Mosenfelder J. L., Le Voyer M., Rossman G. R., Guan Y., Bell D. R., Asimow P. D. and Eiler J. M. (2011) Analysis of hydrogen in olivine by SIMS: Evaluation of standards and protocol. *American Mineralogist* **96**(11-12):1725-1741.
7. Lund D. C. and Asimow P. D. (2011) Does sea level influence mid-ocean ridge magmatism on Milankovitch timescales? *Geochemistry Geophysics Geosystems*. **12**,Q12009. Doi: 10.1029/2010GC003693.
8. Lee S. K., Park S. Y., Kim H.-I., Tschauner O., Asimow P. D., Bai L., Xiao Y. & Chow P. (2012) Structure of shock compressed model basaltic glass: Insights from O K-edge X-ray Raman scattering and high-resolution 27Al NMR spectroscopy. *Geophysical Research Letters* **39**, L05306*.* Doi:10.1029/2012GL050861.
9. Asimow P. D.(2012) Shock compression of preheated silicate liquids: apparent universality of increasing Grüneisen parameter upon compression, in *Shock Compression of Condensed Matter—2011: Proceedings of the Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter. American Institute of Physics Conference Proceedings* **1426**: 887-890. Doi:10.1063/1.3686420.
10. Leng W., Gurnis M. C. and Asimow P. D. (2012) From basalts to boninites: the geodynamics of volcanic expression during subduction initiation. *Lithosphere* **4**(6):511-523. Published online October 26, 2012. Doi: 10.1130/L215.1.
11. Thomas C. W., Liu Q., Agee C. B., Asimow P. D. and Lange R. A. (2012) Multi-technique equation of state for Fe2SiO4 melt and the density of Fe-bearing silicate melts from 0-161 GPa. *Journal of Geophysical Research* **117** B10206. Doi:10.1029/2012JB009403. *Editor’s Highlight*.
12. Hamecher E. A., Antoshechkina P. M., Ghiorso M. S. and Asimow P. D. (2013) The molar volume of FeO-MgO-Fe2O3-Cr2O3-Al2O3-TiO2 spinels. *Contributions to Mineralogy and Petrology* **165**:25-43*.* Doi: 10.1007/s00410-012-0790-0.
13. Herzberg C., Asimow P. D., Ionov D. A., Vidito C., Jackson M. G. & Geist D. (2013) Nickel and helium evidence for melt above the core mantle boundary. *Nature* **493**: 393-397. Doi:10.1038/nature11771.
14. Farley K. A., Hurowitz J. A., Asimow P. D., Jacobson N. S. and Cartwright J. A. (2013) A double-spike method for K-Ar measurement: a technique for high precision in-situ dating on Mars and other planetary surfaces. *Geochimica et Cosmochimica Acta*, **110**(1):1-12. Doi: 10.1016/j.gca.2013.02.010.

*Papers, continued*

1. Kim Y. H., Clayton R. W., Asimow P. D. & Jackson, J. M. (2013) Generation of talc in the mantle wedge and its role in subduction dynamics in Central Mexico. *Earth and Planetary Science Letters* **384C**:81-87. Doi: 10.1016/j.epsl.2013.10.006.
2. Thomas C. W. and Asimow P. D. (2013) Pre-heated shock experiments in the molten CaAl2Si2O8-CaFeSi2O6-CaMgSi2O6 ternary: a test for linear mixing of liquid volumes at high pressure and temperature. *Journal of Geophysical Research: Solid Earth* **118**:3354-3365. Doi:10.1002/jgrb.50269.
3. Thomas C. W. and Asimow P. D. (2013) Direct shock compression experiments on premolten forsterite and progress towards a consistent high-pressure equation of state for CaO-MgO-Al2O3-SiO2-FeO liquids. *Journal of Geophysical Research: Solid Earth* **118**. Doi:10.1002/jgrb.50374.
4. Le Voyer M., Asimow P. D., Mosenfelder J. M., Guan Y., Wallace P. J., Schiano P., Stolper E. M. & Eiler J. M. (2014) Zonation of H2O and F concentrations around melt inclusions in olivines. *Journal of Petrology*, online access 1/29/14. Doi:10.1093/petrology/egu003.
5. Sun D., Miller M. S., Piana Agostinetti N., Asimow P. D. & Li D. (2014) High frequency seismic waves and slab structures beneath Italy. *Earth and Planetary Science Letters* **391**:212-223, doi:10.1016/j.epsl.2014.01.034.
6. Baziotis I., Mposkos E. and Asimow P. D. (2014) Geochemistry of Eclogite Protoliths from the Kechros Complex in the Eastern Rhodopes (N.E. Greece). *International Journal of Earth Sciences* **103**(4):981-1003. Doi: 10.1007/s00531-014-1007-8.
7. Fat’yanov O. V. & Asimow P. D. (2014) MgO melting curve constraints from shock temperature and rarefaction overtake measurements in samples preheated to 2300 K, in *Shock Compression of Condensed Matter 2013*. *J. Phys.: Conf. Ser.* **500** 062003 [doi:10.1088/1742-6596/500/6/062003](http://dx.doi.org/10.1088/1742-6596/500/6/062003).
8. Nguyen J. H., Akin M. C., Chau R., Fratanduono D. E., Ambrose W. P., Fat’yanov O. V., Asimow P. D. & Holmes N. C. (2014) Molybdenum sound velocity and shear modulus softening under shock compression. *Physical Review B* **89**:174109. Doi:10.1103/PhysRevB.89.174109.
9. Zhao J.-H. & Asimow P. D.(2014) Neoproterozoic boninite-series rocks in South China: a depleted mantle source modified by sediment-derived melt. *Chemical Geology*, **388**:98-111. Doi: 10.1016/j.chemgeo.2014.09.004.
10. Asimow P. D. (2015) Dynamic Compression*,* in Gerald Schubert (editor-in-chief) *Treatise on Geophysics, 2nd edition*, Oxford: Elsevier. pp. 393-416. ISBN 978-0-444-53802-4.
11. Herzberg C. T. & Asimow P. D. (2015) PRIMELT3 MEGA.XLSM software for primary magma calculations: Primary magma MgO contents from the liquidus to the solidus. *Geochemistry Geophysics Geosystems* **16**: 563-578. Doi: 10.1002/2014GC005631.
12. Harvey J.-P., Gheribi A. E. & Asimow P. D. (2015) A self-consistent optimization of multicomponent solution properties: ab initio molecular dynamic simulations and the MgO-SiO2 miscibility gap under pressure. *Geochimica et Cosmochimica Acta*, **161**:146-165. Doi: 10.1016/j.gca.2015.04.004.
13. Wolf A. S., Asimow P. D. & Stevenson D. J. (2015) Coordinated Hard Sphere Mixture (CHaSM): A simplified model for oxide and silicate melts at mantle pressures and temperatures. *Geochimica et Cosmochimica Acta* **163**: 40-58. Doi: 10.1016/j.gca.2015.04.018.
14. Harvey J.-P. & Asimow P. D. (2015) Current limitations of molecular dynamic simulations as probes of thermo-physical behavior of silicate melts. *American Mineralogist* **100**(8-9):1866-1882. Doi: 10.2138/am-2015-5159.
15. Fat’yanov O. V. & Asimow P. D. (2015) Absolute spectral radiance calibration of fiber-optic shock-temperature pyrometers using a coiled-coil irradiance standard lamp. *Reviews of Scientific Instruments* **86**(10):101502, doi:10.1063/1.4932578.

*Papers, continued*

1. Lund D. C., Asimow P. D., Farley K. A. Rooney T. O., Seeley E., Jackson E. W. & Durham Z. M. (2016) Enhanced hydrothermal activity along the East Pacific Rise during the last two glacial terminations. *Science* 351(6272):478-482., doi:10.1126/science.aad4296.
2. Asimow P. D., Lin C., Bindi L., Ma C., Tschauner O., Hollister L. S., & Steinhardt P. J. (2016) Shock synthesis of quasicrystals with implications for their origin in asteroid collisions, *Proceedings of the National Academy of Sciences* **113**(26):7077-7081, doi:10.1073/pnas.1600321113.
3. Gahlan H.A., Azer M. K., Asimow P. D. & Al-Kahtany K. (2016) Late Ediacaran post-collisional A-syenites with shoshonitic affinities, northern Arabian-Nubian Shield and the possibility of mantle-derived A-type magma. *Arabian Journal of Geosciences* **9**:603, doi: 10.1007/s12517-016-2629-x*.*
4. Abdelfadil K. M., Asimow P. D., Azer M. K. & Gahlan H. A. (2016) Genesis and petrology of late Neoproterozoic pegmatites and aplites associated with the Taba metamorphic complex in southern Sinai, Egypt. *Geologica Acta* **14**(3).
5. Liu Y, Baziotis I. P., Asimow P. D., Bodnar R. J. & Taylor L. A. (2016) Mineral chemistry of the Tissint meteorite: Indications of two-stage crystallization in a closed system. *Meteoritics and Planetary Science* published online 5 October 2016. Doi:10.1111/maps.12726.
6. Asimow P. D. (2016) Partial Melting, in White, W. M. (Ed.), *Encyclopedia of Geochemistry*, Springer. Doi: 10.1007/978-3-319-39193-9\_218-1.
7. Gao L.-E, Zeng L. & Asimow P. D. (2016) Contrasting geochemical signatures of fluid-absent versus fluid-fluxed melting of muscovite in metasedimentary sources: The Himalayan leucogranites. *Geology* **45**(1):39-42. Doi: 10.1130/G38336.1.
8. Solomatova N. V. & Asimow P. D. (2017) Ab initio study of the structure and stability of CaMg(CO3)2 at high pressure. *American Mineralogist* **102**(1):210-215. Doi:10.2138/am-2017-5830. Selected as *Notable Paper* by editor.
9. Creon L., Rouchon V., Youssef S., Rosenberg E., Delpech G., Szabo Cs., Remusat L., Mostefaoui S., Asimow P. D., Antoshechkina P. M., Ghiorso M. S., Boller E. & Guyot F. (2017) Highly CO2–supersaturated melts in the Pannonian lithosphere mantle – A transient carbon reservoir? *Lithos* **286-287**:519-533. Doi: 10.1016/j.lithos.2016.12.009.
10. Fat’yanov O. V., Asimow P. D. and Ahrens T. J. (2017) Equation of state of Mo from shock compression experiments on preheated samples, *Journal of Applied Physics* **121**(11):115904. Doi:10.1063/1.4978607.
11. Zhao J.-H., Asimow P. D., Zhou M.-F., Yan D.-P. & Zheng J.-P. (2017) Andean-type arc system in Rodinia constrained by the Neoproterozoic Shimian ophiolite in South China. *Precambrian Research* **296**:93-111. Doi: 10.1016/j.precamres.2017.04.017.
12. Baziotis I., Asimow P. D., Ntaflos T., Boyce J. W., McCubbin F. M., Koroneos A., Perugini D., Flude S., Storey M., Liu Y. S., Klemme S., & Berndt J. (2017) Phosphorus zoning as a recorder of crystal growth kinetics: application to second generation olivine in mantle xenoliths from the Cima Volcanic Field. *Contributions to Mineralogy and Petrology* **172**:58, doi: 10.1007/s00410-017-1376-7.
13. Baziotis I., Economou-Eliopoulos M. & Asimow P. D. (2017) Equilibrium and disequilibrium textures and mineral compositions in Ultramafic lavas and pyroxene-spinifex in high-Mg basaltic dykes from the Othris ophiolite complex, Greece. *Lithos* **288-289**: 231-247*.* Doi:10.1016/j.lithos/2017.07.015.

*Papers, continued*

1. Gahlan H. A., Obeid M. A., Azer M. K. & Asimow P. D. (2017) An example of post-collisional mafic magmatism with an arc-like signature: the Wadi Nasb mafic intrusion, north Arabian-Nubian Shield, south Sinai, Egypt. *International Geology Review.* Doi: 10.1080/00206814.2017.1360804.
2. Khalil A. E. S., Obeid M. A., Azer M. K. & Asimow P. D. (2017) Geochemistry and petrogenesis of post-collisional alkaline and peralkaline granites of the Arabian-Nubian Shield: a case study from the southern tip of Sinai Peninsula, Egypt. *International Geology Review*. Doi: 10.1080/00206814.2017.1364672.
3. Azer M. K., Gahlan H. A., Asimow P. D., and Al-Khatany K. S. (2017) The late Proterozoic Dahanib mafic-ultramafic intrusion, south Eastern Desert, Egypt: is it an Alaskan-type or a layered intrusion? *American Journal of Science* **317**:901-940. Doi:10.2475/08.2017.02.
4. Su C., Liu Y., Wang Z., Song W., Asimow P. D., Tang H., & Xie H. (2017) Equation of state of liquid bismuth from ultrasonic measurements to 4.3 GPa, 973 K and the melting curve of bismuth. *Physica B* **524**:154-162. Doi: 10.1016/j.physb.2017.08.049.
5. Solomatova N. V. & Asimow P. D. (2017) First-principles calculations of high-pressure iron-bearing monoclinic dolomite and single-cation carbonates with internally-consistent Hubbard U. *Physics and Chemistry of Minerals.* Doi:10.1007/s00269-017-0918-x.
6. Oppenheim J., Chi M., Hu J., Bindi L., Steinhardt P. J. & Asimow P. D. (2017) Shock synthesis of decagonal quasicrystals. *Scientific Reports*. Doi: 10.1038/s41598-017-15229-4.
7. Oppenheim J., Chi M., Hu J., Bindi L., Steinhardt P. J. & Asimow P. D. (2017) Shock synthesis of five-component icosahedral quasicrystals. *Scientific Reports*. Doi:10.1038/s41598-017-15771-1.
8. Stouraiti C., Downes H., Baziotis I. & Asimow P. D. (2018) Geochemistry of the Serifos calc-alkaline granodiorite pluton, Greece: constraining the crust and mantle contributions to I-type granitoids. *International Journal of Earth Sciences* **107**:1657-1688. Doi:10.1007/s00531-017-1565-7.
9. Wang Y., Asimow P. D., Gao L.-E., Ma C. Antoshechkina P. M., Guo C., Hou K., Tang S. and Zeng L. (2018) Early Cretaceous high-Ti and low-Ti mafic magmatism in Southeastern Tibet: Insights into magmatic evolution of the Comei Large Igneous Province. *Lithos* **296-299**:396-411. [doi: 10.1016/j.lithos.2017.11.014](https://doi.org/10.1016/j.lithos.2017.11.014).
10. Fat’yanov O. V., Asimow P. D. & Ahrens T. J. (2018) Thermodynamically complete equation of state of MgO from true radiative shock temperature measurements on samples preheated to 1850 K. *Physical Review B* **97**, 024106. Doi: 10.1103/PhysRevB.97.024106.
11. Abdelfadil K. M., Asimow P. D., Azer M. K. & Gahlan H. A. (2018) Late Neoproterozoic adakitic lavas in the Arabian-Nubian shield, Sinai Peninsula, Egypt. *Journal of Asian Earth Sciences* **158**:301-323. Doi: 10.1016/j.seaes.2018.02.018.
12. Asimow P. D. (2018) Melts under extreme conditions from shock wave experiments, in *Magmas under Pressure: Advances in High-Pressure Experiments on Structure and Properties of Melts*, Y. Kono and C. Sanloup(eds.), 482 pp., Elsevier, ISBN 9780128113011.
13. Maurice A., Wälle M., El-Sobky A., Azer M.K., Asimow P.D., Bakhit B., Basta F. (2018) The last subduction-related volcanism in the northern tip of the Arabian-Nubian Shield: a Neoproterozoic arc preceding the terminal collision of East and West Gondwana. *Precambrian Research* **310**:256-277*.* Doi:10.1016/j.precamres.2018.03.009.
14. Azer M. K., Gahlan H. A., Asimow P. D. & Alfaifi H. (2018) Prehnite as an indicator mineral in the Wadi Nasb uralitized gabbro, South Sinai, Egypt. *Journal of Asian Earth Sciences* **160**:107-117. Doi: 10.1016/j.seaes.2018.04.011.

*Papers, continued*

1. Borisova A., Zagrtdenov N. R., Toplis M. J., Donovan J. D., Llovet X., Asimow P. D., de Parseval P. & Gouy S. (2018) Secondary fluorescence effects in microbeam analysis and their impacts on geospeedometry and geothermometry. *Chemical Geology*, **490**:22-29. Doi: 10.1016/j.chemgeo.2018.05.010.
2. Baziotis I., Asimow P. D., Hu J., Ferrière L., Ma C., Cernok A., Anand M. & Topa D. (2018) High pressure polymorphs in the Château-Renard (L6) ordinary chondrite: implications for collisions on its parent body. *Scientific Reports* **8**:9851, published online 29 June 2018. Doi: 10.1038/s41598-018-28191-6.
3. Gahlan H. A., Azer M. K. & Asimow P. D. (2018) On the relative timing of listwaenite formation and chromian spinel equilibration in serpentinites. *American Mineralogist* **103**(7):1087-1102. Doi:10.2138/am-2018-6473.
4. Liu Y., Zhang A., Cai J., Shen C., Liu Q., Asimow P. D. & Zhou C. (2018) Room-temperature pressure synthesis of layered black phosphorus-graphene composite for sodium-ion battery anodes. *ACS Nano*. Doi: 10.1021/acsnano.8b03615.
5. Baziotis I., Kimura J.-I., Pantazidis A., Klemme S., Berndt J. & Asimow P. D. (2018) Geophysical source conditions for basaltic lava from Santorini volcano based on geochemical modeling. *Lithos* **316-317**: 295-303. Doi: 10.1016/j.lithos.2018.07.027.
6. Lund D. C., Seeley E., Asimow P. D., Lewis M. J., McCart S. & Mudahy A. (2018) Anomalous Pacific-Antarctic Ridge volcanism during Termination 2. *Geochemistry Geophysics Geosystems* **19**(8):2478-2491. Doi: 10.1029/2017GC007341.
7. Newman M. G., Kraus R. G., Akin M. C., Bernier J. V., Dillman A. M., Homel M. A., Lee S., Lind J., Mosenfelder J. L., Pagan D. C., Sinclair N. W. & Asimow P. D. (2018) In situ observations of phase changes in shock compressed forsterite. *Geophysical Research Letters* **45**(16):8129-8135. Doi: 10.1029/2018GL07996.
8. Macris C. A., Asimow P. D., Badro J., Eiler J. M., Zhang Y. & Stolper E. M. (2018) Seconds after impact: Insights from diffusion between lechatelierite and host glass in tektites and experiments. *Geochimica et Cosmochimica Acta* **241**:69-94. Doi:10.1016/j.gca.2018.08.031.
9. Quinn D. P., Saleeby J. B., Ducea M. N., Luffi P. & Asimow P. D. (2018) Late-Cretaceous construction of the mantle lithosphere beneath the central California coast revealed by Crystal Knob xenoliths. *Geochemistry Geophysics Geosystems* **19**(9):3302-3346. Doi: 10.1029/2017GC007260.
10. Zhao J.-H. & Asimow P. D. (2018) Formation and evolution of a magmatic system in a rifting continental margin: the Neoproterozoic arc- and MORB-like dike swarms in South China. *Journal of Petrology* **59**(9):1811-1844. Doi: 10.1093/petrology/egy080.
11. Azer M. K., Gahlan H. A., Asimow P. D., Mubarak H. S. & Al-Kahtany K. (2019) Multiple stages of carbonation and element redistribution during formation of ultramafic-hosted magnesite in Neoproterozoic ophiolites of the Arabian-Nubian Shield, Egypt. *Journal of Geology* **127**(1). Doi: 10.1086/700652.
12. Lund D. C., Seeley E. I., Pavia F. J., McCart S., Rafter P. A., Farley K. A., Asimow P. D. & Anderson R. F. (2019) Enhanced hydrothermal scavenging of 230Th on the Southern East Pacific Rise during the last deglaciation. *Earth and Planetary Science Letters* **510**:64-72. Doi:10.1016/j/epsl.2018.12.037.
13. Azer M. K., Gahlan H. A., Asimow P. D. & Al-Kahtany K. M. (2019) The common origin and alteration history of the hypabyssal and volcanic phases of the Wadi Tarr Albitite Complex, southern Sinai, Egypt. *Lithos* **324-325**:821-841. Doi:10.1016/j.lithos.2018.12.015.

*Papers, continued*

1. Pantazidis A., Baziotis I., Solomonidou A, Manoutsoglou E., Palles D., Kamitsos E., Karageorgis A., Profitiliotis G., Kondoyanni M., Klemme S., Berndt J., Ming D. & Asimow P. D.(2019) Santorini volcano as a potential Martian Analogue: the Balos Cove Basalts. *Icarus* **325*:***128-140. Doi:10.1016/j.icarus.2019.02.026.
2. Zhang B., Hu X., Asimow P. D., Zhang X., Xu J., Fan D. & Zhou W. (2019) Crystal Size Distribution of Amphibole Grown from Hydrous Basaltic Melt at 0.6-2.6 GPa and 860-970 °C. *American Mineralogist* **104**:525-535. Doi:10.2138/am-2019-6759.
3. Akin M.C., Nguyen J. H., Beckwith M. A., Chau R., Ambrose W. P., Fat’yanov O. V., Asimow P. D. & Holmes N. C. (2019) Tantalum sound velocity under shock compression. *Journal of Applied Physics* **125**:145903. Doi: 10.1063/1.5054332.
4. Kelly J. P., Nguyen J. H., Akin M. C., Haslam J. J., Fix B. J., Saw C. K., White E. R., Greene W. O. & Asimow P. D. (2019) Application of Al-Cu-W-Ta graded density impactors in dynamic ramp compression experiments. *Journal of Applied Physics* **125**:145902. Doi: 10.1063/1.5055398.
5. Baziotis I., Xydous S., Asimow P. D., Mavrogonatos C., Flemetakis S., Klemme S. & Berndt J. (2019) The potential of phosphorus in pyroxene as a geospeedometer: examples from mantle xenoliths. *Geochimica et Cosmochimica Acta*. Doi:10.1016/j.gca.2019.04.024.
6. Wan L., Zeng Z., Kusky T., Asimow P. D., He C. C., Liu Y. J., Yang S. & Xu S. P. (2019) Geochemistry of middle-late Mesozoic mafic intrusions in the eastern North China Craton: new insights on lithospheric thinning and decratonization. *Gondwana Research* **73**:153-174. Doi: 10.1016/j.gr.2019.04.004.
7. Asimow P. D. (in press) The petrological consequences of the estimated oxidation state of primitive MORB glass, in Moretti R. & Neuville D., editors, *Magma Redox Geochemistry*, American Geophysical Union Monograph.
8. Abu Amarah B., Azer M. K., Asimow P. D., Grefat H. & Mubarak H. S. (2019) Geochemistry and petrogenesis of late Ediacaran rare-metal albite granites of the Arabian-Nubian Shield. *Acta Geologica Sinica – English Edition*. Doi: 10.1111/1755-6724.14379**.**
9. Azer M. K., Abdelfadil K., Asimow P. D. & Khalil A. (in press) The Homrit-Waggat granitoids of the Eastern Desert of Egypt and the transition from subduction-related to post-collisional magmatism in the Arabian-Nubian Shield. *Geological Journal*.
10. Wan L., Zeng Z.-X., Asimow P. D., Zeng Z.-H., Peng L.-H., Xu D.-L., Wei Y.-X., Liu W., Lu C.-D. & Chang W.-Q. (in press) Geochemistry of the Mid-Neoproterozoic mafic rocks in the western Jiangnan orogen, South China: Intracontinental rifting or subduction? *Journal of Asian Earth Sciences*.
11. Mitchell R. N., Cox G. M., Li Z.-X., Spencer C., Kirscher U., Zhang N. & Asimow P. D. (submitted) Birth of supercontinents and the Proterozoic planetary state shift. *Journal of Geophysical Research – Solid Earth*.
12. Takodjou Wambo J. D., Beiranvand Pour A., Salles R., Pradhan B., Nzenti J. P., Asimow, P. D. Zoheir B. & Ganno S. (submitted) Identifying high potential zones of gold mineralization using Landsat-8 remote sensing data in a sub-tropical region: Ngoura-Colomines goldfield, Eastern Cameroon. *Ore Geology Reviews*.
13. Lee S. K., Mosenfelder J. L., Park S. Y., Lee A. & Asimow P. D. (submitted). Configurational Entropy and Anomalous Compression of Basaltic Melts in Earth’s Mantle. *Proceedings of the National Academy of Sciences*.
14. Gahlan H. A., Azer M. K., Asimow P. D., Mubarak H. S. & Al-Kahtany K. M. (submitted) Petrological characteristics of the Neoproterozoic Ess ophiolite, Arabian Shield, Saudi Arabia: A mineral chemistry perspective. *International Journal of Earth Sciences*.

*Papers, continued*

1. Biasi J. A., Asimow P. D. & Harris R. A. (submitted) Seeing Beneath Boninites: Tectonochemistry of the Brooks Range Ophiolite, Alaska. *Lithosphere*.
2. Gahlan H. A., Azer M. A., Asimow P. D. & Al-Kahtany K. M. (submitted) Genesis and geodynamic evolution of serpentinized ultramafics and the associated magnesite deposits, Al-Wask ophiolite, Arabian Shield, Saudi Arabia. *American Journal of Science*.
3. Stolper E. M., Shorttle O., Antoshechkina P. M. & Asimow P. D. (submitted) The effects of solid-solid phase equilibria on the oxygen fugacity of the upper mantle. *American Mineralogist*.
4. Hu J., Asimow P. D. & Ma C. (submitted) Shock synthesis of Al-Fe-Cr-Cu-Ni icosahedral quasicrystal. *Proceedings of the American Physical Society Topical Group meeting on Shock Compression of Condensed Matter, 2019, Portland, Oregon*.
5. Abu Amarah B., Asimow P. D., Azer M. K. & Ghrefat H. (submitted) Suprasubduction-zone origin of the podiform chromitites of the Bir Tuluhah ophiolite, Saudi Arabia, during Neoproterozoic assembly of the Arabian Shield. *Journal of Asian Earth Sciences*.
6. Newcombe M. E., Plank T. A., Barth A., Asimow P. D. & Hauri E. (submitted) Water-in-olivine magma ascent chronometry: Every crystal is a clock. *Journal of Volcanology and Geothermal Research*.
7. Galmed M. A., Yahya M. M., Gahlan H. A., Asimow P. D., Al-Kahtany K. M. & Kahal A. Y. (submitted) Petrology and geochemistry of the Az Zabirah South Zone bauxite deposit, North-Central Saudi Arabia. *Geologica Acta*.
8. LaLone B., Asimow P. D., Fat’yanov O. V, Hixson R., Stevens G., Turley W. & Veeser L. (submitted) High-pressure melt curve of shock-compressed tin measured using pyrometry and reflectance techniques. *Journal of Applied Physics*.

*Other Publications*

Asimow P. D. (2003) Earth science: A slice of history (News and Views), *Nature* **423**:491-493, doi: 10.1038/423491a.

Asimow P. D. (2002) Lucky Strike Smokers are Different, *Engineering and Science***3**:8-17.

Asimow P. D. (2002) Presentation of the Mineralogical Society of America Dana Medal for 2001 to George R. Rossman, *American Mineralogist*, **87**:799-800.

Donelick, R., Farley K., O’Sullivan P. & Asimow P. (2003) Experimental evidence concerning the pressure dependence of He diffusion and fission-track annealing kinetics in apatite, *On Track: The Newsletter of the International Fission-Track Community* **13**(2, Issue 26):19-21.

Asimow P. D. (2004) Acceptance of the F. W. Clarke Medal, *Geochimica et Cosmochimica Acta* **68**(9):1965-1966, doi: 10.1016/j.gca.2003.11.010.

Eiler J., Asimow P. D., Dove P. M., Jahren A. H., Trumbore S. and Randerson J. T. (2006) Asimow, Jahren and Randerson receive 2006 James B. Macelwane Medal. *EOS Transactions AGU* **87**(4):40. Doi: 10.1019/2006EO040005.

Ohtani E., Andrault D., Asimow P. D., Stixrude L. and Wang Y. (2009) Advances in high-pressure mineral physics: From the deep mantle to the core Preface. *Physics of the Earth and Planetary Interiors* **174**(1-4):1-2.

Asimow P. D. (2017) A measure of mantle melting (Perspective), *Science* **355 (**March 3, 2017):908-909. Doi: 10.1126/science.aam7807.

*Abstracts*

Asimow P. D., Hirschmann M. M., Ghiorso M. S., O'Hara M. J. & Stolper E. M. (1995) The effect of pressure-induced solid-solid phase transitions on decompression melting of the mantle*. EOS: Transactions AGU* **76**(17):S275. **Outstanding Student Paper Award*.***

Asimow P. D., Hirschmann M. M., Ghiorso M. S. & Stolper E. M. (1995) Isentropic processes in the mantle, in Anderson, D. L., Hart, S. R. & Hofmann, A. W., convenors, Plume 2, *Terra Nostra* **3/1995**, pp. 12-14, Alfred-Wegener-Stiftung, Bonn.

Hirschmann M. M., Asimow P. D., Ghiorso, M. S. & Stolper E. M. (1995) Variations in melt productivity during mantle upwelling calculated from thermodynamic models. 2nd International Workshop on Orogenic Lherzolites and Mantle Processes*. Publicaciones del Instituto Andaluz de Ciencias de la Tierra de Granada*, Universidad de Granada. **1**:28-29.

Stolper E. M., Asimow P. D., Baker M. B., Hirschmann M. M. & Wasylenki L. E. (1996) Mantle melting beneath spreading centers. The Royal Society Discussion Meeting*, Mid-ocean ridges: dynamics of processes associated with the creation of new ocean crust*, March 6-7, 1996. London: The Royal Society.

Asimow P. D., Hirschmann M. M. & Stolper E. M. (1996) Variations in isentropic productivity of mantle melting: origins and consequences. *EOS: Transactions AGU*, **77**:F825.

Stolper E. M., Asimow P. D., Hirschmann, M. M. (1996) Adiabatic melting of the mantle, 1996 Ingerson Lecture. *GSA Abstracts with Programs*, **28**:A290.

Gaetani G. A., Asimow P. D. & Stolper E. M. (1997) Experimental determination of the partial molar volume and compressibility of SiO2 in silicate liquids at pressures up to 35 kbar*. 1997 Goldschmidt Conference*, Tucson, AZ. Lunar and Planetary Institute Contribution **921**:76-77.

Asimow P. D. (1997) MELT and MELTS: Thermodynamic constraints on interpretation of the MELT experiment, *RIDGE Theoretical Workshop*, Brown University, October 1997.

Asimow P. D. (1997) One-dimensional Steady-state Melt Transport in the Mantle*. EOS: Transactions AGU*, **78**:F837.

Asimow P. D. (1998) Reconciling major- and trace-element data from abyssal peridotites with models of melting and melt transport. *EOS: Transactions AGU*, **79**:F991.

Asimow P. D. & Langmuir C. H. (1998) Segment-scale and regional systematics from 33°N to 41°N on the Mid-Atlantic Ridge: Results from the FAZAR Cruise*. EOS: Transactions AGU*, **79**:F938-939.

Asimow P. D. (2000) Review of thermodynamic and petrological constraints on melt production, *Second RIDGE Workshop on Mantle Flow and Melt Generation Beneath Mid-Ocean Ridges*, Brown University, March 2000.

Asimow P. D. (2000) Modeling Hydrous Melt Production and Fractionation at Mid-ocean Ridges: Application to the Azores Region. *Journal of Conference Abstracts*, **5**(2), Goldschmidt 2000, #164.

Gaetani G. A. & Asimow P. D. (2001) A polythermal quartz and coesite saturation surface to 5 GPa and the partial molar volume of SiO2 in silicate liquids. *2001 Goldschmidt Conference*.

Luo S.-N., Mosenfelder J. L., Asimow P. D., Ahrens T. J., Cagin T., Strachan A. & Goddard W. A. III (2001) High pressure polymorphs of silica: Static synthesis, dynamic loading and molecular dynamics simulation. *EOS: Transactions AGU*, **82**:F1135.

Baxter E. F., Asimow P. D. & Farley K. A. (2001) Experimental study of grain boundary partitioning of argon. *EOS: Transactions AGU*, **82**:F1385.

Asimow P. D. (2002) Melt migration vs. isentropic decompression melting, more or less. *2002 Goldschmidt Conference*, Davos, Switzerland. *Geochim. Cosmochim Acta*,**66**(S1):A34.

Cooper, K. M., Eiler J. M. & Asimow P. D. (2002) Oxygen-isotope evidence for altered oceanic crust in the Atlantic MORB source. *2002 Goldschmidt Conference*, Davos, Switzerland. *Geochim. Cosmochim Acta* **66**(S1):A151.

Mosenfelder J. L., Deligne N. I., Asimow P. D. and Rossman G. R. (2002) Incorporation of OH in olivine at high pressure: new experimental results. *EOS: Transactions AGU* **83** abstract #988.

Ahrens T. J., Luo S.-N., Mosenfelder J. L. and Asimow P. D. (2002) Equation of State and Phase Diagram of Silica: Geophysical Applications. *EOS: Transactions AGU* **83** abstract #4763.

Asimow P. D. (2002) A Skirmishing Against our Adversaries, the Rocks: The Significance of Multiple Saturation Points in the Context of Polybaric Near-fractional Melting (Bowen symposium contribution). *EOS: Transactions AGU* **83** abstract #5617.

Asimow P. D., Luo S.-N., Mosenfelder J. L., Liu W., Staneff G. D., Ahrens T. J. and Chen G. (2002) Thermal Conductivity Measurement of Synthesized Mantle Minerals. *EOS: Transactions AGU* **83** abstract #6986.

Luo S.-N., TschaunerO., Mosenfelder J. L., Asimow P. D. and Ahrens T. J. (2003) New ultra-dense phase of silica from shock recovery experiments. *AIRAPT International Conference on High Pressure Science and Technology*, Bordeaux, France.

Asimow P. D., Luo S.-N., Ahrens T. J. and Swift D. (2003) Superheating of Ga induced by laser-driven shock waves: A transient X-ray diffraction study. *APS Topical Conference on Shock Compression of Condensed Matter*, Portland OR.

Miller S. A., Burnett D. S. and Asimow, P. D. (2003) Experimental divalent element partitioning between anorthite and CAI melt. *Lunar and Planetary Science Conference* **XXXIV**, Abstr. #1446.

Asimow P.D. (2003) Systematics of water partitioning in damp mantle melting models. *2003 Goldschmidt Conference*, Kurashiki Japan, *Geochim. Cosmichim. Acta* **67**(18S):A28.

Donelick R., Farley K. A., Asimow P. D. and O'Sullivan P (2003) Experimental evidence concerning the pressure dependence of He diffusion and fission-track annealing kinetics in apatite. *2003 Goldschmidt Conference*, Kurashiki, Japan. *Geochim. Cosmochim. Acta* **67**(18S):A82.

Smith P. M., Asimow P. D. and Stolper E. M. (2003) Thermodynamic modelling of melting in chemically heterogenous mixtures of peridotite and pyroxenite. *2003 Goldschmidt Conference*, Kurashiki Japan, *Geochim. Cosmichim. Acta* **67**(18S):A440.

Akins J. A., Asimow P. D. and Ahrens T. J. (2003) Shock data for MgSiO3: Super-dense melt above core-mantle boundary. *Geological Society of America* annual meeting.

Akins J. A., Ahrens T. J. and Asimow P. D. (2003) Shock-induced Melting of MgSiO3 (perovskite): Implications for Density of Ultramafic Liquids above Core-Mantle boundary. *EOS: Transactions AGU* **84** abstract #2771.

Baxter E. F., Asimow P. D. and Farley K. A. (2003) Measurement of Grain Boundary Partitioning of Ar and He. *EOS: Transactions AGU* **84** abstract #5725.

Luo S.-N., Akins J. A., Ahrens T. J. and Asimow P. D. (2003) High-Pressure Melting of Mg-Perovskite and its Assemblage With Periclase From Shock Temperature Measurement. *EOS: Transactions AGU* **84** abstract #3503.

Mosenfelder J. L., Asimow P. D. and Ahrens T. J. (2003) First Direct Shock Wave Loading Experiments on Wadsleyite. *EOS: Transactions AGU* **84** abstract #4654.

Smith P. M. and Asimow P. D. (2003) Mantle Melting in the Plagioclase-Spinel Transition Zone; Reconciling Experiments and Thermodynamic Models. *EOS: Transactions AGU* **84** abstract #953.

Baker L. J. and Asimow P. D. (2003) Experimental Investigation of the Partially-Hydrated Solidus of KLB-1. *EOS: Transactions AGU* **84** abstract #1666.

Staneff, G. D., Asimow P. D. and Caillat T. (2004) Synthesis and thermoelectric properties of Ce(Ru0.67Rh0.33)4Sb12, Materials Research Society Fall Meeting, paper S4.3.

Asimow P. D., Sun D., Akins J. A., Luo S.-N. and Ahrens T. J. (2004) Petrology of the lowermost mantle, *2004 Goldschmidt Conference*, Copenhagen, Denmark, *Geochim. Cosmochim. Acta*, **68**(11 supplement 1), A561.

Ahrens T. J., Asimow P. D., Sun D., Akins J. A. and Luo S.-N. (2004) Shock-induced Melting of MgSiO3 (perovskite): Implications for Density of Ultramafic Liquids above Core-Mantle boundary. *32nd International Geological Congress*, Florence, Italy.

Luo S.-N., Tschauner O., Tierney T. E. IV, Swift D. C. and Asimow P. D. (2004) Possible novel carbon structures synthesized by laser-induced shock waves. 46th Annual meeting of the Division of Plasma Physics, American Physical Society, November 15-19, 2004, Savannah GA.

Asimow P. D. (2004) Hot, warm, cold; wet, damp, dry; peridotite, pyroxenite, eclogite; do petrologists know anything about mid-ocean ridge and ocean island basalt sources? *EOS: Transactions AGU* **85** abstract V43G-02.

Baker L. J., Hall C. E., Asimow P. D., Smith P. and Gurnis M. (2004) Subduction dynamics and mass transfer: A synthesis model. *Eos: Transactions AGU* **85** abstract V12A-08.

Bezos A., Langmuir C., Michael P., Asimow P. D., Escrig S., Fornari D. J., Gier E., Goddard C., Matzen A., Woods S. and the Lau II Team (2004) Petrology and geochemistry of the Eastern Lau Spreading Center. *Eos: Transactions AGU* **85** abstract B13A-0195.

Langmuir C. H., German C., Michael P., Yoerger D. R., Fornari D. J., Shank T. M., Asimow P. D., Edmonds H. N. and the Lau II Team (2004) Hydrothermal prospecting and petrological sampling in the Lau Basin: Background data for the Integrated Study Site. *Eos: Transactions AGU* **85** abstract B13A-0189.

Luo S.-N., Swift D., Tierney T., Paisley D., Kyrala G., Johnson R., Hauer A., Tschauner O. and Asimow P. D. (2004) Laser-induced shock waves in condensed matter, and their geophysical applications. *Eos: Transactions AGU* **85** abstract MR13A-07.

Mosenfelder J. L., Sharp T. G., Asimow P. D. and Rossman G. R. (2004) Hydrogen in Olivines From the Colorado Plateau: Implications for Water in the Mantle and the Alpe Arami Controversy. *EOS: Transactions AGU* **85** abstract T32B-07.

Stein L. C., Mosenfelder J. L., Asimow P. D. and Rossman G. R. (2004) Quantitative Polarized FTIR analysis of Trace OH in Populations of Disoriented Mineral Grains. *EOS: Transactions AGU* **85** abstract T41B-1175.

Sun D., Ahrens T. J. and Asimow P. D. (2004) Thermodynamics of the lowermost mantle: example of SiO2-MgO system. *Eos: Transactions AGU* **85** abstract T11E-1327.

Tschauner O., Willis M. J., Asimow P. D. and Ahrens T. J. (2005) Effective liquid metal-silicate mixing upon shock by power-law droplet size scaling in Richtmyer-Meshkov like perturbations. *Lunar and Planetary Science Conference* **XXXVI**.

Tschauner O., Willis M. J., Asimow P. D. and Ahrens T. J. (2005) First synthesis of ringwoodite via shock. *Lunar and Planetary Science Conference* **XXXVI**.

Asimow P. D., Langmuir C. H. and the Kilo Moana 0417 Shipboard Science Party (2005) Effect of water on magma and crustal density: Highly fractionated lavas in the Lau Basin and other wet spreading centers. 2005 Goldschmidt Conference, Moscow Idaho. *Geochimica et Cosmochimica Acta* **69**(10 supplement): A149.

Miller S. A., Asimow P. D. and Burnett D. S. (2005) Melt thermodynamics and divalent element partitioning between anorthite and CMAS liquids. 2005 Goldschmidt Conference, Moscow Idaho. *Geochimica et Cosmochimica Acta* **69**(10 supplement): A822.

Akber-Knutson S., Steinle-Neumann G. & Asimow P. D. (2005) On the sharpness of the perovskite/post-perovskite transition in the Earth’s mantle. 2005 Goldschmidt Conference, Moscow Idaho. *Geochimica et Cosmochimica Acta* **69**(10 supplement): A252.

Sun D., Ahrens T. J. and Asimow P. D. (2005) Thermodynamics of the lowermost mantle. 2005 Goldschmidt Conference, Moscow Idaho. *Geochimica et Cosmochimica Acta* **69**(10 suppl.): A253.

Lee K. K. M., Asimow P. D. and Tschauner O. (2005) Phase assemblage and stability of pyroxenite at lower-mantle conditions. *EOS Transactions AGU* **86** Spring meeting supplement.

Asimow P. D. and Ahrens T. J. (2005) Silicate Liquid Equations of State from Molten Shock Experiments. *EOS Transactions AGU* **86** Fall meeting supplement.

Luffi P. I., Saleeby J. B. and Asimow P. D. (2005) Water-Fluxed Fractional Melting: a new, Efficient Mechanism of Garnet Enrichment During Mid- and Lower-Crustal Anatexis. *EOS Transactions AGU* **86** Fall meeting supplement.

Smith P. M., Baker L. J., Hall C. E., Asimow P. D. and Gurnis M. C. (2005) Integrating Geodynamic and Petrological Numerical Models with GyPSM-R: Mid-ocean Ridge Flow Dynamics Revisited. *EOS Transactions AGU* **86** Fall meeting supplement.

Baker L. J., Smith P. M., Asimow P. D., Hall C. E. and Gurnis M. C. (2005) GyPSM-S: A Synthesis Model for Fully-Coupled Geodynamic and Petrological Flow Calculations Related to Subduction. *EOS Transactions AGU* **86** Fall meeting supplement.

Sun D., Song T.-R. A., Asimow P. D. and Helmberger D. V. (2005) Post-perovskite Phase Boundary Beneath the Western Caribbean. *EOS Transactions AGU* **86** Fall meeting supplement.

Bezos A., Escrig S., Langmuir C. H., Michael P. J., Asimow P. D. and Woods, S. (2005) Mantle petrogenesis of the Eastern Lau Spreading Center basalts and andesites and the role of subduction-related fluids. *EOS Transactions AGU* **86** Fall meeting supplement.

Mosenfelder J. L., Asimow P. D. and Ahrens T. J. (2006) Thermodynamic properties of Mg2SiO4 from shock measurements to 200 GPa on forsterite and wadsleyite. *EOS Transactions AGU* **87** Spring meeting supplement. M34B-02.

Tschauner O., Asimow P. D., Ahrens T. J. and Willis M. J. (2006) Partitioning of elements between liquid metal and liquid silicate under conditions of a giant impact. *19th General Meeting of the International Mineralogical Association,* Kobe, Japan.

Asimow P. D., Sun D. and Ahrens, T. J. (2006) Preheated light gas gun shock experiments: hot Molybdenum and diopside-anorthite liquid Hugoniots revisited. *EOS Transactions AGU* **87** Fall Meeting supplement. MR53D-03.

Kelsey K. E., Stebbins J. F., Du L.-S., Asimow P. D. and Mosenfelder J. L. (2006) Cation disorder and structure of garnets along the pyrope-grossular join using 17O 3QMAS and 27Al MAS NMR. *EOS Transactions AGU* **87** Fall Meeting supplement. MR43B-1083.

Baker L. J., Smith P. M. Gurnis M. C. and Asimow P. D. (2006) The Izu-Bonin-Mariana and Costa Rican Subduction Factories Modeled by GyPSM-S. *EOS Transactions AGU* **87** Fall Meeting supplement. V41B-1710.

Gaetani G. A., Asimow P. D. and Stolper E. M. (2006) Rutile saturation in magmas revisited: Siliceous, alkali-rich compositions. *EOS Transactions AGU* **87** Fall Meeting suppl. V31F-06.

Luo S.-N., Tschauner O., Asimow P. D. and Ahrens T. J. (2006) Recovery of stishovite-structure at ambient conditions out of shock-generated amorphous silica. *EOS Transactions AGU* **87** Fall Meeting supplement. MR51B-0963.

Ahrens T. J., Asimow P. D., Luo S.-N., Long M., Gelle E. and Sun D. (2006) Outlook for future high-pressure shock experiments on minerals. *EOS Transactions AGU* **87** Fall Mtg. suppl. MR53D-01.

Asimow P. D., Sun D., Mosenfelder J. L. and Ahrens T. J. (2006) New shock wave data pertaining to magma ocean thermodynamics. *Workshop on Early Planetary Differentiation*, Sonoma County, CA. Lunar and Planetary Institute.

Miller S. A., Asimow P. D. and Burnett D. S. (2007) Experimental determination of radium partitioning between anorthite and CMAS melt, GSA Northeastern Section, *GSA Abstracts with Programs* **39**(1).

Asimow P. D. & Ahrens T. J. (2007) Liquid silicates at lower mantle pressure from preheated shock wave experiments. *7th High Pressure Mineral Physics Seminar*, Matsushima, Japan.

Zeng, L., Asimow P. D., Liang F., Chen J. and Liu F. (2007) Omphacite hosted inclusions of feldspar+quartz aggregate in the Sulu UHP eclogites: implications for eclogite partial melting. *International Eclogite Field Symposium*, Lochalsh, Scotland.

Asimow P. D. (2007) Heterogeneity in mid-ocean ridge sources. *Geochimica et Cosmochimica Acta* **70** (18):A23 supplement. 2007 Goldschmidt Conference, Cologne Germany.

Asimow P. D. (2007) Magmatism and the evolution of the Earth’s interior. *Geochimica et Cosmochimica Acta* **70** (18):A24 supplement. 2007 Goldschmidt Conference, Cologne Germany.

Workman R. K., Boettcher M. and Asimow P. D. (2007) Elemental budget and rheology of the oceanic lithosphere. *Geochimica et Cosmochimica Acta* **70** (18):A708 supplement. 2007 Goldschmidt Conference, Cologne Germany.

Asimow P. D., Mosenfelder J. L., Ahrens T. J. and Sun D. (2007) Large Grüneisen Gamma of Dense Silicate Liquids: more experiments and a first self-consistent model. *EOS Transactions AGU* **88**(52) Fall Meeting Supplement, Abstr. MR32A-06.

Tschauner O., Asimow P. D., Ahrens T. J., Kostandova N., and Sinogeikin S. (2007) Formation of wadsleyite in a shock experiment – Implications for the duration of shock events in meteorite parent bodies. *EOS Transactions AGU* **88**(52) Fall Meeting Supplement, Abstr. MR54A-08.

Kelsey K. E., Stebbins J. F., Asimow P. D. and Mosenfelder J. L. (2007) Compositional effects on aluminum and silicon coordination changes in high pressure aluminosilicate glasses: NMR results. *EOS Transactions AGU* **88**(52) Fall Meeting Supplement, Abstr. MR13B-1255.

Mosenfelder J. L., Asimow P. D., Frost D. J., Rubie D. C. and Ahrens T. J. (2007) Constraints on thermodynamics of the lower mantle from new shock-wave experiments in the MgSiO3 and Mg2SiO4 systems. *EOS Transactions AGU* **88**(52) Fall Meeting Supplement, Abstr. MR54A-02.

Michael P. J., Bezos A., Langmuir C. H., Escrig S., Matzen A. K., Asimow P. and Arculus R. (2007) Cross-arc variations in lava chemistry in the Tonga Arc-Lau Back Arc System, 19-23°S. *EOS Transactions AGU* **88**(52) Fall Meeting Supplement, Abstr. V52A-08.

Smith P. M., Baker L. J., Asimow P. D., and Gurnis M. C. (2007) Coupled petrological and Geodynamic Models of Mantle Flow in Subduction Zones; the Importance of Chlorite in the Emergence of a Low-Viscosity Channel. *EOS Transactions AGU* **88**(52) Fall Meeting Suppl., Abstr. V43D-1637.

Bezos A., Escrig S., Langmuir C. H., Michael P. J. and Asimow P. D. (2007) Trace element constraints on the origin of subduction components in the Eastern Lau Back- arc Spreading Center. *EOS Transactions AGU* **88**(52) Fall Meeting Supplement, Abstr. V51G-02.

Wolf A. S., Asimow P. D. & Caracas R. (2008) Thermodynamic phase relations of the MgO-FeO-SiO2 system in the lower mantle. *Geochimica et Cosmochimica Acta* **71** supplement. 2008 Goldschmidt Conference, Vancouver Canada.

Asimow P. D. and Ahrens T. J. (2008) Shock compression of liquid silicates to 125 GPa: the anorthite-diopside join. *EOS Transactions AGU* **89** Fall meeting Supplement, Abstr. MR32B-04.

Ahrens T. J., Mosenfelder J. L. and Asimow P. D. (2008) Shock-induced transformation and melting of lower mantle minerals: implications for Earth evolution. *EOS Transactions AGU* **89** Fall meeting Supplement, Abstr. DI03-XX.

Mosenfelder J. L., Asimow P. D. and Rossman G. R. (2008) Orthopyroxene: the most hydrous nominally anhydrous upper mantle phase? *EOS Transactions AGU* **89** Fall meeting Supplement, Abstr. MRXX-XX.

Lund D. R. and Asimow P. D. (2008) Sea-level forcing of mid-ocean ridge magmatism on Milankovitch timescales. *EOS Transactions AGU* **89** Fall meeting Supplement, Abstr. OSXX-XX.

Balta J. B., Mosenfelder J. L. and Asimow P. D. (2008) Carbon-free melting of fertile garnet peridotite in water-undersaturated systems. *EOS Transactions AGU* **89** Fall meeting Supplement, Abstr. V42-XX.

Wolf A. S., Caracas R. and Asimow P. D. (2008) Thermodynamic Phase Relations in the MgO-FeO-SiO2 system in the lower mantle. *EOS Transactions AGU* **89** Fall meeting Supplement, Abstr. MR08-XX.

Caracas R., Wolf A. S. and Asimow P. D. (2008) (Mg,Fe)SiO3 in the lower mantle: phase equilibria and stability, influence of spin on compressibility and elasticity. *EOS Transactions AGU* **89** Fall meeting Supplement, Abstr. MR10-XX.

Hebert L. B., Antoshechkina P. M. and Asimow P. D. (2008) Fluid Source-based Modeling of Melt Initiation within the Subduction Zone Mantle Wedge: Implications for Geochemical Trends in Arc Lavas. *EOS Transactions AGU* **89** Fall meeting Supplement, Abstr. VXX-XX.

Ahrens T. J., Mosenfelder J. L. and Asimow P. D. (2009) Advances in shock compression of mantle minerals and implications. *Shock Compression of Condensed Matter 2009, American Physical Society Topical Conference*.

Fat’yanov O. V., Asimow P. D. and Ahrens T. J. (2009) Shock temperatures of preheated MgO. *Shock Compression of Condensed Matter 2009, American Physical Society Topical Conference.*

Dauphas N., Craddock P. R., Asimow P., Bennett V., Nutman A. P. and Ohnenstetter, D. (2009) Probing the conditions of mantle melting with iron isotopes. *2009 Goldschmidt Conference*, Davos Switzerland.

Lund D. C. and Asimow P. (2009) Sea-level forcing of mid-ocean ridge magmatism on Milankovitch timescales. *AGU Chapman Conference on Abrupt Climate Change*. Columbus, OH, June 2009.

Asimow P. D. (2009) First Kinetic Reactive-Flow and Melting Calculations for Entropy Budget and Major Elements in Heterogeneous Mantle Lithologies. *EOS Transactions AGU* **90** Fall meeting Supplement, Abstr. V32A-02.

Asimow P. D. (2009) A six-pack of silicates: generalized properties of silicate liquids at lower mantle pressure based on Silica, Enstatite, Forsterite, Diopside, Anorthite, and Di-An eutectic compositions. *EOS Transactions AGU* **90** Fall meeting Supplement, Abstr. MR31C-02.

Ahrens T. J. and Asimow P. D. (2009) Composition of the Ultra-Low Velocity Zone from Shock Data. *EOS Transactions AGU* **90** Fall meeting Supplement, Abstr. V13C-2050.

Balta, J. B., Asimow P. D. and Mosenfelder, J. L. (2009) Hydrous, low-carbon melting of garnet peridotite. *EOS Transactions AGU* **90** Fall meeting Supplements, Abstr. V14C-05.

Tschauner O., Asimow P. D., Ahrens T. J. and Kostandova N. (2009) Shock recovery of a magnesium-silicate spinelloid. *EOS Transactions AGU* **90** Fall meeting Supplement, Abstr. MR13B-1676.

Hamecher E. A., Antoshechkin P. M., Ghiorso M. S. and Asimow P. D. (2009) Thermodynamic Calibration of Cr-Al Exchange Equilibria for Garnet and Spinel. *EOS Transactions AGU* **90** Fall meeting Supplement, Abstr. V13D-2056.

Mposkos E., Baziotis I. and Asimow P. D. (2010) Petrology and geochemistry of eclogites from the Kechros metamorphic complex in eastern Rhodope (NE Greece). *EGU General Assembly 2010*. Abstract number EGU2010-12948.

Mosenfelder J. L., Le Voyer M., Rossman G. R., Guan Y., Bell D. R., Asimow P. D. and Eiler J. M. (2010) Combined SIMS, NanoSIMS, FTIR, and SEM studies of OH in nominally anhydrous minerals (NAMs). *EOS Transactions AGU* **91** Fall meeting supplement, Abstr. V43F-04.

Waller C., Liu Q., Agee C. B., Asimow P. D. and Lange R. A. (2010) Equation of state of molten fayalite (Fe2SiO4). *EOS Transactions AGU* **91** Fall meeting supplement, Abstr. MR44A-06.

Antoshechkina P. M., Asimow P. D., Hauri E. H. and Luffi P. I. (2010) Effect of water on mantle melting and magma differentiation, as modeled using Adiabat\_1ph 3.0. *EOS Transactions AGU* **91** Fall meeting supplement, Abstr. V53C-2264.

Antoshechkina P. M. and Asimow P. D. (2010) Adiabat\_1ph 3.0 and the MAGMA website: educational and research tools for studying the petrology and geochemistry of plate margins. *EOS Transactions AGU* **91** Fall meeting supplement, Abstr. ED41B-0644.

Agee C. B., Barnett R. G., Guo X., Lange R. A., Waller C. and Asimow P. D. (2010) Experimental compressibility of molten hedenbergite at high pressure. *EOS Transactions AGU* **91** Fall meeting supplement, Abstr. MR44A-03.

Asimow P. D. (2011) Shock compression of preheated silicate liquids: 30 years of progress. *17th Biennial International Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter, Chicago IL*.

Fat’yanov O. V., Asimow P. D. and Ahrens T. J. (2011) Thermodynamics of MgO shocked to 250 GPa and 9000 K. *17th Biennial International Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter, Chicago IL*.

Nguyen J., Chau R., Holmes N. C. and Asimow P. D. (2011) New Molybdenum Sound Speed Measurements Near 2 Mbar. *17th Biennial International Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter, Chicago IL*.

Asimow P. D. and Fat’yanov O. V. (2011) The Melting Curve of MgO from Shock Temperature Experiments. *2011 Goldschmidt Conference, Prague*.

Gazel E., Herzberg C. and Asimow P. D. (2011) Melting Conditions with PRIMELT: Examples and Future Work. *2011 Goldschmidt Conference, Prague*.

Agee C., Barnett G., Waller C., Asimow P. D., Guo X. and Lange R. (2011) Experimental compressibility of molten hedenbergite at high pressure. *2011 Goldschmidt Conference, Prague*.

Asimow P. D. and Fat’yanov O. V. (2011) Pre-heated MgO shock temperature experiments require a hot melting curve. *EOS Transactions AGU* **92** Fall meeting supplement, MR33A-08.

Kim Y.H., Clayton R. W., Jackson, J. M. and Asimow P. D. (2011) Distribution of hydrous minerals in the subduction system beneath Mexico. *EOS Transactions AGU* **92** Fall meeting supplement, DI31A-2166.

Hamecher E. A., Antoshechkina P. M., Ghiorso M. S. and Asimow P. D. (2011) The molar volume of FeO-MgO-Fe2O3-Cr2O3-Al2O3-TiO2 spinels. *EOS Transactions AGU* **92** Fall meeting supplement, V13G-08.

Rao M. N., Nyquist L. E., Ross D. K., Asimow P. D., See T., Sutton S., Cardernas F., Montes R. & Cintala M. (2011) Laboratory shock experiments on basalt-iron sulfate mixes at ~ 40-50 GPa and their relevance to the Martian regolith component present in shergottites. *Lunar and Planetary Science Conference XLIII*.

Asimow P.D. (2012) Preheated light gas gun shock experiments, *2012 Stewardship Science Academic Alliance Symposium*, Washington, DC.

Leng W., Gurnis M. C. and Asimow P. D. (2012) Dynamics of subduction initiation with different plate tectonic and volcanic expressions, *International Geological Congress* 2012, Brisbane, Australia.

Asimow P. D., C. W. Thomas, C. B. Agee, Q. Liu and R. A. Lange (2012) Equation of state for CaO-FeO-MgO-Al2O3-SiO2 melts and evolution of a whole-mantle magma ocean. *2012 Goldschmidt Conference, Montréal, Canada*.

Lee S. K., Mosenfelder J. L., Tschauner O. D., Asimow P. D., Park S. Y. & Kim H.-I. (2012) Structure of Multi-component Basaltic Glasses under Static and Dynamic Compression: Implications for Mantle Melting and Impact Processes on Planetary Surfaces. *EOS Transactions AGU* **93** Fall meeting supplement, session MR011.

Sun D. & Asimow P. D. (2012) Modeling high frequency waves in the slab beneath Italy. *EOS Transactions AGU* **93** Fall meeting supplement.

Thomas C W., Guo X., Agee C. B., Asimow P. D., & Lange R. A. (2012) Melts in the deep earth: calculating the densities CaO-FeO-MgO-Al2O3-SiO2 liquids. *EOS Transactions AGU* **93** Fall meeting supplement, session MR007.

Asimow P. D., Waller C. W. & Wolf A. S. (2012) Microscopic, Macroscopic, and Megascopic Melts: a simple model to synthesize simulation, spectroscopy, shock, and sink/float constraints on silicate melts and magma oceans. *EOS Transactions AGU* **93** Fall meeting supplement, session MR011.

Wolf A. S. & Asimow P. D. (2012) A simplified cation speciation model for silicate liquids at mantle pressures and temperatures. *EOS Transactions AGU* **93** Fall meeting supplement, session MR005. **Outstanding Student Paper Award**.

Hamecher E. A., Antoshechkina P. M., Ghiorso M. S. & Asimow P. D. (2012) The molar volume of cubic garnets in the system SiO2-Al2O3-TiO2-Fe2O3-Cr2O3-FeO-MnO-MgO-CaO-Na2O. *EOS Transactions AGU* **93** Fall meeting supplement.

RaoM. N., See T. H., Ross D. K., Nyquist L. E., Sutton S., Cintala M. & Asimow P. D. (2013) Shock Experiments on Basalt-Ferric Sulfate Mixes at 21 GPa & 49 GPa and their Relevance to Martian Meteorite Impact Glasses. *Lunar and Planetary Science Conference XLIV.*

Cartwright J. A., Farley K. A., Hurowitz J. A., Asimow P. D. and Jacobson N. S. (2013) Dating Planetary Surfaces including Mars using a New K-Ar Technique. *Lunar and Planetary Science Conference XLIV.*

Baziotis I., Asimow P. D., Koroneos A., Ntaflos T. & Poli G. (2013) A Dynamic study of Mantle processes applying In-situ Methods to Compound Xenoliths: implications for small to intermediate scale heterogeneity. *European Geophysical Union General Assembly*. Geophysical Research Abstracts  **15**, EGU2013-5541.

Fat’yanov O. V. & Asimow P. D. (2013) MgO melting curve constraints from shock temperature and rarefaction overtake measurements in samples preheated to 2300 K. *18th Biennial International Conference of the American Physical Society Topical Group on Shock Compression of Condensed Matter, Seattle WA*.

Leng W., Gurnis M. C. & Asimow P. D.(2013) Divergent volcanic expression during subduction initiation: backarc spreading and boninite eruption. *Japan Geoscience Union Meeting*. SCG08-10.

Jacobson N. S., Hurowitz J. A., Farley K. A., Asimow P. D. & Cartwright, J. A. (2013) Novel Applications of Knudsen Effusion Mass Spectrometry. *Electrochemical Society Meeting*.

Asimow P. D., Thomas C. W. & Wolf A. S. (2013) Invited: Thermodynamics of Melts from Shock Wave Experiments and a Simplified Speciation Model. *2013 V. M. Goldschmidt Meeting, Florence, Italy. Mineralogical Magazine* **77**(5):624.

Baziotis I., Asimow P. D., Ntaflos T., Koroneos A. & Poli G. (2013) High- to Low-Pressure Features of Compound Xenoliths: Implications from Fe-Ti-Ca Metasomatism and Glass Formation. *2013 V. M. Goldschmidt Meeting, Florence, Italy. Mineralogical Magazine* 77(5):673.

Cartwright J. A., Farley K. A., Hurowitz J. A., Asimow P. D. and Jacobson N. S. (2013) *In Situ* Dating on Mars using the ID-KArD Technique*. 2013 Geological Society of America Annual Meeting*, Denver CO.

Cartwright J. A., Farley K. A., Hurowitz J. A., Asimow P. D. and Jacobson N. S. (2013) the ID-KArD Technique: *In Situ* Dating on Mars. *EOS Transactions AGU* **94** Fall meeting supplement, GP43A-1191.

Antoshechkina P. M, Wolf A. S., Hamecher E. A., Asimow P. D. & Ghiorso M. S. (2013) Simultaneous calibration of end-member thermodynamic data and solution properties with correlated uncertainties. *EOS Transactions AGU* **94** Fall meeting supplement, V13A-2584.

Fat’yanov O. V. & Asimow P. D. (2013) Optical and thermodynamic properties of MgO from radiative shock temperature and sound speed measurements on samples preheated to 2300 K. *EOS Transactions AGU* **94** Fall meeting supplement, MR23B-2366.

Macris C. A., Eiler J. M., Asimow P. D. & Stolper E. M. (2013) Multi-component diffusion between molten SiO2 inclusions and surrounding felsic melt in an indochinite: Tektites as natural laboratories.*EOS Transactions AGU* **94** Fall meeting supplement, V31A-2685.

Wolf A. S., Asimow P. D. & Stevenson D. J. (2013) Coordinated HArd Sphere Model (CHASM): A Simplified Model for Silicate and Oxide Liquids at Mantle Conditions. *EOS Transactions AGU* **94** Fall meeting supplement, MR23A-2339.

Asimow P. D., Thomas C. W. & Wolf A. S. (2013) Implications of shock experiments on multi-component silicate melts for terrestrial planetary evolution. *EOS Transactions AGU* **94** Fall meeting supplement, MR13B-05.

Akin M. C., Nguyen J. H., Chau R., Fratanduono D. E., Ambrose W. P., Fat’yanov O. V., Asimow P. D. & Holmes N. C. (2013) Molybdenum sound velocity and shear strength softening under shock compression. *EOS Transactions AGU* **94** Fall meeting supplement, MR23B-2354.

Kim E. J., Fei Y., Tschauner O., Mosenfelder J., Asimow P. D., Lee S. K. (2013) Effects of Pressure on the Short-range Structure and Speciation of Fluid phases in Silicates Melts: Insights from Multi-nuclear NMR and x-ray Raman Scattering. *EOS Transactions AGU* 94 Fall meeting supplement, MR33A-2303.

Baziotis I., Asimow P. D., Ntaflos T., Koroneos A., Perugini D. & Stolper E. M. (2013) P-rich olivines in a melt-vein of a composite mantle xenolith: implications for crystal growth and kinetics. *European Geosciences Union General Assembly 2014*, abstract 5564.

Asimow P. D., Harvey J.-P. & A. S. Wolf (2014) Towards a universal model of the liquid phase: How to have it all. *2014 V. M. Goldschmidt Meeting, Sacramento, CA*.

Cartwright J. A., Farley K. A., Hurowitz J. A., Asimow P. D., Simcic J., Madzunkov S. & Papanastassiou D. A. (2014) Dating Mars with ID-KArD: Further advances for a future mission. *2014 V. M. Goldschmidt Meeting, Sacramento, CA*.

Harvey J.-P. & Asimow P. D. (2014) Linking the internal structure and volume of silicate melts to their thermodynamic properties. *2014 V. M. Goldschmidt Meeting, Sacramento, CA*.

Lund D. C., Asimow P. D., Jackson E. W. & Durham Z. M. (2014) Enhanced hydrothermal sedimentation along the East Pacific Rise during the last deglaciation. *2014 V. M. Goldschmidt Meeting, Sacramento, CA*.

Macris C. A., Badro J., Asimow P. D., Stolper E. M. & Eiler J. M. (2014) Multi-component diffusion between felsic and more silicic melts from tektites and experiments. *2014 V. M. Goldschmidt Meeting, Sacramento, CA*.

Wolf A. S., Asimow P. D. & Stevenson D. J. (2014) Coordinated Hard Sphere Mixture (CHaSM): A simplified predictive model for melts in the deep mantle with application to MgO. *2014 V. M. Goldschmidt Meeting, Sacramento, CA*.

Asimow P. D., Harvey J.-P. & A. S. Wolf (2014) Silicate Liquids at High Pressure - Experiments, Simulations, Progress Towards a Theory. *Gordon Research Conference: Research at High Pressure, Biddeford, ME*.

Baziotis I., Asimow P. D., Ntaflos T., Boyce J. W., McCubbin F. M., Koroneos A., Perugini D., Flude S., Storey M., Liu Y. S. & Stolper E. M. (2014) Phosphorus zoning as a recorder of crystal growth kinetics: implications from secondary olivine and pyroxene in mantle xenoliths from Cima Volcanic Field. *6th International Orogenic Lherzolite Conference*, Marrakech, Morocco.

Baziotis I*.*, Asimow P*.* D*.*, Koroneos A*.*, Perugini D*.*, Ntaflos T*.,* Flude S*.*, Storey M*.*, He D*.*T*.* and Liu Y*.* S*.* (2014)From intermediate to small scale heterogeneity of compound mantle xenoliths from Cima Volcanic Field (Western U.S.A.): implications for metasomatic processes in the deep mantle. *2014 Carpatho-Balkan Association Congress*.

Edwards C. S., Asimow P. D., Stewart S. T. & Ehlmann B. L. (2014) An examination of the impact-induced decompression melting formation hypothesis for the rocky, mafic crater floors of Mars. *8th International Conference on Mars*, Pasadena CA, Abstr. #1303.

Macris C. A., Badro J., Asimow P. D., Eiler J. M. & Stolper E. M. (2014) Seconds After Impact: Insights from Diffusion between Lechatelierite and Host Glass in Tektites and Experiments. *77th Annual Meeting of the Meteoritical Society*.

Asimow P. D. & Solomatova N. V. (2014) Structure and Stability of High-Pressure Dolomite with Implications for the Earth's Deep Carbon Cycle. *EOS Transactions AGU* 95 Fall meeting supplement, DI13A-4267.

Edwards C. S., Asimow P. D., Stewart S. T., Ehlmann B. L. (2014) The Formation of Widespread Volcanically Filled Crater Floors on Mars: Insights from Modeling and Observations. *EOS Transactions AGU* 95 Fall meeting supplement, P41B-3903.

Macris C. A., Asimow P. D., Zhang Y., Badro J., Stolper E. M., and Eiler J. M. (2014) Multicomponent Diffusion between Felsic and Silicic Melts: Insights from Tektites and Experiments. *EOS Transactions AGU* 95 Fall meeting supplement, V31F-08.

Myhill R., Dannberg J., Eilon Z., Gassmoeller R., Moulik P., FaulU. & Asimow P. D. (2014) Grain size evolution in the mantle and its effect on geodynamics and seismic observables. *EOS Transactions AGU* 95 Fall meeting supplement, DI23A-4280.

Wolf A. S., Caracas R., Asimow P. D. & Harvey J.-P. (2014) Cation Ordering in Fe-bearing Silicate Perovskite (Bridgmanite) and its Role in Disproportionation. *EOS Transactions AGU* 95 Fall meeting supplement, MR24A-02.

Baziotis I., Asimow P. D., Ntaflos T., Boyce J., Koroneos A., Perugini D., Liu Y.S., Klemme S., Berndt-Gerdes J. (2015) Phosphorus and other trace elements from secondary olivine in composite mantle xenoliths (CMX) from Cima Volcanic Field (CVF; California, USA): implications for crystal growth kinetics. *EGU General Assembly*, abstract EGU2015-13780.

Antoshechkina P. M., Wolf A. S., Hamecher E. A., Asimow P. D. & Ghiorso M. S. (2015) Improved thermodynamic model calibration with Bayesian methods. *2015 V. M. Goldschmidt Conference*, Prague, Czech Republic.

Asimow P. D.*,* Antoshechkina P. M. & Stolper E. M. (2015) Petrological Insights from Graphical Analysis of Two-component Systems. *2015 V. M. Goldschmidt Conference*, Prague, Czech Republic.

Creon L., Delpech G., Rouchon V., Szabo Cs., Asimow P. D., Antoshechkina P. M., Ghiorso M. S. & Guyot F. (2015) Mantle CO2 fluxes to the Pannonian lithosphere inferred from mantle xenolith investigation. *2015 V. M. Goldschmidt Conference*, Prague, Czech Republic.

Lund D. C., Asimow P. D., Farley K. A. (2015) Enhanced hydrothermal activity along the East Pacific Rise during the last two glacial terminations. *2015 V. M. Goldschmidt Conference*, Prague, Czech Republic.

Stolper E. M., Macris C. A., Badro J., Asimow P. D., Zhang Y. & Eiler J. M. (2015) Seconds after impact: insights into the thermal history of tektites. *2015 V. M. Goldschmidt Conference*, Prague, Czech Republic.

Macris C. A., Asimow P. D., Zhang Y., Badro J., Stolper E. M. & Eiler J. M. (2015) Estimating thermal histories of tektites using lechatelierite inclusions. *2015 Geological Society of America Annual Meeting*, Baltimore, MD. Abstr. #266313.

Akin M. C. et al. (2015) In Situ X-ray Diffraction of Forsterite Under Shock Compression to 52 GPa: Time Resolved Observation of Changes in Crystal Structure and Phase. *EOS Transactions AGU* 96 Fall meeting supplement, abstr. MR23B-2662.

Asimow P. D. et al. (2015) Sound Speed of Liquid Iron Along the Outer Core Isentrope: New Preheated Ramp Compression Experiments. *EOS Transactions AGU* 96 Fall meeting supplement, abstr. MR12A-06

Caracas R., Asimow P. D., Wolf A. S. & Harvey J.-P. (2015) Refining the chemical composition of the inner core with multicomponent alloys: from first-principles to thermodynamics and seismology. *EOS Transactions AGU* 96 Fall meeting supplement, abstr. MR33D-02.

Lund D. C., Asimow P. D. & Farley K. A. (2015) Enhanced hydrothermal activity along the East Pacific Rise during the last two glacial terminations. *EOS Transactions AGU* 96 Fall meeting supplement, abstr. V24A-04.

Shorttle O., Antoshechkina P. M., Dasgupta R., Rudge J. F. & Asimow P. D. (2015) Geochemical constraints on magma formation and transport processes. *EOS Transactions AGU* 96 Fall meeting supplement, abstr. DI51C-03.

Wolf A. S., Asimow P. D. & Stevenson D. J. (2015) Coordinated Hard Sphere Mixture (CHaSM): A fast approximate model for oxide and silicate melts at extreme conditions. *EOS Transactions AGU* 96 Fall meeting supplement, abstr. MR33D-07.

Baziotis I., Mavrogonatos K., Flemetakis S., Papoutsa A., Klemme S., Berndt J. & Asimow P. (2016) Rapid growth of phosphorus-rich olivine in mantle xenolith from Middle Atlas Mountains (Morocco, Africa). *European Geophysical Union General Assembly* 2016. *Geophysical Research Abstracts*  **18**, EGU2016-522.

Asimow P. D. (2016) Thermodynamics of Mantle Melting: Achievements, promise, limits. *Isaac Newton Institute* *Melt in the Mantle Workshop I: from Foundations to State-of-the-Art in Magma/Mantle Dynamics*. Cambridge, UK.

Chen Y., Liu Y., Asimow P. D. & Guan Y. (2016) Experimental Study of Chemical Effects During Impact Process: Preliminary Results. 47th *Lunar and Planetary Science Conference, Houston TX*.

Baziotis I.B., Ferrière L., Asimow P. D., Topa D. & Brandstätter F. (2016) P-rich Olivines in the Impact Melt Lithology of the Chelyabinsk Meteorite. 47th *Lunar and Planetary Science Conference.*

Baziotis I.B., Ferrière L., Brandstätter F., Topa D. & Asimow P. D. (2016) Shock Metamorphism in Ordinary Chondrites: Examples from Chelyabinsk (L5) and Chantonnay (L6) Meteorites. 47th *Lunar and Planetary Science Conference, Houston TX*.

Price J. B. & Asimow P. D. (2016) Can One Melt Be Responsible for the Petrologic Zones Observed in the Mt. Lowe Zoned Intrusion, San Gabriel Mountains, California? Insight from Melts Thermodynamic Modeling. *Geological Society of America 112th Annual Cordilleran Section Meeting, Ontario CA, April 4-6*.

Creon L., Rouchon V., Delpech G., Szabo Cs., Asimow P. D., Antoshechkina P. M., Ghiorso M. S. & Guyot F. (2016) Highly CO2–supersaturated melts in the Carpathian-Pannonian lithosphere. *2016 V. M. Goldschmidt Conference*, Yokohama, Japan.

Asimow P. D. & Solomatova N.V. (2016) Ab initio study of the structure and stability of high-pressure iron-bearing dolomite. *2016 V. M. Goldschmidt Conference*, Yokohama, Japan.

Asimow P. D. (2016) Shock wave experiments and magma oceans: what works, what doesn’t. *Earth-Life Science Institute Magma Oceanology Workshop*, Atami, Japan, July 2016.

Pantazidis A, Baziotis I., Manoutsoglou E., Solomonidou A., Schwandner F., Economou G., Palles D., Kamitsos E., Koukouzas N., Keklikoglou N., Arvanitidis C., Martinez-Frias J. & Asimow P.D. (2016) Basalts from Santorini Volcano: a new candidate martian analogue. *79th Annual Meeting of the Meteoritical Society*, Berlin.

Asimow P. D., Caracas R., Wolf A. S. & Harvey J.-P. (2016) Computing phase relations involving ordered solid solutions ab initio: Three thermodynamic approaches to the Fe-Si binary. *EOS Transactions AGU* 97 Fall meeting supplement, abstract MR22A-06.

Lewis M. J., Asimow P. D. & Lund D. C. (2016) Controls on explosive eruptions along the Pacific-Antarctic Ridge. *EOS Transactions AGU* 97 Fall meeting supplement, abstract OS31D-2055.

Biasi J., Asimow P. D. & Bucholz C. E. (2016) Evolution and Eruptibility of Magma Reservoirs: Modeling Results from the Western Peninsular Ranges Batholith. *EOS Transactions AGU* 97 Fall meeting supplement, abstract V33E-3160.

Grose C. J., Asimow P. D., Gurnis M. C. & Afonso J. C. (2016) Chemical Disequilibria in the Source of Oceanic Basalts: Insights from Grain-Scale Models. *EOS Transactions AGU* 97 Fall meeting supplement, abstract D11A-2331.

Fat’yanov O. V. & Asimow P. D. (2016) Equation of State and Observation of Partial Melting of B1 Phase MgO above 200 GPa from Shock Compression Experiments on Samples Preheated to 2300 K. *EOS Transactions AGU* 97 Fall meeting supplement, abstract MR11A-2371.

Shorttle O., Stolper E. M., Antoshechkina P. M., Asimow P. D., Jennings E. S., Gaetani G. A., Graham D. W., Hartley M. E., Williams H. M., Brounce M. N. & Halldorsson S. A. (2016) The solid Earth's involvement in oxygen cycling: Observations and theory, *EOS Transactions AGU* 97 Fall meeting supplement, abstract V13B-1285.

Solomatova N. V. & Asimow P. D. (2016) Ab initio study of the structure and stability of high-pressure iron-bearing dolomite, *EOS Transactions AGU* 97 Fall meeting supplement, abstract MR21B-2654.

Lund D. C., Asimow P. D. & Portner R. A. (2016) Explosive submarine volcanism during the penultimate deglaciation: New results from the Pacific Antarctic Ridge. *AGU Chapman conference on Submarine Volcanism: New Approaches and Research Frontiers*, Hobart, Tasmania, Australia.

LaLone B., Hixson R., Stevens G., Turley D., Veeser L., Asimow P. D. & Fat’yanov O. V. (2016) Shock Wave Temperatures Along the Tin Melt Boundary from a Combination of Reflectance and Pyrometry Measurements. *MaRIE Thermometry Workshop, Los Alamos National Lab*.

Azer M. K., Asimow P. D., Obeid M. A., Price J. B. & Wang M. (2017) Late Ediacaran volcano-sedimentary successions of southern Sinai (Egypt): tracing the evolution from late- to post-collisional volcanism and its relation to A-type rocks. EGU General Assembly, Geophysical Research Abstracts **19**, EGU2017-275-1.

Baziotis I., Economou-Eliopolis M. & Asimow P. D. (2017) Ultramaﬁc lavas and pyroxene-spinifex high-Mg basaltic dykes from the Othris ophiolite complex, Greece. *EGU General Assembly*. Geophysical Research Abstracts **19**, EGU2017-535-1.

Baziotis I., Kimura J.-I., Pantzidis A., Klemme S., Berndt J. & Asimow P. D. (2017) Geochemical models of melting and magma storage conditions for basalt lava from Santorini Volcano, Greece. *EGU General Assembly*. Geophysical Research Abstracts **19**, EGU2017-4687-1.

Kirscher U., Mitchell R. N., Cox G., Asimow P., Zhang N. & Li Z. X. (2017) Long term evolution of Earth’s magnetic field strength: Supercontinent cycles and the nucleation of the inner core. *EGU General Assembly*. Geophysical Research Abstracts **19**, EGU2017-12567-1.

Baziotis I., Ferrière L., Klemme S., Berndt J., Brandstätter F., Topa D. & Asimow P. D. (2017) New findings of shock metamorphism in L6 ordinary chondrite Château-Renard. *48th Lunar and Planetary Science Conference*.

Hu J., Asimow P. D. & Liu Y. (2017) Low-pressure maskelyinization of porous basalt: implications for basaltic achondrites and planetary impacts. *48th Lunar and Planetary Science Conference*.

Lewis M. J., Asimow P. D. & Lund D. C. (2017) Petrology of Explosive Eruptions from the Pacific-Antarctic Ridge and Ties to Sea Level Variation. *IAVCEI 2017*, Portland, OR.

Biasi J., Bucholz C. E. & Asimow P. D. (2017) Death of a subduction zone: Alkaline volcanism on the Antarctic Peninsula. *IAVCEI 2017*, Portland, OR.

Asimow P. D., Akin M. C., et al. (2017) Phase transitions and melting on the Hugoniot of Mg2SiO4 forsterite: new diffraction and temperature results. *2017 American Physical Society Topical Group meeting on Shock Compression of Condensed Matter*, St. Louis, MO.

Asimow P. D. (2017) Dynamic compression of liquids and applications in geophysics and planetary science. *2017 American Physical Society Topical Group meeting on Shock Compression of Condensed Matter*, St. Louis, MO.

Asimow P. D. (2017) The equation of state of silicate melts at lower mantle pressure. *2017 V. M. Goldschmidt Conference*, Paris, France.

Baziotis I., Asimow P. D., Klemme S., Berndt J., Xydous S., Mavrogonatos K. and Flemetakis S. (2017) Phosphorus-rich pyroxene in mantle xenoliths. *2017 V. M. Goldschmidt Conference*, Paris, France.

Solomatova N. V., Jackson J. M., Asimow P. D., Sturhahn W., Rossman G. R. & Roskosz M. (2017) Computational and experimental studies of iron-bearing carbonates and silicate glasses at lower mantle pressures. *COMPRES annual meeting*.

Solomatova N. V. & Asimow P. D. (2017) First-principles calculations of high-pressure iron-bearing monoclinic dolomite and single-cation carbonates with internally-consistent Hubbard U (invited). *AGU Fall meeting*, MR51B-01.

 Solomatova N. V., Jackson J. M., Asimow P. D., Sturhahn W., Rossman G. R. & Roskosz M. (2017) Computational and experimental studies of iron-bearing carbonates and silicate glasses at lower mantle pressures. *AGU Fall meeting*, DI11B-04.

Asimow P. D., Fat’yanov O. V., Chang Su, Ma X.-J. (2017) Precise new shock temperatures in forsterite and in silicate liquids: phase transitions and heat capacity at high pressure. *AGU Fall meeting*, MR21C-03.

Asimow P. D., Lewis M. J., Lund D. C., Seeley E., McCart S. & Mudahy A. (2017) Glacial modulation of mid-ocean ridge magmatism and anomalous Pacific Antarctic Ridge volcanism during Termination II (Invited). *AGU Fall meeting*, PP13E-03.

Newcombe M. E., Asimow P. D., Ferriss E., Barth A., Lloyd A. S., Hauri E. & Plank T. A. (2017) Water-in-Olivine Magma Ascent Chronometry: Every Crystal is a Clock. *AGU Fall meeting*, V32A-03.

Biasi J., Asimow P. D. & Harris R. A. (2017) Tectonochemistry of the Brooks Range Ophiolite, Alaska. *AGU Fall meeting*, T23C-0619.

Asimow P. D. (2017) Musings on geophysical, mineralogical, and geochemical radial Earth models. *CIDER Pre-AGU Kickoff Meeting*, New Orleans, LA.

Pan L., Ehlmann B. L., Asimow P. D., Hu J., Greenberger R. N. (2018) An infrared spectroscopy study of shocked carbonates and implications for Mars. *49th Lunar and Planetary Science Conference*.

Baziotis I., Asimow P. D., Hu J., Ferrière L., Ma C., Cernok A., Anand, M. & Topa D. (2018) High pressure polymorphs in the Château-Renard (L6) ordinary chondrite: implications for collisions on its parent body. *49th Lunar and Planetary Science Conference*.

Hu J., Liu Y., Asimow P. D., Ma C., Beckett J. R. & Agee C. B. (2018) Unique Hydrothermal Alteration on Mars: Pyrite-Polycrystalline Pyrrhotite Assemblage in Northwest Africa 7034/7533. *49th Lunar and Planetary Science Conference*.

Azer M. K., Gahlan H. A., Asimow P. D. & Mubarak H. S. (2018) Stages of serpentinite carbonation in the Neoproterozoic ophiolites of Eastern Desert, Egypt. *2018 V. M. Goldschmidt Conference*, Boston, MA.

Mitchell R. N., Cox G. M., O'Rourke J. G., Li Z.-X., Spencer C., Kirscher U., Zhang N., Murphy J. B., Nordsvan A. & Asimow P. D. (2018) Did Earth’s first supercontinent form the inner core? *2018 V. M. Goldschmidt Conference*, Boston, MA.

McCart S., Mudahy A., Lund D., Lewis M. & Asimow P. D. (2018) Evidence of anomalous Pacific-Antarctic Ridge volcanism during the penultimate glacial termination. *2018 V. M. Goldschmidt Conference*, Boston, MA.

Lewis M. J., Asimow P. D., Maurice A. & Fischer W.W. (2018) REE budget in a Neoproterozoic iron formation dominated by accessory apatite: Wadi Karim BIF, Eastern Desert, Egypt. *Geological Society of America Annual Meeting*, Indianapolis, IN.

Azer M. K., Abdelfadil K. M., Asimow P. D. & Khalil A. E. S. (2018) The Homrit-Waggat granitoids of the Eastern Desert of Egypt and the transition from subduction-related to post-collisional magmatism in the north Arabian-Nubian Shield. *International Conference on Earth Science & Geo Science 2018*, Amsterdam, Netherlands.

Azer M. K., Asimow P. D. & Mubarak H. S. (2018) An integrated field, petrographic, and geochemical study of the Wadi Mikbi mafic-ultramafic intrusion and the question of layered vs. Alaskan-type intrusions. *Annual Meeting of the Egyptian Geological Society.*

Nguyen J. H., Akin M. C. & Asimow P. D. (2018) Backward and forward analyses of shocked and ramp-compressed metals to 5 Mbars. *American Physical Society March Meeting*, Boston, MA.

Antoshechkina P. M., Shorttle O., Ghiorso M. S. & Asimow P. D. (2018) Recent developments in calibration of the pMELTS+CO2 model of silicate phase equilibria. *American Geophysical Union 2018 Fall Meeting*, Washington DC. Abstract DI33B-0041.

Grose C. J. & Asimow P. D. (2018) Non-equilibrium thermodynamic modeling of mantle melting and phase transformation. *American Geophysical Union 2018 Fall Meeting*, Washington DC. Abstract V51B-0112.

Zhou Y. & Asimow P. D (2018) Acceleration of atomistic simulations of lower mantle silicate melts by combination of Monte Carlo and molecular dynamics. *American Geophysical Union 2018 Fall Meeting*, Washington DC. Abstract MR33C-0127.

Mitchell R. N., Cox G. M., O’Rourke J. G., Li Z.-X., Spencer C. J., Kirscher U., Zhang N., Murphy J. B., Nodrsvan A. & Asimow P. D. (2018) Did Earth’s first supercontinent form the inner core? *American Geophysical Union 2018 Fall Meeting*, Washington DC. Abstract DI21B-0015.

Biasi J., Asimow P. D. & Harris R. A. (2018) The beginning of the Brooks Range and opening of the Canada Basin: Evidence from the Brooks Range Ophiolite. *American Geophysical Union 2018 Fall Meeting*, Washington DC. Abstract T43I-0531.

Asimow P. D., Pardo O. S. & Hu J. (2018) Sound speed and temperature in shock-compressed silicate liquids: direct constraints on Grüneisen parameters and heat capacities. *American Geophysical Union 2018 Fall Meeting*, Washington DC. Abstract MR31A-06.

Kim D., Tracy S. J., Berryman E. J., Han S. K., SmithR. F., Gleason A. E., BolmeC. A., Appel K., Schoelmerich M., PrakapenkaV. B., Lee H. J., Nagler B., Asimow P. D., AkinM. C., Eggert J. H. &Duffy T. S. (2019) X-ray diffraction study of laser-shocked forsterite (Mg2SiO4) from 20-130 GPa. *2019 American Physical Society Topical Group meeting on Shock Compression of Condensed Matter*, Portland, OR.

Asimow P. D., Hu J., Pardo O., Su C. & Ma X. (2019) Shock velocity, sound speed, and Hugoniot temperature in silicate liquids to 100 GPa. *2019 American Physical Society Topical Group meeting on Shock Compression of Condensed Matter*, Portland, OR.

Asimow P. D., Hu J., Ma C. & Bindi L. (2019) First experimental synthesis of
Al62Cu31Fe7 icosahedral quasicrystals and their natural origin in a meteorite by impact processes. *2019 American Physical Society Topical Group meeting on Shock Compression of Condensed Matter*, Portland, OR.

Azer M. K., Gahlan H., Asimow P. D. & Al-Kahtany K. (2019) How to produce a pure igneous albitite: a study of hypabyssal and volcanic phases of Tarr Albitite Complex, Sinai, Egypt. *International Union of Geodesy and Geophysics*, July 2019, Montreal, Canada.

Lock S. J., Stewart S. T., Chidester B. A. & Asimow P. D. (2019) Giant impacts stochastically change the internal pressures of terrestrial planets. *2019 V. M. Goldschmidt Conference*, Barcelona, Spain.

Zhao J.-H. & Asimow P. D. (2019) Ca. 650 Ma mafic-ultramafic dike swarms in South China. *2019 V. M. Goldschmidt Conference*, Barcelona, Spain.

Kim D., Tracy S. J., Berryman E. J., Han S., Smith R. F., Gleason A. E., Bolme C., Appel K., Schölmerich M., Prakapenka V. B., Lee H. J., Nagler R., Asimow P. D., Akin M. C., Eggert J. & Duffy T. S. (2019) X-ray Diffraction Study of Laser-shocked Forsterite (Mg2SiO4) from 20-130 GPa.  *American Geophysical Union 2019 Fall Meeting*, San Francisco, CA.

Asimow P. D., Zhou Y., Pardo O. & Hu J. (2019) Beyond the Mie-Grüneisen Approximation: Building a Better Thermal Equation of State for Silicate Liquids at Lower Mantle Pressures. *American Geophysical Union 2019 Fall Meeting*, San Francisco, CA.

Antoshechkina P. M., Popov A., Weidendorfer D., Shorttle O. & Asimow P. D. (2019) The formation and evolution of alkaline-carbonatite magmatic systems, as modeled with rhyolite-MELTS. *American Geophysical Union 2019 Fall Meeting*, San Francisco, CA.

Zhou Y., Asimow P. D. & Goddard W. A. III (2019) An Internal Energy dependent Grüneisen Parameter Model from Molecular Dynamics Simulations. *American Geophysical Union 2019 Fall Meeting*, San Francisco, CA.

Grose C. J. & Asimow P. D. (2019) Phase Field Methods for Grain-Scale Kinetics in Geodynamic Systems and Geomaterials. *American Geophysical Union 2019 Fall Meeting*, San Francisco, CA.

*Theses*

Asimow P. D. (1997) A Thermodynamic Model of Adiabatic Melting of the Mantle, Ph.D. Thesis, California Institute of Technology. Advisor E. M. Stolper. Published on microfilm by UMI and available digitally on the Caltech library website.

Asimow P. D. (1991) Fluid outflows from Venus impact craters: Analysis from Magellan Data, A.B. Honors Thesis, Harvard University. Advisor J. A. Wood.

*Synergistic Activities*

Development of algorithms and interfaces for extending the MELTS algorithm of Ghiorso and Sack to subsolidus, fractional, isentropic, H2O-buffered, and multiple liquid calculations. Latest public version available at <http://magmasource.caltech.edu>

Development of Microsoft Excel front-ends to the PRIMELT series of primary melt calculations

Development of Java software package for teaching principles of binary phase equilibria, available online at http://expet.gps.caltech.edu/~asimow/Binary.html

*Postdoctoral scholars advised*

Jed Mosenfelder, 1999-2002 Ethan Baxter (with Ken Farley), 2000-2002

Kari Cooper (with John Eiler), 2001-2002 Paula May Smith (with Ed Stolper), 2003-2006

Kanani K. M. Lee, 2004-2005 Oleg V. Fat’yanov, 2006-2010

Sofia Akber-Knutson (with T. J. Ahrens and W. A. Goddard III), 2004-2006

Jean-Philippe Harvey, 2013-2014 Oliver Shorttle (with E. M. Stolper), 2015-2016

Claire Bucholz (with J. M. Eiler), 2015-2017 Chris Grose (with M. C. Gurnis), 2016-

Jinping Hu, 2016- Daniel Weidendorfer, 2017-

Simon Lock, 2018-

*Graduate students advised*

Sheng-Nian Luo (with T. J. Ahrens and D. Helmberger), Geophysics, Ph.D. 2003

Joseph A. Akins (with T. J. Ahrens), Geophysics, Ph.D. 2003

Geoffrey Staneff, Materials Science, Ph.D. 2004 Sarah Miller, Geochemistry, Ph.D. 2006

Laura Baker Hebert, Geochemistry, Ph.D. 2008 Brian Balta, Geology, Ph.D. 2009

Emily Hamecher, Geology, Ph.D. 2013 Claire Thomas, Geology, Ph.D. 2013

Aaron Wolf, Planetary Science, Ph.D. 2013 Natalia V. Solomatova, Geophysics, Ph.D. 2017

Joe Biasi, Geochemistry, 3nd year Madeline Lewis, Geochemistry, 3nd year

Olivia Pardo, Geophysics, 1st year Yacong (Brooke) Zhou, Chemistry, 3rd year

*Teaching*

Ge 1, Earth and Environment

Ge 101, Introduction to geology and geochemistry

Ge 116, Analytical methods in geology and geochemistry

Ge 212, Thermodynamics of geological systems

Ge 215, Advanced topics in petrology

*Caltech Committees*

GPS Division, ongoing: Safety Committee (chair), Geophysics Search Committee

GPS Division, past: Division Seminar Organizer 2000-2002, Postdocs and Visiting Associates Committee 1999-2004, Academic Committee (Option Representative for Geology) 2007-2014, Geophysics Search Committee 2005, Core Committee 2007-2008, Long-range Planning Committee 2008*, ad hoc* Geochemistry Faculty Hiring Committee 2009, M. P. Lamb Tenure Committee 2013, J. P. Ampuero Tenure Committee 2015, General Faculty Search Committee 2013-2016, Geology Search Committee (2014-2016), C. Frankenburg Tracking Committee (2015-2018)

Institute: Freshman Admissions Committee (since 2014; chair, 2016-), Administrative Committee on Performing and Fine Arts (chair 2013-2018), Student Life and Housing Committee (chair 2009-2016), Aims and Needs Committee 2008-09, *ad hoc* Committee on Rotation (2009-10), Distinguished Alumni Awards Selection Committee (2009-2015), Conduct Review Committee, Program Committee for the Bechtel Residence (2012), Feynman Prize Committee (2012-2017), Identity Project Cabinet (2013), *ad hoc* Committee on Undergraduate Self-Governance (chair, 2014), Search Committee for Vice President for Student Affairs (2015), Search Committee for Graduate Dean (2015), Search Committee for Concert Band Director (2016), Faculty Board (2016-2019), Faculty Board Steering Committee (2016-2019)