

Andrew J. Campbell

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Education

Ph.D., Geophysics, University of Chicago, 1993

B.S., Geophysics, California Institute of Technology, 1988

Professional Positions

2019-present Deputy Dean, Physical Sciences Division, University of Chicago

2017-present Professor, Department of the Geophysical Sciences, University of Chicago

2010-2017 Associate Professor, Department of the Geophysical Sciences, University of Chicago

2005-2010 Assistant Professor, Department of Geology, University of Maryland

1998-2005 Senior Research Associate / Research Scientist / Research Associate, Department of the Geophysical Sciences, University of Chicago

1995-1997 Senior Development Engineer, GE Superabrasives, General Electric Company

1993-1995 Postdoctoral Research Fellow, Geophysical Laboratory, Carnegie Institution of Washington

1988-1993 Research Assistant / Teaching Assistant, Department of the Geophysical Sciences, University of Chicago

Awards and Honors

Faculty Award for Excellence in Graduate Teaching and Mentoring, 2014-2015.

Fellow of the Mineralogical Society of America, elected 2013.

CAREER Award, National Science Foundation, 2009-2014.

Distinguished Assistant Professor Award, College of Computer, Mathematical, and Physical Sciences, University of Maryland, 2008.

Carnegie Fellowship, Carnegie Institution of Washington, 1993-1995.

McCormick Fellowship, University of Chicago, 1988-1991.

Professional Service (selected)

Chair of Executive Committee, Consortium for Material Properties Research in the Earth Sciences (COMPRES), 2018-2021.

President, Mineral and Rock Physics, American Geophysical Union, 2017-2019.

President-elect, 2015-2017.

Associate Editor, *Geochimica et Cosmochimica Acta*, 2016-2019.

Grant Panel Member, various federal agency programs, 2008-2019.

MSA Award Committee, Mineralogical Society of America, 2017-2019.

Mineralogy–Petrology Grant Committee, Mineralogical Society of America, 2015-2018.

Facilities Committee, COMPRES, member 2008-2016; Chair 2011-2015.

Chair of Site Review Team for COMPRES facilities at NSLS-II, 2015.

Program Committee, COMPRES Annual Meeting, 2011; 2013 (Chair); 2014.

HP-CAT Review Panel Member, Advanced Photon Source, Argonne National Laboratory, 2013.

COMPRES Distinguished Lecturer, 2011-2012.

Panel Member, Powder / Single Crystal Crystallography Panel, National Synchrotron Light Source, Brookhaven National Laboratory, 2007-2011.

Council member, Geological Society of Washington, 2008-2009.

NASA Genesis Mission Science Team, 1999-2004.

Advising

Postdoctoral Scholars

Cara Vennari, 2019-present (NSF Postdoctoral Fellow).

Daniel Reaman, 2011-2013. Now at U.S. Naval Observatory.

Graduate Students

Kellie Swadba, Ph.D. advisor, 2018-present.

Nigel Brauser, Ph.D. advisor, 2016-present.

Anne Davis, Ph.D. advisor, 2016-present.

Claire Zurkowski, Ph.D. advisor, 2016-present.

Elizabeth Thompson, Ph.D. advisor, 2013-2018. Thesis: “Mineral physics of hydrogen-bearing phases in the deep Earth.” Now Assistant Professor, Sewanee: The University of the South.

Bethany Chidester, Ph.D. advisor, 2012-2017. Thesis: “The distribution of heat-

producing radioactive elements in the deep Earth.” Now Postdoc at UC Davis.

Rebecca Fischer, Ph.D. advisor, 2009-2015. Thesis: “Earth’s accretion, core formation, and core composition.” Now Assistant Professor, Earth and Planetary Sciences, Harvard University.

Gregory Shofner, Ph.D. advisor, 2007-2011. Thesis: “High pressure redox geochemistry of tungsten in metal–silicate systems: Implications for core formation in the Earth.” Now Lecturer at Towson University.

Noah Miller, M.S. advisor, 2006-2009. Thesis: “Melting and phase relations in iron-silicon alloys with applications to the Earth’s core.” Now at Goodrich.

Undergraduates

Charlotte Ring (Geophysical Sciences major), 2017-present.

Maria Pia Ramos (Environmental Sciences major), 2017-2018.

Billie Males (Geophysical Sciences major), 2017-2018.

Claire Doody (Geophysical Sciences major), 2015-2018. Senior thesis.

Sabrina Tecklenburg (Geophysical Sciences major), 2016-2017. Senior thesis.

Matthew Brennan (Geophysical Sciences and Environmental Sciences major), 2015-2017. Senior thesis.

Olivia Pardo (Geophysical Sciences major), 2015-2017. Senior thesis.

Hannah Bausch (Geophysical Sciences major), 2015-2017.

Andrew Mattillion (Physics major), 2014-2015.

Brissa Renovato (Geophysical Sciences and Statistics major), 2013-2015.

Jacob Britz (Geophysical Sciences and Chemistry major), 2013-2015. Senior thesis.

Gregory Myers (Geophysical Sciences major), 2012-2015.

Maria Valdes (B.S. in Geophysical Sciences), 2011-2012.

Gwen Gage (Geophysical Sciences and Russian Studies major), 2011-2013.

Gerasimos Michalitsianos (Geology major), 2010.

Aleeza Harburger (Geology major, University of Pittsburgh), 2010.

Katherine Watter (Geology major), 2010.

Sarah Saslow (Chemistry major), 2009-2010. Senior thesis.

James Deane (Geology major), 2009-2010. Senior thesis.

Tess Van Orden (Geology major), 2008-2010.

Caroline Harbitz (Physics major), 2008-2009. Senior thesis.

Nina Wernecke (Geology major), 2008-2009. Senior thesis.

Rebecca Fischer (Earth and Planetary Sciences major, Northwestern University), 2008.

Thomas Tamarkin (Chemical Engineering major), 2007-2008.
Oluchi Ofoha (Physics major), 2007-2008.
Graham Taylor (Eleanor Roosevelt H. S. Senior), 2006-2007.
Helen Nguyen (Geology major), 2006-2007. Senior thesis.
Robert Thomas (Geology major). Laboratory research, 2006-2007. Senior thesis.
Genna Davidson (College Park Scholars / Earth, Life & Time), 2006.

Teaching

GEOS 13100 Physical Geology: 2011, 2012, 2013, 2014, 2015, 2016
GEOS 21000 Mineralogy: 2017, 2018, 2019
GEOS 21005/31005 Mineral Science: 2012, 2016, 2020
GEOS 21200/31200 Physics of the Earth: 2014
GEOS 21400/31400 Thermodynamics and Phase Change: 2013, 2017, 2018
GEOS 31500 Mineral Physics: 2015
GEOL 212 Planetary Geology: 2007, 2008, 2009
GEOL 322 Mineralogy: 2005, 2006, 2007, 2008, 2009
GEOL 394 Research Problems in Geology: 2006, 2007, 2008, 2009, 2010
GEOL 622 Mineralogy of the Rock-Forming Silicates: 2006, 2008, 2010
GEOL 789N Mineral Physics: 2007

Departmental and University Service

Director, NSF Graduate Fellowship Workshop program, 2017-2019.
Curriculum Committee, 2014-present.
Appointments Committee, 2015-2018; 2020. Chair, 2017-2018.
Colloquium Committee, 2017-2018.
Center for Advanced Radiation Sources (CARS) Appointments Committee, 2016-2019.
Graduate Recruitment Committee, Physical Sciences Division, 2015-2017.
Diversity Committee, Physical Sciences Division, 2014-2017.
NSF Graduate Fellowship workshop advisory committee, Physical Sciences Division, 2015-2016.
Faculty Award for Excellence in Graduate Teaching and Mentoring Selection Committee, 2016.
Chamberlin Fellowship Committee, 2010-2011; 2015-2016 (Chair).
Department Chair Selection Committee, 2012; 2015 (Chair).

GradUCon panel member, 2013.
Graduate Application Committee (Chair), 2013.
Disciplinary Panel, Physical Sciences Division, 2012.
Promotions Committee, 2011-2012.
Search Committee for Geology Department chairman, 2010.
CAREER Award Proposal Workshop, hosted by College of Engineering, 2010.
Discussion panel member.
Wylie Fellowship Selection Committee, 2010.
Geophysics Planning Group (Chair), 2007-2008.
X-ray Diffraction Facilities Committee, 2006.
Nuclear Fuel Cycle Hiring Directions Committee, 2006.
Graduate Committee, 2006-2010.

Invited Talks

Department of Earth and Environmental Sciences, University of Michigan, 2019.
“Chemistry of core–mantle differentiation of Earth’s interior.”

Interaction and Coevolution of the Core and Mantle winter school, Hida, Japan, 2019.
“Metal–silicate reactions and planetary differentiation.”

50 Years of High Pressure Symposium celebrating Dave Mao’s career, Geophysical Laboratory, Carnegie Institute for Science, 2018. “Mineral physics of Earth’s core.”

Interior of the Earth: Gordon Research Conference, 2017. “Mineral physics of Earth’s core.”

Japan Geoscience Union, 2017 meeting. “Chemical exchange between core-forming metal and magma ocean in the early differentiating Earth.”

Geodynamics Research Center, Ehime University, 2017. “Reactions between metal and silicate in the early differentiating Earth.”

NSF-EAR/IF Site Visit of COMPRES Facilities, Advanced Light Source, Berkeley, 2016.
“Hydrogen in the Deep Earth.”

Cooperative Institute for Deep Earth Research (CIDER) Community Workshop, 2016.
“Mineral Physics of Earth’s Core.”

Seismological Laboratory Seminar, California Institute of Technology, 2016. “Chemistry of Iron-rich Alloys and Earth’s Core.”

HPSTAR, Shanghai, 2015. Workshop on New Frontier in Studying Chemistry Under Extreme Conditions: Applications of FIB Technology. “Chemistry of Metal–Silicate Reactions in Earth’s Deep Interior.”

NUANCE Center, Northwestern University, 2015. Symposium on Advanced Microscopy

Applications in the Earth Sciences. "Chemical Reactions in Earth's Deep Interior."
Dept. of Earth and Environmental Sciences, University of Illinois at Chicago, 2015. Seminar: "The Composition of Earth's Core."

Dept. of Earth and Planetary Sciences, Northwestern University, 2012. Seminar: "Composition of Earth's Core."

Bayerisches Geoinstitut, University of Bayreuth, 2012. Seminar: "Advances in Experimental High Pressure, High Temperature Research."

Bayerisches Geoinstitut, University of Bayreuth, 2012. Seminar: "Composition of the Earth's Core."

Dept. of Geological Sciences, Michigan State University, 2012. Colloquium: "Composition of the Earth's Core."

Dept. of Earth & Planetary Sciences, McGill University, 2012. Colloquium: "Composition of the Earth's Core."

Dept. of Earth and Atmospheric Sciences, Central Michigan University, 2012. Colloquium: "Composition of the Earth's Core."

Dept. of Geological Sciences, Indiana University, 2012. Colloquium: "Composition of the Earth's Core."

American Geophysical Union, Fall Meeting, 2010. "Chemical exchange between metals and oxides at the conditions of the core-mantle boundary."

Dept. of Geology and Geophysics, Yale University, 2010. "Melting curves of iron-rich alloys at high pressures."

Lawrence Berkeley Laboratory, 2009. Workshop on Laser Heating the DAC: "Multispectral imaging radiometry in laser heated diamond cell experiments."

Geophysical Laboratory, Carnegie Institution of Washington, 2009. Seminar: "Melting and phase relations in planetary cores."

Dept. of Earth and Planetary Sciences, Johns Hopkins University, 2009. Seminar: "Experimental Investigations of Melting and Phase Relations in Earth's Core."

Dept. of Geosciences, Princeton University, 2008. Seminar: "Experimental Investigations of Melting and Phase Relations in Earth's Core."

Board of Visitors, College of Computer, Mathematical and Physical Sciences, University of Maryland, 2008: "Experimental Investigations of the Earth's Deep Interior."

National Synchrotron Light Source, Brookhaven National Laboratory, 2008. Workshop on Advances in High Pressure Science Using Synchrotron X-Rays: "Geochemical Applications of High Pressure, High Temperature Equations of State of Metals and Oxides."

Joint National Synchrotron Light Source and Center for Functional Nanomaterials Users' Meeting, Brookhaven National Laboratory, 2008. Workshop on Future Directions in

High-Pressure Research: “X-ray diffraction studies of iron alloys at high pressures and temperatures.”

Dept. of the Geophysical Sciences, University of Chicago, 2008. Seminar: “Experiments and thermodynamics of the Earth’s interior.”

Dept. of Geology and Geophysics, University of California, Berkeley, 2007. Seminar: “Advances in deep Earth petrology: Temperature measurements in the laser heated diamond anvil cell.”

Dept. of Geology and Environmental Sciences, Northern Illinois University, 2007. Colloquium: “Chemistry of Planetary Cores.”

Dept. of Chemistry, University of Maryland, 2007. Chemical Physics / Physical Chemistry Colloquium: "High-pressure, high-temperature studies of iron-rich systems: Implications for Earth's core."

Dept. of Geology, University of Maryland, 2007. Geochemistry seminar: “High-pressure, high-temperature studies of iron-rich systems: Implications for Earth's core."

College of Mathematical and Physical Sciences, University of Maryland, 2006. Associate Dean’s Junior Faculty Seminar Series: “Partial melting of Fe-S at high pressures.”

Geological Society of Washington, DC, 2006: “Thermal and chemical history of metal in the early solar system.”

Dept. of Geology, University of Maryland, 2006. Presentation for Astrobiology Internship program: “Mineral Physics.”

Dept. of the Geophysical Sciences, University of Chicago, 2004. Seminar: “Trace element chemistry of planetary cores.”

Dept. of Geology, University of Maryland, 2004. Geology Colloquium: “Trace element chemistry of planetary cores.”

Workshop on Chondrites and the Protoplanetary Disk, Kaua’i, Hawai’i, 2004: “Origin and thermal history of FeNi metal in primitive chondrites.”

Advanced Photon Source, Argonne National Laboratory, 2004. High Pressure Science Seminar: “Chemistry and melting of the Fe-S system at high pressures.”

Dept. of Geology, University of Toronto, 2002. Seminar: “Chemical evolution of metal in the early solar system.”

Dept. of the Geophysical Sciences, University of Chicago, 2001. Seminar: “Formation of the bencubbinite meteorites.”

Dept. of the Geophysical Sciences, University of Chicago, 2000. Seminar: “Metal in the Early Solar System.”

Genesis Mission Science Team Meeting, 1999. “Analysis of Collector Materials – Status Report.”

Dept. of the Geophysical Sciences, University of Chicago, 1999. Seminar: “Platinum

group element microanalysis of meteorites.”

Element User Meeting, Washington University, 1999. “Laser ablation ICP-MS analyses of metals and semiconductors.”

GE Superabrasives, General Electric Company, 1995. “High pressure, high temperature studies in iron-rich systems.”

Geophysical Laboratory, Carnegie Institution of Washington, 1993. “Elastic properties of material at mantle pressures.”

Publications (reprints and preprints available at <http://geosci.uchicago.edu/~campbell>)

Fischer R. A., Campbell A. J., Chidester B. A., Reaman D. M., Thompson E. C., Pigott J. S., Prakapenka V. B., and Smith J. S. (2018) Equations of state and phase boundary for stishovite and CaCl₂-type SiO₂. *Am. Mineral.*, *103*, 792-802.

Chidester B. A., Pardo O. S., Fischer R. A., Thompson E. C., Heinz D. L., Prescher C., Prakapenka V. B., and Campbell A. J. (2018) High-pressure phase behavior and equations of state of ThO₂ polymorphs. *Am. Mineral.*, *103*, 749-756.

Thompson E. C., Davis A. H., Bi W., Zhao J., Arp E. E., Zhang D., Greenberg E., Prakapenka V. B., and Campbell A. J. (2018) High-pressure geophysical properties of fcc phase FeH_x. *Geochem. Geophys. Geosys.*, *19*, doi: 10.1002/2017GC007168.

Thompson E. C., Campbell A. J., and Tsuchiya J. (2017) Elasticity of ε-FeOOH: Seismic implications for Earth’s lower mantle. *J. Geophys. Res.*, *122*, 5038-5049.

Chidester B. A., Rahman Z., Righter K., and Campbell A. J. (2017) Metal–silicate partitioning of U: Implications for heat budget of the core and evidence for reduced U in the mantle. *Earth Planet. Sci. Lett.*, *199*, 1-12.

Fischer R. A., Campbell A. J., and Ciesla F. (2017) Sensitivities of Earth’s core and mantle compositions to accretion and differentiation processes. *Geochim. Cosmochim. Acta*, *458*, 252-262.

Thompson E. C., Chidester B. A., Fischer R. A., Myers G. I., Heinz D. L., Prakapenka V. B., and Campbell A. J. (2016) Equation of state of pyrite to 85 GPa and 2400 K. *Am. Mineral.*, *101*, 1046-1051.

Campbell A. J. (2016) Phase diagrams and thermodynamics of core materials. In "*Deep Earth: Physics and Chemistry of the Lower Mantle and Core*," eds. Terasaki H. and Fischer R. A. AGU Monograph Series, *217*, 191-199.

Thompson E. C., Campbell A. J., and Liu Z. (2016) In-situ infrared spectroscopic studies of hydroxyl in amphiboles at high pressure. *Am. Mineral.*, *101*, 706-712.

Shofner G. A., Campbell A. J., Danielson L. R., Righter K., Fischer R. A., Wang Y., and Prakapenka V. B. (2016) The W-WO₂ oxygen fugacity buffer (WVO) at high pressure

and temperature: Implications for fO_2 buffering and metal-silicate partitioning. *Am. Mineral.*, *101*, 211-221.

Fischer R. A. and Campbell A. J. (2015) The axial ratio of hcp Fe and Fe–Ni–Si alloys to the conditions of Earth's inner core. *Geophys. Res. Lett.*, *100*, 2718-2724.

Fischer R. A., Nakajima Y., Campbell A. J., Frost D. J., Harries D., Langenhorst F., Miyajima N., Pollok K., and Rubie D. C. (2015) High pressure metal–silicate partitioning of Ni, Co, V, Cr, Si, and O. *Geochim. Cosmochim. Acta*, *167*, 177-194.

Fedkin A. V., Grossman L., Humayun M., Simon S. B., and Campbell A. J. (2015) Condensates from vapor made by impacts between metal-, silicate-rich bodies: Comparison with metal and chondrules in CB chondrites. *Geochim. Cosmochim. Acta*, *164*, 236-261.

Fischer R. A., Campbell A. J., Caracas R., Reaman D. M., Heinz D. L., Dera P., and Prakapenka V. B. (2014) Equations of state in the Fe-FeSi system at high pressures and temperatures. *J. Geophys. Res.*, *119*, 2810-2827.

Fischer R. A., Campbell A. J., Reaman D. M., Miller N. A., Heinz D. L., Dera P., and Prakapenka V. B. (2013) Phase relations in the Fe-FeSi system at high pressures and temperatures. *Earth Planet. Sci. Lett.*, *373*, 54-64.

Fischer R. A., Campbell A. J., Caracas R., Reaman D. M., Dera P., and Prakapenka V. B. (2012) Equation of state and phase diagram of Fe-16Si alloy as a candidate component of Earth's core. *Earth Planet. Sci. Lett.*, *357-358*, 268-276.

Fischer R. A., Campbell A. J., Lord O. T., Shofner G. A., Dera P., and Prakapenka V. B. (2011) Phase transition and metallization of FeO at high pressures and temperatures. *Geophys. Res. Lett.*, *38*, L24301.

Fischer R. A., Campbell A. J., Shofner G. A., Lord O. T., Dera P., and Prakapenka V. B. (2011) Equation of state and phase diagram of FeO. *Earth Planet. Sci. Lett.*, *304*, 496-502.

Fischer R. A. and Campbell A. J. (2010) High pressure melting of wüstite. *Am. Mineral.*, *95*, 1473-1477.

Campbell A. J., Danielson L., Righter K., Seagle C. T., Wang Y., and Prakapenka V. B. (2009) High pressure effects on the iron-iron oxide and nickel-nickel oxide oxygen fugacity buffers. *Earth Planet. Sci. Lett.*, *286*, 556-564.

Lauretta D. S., Goreva J. S., Hill D. H., Killgore M., LaBlue A. R., Campbell A. J., Greenwood R. C., Verchovsky A. B., and Franchi I. A. (2009) The Fountain Hills unique CB chondrite: Insights into thermal processes on the CB parent body. *Meteorit. Planet. Sci.*, *44*, 823-838.

Righter K., Humayun M., Campbell A. J., Danielson L., Hill D., and Drake M. J. (2008) Experimental studies of metal-silicate partitioning of Sb: Implications for the terrestrial

and lunar mantles. *Geochim. Cosmochim. Acta*, 73, 1487-1504.

Chabot N. L., Campbell A. J., McDonough W. F., Draper D. S., Agee C. B., Humayun M., Watson H. C., Cottrell E., and Saslow S. A. (2008) The Fe-C system at 5 GPa and implications for Earth's Core. *Geochim. Cosmochim. Acta*, 72, 4146-4158.

Ebel D. S., Weisberg M. K., Hertz J. and Campbell A. J. (2008) Shape, metal abundance, chemistry and origin of chondrules in the Renazzo (CR) chondrite. *Meteorit. Planet. Sci.*, 43, 1725-1740.

Campbell A. J. (2008) Measurement of temperature distributions across laser-heated spots by multispectral imaging radiometry. *Rev. Sci. Instrum.*, 79, 015108.

Mao W. L., Campbell A. J., Prakapenka V. B., Hemley R. J. and Mao H.-K. (2007) Effect of iron on the properties of post-perovskite silicate. In *Post-perovskite: The Last Mantle Phase Transition*, eds. K. Hirose, J. Brodholt, T. Lay, D. Yuen. American Geophysical Union Monograph Series, Volume 174. pp. 37-46.

Seagle C. S., Heinz D. L., Campbell A. J., Prakapenka V. B., and Wanless S. T. (2008) Melting and thermal expansion in the Fe – FeO system at high pressure. *Earth Planet. Sci. Lett.*, 265, 655-665.

Campbell A. J., Seagle C. S., Heinz D. L., Shen G., and Prakapenka V. B. (2007) Partial melting in the iron-sulfur system at high pressure: A synchrotron x-ray diffraction study. *Phys. Earth Planet. Int.*, 162, 119-128.

Seagle C. T., Campbell A. J., Heinz D. L., Shen G., and Prakapenka V. (2006) Thermal equation of state of Fe₃S and implications for sulfur in the Earth's core. *J. Geophys. Res.*, 111, B06209, doi:10.1029/2005JB004091.

Mao W. L., Campbell A. J., Shen G., and Heinz D. L. (2006) Phase relations of Fe-Ni alloys at high pressure and temperature. *Phys. Earth Planet. Int.*, 155, 146-150.

Rushmer T., Petford N., Humayun M., and Campbell A. J. (2005) Fe-liquid segregation in deforming planetesimals: Coupling core forming compositions with transport phenomena. *Earth Planet. Sci. Lett.*, 239, 185-202.

Chabot N. L., Campbell A. J., Jones J. H., Humayun M., and Lauer H. V. (2005) The influence of carbon on partitioning behavior during planetary evolution. *Geochim. Cosmochim. Acta*, 70, 1322-1335.

Campbell A. J. and Humayun M. (2005) Compositions of group IVB iron meteorites and their parent melt. *Geochim. Cosmochim. Acta*, 69, 4733-4744.

Campbell A. J., Humayun M., and Weisberg M. K. (2005) Compositions of unzoned and zoned metal in the CB₆ chondrites HH 237 and QUE 94627. *Meteorit. Planet. Sci.*, 40, 1131-1148.

Campbell A. J., Zanda B., Perron C., Meibom A., and Petaev M. I. (2005) Origin and

- thermal history of Fe-Ni metal in primitive chondrites. In *Chondrites and the Protoplanetary Disk*, eds. A. N. Krot, E. R. D. Scott, and B. Reipurth. Astronomical Society of the Pacific Conference Series, Volume 341. pp. 407-431.
- Mao W. L., Meng Y., Shen G., Prakapenka V. B., Campbell A. J., Heinz D. L., Shu J., Caracas R., Cohen R. E., Fei Y., Hemley R. J. and Mao H.-K. (2005) Iron-rich silicates in the Earth's D" layer. *Proc. Natl. Acad. Sci.*, *102*, 9751-9753.
- Righter K., Campbell A. J., and Humayun M. (2005) Diffusion of trace elements in FeNi metal: Application to zoned metal grains in chondrites. *Geochim. Cosmochim. Acta*, *69*, 3145-3158.
- Mao W. L., Shen G., Prakapenka V. B., Meng Y., Campbell A. J., Heinz D. L., Shu J., Hemley R. J. and Mao H.-K. (2004) Ferromagnesian post-perovskite silicates in the D" layer of the Earth. *Proc. Natl. Acad. Sci.*, *101*, 15867-15869.
- Campbell A. J. and Humayun M. (2004) Formation of metal in the CH chondrites ALH 85085 and PCA 91467. *Geochim. Cosmochim. Acta*, *68*, 3409-3422.
- Puchtel I. S., Humayun M., Campbell A. J., Sproule R. A. and Leshner C. M. (2004) Platinum group element geochemistry of komatiites from the Alexo and Pyke Hill area, Ontario, Canada. *Geochim. Cosmochim. Acta*, *68*, 1361-1383.
- Righter K., Campbell A. J., Humayun M., and Hervig R. L. (2004) Partitioning of Ru, Rh, Pd, Re, Ir, and Au between Cr-bearing spinel, olivine, pyroxene, and silicate melts. *Geochim. Cosmochim. Acta*, *68*, 867-880.
- Campbell A. J., Simon S. B., Humayun M., and Grossman L. (2003) Chemical evolution of metal in refractory inclusions in CV3 chondrites. *Geochim. Cosmochim. Acta*, *67*, 3119-3134.
- Jurewicz A.J.G., Burnett D.S., Wiens R.C., Friedmann T.A., Hays C.C., Hohlfelder R.J., Nishiizumi K., Stone J.A., Woolum D.S., Becker R., Butterworth A.L., Campbell A.J., Ebihara M., Franchi I.A., Heber V., Hohenberg C.M., Humayun M., McKeegan K.D., McNamara K., Meshik A., Pepin R.O., Schlutter D., and Wieler R. (2003) Overview of the Genesis solar-wind collector materials. *Spa. Sci. Rev.*, *105*, 535-560.
- Campbell A. J. and Humayun M. (2003) Formation of metal in GRO 95551 and comparison to ordinary chondrites. *Geochim. Cosmochim. Acta*, *67*, 2481-2495.
- Chabot N. L., Campbell A. J., Jones J. H., Humayun M. and Agee C. B. (2003) An experimental test of Henry's Law in solid metal-liquid metal systems with implications for iron meteorites. *Meteorit. Planet. Sci.*, *38*, 181-196.
- Lin J. F., Campbell A. J., Heinz D. L. and Shen G. (2003) Static compression of iron-silicon alloys: Implications for silicon in the Earth's core. *J. Geophys. Res.*, *108*, 2045.
- Lin J.-F., Heinz D. L., Campbell A. J., Devine J. M., Mao W., and Shen G. (2002) Iron-nickel alloy in the Earth's core. *Geophys. Res. Lett.*, *29*, 10.1029/2002GL015089.

- Humayun M. and Campbell A. J. (2002) The duration of ordinary chondrite metamorphism inferred from tungsten microdistribution in metal. *Earth Planet. Sci. Lett.*, *198*, 228-243.
- Lin J.-F., Heinz D. L., Campbell A. J., Devine J. M., and Shen G. (2002) Iron-silicon alloy in the Earth's core? *Science*, *925*, 313-315.
- Campbell A. J., Humayun M., and Weisberg M. K. (2002) Siderophile element constraints on the formation of metal in the metal-rich chondrites Bencubbin, Gujba, and Weatherford. *Geochim. Cosmochim. Acta*, *66*, 631-644.
- Campbell A. J., Humayun M., Meibom A., Krot A. N., and Keil K. (2001) Origin of zoned metal grains in the QUE94411 chondrite. *Geochim. Cosmochim. Acta*, *65*, 163-180.
- Campbell A. J. and Humayun M. (1999) Trace element microanalysis in iron meteorites by laser ablation ICPMS. *Anal. Chem.*, *71*, 939-946.
- Yoo C. S., Campbell A. J., Mao H. K., and Hemley R. J. (1997) Detecting phases of iron – response. *Science*, *275*, 96.
- Yoo C. S., Soderlind P., Moriarty J. A., Akella J., and Campbell A. J. (1996) Dhcp as a new ϵ' phase of iron at high pressures and temperatures, *Phys. Lett. A*, *214*, 65-70.
- Peiris S. M., Sweeney J. S., Campbell A. J., and Heinz D. L. (1996) Pressure-induced amorphization of covellite, CuS. *J. Chem. Phys.*, *104*, 11-16.
- Yoo C. S., Akella J., Campbell A. J., Mao H. K., and Hemley R. J. (1995) Phase diagram of iron by in situ x-ray diffraction: Implications for the Earth's core. *Science*, *270*, 1473-1475.
- Campbell A. J. and Heinz D. L. (1994) High-pressure acoustic wave velocities and equations of state of the alkali chlorides. *J. Geophys. Res.*, *99*, 11765-11774.
- Peiris S., Campbell A. J., and Heinz D. L. (1994) Equation of state of MgS to 50 GPa. *J. Phys. Chem. Solids*, *55*, 413-419.
- Campbell A. J. and Heinz D. L. (1993) An amorphous phase on the anorthite Hugoniot. *Geophys. Res. Lett.*, *20*, 237-240.
- Campbell A. J. and Heinz D. L. (1993) Equation of state and high pressure phase transition of NiS in the NiAs structure. *J. Phys. Chem. Solids*, *54*, 5-7.
- Campbell A. J. and Heinz D. L. (1992) A high pressure test of Birch's law. *Science*, *257*, 66-68.
- Campbell A. J., Heinz D. L., and Davis A. M. (1992) Material transport in laser-heated diamond anvil cell melting experiments. *Geophys. Res. Lett.*, *19*, 1061-1064.
- Zhou Y., Campbell A. J., and Heinz D. L. (1991) Equations of state and optical properties of the high pressure phase of zinc sulfide. *J. Phys. Chem. Solids*, *52*, 821-825.

Campbell A. J. and Heinz D. L. (1991) Compression of KCl in the B2 structure to 56 GPa. *J. Phys. Chem. Solids*, 52, 495-499.