

Joshua Moser Feinberg

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Curriculum vitae

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Educational History

University of California, Berkeley, Department of Earth and Planetary Science
Ph.D. Completed October 2005.
Carleton College, Northfield, Minnesota
Bachelor of Arts, Geology, Graduated June 1997.

Work Experience

Associate Professor, 2013-present

Assistant Professor, 2008-2012

Department of Earth Sciences, University of Minnesota

Adjunct Professor, 2011-present

Department of Anthropology, University of Minnesota

Guest Professor, 2010-2011

Department of Earth & Environmental Science, Kumamoto University, Japan

Natural Environment Research Council (NERC) Postdoctoral Fellow, 2005-2007

Department of Earth Sciences, University of Cambridge, United Kingdom

Ph.D. Candidate at the University of California, Berkeley, 2001-2005

Thesis: The Mineralogical Origins of Magnetic Remanence in Silicate-Hosted Magnetite Inclusions.

California Coastal Conservancy, 2000-2001

Co-edited [Restoring the Estuary](#), a cooperative agreement between 26 non-governmental organizations, businesses, state and federal agencies to address and improve the ecological health of San Francisco Bay, California.

Montgomery Watson Americas, 1998-2000

Associate Hydrogeologist and Drilling Geologist, Designed and installed groundwater remediation wells and extraction systems, created three dimensional digital stratigraphy models to image contaminant transport through aquifers.

U.S. Geological Survey-National Association of Geoscience Teachers Intern, 1997-1998

Monitored crustal deformation in Long Valley Caldera, CA operating and maintaining 2-color laser network, GPS, tiltmeter, seismometers, & magnetometers.

Professional Affiliations

American Geophysical Union

Geological Society of America

Mineralogical Society of America

Editorial Service

- Editor, *Geochemistry, Geophysics, Geosystems*, 2016-present
- Associate Editor for *Geochemistry, Geophysics, Geosystems*, 2008-2016
- Associate Editor for *American Mineralogist*, 2005-2010, and 2013-2016.
- Associate Editor for *Frontiers in Geomagnetism and Paleomagnetism*, 2013-present.
- Editor for GSA Special Volume, *Caves and Karst Across Time*, 2013-2015.
- Guest Editor for *Economic Geology*, 2011-2013.
- Guest Editor, *Elements, An International Magazine of Mineralogy, Geochemistry, and Petrology*, special issue dedicated to Mineral Magnetism, 2008-2009.

Outreach (Last 5 years)

- Convener of "Applications of Fine Particle Magnetism," 9th International Conference on Fine Particle Magnetism (ICFPM), Gaithersburg, Maryland, June 13-17, 2016.
- Geological Society of America, Academic & Applied Geoscience Relations Committee, 2016-19
- Geological Society of America, Research Grants Committee, 2015-18

- Co-convenor of “Fundamental Mineral and Rock Magnetism,” American Geophysical Union 2015 Annual Fall Meeting, San Francisco, California, December 14-18, 2015.
- Lead organizer (along with Leonard Spinu) of the 2015 First Order Reversal Curve (FORC) Workshop. Minneapolis, July 23-24, 2015.
- Co-convenor of “Environmental Magnetism and Fundamentals of Sedimentary Magnetism” at the American Geophysical Union Fall Meeting in San Francisco, California, December 15-19, 2014
- Convenor the 2014 Annual Conference on Magnetism and Magnetic Materials (MMM) session “Instrumentation and Measurement Techniques.” Nov. 3-11, Honolulu, Hawaii.
- Co-organizer (along with the IRM staff) of the Tenth Santa Fe Conference on Rock Magnetism, New Mexico, June 20-23, 2014.
- Organizer of the 2014 North-Central Regional GSA conference session, “The Midcontinent Rift System and Beyond: New Developments in Central North American Precambrian Geology.” April 24-25, Lincoln NE.
- Co-Leader of 2013-14 Keck Undergraduate Geology Consortium Project “Magnetic and Geochemical Characterization of In Situ Obsidian” along with Steven Shackley (UC Berkeley Emeritus) and Robert Sternberg (Franklin & Marshall)
- IAGA (International Association of Geomagnetism and Aeronomy) representative on the “Joint Commission for Physics and Chemistry of Earth Materials”, 2013 – present.
- Serving on the Long Range Planning Committee for the Mineralogical Society of America, 2011-2013.
- Co-convenor of “Rock Magnetism: Beyond the State of the Art” at the American Geophysical Union Fall Meeting in San Francisco, California, December 9-13, 2013.
- Co-convenor (along with E. Calvin Alexander, Jr.) of “Caves as Deep Time Repositories of Biological, Archaeological, and Geological Information” at the Geological Society of America Fall Meeting in Denver, Colorado, October 27-30, 2013.
- Co-convenor of “Resilience and Sustainability: What are we learning from the Maya and other ancient cultures” Conference organized by the Institute for Advanced Studies, University of Minnesota, November 7-9, 2013.
- Co-convenor (along with Aleksey Smirnov) of “Theoretical and Experimental Rock Magnetism” at the 2013 International Association of Geomagnetism and Aeronomy (IAGA) Meeting in Mérida, Mexico, August 26-31, 2013.
- Co-organizer (along with the IRM staff) of the Ninth Santa Fe Conference on Rock Magnetism, New Mexico, June 21-24, 2012.
- Co-convenor (along with Jim Miller) of “Geology and Mineral Deposits of the Midcontinent Rift” at the Geological Society of America 2011 Annual Meeting in Minneapolis, Minnesota, October 9-12, 2011.
- Co-convenor (along with Richard Reynolds) of “Mineralogy, geochemistry, and physical properties of atmospheric mineral dust: Influences on the atmosphere, the cryosphere, ecosystems, and humans” at the Geological Society of America 2011 Annual Meeting in Minneapolis, Minnesota, October 9-12, 2011.
- Member of Project MICRO, a volunteer organization that aims to increase the role of microscopy in K-12 education.

Fellowships, Scholarships, and Awards

- McKnight Land-Grant Professorship, University of Minnesota, 2012-2014
- Editors’ Citation for Excellence in Refereeing for *Geochemistry, Geophysics, Geosystems*, 2008
- Natural Environment Research Council (NERC) Postdoctoral Fellowship, 2005
- George D. Louderback Award 2005
- Institute for Rock Magnetism, Visiting Fellowship, 2002, 2005
- Schlanger Ocean Drilling Fellowship, 2002-2003.
- Berkeley Geochronology Center Scholarship, 2002
- University of California, Berkeley Graduate Student Teaching Award, 2001

Locations of Invited Talks (Last 5 Years)

Baylor University, Department of Geology, 2016
 Texas A & M University, Department of Anthropology, 2016
 Yale University, Department of Anthropology, 2016
 University of Minnesota, Astrophysics Colloquium, 2015
 Yale University, Department of Geology & Geophysics, 2014
 University of Hawaii, Manoa, Department of Geology & Geophysics, 2014
 59th Annual Magnetism and Magnetic Materials Conference, Keynote Speaker, Honolulu, Hawaii, 2014
 University of Minnesota, CSE Destination: Science & Engineering, 2014
 University of Minnesota, Minnesota Geological Survey, 2014
 Magnetism Information Consortium Science & Database Workshop, 2014
 Northwestern University, Department of Earth and Planetary Sciences, 2014
 University of Arkansas, Department of Geosciences, 2013

American Geophysical Union Fall Meeting, 2013
 Geological Society of Minnesota, 2013
 Beijing Earth and Planetary Interiors Symposium, 2013
 University of Minnesota, Civil Engineering Department, 2013
 Archaeological Institute of America, Minnesota Society, 2013
 University of South Carolina, Topper Archaeological Site, 2012
 Winona State University, Department of Geoscience, 2012
 University of Toronto, Department of Chemical and Physical Sciences, 2011
 University of Minnesota, Duluth, Department of Geological Sciences, 2011
 University of Minnesota, Department of Astronomy, 2011

Grants and Funding Sources

- NSF-EAR – Geophysics: Collaborative Research: Student & Early Career Scientist Travel Support for the 2015 First Order Reversal Curve (FORC) Magnetism Workshop, \$16,000, (Co-PI)
- University of Minnesota – Office of Interdisciplinary Initiatives, Formation of the Anthropological, Ecological, and Geological Interdisciplinary Sciences (AEGIS) Group, \$9,800, (PI)
- Rio Tinto: Rock Magnetic and Paleomagnetic Analysis of the Tamarack Cu-Ni-PGE deposit in northern Minnesota, \$19,000 (PI)
- Lake Shore Cryotronics, - First Order Reversal Curve Workshop, \$30,000, (PI)
- University of Minnesota - Assessing microbial contributions to sulfide mineral oxidation in Cu-Ni ores of the Midcontinent Rift, NE Minnesota, \$50,000, (PI)
- University of Minnesota – Acquisition of a Thermo Fisher Scientific Niton XL3t 950 Mining Analyzer with GOLDD+ System, \$43,821, (PI)
- NSF-EAR – Geophysics: High Temperature Magnetic Imaging of Titanomagnetite, \$270,001, (Co-PI)
- NSF-EAR – Geophysics: Santa Fe Conference on Rock Magnetism, \$24,806, (Co-PI)
- NSF-EAR – IF: Continuation of a Facility: Institute for Rock Magnetism, \$1,224,000, (Co-PI)
- NSF-EAR – Geophysics: Collaborative Research: Identification of magnetic sources in the upper mantle, \$47,604, (PI)
- New Mexico Dept. of Cultural Affairs: Detection of Buried Archaeological Features in the Mescalero Sand Plain Using Geophysical Survey Methods, \$14,565 (PI)
- University of Minnesota – Enhancement of Academic Programs Using Technology in the Earth Sciences, \$58,826 (Co-PI)
- NSF-EAR – Geophysics: Collaborative Research: Paleomagnetic Analysis of Speleothems and High Precision Dating of Geomagnetic Records, \$298,314, (PI)
- NSF-EAR: MRI: Acquisition of a Multi-collector Inductively-coupled Plasma Mass Spectrometer for Research and Education in the Earth and Environmental Sciences, \$894,906, (Co-PI)
- NSF-EAR-SGP: ELT Collaborative research: Evolutionary and ecological responses of small mammal communities to habitat and climate change over the last 5 million years, \$237,811, (Co-PI)
- NSF-EAR-IF: Acquisition of high-temperature rock-magnetic instruments, \$334,080, (Co-PI)
- Twin Metals, Minnesota: Rock Magnetic Analysis of the Emplacement of the Nokomis Cu-Ni-PGE deposit in northern Minnesota, \$31,729, (PI)
- NSF-EAR – EAGER: Collaborative Research: Can Low-Angle Normal Faults Produce Earthquakes? A Paleoseismic Perspective, \$8750, (PI)
- NSF-EAR – IF: Continuation of a Facility: Institute for Rock Magnetism, \$1,396,115, (Co-PI)
- NSF – EAR – Geophysics: Collaborative Research: Morphology and Timing of the Reunion/Huckleberry Ridge Event(s), \$142,662. (PI)
- McKnight Land-Grant Professorship, \$99,000, (PI)
- NSF – OCE – IODP: Collaborative Research: Paleomagnetic and rock magnetic investigation of IODP Expedition 318 Site U1357 sediments, \$10,000. (PI)
- NSF – EAR – Geophysics: Linking Rock Magnetic Properties to the Performance of Paleointensity Techniques, \$253,597. (PI)
- NSF – EAR – IF: Development of a Closed Cycle Cryostat for Full-Vector, Low-Temperature Magnetic Measurements of Geologic Materials, \$73,030. (PI)
- NSF – EAR – Geophysics: Collaborative Proposal: The Effect of Dislocation Properties of Small Titanomagnetite Minerals, \$44,784 (PI)
- NSF – EAR – IF: Continuation of a Facility: Institute for Rock Magnetism, \$1,200,000 (Co-PI)
- NSF – EAR – IF: Acquisition of a DC-SQUID magnetometer, \$436,994 (Co-PI)
- University of Minnesota – GIA: Assembling Records of Earth’s Magnetic Field and Climate Change from Speleothems, \$34,283. (PI)
- University of Minnesota – Start-Up Funds

Peer-Reviewed Publications

Bold indicates graduate student or postdoctoral member of my research group.

63. **Bourne, M.D.**, Feinberg, J.M., Stafford T.W., Waters MR, Lundelius E, Forman SL, *In Press*, High-Intensity Geomagnetic Field 'Spike' Observed At Ca. 3000 Cal BP In Texas, USA., *Earth and Planetary Science Letters*.
62. **Sprain, C.J.**, Feinberg JM, Renne, P.R., Jackson, M.J., *In Press*, Importance of titanohematite in detrital remanent magnetizations of strata spanning the Cretaceous-Paleogene boundary, Hell Creek region, Montana. *Geochemistry, Geophysics, Geosystems*.
61. **Meijers MJM, Strauss BE**, Özkaptan M, Feinberg JM, Mulch A, Whitney D, Kaymakci N. *In Press*. Age and paleoenvironmental reconstruction of partially remagnetized lacustrine sedimentary rocks (Oligocene Aktoprak basin, central Anatolia, Turkey). *Geochemistry, Geophysics, Geosystems*.
60. Lowe KM, Shulmeister J, Feinberg JM, Manne T, Wallis LA, Welsh K. **In Press**. Using soil magnetic properties to determine the onset of Pleistocene human settlement at Gledswood Shelter 1, northern Australia. *Geoarchaeology*.
59. Feinberg, J.M., Gao, Y., and Alexander, Jr., E.C., eds., 2016. Caves and Karst Across Time. *Geological Society of America Special Paper 516*, Geological Society of America Publishing, Boulder, Colorado, 300 p.
58. **Lascu, I.**, Feinberg, J.M., Dorale, J.A., Cheng, H., and Edwards, R.L., 2016. Age of the Laschamps excursion determined by U-Th dating of a speleothem geomagnetic record from North America. *Geology*, 44(2), 139-142, doi: 10.1130/G37490.1
57. Feinberg, J.M., and Spinu, L. 2015. Developing new rock magnetic tools to drive geomagnetic research. *Eos*, 96. doi:[10.1029/2015EO040615](https://doi.org/10.1029/2015EO040615)
56. Soltis, J., Feinberg, J.M., Gilbert, B., and Penn, R.L., 2016. Phase transformation and particle-mediated growth in the formation of hematite from 2-line ferrihydrite. *Journal of Crystal Growth and Design*. Doi:10.1021/acs.cgd.5b01471.
55. **Frahm, E.**, Feinberg, J.M., Schmidt-Magee, B.A., Wilkinson, K.N., Gasparyan, B., Yeritsyan, B., Adler, D.S. 2016. Middle Palaeolithic Lithic Procurement Behaviors at Lusakert Cave 1, Hrazdan Valley, Armenia. *Journal of Human Evolution*. 91:73-92.
54. **Maxbauer, D.P.**, Feinberg, J.M., Fox, D.L., 2016. Magnetic mineral assemblages in soils and paleosols as the basis for paleoprecipitation proxies: A review of magnetic methods and challenges, *Earth-Science Reviews*, 155: 28-48.
53. Feinberg, J.M., and Spinu, L. 2015. Developing new rock magnetic tools to drive geomagnetic research. *Eos*, 96. doi:[10.1029/2015EO040615](https://doi.org/10.1029/2015EO040615)
52. Johnson, C.L., Phillips, R.J., Purucker, M.E., Anderson, B.J., Byrne, P.K., Denevi, B.W., Feinberg, J.M., Hauck, II, S.A., Head III, J.W., Korth, H., James, P.B., Mazarico, E., Neumann, G.A., Philpott, L.C., Siegler, M.A., Tsyganenko, N.A., and Solomon, S.C., 2015. Low-altitude Magnetic Field Measurements by MESSENGER Reveal Mercury's Ancient Crustal Field. *Science*. 348(6237), 892-895.
51. **Bourne, M.D.**, Feinberg, J.M., **Strauss, B.E.**, Hardt, B., Cheng, H., Rowe, H.D., Springer, G., and Edwards, R.L., 2015. Long-term changes in precipitation recorded by magnetic minerals in speleothems. *Geology*, 43(7), 595-598..
50. **Sprain, C.J.**, Feinberg, J.M., Geissman, J.W., **Strauss, B.E.**, **Brown, M.C.**, 2015. Paleointensity during periods of rapid reversal: A case study from the Middle Jurassic Shamrock Batholith, western Nevada. *Geological Society of America Bulletin*, B31283.1.
49. **Frahm E**, Feinberg JM. 2015. Reassessing Obsidian Field Relationships at Glass Buttes, Oregon. *Journal of Archaeological Science: Reports*, 2, 654-665, doi:10.1016/j.jasrep.2014.11.007
48. Drenth BJ, Anderson RR, Schulz KJ, Feinberg JM, Chandler VW, Cannon WF. *In Press*. What lies beneath: Geophysical mapping of a concealed Precambrian intrusive complex along the Iowa-Minnesota border. *Canadian Journal of Earth Sciences*, doi:10.1139/cjes-2014-0178.
47. Shaar R, Tauxe L, Ben-Yosef E, Kassianidou V, Lorentzen B, Feinberg JM, Levy TE. 2015. Decadal-scale variations in geomagnetic field intensity from ancient Cypriot slag mounds. *Geochemistry, Geophysics, Geosystems*. 16(1):195-214.
46. **Lindquist AK**, Feinberg JM, Harrison RJ, Loudon JC, Newell AJ. 2015. Domain wall pinning and dislocations: Investigating magnetite deformed under conditions analogous to nature using transmission electron microscopy. *Journal of Geophysical Research: Solid Earth*. 120(3), 1415-1430.

45. Feinberg J.M., Solheid PA, **Swanson-Hysell NL**, Jackson MJ, Bowles JA. 2015. Full vector low-temperature magnetic measurements of geologic materials. *Geochemistry, Geophysics, Geosystems*. 16(1):301-314.
44. **Stillinger M.D.**, Feinberg J.M., **Frahm E.** 2015. Refining the Archaeomagnetic Dating Curve for the Near East: New Intensity Data from Bronze Age Ceramics at Tell Mozan, Syria. *Journal of Archaeological Science*. 53:345-355.
43. Strehlau, J.H., Hegner, L.A., **Strauss, B.E.**, Feinberg, J.M., and Penn, R.L., 2014. Simple and Efficient Separation of Magnetic Minerals from Speleothems: Quantitative Efficiency, Compositional Analysis, and Rock Magnetic Characterization, *Journal of Sedimentary Research*, 84, 1096-1106.
42. Singer, B.S., Jicha, B.R., Condon, D.J., Macho, A.J., Hoffman, K.A., Dierkhising, J., **Brown, M.C.**, Feinberg, J.M., and Kidane, T., 2014. On the age of the Réunion subchron and Geodynamo Instabilities during the Matuyama Chron, *Earth and Planetary Science Letters*, 405, 25-38.
41. Friedman, S.A., Feinberg, J.M., Ferré, E.C., Martín-Hernandez, F., Conder, J.A., Rochette, P., 2014. Craton vs. rift uppermost mantle contributions to magnetic anomalies in the United States interior. *Tectonophysics*, 624-625, 15-23.
40. Ferré, E.C., Friedman, S.A., Martín-Hernandez, F., Feinberg, J.M., Till, J.L., Ionov, D.A., Conder, J.A., 2014. Eight good reasons why the uppermost mantle could be magnetic. *Tectonophysics*, 624-625, 3-14.
39. Bezaeva, N.S., Badyukov, D.D., Nazarov, M.A., Rochette, P., Feinberg, J.M., Markov, G.P., Borschneck, D., Demory, F., Gattacceca, J., and Borisovskiy, S.E., 2014. Magnetic properties of the LL5 ordinary chondrite Chelyabinsk (fall of February 15, 2013). *Meteoritics & Planetary Science*, 49(6), 958-977.
38. **Frahm, E.**, Feinberg, J.M., Schmidt-Magee, B.A., Wilkinson, K., Gasparyan, B., Yeritsyan, B., Karapetian, S., Meliksetian, K., Muth, M.J., and Adler, D.S., 2014. Sourcing geochemically identical obsidian: Multiscalar magnetic variations in the Gutansar Volcanic Complex and implications for Paleolithic research in Armenia, *Journal of Archaeological Science*. 47, 164-178.
37. **Strauss, B.E.**, Strehleu, J.H., **Lascu, I.**, Dorale, J.A., Penn, R.L., and Feinberg, J.M., 2013. The origin of magnetic remanence in stalagmites: Observations from electron microscopy and rock magnetism. *Geochemistry, Geophysics, Geosystems*, 14(12), 5006-5025.
36. Denyszyn, S.W., Feinberg, J.M., Renne, P.R., Scott, G.R., 2013. Revisiting the age and paleomagnetism of the Modipe Gabbro of South Africa, *Precambrian Research*, 238, 176-185.
35. Moron, S., Fox, D.L., Feinberg, J.M., Jaramillo, C., Bayona, G., Montes, C., 2013. Climate change across the Paleocene-Eocene boundary in the Bogotá Basin (Colombia) inferred from paleosol carbon isotope stratigraphy, major oxides, and environmental magnetism. *Palaeogeography, Paleoclimatology, Palaeoecology*, 388, 115-127.
34. Lappe, S.-C., Feinberg, J.M., Muxworthy, A., Harrison, R.J., 2013. Comparison and calibration of non-heating paleointensity methods: A case study using dusty olivine, *Geochemistry, Geophysics, Geosystems*.
33. **Frahm, E.**, and Feinberg, J.M., 2013. From Flow to Quarry: Magnetic Properties of Obsidian and Changing the Scale of Archaeological Sourcing. *Journal of Archaeological Science*, 40(10), 3706-3721.
32. Bezaeva, N.S., Badyukov, D.D., Nazarov, M.A., Rochette, P., and Feinberg, J.M., 2013. Magnetic properties of the Chelyabinsk meteorite: Preliminary Results. *Geochemistry International*. 51(7), 568-574.
31. Monnier, G., Hauck, T.C., Feinberg, J.M., Luo, B., Le Tensorer, J.-M., and al Sakhel, H., 2013. A Multi-analytical Methodology of Lithic Residue Analysis Applied to Paleolithic Tools from Hummal Syria, *Journal of Archaeological Science*, 40, 3722-3739.
30. Shaar, R., and Feinberg, J.M., 2013. Rock magnetic properties of dendrites: insights from MFM imaging and implications for paleomagnetic studies, *Geochemistry, Geophysics, Geosystems*, doi:10.1002/ggge.20053.
29. Ferré, E.C., Friedman, S.A., Martín-Hernandez, F., Feinberg, J.M., Conder, J.A., and Ionov, D., 2013. The magnetism of mantle xenoliths and potential implications for sub-Moho magnetic sources, *Geophysical Research Letters*, 40(1-6), doi:10.1029/2012GL054100.
28. **Frahm, E.**, and Feinberg, J.M., 2013. Environment and Collapse: Eastern Anatolian Obsidians at Urkesh (Tell Mozan, Syria) and the Third-Millennium Mesopotamian Urban Crisis, *Journal of Archaeological Science*, 40, 1866-1878.
27. **Frahm, E.**, and Feinberg, J.M., 2013. Empires and Resources: Central Anatolian Obsidian at Urkesh (Tell Mozan, Syria) during the Akkadian Period, *Journal of Archaeological Science*, 40, 1122-1135.

26. Kasama, T., Harrison, R.J., **Church, N.S.**, Nagao, M., Feinberg, J.M., Dunin-Borkowski, R.E., 2012. Ferrimagnetic/ferroelastic domain interactions in magnetite below the Verwey transition. Part 1: Electron Holography and Lorentz Microscopy, *Phase Transitions: A Multinational Journal*, doi: 10.1080/01411594.2012.695373.
25. **Lindquist, A.**, Feinberg, J.M., Waters, M.R., 2011. The Rock Magnetic Properties of a Soil Developed on an Alluvial Deposit at Buttermilk Creek, Texas, USA, *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2011GC003877.
24. Lappe, S.-C., Fanta, A., Bromily, G., Russel, S., Dunin-Borkowski, R., Feinberg, J.M., Harrison, R.J., 2011. Mineral Magnetism of dusty olivine, *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2011GC003811.
23. **Lascu, I.**, and Feinberg, J.M., 2011. Speleothem Magnetism. *Quaternary Science Reviews*, doi:10.1016/j.quascirev.2011.08.004.
22. Brownlee, S.J., Feinberg, J.M., Harrison, R.J., Kasama, T., Scott, G.R., and Renne, P.R., 2011. Magnetic properties of ilmenite-hematite single crystals from the Ecstall pluton near Prince Rupert, British Columbia, *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2011GC003622.
21. **Church, N.**, Feinberg, J.M., and Harrison, R.J., 2011. Low-temperature domain wall pinning in titanomagnetite, *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2011GC003538.
20. Waters, M.R., Forman, S.L., Jennings, T.A., Nordt, L.C., Driese, S., Feinberg, J.M., Keene, J.L., Halligan, J., **Lindquist, A.**, James, P., Hallmark, C.T., Collins, M.B., Wiederhold, J.E., 2011. The Buttermilk Creek Complex and the Origins of Clovis at the Debra L. Friedkin Site, Texas, *Science*, 331(6204), 1599-1603, doi: 10.1126/science.1201855.
19. **Swanson-Hysell, N.L.**, Feinberg, J.M., Berquo, T.S., and Maloof, A.C., 2011. Self-reversed magnetization held by martite in basalt flows from the 1.1-billion-year-old Keweenawan rift, Canada, *Earth and Planetary Science Letters*, 305, 171-184.
18. Kasama, T., **Church, N.**, Feinberg, J.M., Dunin-Borkowski, R.E., and Harrison, R.J., 2010. The complexity of ferrimagnetic/ferroelastic domain interactions in magnetite below the Verwey transition, *Earth and Planetary Science Letters*, doi:10.1016/j.epsl.2010.05.004.
17. McNeil, R.P.G., Schneble, R.J., Kataoka, M., Ford, C.J.B., Kasama, T., Dunin-Borkowski, R.E., Feinberg, J.M., Harrison, R.J., Barnes, C.H.W., Tse, D.H.Y., Trypaniotis, T., Bland, J.A., Anderson, D., Jones, G.A.C., and Pepper, M., 2010. Localised magnetic fields in arbitrary directions using patterned nanomagnets, *NanoLetters*, 23, doi: 10.1021/nl902949v.
16. Shaar, R., Ron, H., Tauxe, L., Kessel, R., Agnon, A., Ben-Yosef, E., Feinberg, J.M., 2010. Testing the accuracy of absolute intensity estimates of the ancient geomagnetic field using copper slag material. *Earth and Planetary Science Letters*, 290, 201-213. doi:10.1016/j.epsl.2009.12.022.
15. Brownlee, S.J., Feinberg, J.M., Harrison, R.J., Kasama, T., Scott, G.R., and Renne, P.R., 2010. Effects of Temperature on Ilmenite-Hematite: Microstructure and Magnetic Properties in the Ecstall Pluton, British Columbia, *American Mineralogist*, 95, 153-160.
14. Harrison, R.J., and Feinberg, J.M., 2009. Mineral Magnetism: Providing New Insights into Geoscience Processes, *Elements*, 5, 209-215.
13. **Brown, M.C.**, Singer, B.S., Knudsen, M.F., Jicha, B.R., Finnes, E., and Feinberg, J.M., 2009. No evidence for Brunhes age excursions, Santo Antão, Cape Verde, *Earth and Planetary Science Letters*, 287, 100-115, doi:10.1016/j.epsl.2009.07.039.
12. Galindo-Gonzalez, C., Feinberg, J.M., Kasama, T., Gontard, L.C., Posfai, M., Kosa, I., Duran, J.D.G., Gil, J.E., Harrison, R.J., and Dunin-Borkowski, R.E., 2009. Magnetic and microscopic characterization of magnetite nanoparticles adhered to clay surfaces, *American Mineralogist*, 94, 1120-1129.
11. Feinberg, J.M., Renne, P.R., Arroyo-Cabrales, J., Waters, M.R., Ochoa-Castillo, P., and Perez-Campa, M., 2009. Age Constraints on Alleged 'Footprints' Preserved in the Xalnene Tuff near Puebla, Mexico, *Geology*, 37 (3), 267-270.
10. Harrison, R.J., and Feinberg, J.M., 2008. FORCinel: An improved algorithm for calculating first-order reversal curve (FORC) distributions using locally-weighted regression smoothing: *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2008GC001987.
9. Junginger, F., Kläui, M., Backes, D., Krzyk, S., Rüdiger, U., Kasama, T., Dunin-Borkowski, R.E., Feinberg, J.M., Harrison, R.J., Heyderman, L.J., 2008. Quantitative determination of vortex core dimensions in head-to-head domain walls using off-axis electron holography, *Applied Physics Letters*, 92, 112502, doi: 10.1063/1.2829601.

8. Harrison, R.J., Dunin-Borkowski, R.E., Kasama, T., Simpson, E.T., and Feinberg, J.M., 2007, Magnetic properties of rocks and minerals, In G. Schubert, Ed., *Treatise on Geophysics*, Elsevier. ISBN 0444519289.
7. Feinberg, J.M., Harrison, R.J., Dunin-Borkowski, R.E., Kasama, T., Scott, G.R., and Renne, P.R., 2006, The influence of nanoscale microstructure on the remanence properties of clinopyroxene-hosted titanomagnetite inclusions: an electron holography study: *Journal of Geophysical Research - Solid Earth*, 111, B12S15, doi:10.1029/2006JB004498.
6. Feinberg, J.M., Wenk, H.-R., Scott, G.R., and Renne, P.R., 2006, Preferred orientation and anisotropy of seismic and magnetic properties in gabbroic intrusions from the Bushveld layered intrusion: *Tectonophysics*, 420, 345-356.
5. Renne, P.R., Feinberg, J.M., Waters, M.R., Arroyo-Cabrales, J., Ochoa-Castillo, P., Perez-Campa, M., and Knight, K.B., 2005, Age of the Xalene ash, Central Mexico, and archeological implications: *Nature*, 438, doi:10.1038/nature04425
4. Feinberg, J.M., Scott, G.R., Renne, P.R., and Wenk, H.-R., 2005, Exsolved Magnetite Inclusions in Silicates: Features Determining Their Remanence Behavior: *Geology*, 33 (6), p. 513-516.
3. Twitchett, R.J., Feinberg, J.M., O'Connor, D.D., Alvarez, W., and McCollum, L., 2005, Early Triassic Ophiuroids: their Paleoeology, Taphonomy and Distribution: *Palaeos*, 20, p. 213-223.
2. Feinberg, J.M., Wenk, H.-R., Renne, P.R., Scott, G.R., 2004. Epitaxial relationships of silicate-hosted magnetite determined using electron backscatter diffraction (EBSD) technique. *American Mineralogist*, 89, p. 462-466.
1. Renne, P.R., Scott, G.R., Glen, J.M.G., and Feinberg, J.M. (2002) Oriented inclusions of magnetite in clinopyroxene: Source of stable remanent magnetization in gabbros of the Messum Complex, Namibia. *Geochemistry, Geophysics, Geosystems*, 3(12), 1079, doi: 10.1029/2002GC000319.

Current Postdoctoral Researchers

- *Mark Bourne* – Paleomagnetic and enviromagnetic recordings of speleothems and cave deposits.
- *Ellery Frahm* – Sourcing of archaeological obsidian.

Current Graduate Students

- *Evgeniya Khakhalova* – PhD student (co-advised by Moskowitz). Expected completion May 2019.
- *Daniel Maxbauer* – PhD student (co-advised by Fox). Expected completion May 2018.
- *Michele Stillingner* – PhD student. Expected completion May 2018.
- *Becky Strauss* – PhD student. Expected completion May 2018.

Current Undergraduate Students

- *Zachary Engle* – Undergraduate Student, University of Minnesota
- *Emily Houlihan* – Undergraduate Student, Carleton College

Past Students and Postdocs

- *Maxwell Christopher Brown* – Postdoc. Currently a faculty member at the University of Iceland.
- *Ioan Lascu* – PhD student and Postdoc. Currently at the University of Cambridge, United Kingdom.
- *Nicholas Swanson-Hysell* – Postdoc. Currently a faculty member at UC Berkeley.
- *Nathan Church* – PhD student (Co-advised with Richard Harrison, University of Cambridge). Currently a Postdoc at the University of Norway.
- *Ellery Frahm* – PhD student (Co-advised with Gil Tostevin, University of Minnesota, Dept. of Anthropology).
- *Lars Hansen* – PhD student (Co-advised with David Kohlstedt). Currently a faculty member at the University of Oxford.
- *Anna Lindquist* – PhD student. Currently a faculty member at Lake Superior State University.
- *Cale Anger* – Masters student (Co-advised with E. Calvin Alexander, Jr.).
- *Amy Chen* – Masters student (Currently a Geophysics Program Director at the U.S. National Science Foundation)
- *Evan Finnes* – Masters student. (Currently working as an economic geologist at Duluth Metals)
- *Yifan Hu* – Masters student (Co-advised with Bruce Moskowitz).
- *Julia Prokop* – Masters student in the Dept. of Geography.
- *Mahlite Adamu Tsegaye* – Masters student (Co-advised with Tesfaye Kidane)
- *Dana Marion Smith* – Masters student (Co-advised with Laurel Goodwin, Univ. Wisc. Madison). Chevron.
- *Shaun Williams* – Masters student, University of Bristol.
- *Cody Baird* – Undergraduate Student, University of Minnesota

- *William Callebert* – Undergraduate Student, University of Minnesota
- *Jennie Chu* – **McNair Scholar**, Undergraduate Student, Carleton College.
- *Joseph Cropsey* – Undergraduate Student, University of Minnesota.
- *Travis Drake* – **REU Intern**, Undergraduate Student, Carleton College.
- *Andrew Gregovich* – Keck Undergraduate Student, Colorado College.
- *Lindsay Hegner* – Undergraduate Student, University of Minnesota, **UROP**.
- *Amy Hillis* – **REU Intern**, Undergraduate Student, Macalester College.
- *Brandon Isakson* – Undergraduate Student, University of Minnesota
- *Charissa Johnson* – Undergraduate Student, University of Minnesota, **UROP**
- *Caroline Lauth* – Undergraduate Student, Carleton College
- *Jackson Mitchell* – Undergraduate Student, University of Minnesota, **REU Intern**
- *Zachary Montes* – **REU Intern**, Undergraduate Student, Carleton College. Presented research at the 2008 AGU conference in San Francisco.
- *Alissa Morson* – Howard Hughes Medical Institute Intern, Carleton College.
- *Monica Mustain* – **REU Intern**, Undergraduate Student, Illinois State University.
- *Michelle Muth* – Undergraduate Student, Rice University, **REU Intern**
- *Marcy Nadel* – Undergraduate Student, Macalester College
- *Steve Newman* – Undergraduate Student, University of Minnesota.
- *Stephanie Olson* – Undergraduate Student, University of Minnesota, **UROP**. Currently a PhD student at UC Riverside.
- *Zachary Osborne* – Keck Undergraduate Student, St. Norbert's University.
- *Margo Regier* – Keck Undergraduate Student, Beloit College.
- *Rebecca Smith* – **REU Intern**, University of California, Berkeley. Currently a PhD student at Arizona State University.
- *Courtney Sprain* – Undergraduate Student, University of Minnesota. Currently a PhD student at UC Berkeley.
- *Becky Strauss* – **REU Intern**, Oberlin College.
- *Lucy Sullivan* – Undergraduate Student, Cambridge University.
- *Leif Togle* – Undergraduate Student, University of Minnesota.
- *Angus Vaughn* – **REU Intern**, Carleton College.
- *Susanna Webb* – Undergraduate Student, University of Minnesota, **UROP**. Currently a PhD student at the University of Wisconsin, Madison.