

# Joshua Moser Feinberg

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## Curriculum vitae

### 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.

### Professional Affiliations

American Geophysical Union

Geological Society of America

Mineralogical Society of America

Mineralogical Society of Great Britain and Ireland

Sigma Xi

### Editorial Service

- Associate Editor for *Geochemistry, Geophysics, Geosystems*, 2010-present
- Associate Editor for *American Mineralogist*, 2005-present
- Guest Editor, *Geochemistry, Geophysics, Geosystems*, special issue dedicated to "Magnetism From Atomic to Planetary Scales: Physical Principles and Interdisciplinary Applications in Geoscience", 2008-present.
- Guest Editor, *Elements, An International Magazine of Mineralogy, Geochemistry, and Petrology*, special issue dedicated to Mineral Magnetism, 2008-present.

### Outreach

- Member of Project MICRO, a volunteer organization that aims to increase the role of microscopy in K-12 education.
- Co-convener (along with Richard Harrison and Emo Martin) of "[Mineral magnetism: applications to the geosciences](#)" at the International Mineralogical Association Meeting in Budapest, Hungary. August 21-27, 2010.
- Co-organizer (along with the IRM staff) of The Eighth Santa Fe Conference on Rock Magnetism, New Mexico, June 24-27, 2010.
- Co-convener (along with Richard Harrison) of "Mineral Magnetism: Providing New Insights into Geoscience Processes" at the Goldschmidt 2010 meeting in Knoxville, Tennessee, June 13-18, 2010
- Co-convener (along with Ellery Frahm) of "Obsidian from Magma to Artifact: Geological and Archaeological Perspectives" at the Geological Society of America 2009 Annual Meeting in Portland, Oregon. October 18-21, 2009.
- Co-convener (along with Claire Carvallo, Fukama Koji, and Adrian Muxworthy) of "Rock Magnetism: Theory, Experiments and Observations" at the IAGA 2009 meeting in Sopron, Hungary.
- Co-convener of two sessions, "Fine Particle Rock Magnetism" and "Magnetic Properties and Behavior of Single Crystals and Their Inclusions" at the American Geophysical Union Fall Meeting in San Francisco. December 15-19, 2008.
- Convener of session "From Quaternary Geology and Physical Volcanology to Geoarchaeology and Paleoanthropology: A Memorial to Harold E. Malde" at the Geological Society of America Annual Meeting in Houston, Texas, Oct. 5-9, 2008.
- Co-organizer of "2008 International Conference on Rock Magnetism and its Earth Science Applications", Cargese, France, June 2-8, 2008. Convener of two sessions, "Mineral Magnetism" and "Biomagnetism and Nanomagnetism".
- Treasurer of the Mineral Physics Group of the Mineralogical Society of Great Britain and

- Ireland, 2007-present.
- Co-convener (along with Richard Harrison) of session "Mineral Magnetism: From the Nanometre to the Planetary Scale" at the Frontiers in Mineral Sciences 2007 conference at the University of Cambridge. June 26-28, 2007.
- Co-convener (along with Ted Evans) of session GP02 "Magnetic Microstructures and Interactions: Implications for Paleomagnetism" at the AGU Joint Assembly in Acapulco, Mexico. May 21-25, 2007.
- Organizer of the Magnetic Interactions 2007 conference at the University of Cambridge, January 9-10, 2007
- Co-convener (along with Andrew Newell) of the session "Techniques of Measuring and Modeling" at the Institute for Rock Magnetism Santa Fe Conference, June 23, 2006.

### **Fellowships, Scholarships, and Awards**

- 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

### **Work Experience**

*Assistant Professor, Nov. 2007-present*

Department of Geology and Geophysics, University of Minnesota

*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 topic: Microstructures in magnetic minerals and their influence on the interpretation of the Earth's magnetic field. Four time teaching assistant for two courses: Stratigraphy and Mineralogy.

*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.

*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.

### **Invited Talks**

University of Wisconsin, Madison, Department of Geology and Geophysics, 2010

"Window into Deep Time: Paleomagnetic applications to outstanding questions about the Precambrian Earth"

Carleton College, Department of Geology 2009

"Why are some minerals magnetic?"

Minnesota Geological Survey, 2009.

"Paleomagnetic dating of cave sediments in the Upper Midwest"

Princeton University, Department of Geosciences, 2009

"Magnetic inclusions in silicate minerals: New Views into the Ancient Magnetic Field of the Earth and Solar System"  
 Minnesota Speleological Society, 2009.

"Paleomagnetic dating of cave sediments in the Upper Midwest"  
*Mankato State University, Department of Physics, 2009*

"Single Crystal Paleomagnetism: A New Approach to Measuring the Ancient Magnetic Field of the Earth and Solar System"  
*Michigan State University, Department of Geological Sciences, 2008*

"Single Crystal Paleomagnetism: A New Approach to Measuring the Ancient Magnetic Field of the Earth and Solar System"  
*Carleton College, Department of Geology, 2008*

"'Tuff' Impressions: Geochronologic investigation of footprints preserved in a volcanic ash"  
*University of Minnesota, Duluth, Department of Geological Sciences, 2007*

"Single Crystal Paleomagnetism: A New Approach to Measuring the Ancient Magnetic Field of the Earth and Solar System"  
*Carleton College, Department of Geology, 2007*

"Examples of why rock magnetism is really fun"  
*International Union of Geodesy and Geophysics (IUGG) Conference, Perugia, 2007*

"Electron Holography in Rock Magnetic Studies"  
*University of Cambridge, Department of Archaeology, 2006*

"'Tuff' Impressions: Paleomagnetic investigation of 'footprints' in a volcanic ash in Mexico"  
*University of Cambridge, Department of Earth Sciences, 2006*

*University of Minnesota, Geology & Geophysics Department 2006*

*University of Oxford, Department of Earth Sciences, 2006*

"Single Crystal Paleomagnetism: A New Approach to Measuring the Ancient Magnetic Field of the Earth and Solar System"  
*University of California, Berkeley Physics Department, 2005*

"Measuring the Earth's Ancient Magnetic Field"  
*University of California, Berkeley Earth & Planetary Science Department, 2005*

"A new mineralogic approach to paleomagnetism"  
*Institute for Rock Magnetism, Sante Fe National Conference, 2004*

"Investigating magnetism on the nanometer scale using magnetic force microscopy and electron backscatter diffraction"  
*AGU Fall Conference, San Francisco, 2004*

"Plagioclase-hosted magnetite inclusions from the Bushveld Complex"  
*AGU Fall Conference, San Francisco, 2003*

"Orientations of exsolved magnetite inclusions in clinopyroxene and plagioclase determined with electron backscatter diffraction (EBSD)"  
*First Order Reversal Curve Conference, University of California, Davis, 2004*

"FORC Diagrams and Anisotropy of Hysteresis in Crystallographically Oriented Magnetite Inclusions in Silicates"  
*Sonoma State University, 2003*

"Magnetite Whiskers and the Earth's Precambrian Magnetic Field"

### **Refereed and Invited Papers**

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, *submitted*.

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, *Nano Letters, Accepted*.

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.

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, 95, 153-160.

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, 287, 100-115,  
doi:10.1016/j.epsl.2009.07.039.

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.

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.

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.

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.

Feinberg, J.M., Harrison, R.J., Kasama, T., Simpson, E.T., and Dunin-Borkowski, R.E., 2007, *Electron Holography and Rock Magnetism: IRM Quarterly*, 16 (4) p. 5.

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.

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.

Feinberg, J.M., Wenk, H.-R., Scott, G.R., and Renne, P.R., 2006, Preferred orientation and anisotropy of seismic and magnetic properties in gabbro-norites from the Bushveld layered intrusion: *Tectonophysics*, 420, 345-356.

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 Xalnene ash, Central Mexico, and archeological implications: *Nature*, 438, doi:10.1038/nature04425

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.

Twitchett, R.J., Feinberg, J.M., O'Connor, D.D., Alvarez, W., and McCollum, L., 2005, Early Triassic Ophiuroids: their Paleoecology, Taphonomy and Distribution: *Palaios*, 20, p. 213-223.

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.

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.

Feinberg, Joshua, 1997. Geology of the Proterozoic metamorphic rocks along Johnson Gulch, Wet Mountains, Colorado, Keck Research Symposium in Geology; Proceedings, v. 10, p. 253-256.

### **Conference Papers and Abstracts**

Brown, M.C., Cropsey, J., Bowles, J.A., and Feinberg, J.M., 2010. Palaeointensity Results from 1951 and 1995 Lava Flows, Fogo, Cape Verde: A Comparison between Thellier and LTD-DHT Shaw Methods. UK Magnetic Exchanges Meeting, January 7-8th, Plymouth, United Kingdom.

Brown, M.C., Feinberg, J.M., Singer, B.S., and Hoffman, K., 2010. Untangling the Réunion and Huckleberry Ridge Geomagnetic Events. 2010 EGU Conference.

Feinberg, J.M., Denyszyn, S.W., Renne, P.R., and Scott, G.R., 2009. The Paleomagnetism and Age of the Modipe Gabbro, South Africa. *Eos Trans. AGU, Fall Meet. Suppl.*, Abstract GP.

Brown, M.C., Cropsey, J., Bowles, J.A., and Feinberg, J.M., 2009. Palaeointensity Results from 1951 and 1995 Lava Flows, Fogo, Cape Verde: A Comparison between Thellier and LTD-DHT Shaw Methods. *Eos Trans. AGU, Fall Meet. Suppl.*, Abstract GP.

Lindquist, A.K., Feinberg, J.M., and Waters, M.R., 2009. Environmental magnetic analysis of a Texan vertisol reveals a record of the Younger Dryas. *Eos Trans. AGU, Fall Meet. Suppl.*, Abstract GP.

Till, J.L., Moskowitz, B.M., and Feinberg, J.M., 2009. Insights into Time Scales of Formation of Exsolved Magnetic Inclusions from Fe Diffusion Experiments. *Eos Trans. AGU, Fall Meet. Suppl.*, Abstract GP.

Shaar, R., Ron, H., Ben-Yosef, E., Tauxe, L., Agnon, A., Kessel, R., and Feinberg, J.M., 2009. High-Frequency High-Amplitude Paleomagnetic Intensity Spike Recorded by a Stratified Sequence of Slag Deposits. *Eos Trans. AGU, Fall Meet. Suppl.*, Abstract.

Harrison, R.J., Lappe, S., Feinberg, J.M., Russell, S., Bromiley, G., Bastos da Silva Fanta, A., and Dunin-Borkowski, R.E., 2009. Mineral Magnetism of Dusty Olivine: A Potential Carrier of Pre-Accretionary Remanence? *Eos Trans. AGU, Fall Meet. Suppl.*, Abstract GP.

Feinberg, J.M., Johnson, C., Frahm, E., 2009. A database of obsidian magnetic properties for archaeological sourcing. GSA Joint Annual Meeting, GSA Abstracts with Programs.

Johnson, C., Feinberg, J.M., and Frahm, E., 2009. Comparing magnetic properties and geochemical measurements of obsidian, GSA Joint Annual Meeting, GSA Abstracts with Programs.

Newell, A., Feinberg, J.M., and Tang, M., 2009. The Magnetic Effect of Dislocations in Small Ferromagnetic Minerals, *Eos Trans. AGU, 90(22) Jt. Assem. Suppl.*, Abstract MA14A-06.

Kohout, T., Pesonen, L., and Feinberg, J.M., 2009. Magnetic Properties of Avanhandava H4 Meteorite Chondrules. *Eos Trans. AGU, 90(22) Jt. Assem. Suppl.*, Abstract GP11D-01.

Montes, Z., Feinberg\*, J.M., Till, J., Jackson, M., Scott, G.R., Renne, P.R., 2008. Acquisition of thermal remanent magnetization by exsolved silicate-hosted titanomagnetite inclusions:

Implications for determining paleodirection and paleointensity, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract GP31B-0801.

Knudsen, M.F., Brown, M.C., Singer, B.S., Feinberg, J.M., 2008. Ar/Ar Dates From Tarrafal, Santo Antao, Cape Verde: Re-evaluation of two Brunhes age Excursions, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract GP21A-0777.

Scott, G.R., Brownlee, S.J., Feinberg, J.M., Renne, P.R., 2008. Hematite-Ilmenite with Magnetite from the Ecstall Pluton, British Columbia: Single Crystal Magnetic Experiments, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract GP24B-04.

Brown, M.C., Singer, B.S., Knudsen, M.F., Feinberg, J.M., 2008. Further Evidence for a new Brunhes Chron Excursion Recorded in Lava Flows at Agua Nova, Santo Antao, Cape Verde, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract GP21A-0776.

Beleggia, M., Kasama, T., Harrison, R.J., Feinberg, J.M., Dunin-Borkowski, R.E., 2008. Simulations of electron holographic observations of magnetic microstructure in exsolved titanomagnetites, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract GP31B-0799.

Hu, Y., Feinberg\*, J.M., Church, N., Bromiley, G., Bowles, J., Jackson, M., Moskowitz, B.M., Harrison, R.J., 2008. Suitability of chondrules for studying the magnetic field of the early solar system: an examination of synthetically produced dusty olivine, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract GP31A-0790.

Tang, M., Newell, A., Feinberg, J., 2008. Dislocations in single-domain grains: Linking stress fields to magnetic hysteresis properties, *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract GP31B-0802.

Renne, P.R., Mundil, R., Cassata, W.S., Feinberg, J.M., and Merkle, R.K.W., 2008. Thermochronology of the Bushveld Complex: Rapid Cooling Confirmed, Goldschmidt Conference, Vancouver, Canada.

Brownlee, S.J., Renne, P.R., Feinberg, J.M., and Scott, G.R., 2008.  $^{40}\text{Ar}/^{39}\text{Ar}$  thermochronology of the Ecstall pluton, British Columbia: refined thermal history and implications for paleomagnetism, Goldschmidt Conference, Vancouver, Canada.

Feinberg, J.M., Galindo-Gonzalez, C., Kasama, T., Cervera, L., Posfai, M., Harrison, R.J., and Dunin-Borkowski, R.E., 2007. Synthetic clay-magnetite aggregates designed for controlled deposition experiments, *Eos Transactions, American Geophysical Union*, Fall Conference.

Harrison, R.J., and Feinberg, J.M., 2007. An improved algorithm for calculating first-order reversal curve (FORC) distributions using locally-weighted regression smoothing, *Eos Transactions, American Geophysical Union*, Fall Conference.

Kasama, T., Harrison, R.J., Feinberg, J.M., Church, N., and Dunin-Borkowski, R.E., 2007. In-situ TEM observation of the interaction between magnetic domain walls and twin domain walls below the Verwey transition in magnetite, *Eos Transactions, American Geophysical Union*, Fall Conference.

Chen, A.P., Feinberg, J.M., Kasama, T., Simpson, E.T., Harrison, R.J., Moskowitz, B.M., and Dunin-Borkowski, R.E., 2007. Monoclinic c-axis selection at the Verwey transition: new insights from off-axis electron holography and the delta-ratio magnetosome detection method, *Eos Transactions, American Geophysical Union*, Fall Conference.

Brownlee, S.J., Feinberg, J.M., Harrison, R.J., Kasama, T., Scott, G.R., and Renne, P.R., 2007. Effects of Temperature on Ilmenite-Hematite: Microstructure and Magnetic Properties in the Ecstall Pluton, British Columbia, *Eos Transactions, American Geophysical Union*, Fall Conference.

Feinberg, J.M., Harrison, R.J., Kasama, T., Simpson, E.T., and Dunin-Borkowski, R.E., 2007, Electron Holography in Rock Magnetic Studies. International Union of Geodesy and Geophysics Conference, Perugia, Abstract ASI009-14.

Church, N., Harrison, R.H., Feinberg, J.M., Kasama, T., Dunin-Borkowski, R.E., 2007, In-situ TEM observation of the interaction between magnetic domain walls and twin domain walls below the Verwey transition in magnetite. International Union of Geodesy and Geophysics Conference, Perugia, Abstract ASI010-14.

Harrison, R.J., and Feinberg, J.M., 2007, Potential Applications of Electron Holography to the Study of Meteorites. Network for Early Solar System Investigation (NESSI) Conference, Edinburgh.

Feinberg, J.M., Renne, P.R., Waters, M.R., Arroyo-Cabrales, J., Ochoa-Castillo, P., and Perez-Campa, M., 2007, Age of the Xalnene Ash, Central Mexico: A rock magnetic perspective, Eos Transactions American Geophysical Union, Joint Assembly, Abstract GP24A-07.

Harrison, R.J., Feinberg, J.M., Kasama, T., Church, N., and Dunin-Borkowski, R.E., 2007, In-situ TEM observations of the interaction between magnetic domain walls and twin domain walls below the Verwey transition in magnetite, Eos Transactions AGU, Joint Assembly, American Geophysical Union, Spring Conference, Abstract GP33A-01.

Feinberg, J.M., Tauxe, L., Gee, J., Scott, G.R., and Renne, P.R., 2006. Geomagnetic Paleointensity from Exsolved Oxide Inclusions in Silicates: Examples from the 2.06 Ga Bushveld Complex, South Africa, Eos Transactions, American Geophysical Union, Fall Conference.

Feinberg, J.M., Harrison, R., 2006, The effects of nanometer-scale mineral structures on the magnetic remanence of silicate-hosted titanomagnetite inclusions: an electron holography study, Magnetic Interactions Conference, University of Liverpool, January 10-11.

Feinberg, J.M., Harrison, R., Dunin-Borkowski, R., Kasama, T., and Scott, G., 2006, The effects of nanometer-scale mineral structures on the magnetic remanence of silicate-hosted titanomagnetite inclusions: an electron holography study, Mineralogical Society Winter Meeting, Micro- to Nano-geosciences: Developments and Applications, Bath, United Kingdom, January 5-6.

Feinberg, J.M., Harrison, R., Dunin-Borkowski, R., Kasama, T., and Scott, G., 2005, The effects of nanometer-scale mineral structures on the magnetic remanence of silicate-hosted titanomagnetite inclusions: an electron holography study, Eos Transactions, American Geophysical Union, Fall Conference.

Renne, P.R., Feinberg, J.M., Waters, M.R., Cabrales, J.A., Castillo, P.O., Campa, M.P., and Knight, K.B., 2005, Age of the Xalnene Ash, Central Mexico and Archeological Implications, Eos Transactions, American Geophysical Union, Fall Conference.

Feinberg, J.M., Harrison, R., Dunin-Borkowski, R., Kasama, T., and Scott, G., 2005, Magnetostatic Interactions and Anisotropy in Silicate-hosted Oxide Inclusions: Preliminary Observations from Electron Holography, IAGA Conference Toulouse, France.

Feinberg, J.M., Scott, G.R., Wenk, H.R., and Renne, P.R., 2004, Plagioclase-hosted magnetite inclusions from the Bushveld Complex, Eos Transactions, American Geophysical Union, Fall Conference 2004. (INVITED)

Scott, G.R., Feinberg, J.M., and Renne, P.R., 2004, Anisotropy of Silicate-Hosted Magnetite Inclusions, Eos Transactions, American Geophysical Union, Fall Conference 2004.

Renne, P.R., Age and Thermal History of the Bushveld Complex, South Africa, Eos Transactions, American Geophysical Union, Fall Conference 2004.

Feinberg, J.M., Scott, G.R., Renne, P.R., Wenk, H.-R., 2004. Nanometer-scale texture and magnetic frustration in exsolved magnetite inclusions in clinopyroxene. Goldschmidt Conference, Copenhagen, Denmark.

Feinberg, J.M., Wenk, H.-R., Renne, P.R., Scott, G.R., 2003. Orientations of exsolved magnetite inclusions in clinopyroxene and plagioclase determined with electron backscatter diffraction (EBSD). *Eos Transactions, American Geophysical Union*, v. 84, no. 26, p. 527. (INVITED)

Feinberg, J.M., Scott, G.R., Renne, P.R., 2003. Observations from magnetic force microscopy on crystallographically oriented magnetite inclusions in clinopyroxenes. *Eos Transactions, American Geophysical Union*, v. 84, no. 26, p. 544.

Scott, G.R., Feinberg, J.M., Renne, P.R., 2003. Stable remanence from crystallographically oriented magnetite inclusions in clinopyroxene. *Eos Transactions, American Geophysical Union*, v. 84, no. 26, p. 543.

Feinberg, J.M., Scott, G.R., Pike, C.R., and Renne, P.R., 2002a. Single domain behavior of exsolved magnetite in clinopyroxenes using first order reversal curve (FORC) analysis. *Eos Transactions, American Geophysical Union*, v. 83, no. 19, p. 323.

Feinberg, J.M., Wenk, H.-R., Renne, P.R., Scott, G.R., 2002b. Crystallographic Relationships of Silicate-hosted Magnetite Inclusions Determined with Electron Backscatter Pattern Indexing (EBSP). *Eos Transactions, American Geophysical Union 2002 Fall Conference*.

Renne, P.R., Scott, G.R., Glen, J.M.G., and Feinberg, J.M., 2002b, Oriented inclusions of single domain magnetite in clinopyroxene: Source of stable remanent magnetization in gabbros of the Early Cretaceous Mesum Complex, Namibia. *Eos Transactions, American Geophysical Union*, v. 83, no. 19, p. 323.

Scott, G.R., Renne, P.R., and Feinberg, J.M., 2002a. Silicate-hosted paleomagnetism: A clearer view of the ancient geomagnetic field? Study of the Earth's Deep Interior Conference Abstracts, p. 28-29 .

Scott, G.R., Feinberg, J.M., and Renne, P.R., 2002b. Magnetic Properties of Single Crystal Clinopyroxenes: Anisotropy of Remanence. *Eos Transactions, American Geophysical Union 2002 Fall Conference*.

Feinberg, Joshua, Twitchett, Richard. 2001. Ophiuroids in the Aftermath of the end-Permian biotic crisis; new fossils from North America and Italy. *Geological Society of America , 2001 Annual Meeting, Abstracts with Programs*, v. 33, no. 6, p. 11.

Twitchett, R., Feinberg, J., 2001. Early Triassic ophiuroids: their taphonomy, palaeoecology and distribution. *Palaeontological Association 45th Annual Meeting, 15th-19th December, Copenhagen*, v. 45, p. 35.

Langbein, J., Wilkinson, S., Feinberg, J., Bilham, R., 1998. The 1997-98 Inflation of Long Valley Caldera and comparison with the 1989-95 episode, *EOS, Transactions of the American Geophysical Union*, v. 79, p. 1998.

Noblett, J., Siddoway, C., Wobus, R., Ash, A., Cuevas, D., Feinberg, J., Folley, M., McCloskey, K., Quackenbush, L., Rosenweig, S., Stiles, L. 1997. Proterozoic geology of the northeastern Wet Mountains, central Colorado. *Geological Society of America, 1997 Annual Meeting, Abstracts with Programs*, v. 29, no. 6., p. 407.

Quackenbush, L., Ash, A., Cuevas, D., Feinberg, J., Metcalf, D., Siddoway, C., Noblett, J., Wobus, R., 1997. Structural geology of mid-Proterozoic gneisses and granitic rocks east of the Ilse Fault, Wet Mountains, Colorado, *Geological Society of America, South-Central Section 31st*

Annual Meeting and Rocky Mountain Section 50th Annual Meeting, Abstracts with Programs, v. 29, no. 2, p. 43-44.

### **Book Chapter**

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.

### **Public Policy Paper**

Steere, J., Feinberg, J., and Board Members of the San Francisco Bay Joint Venture, 2000. Restoring the Estuary: An Implementation Strategy for the San Francisco Bay Joint Venture, p. 111.

### **Grants and Funding Sources**

- NSF – EAR – Geophysics: Linking Rock Magnetic Properties to the Performance of Paleointensity Techniques, \$253,597. (Feinberg - PI)
- NSF – EAR – IF: Development of a Closed Cycle Cryostat for Full-Vector, Low-Temperature Magnetic Measurements of Geologic Materials, \$73,030. (Feinberg – PI)
- NSF – EAR – Geophysics: Collaborative Proposal: The Effect of Dislocation Properties of Small Titanomagnetite Minerals, \$205,088 (Feinberg – PI)
- NSF – EAR – IF: Continuation of a Facility: Institute for Rock Magnetism, \$1,200,000
- NSF – EAR – IF: Acquisition of a DC-SQUID magnetometer, \$436,994
- University of Minnesota – GIA: Assembling Records of Earth’s Magnetic Field and Climate Change from Speleothems, \$34,283. (Feinberg – PI)
- University of Minnesota – Start-Up Funds

### **Postdoctoral Researchers**

- *Maxwell Brown* – Studying the strength of the Earth’s ancient magnetic field, or “paleointensity”. Field Area: Cape Verde Islands.

### **Graduate Students**

- *Nathan Church* – PhD student (Cambridge) Expected completion May 2010.
- *Evan Finnes*– Masters student. Expected completion May 2012.
- *Lars Hansen* – PhD student (Co-advised with David Kohlstedt) Expected completion May 2012.
- Anna Lindquist – PhD student. Expected completion 2013.

### **Undergraduate Students**

- Joseph Cropsey – Undergraduate Student, University of Minnesota
- *Evan Finnes*– Undergraduate Student, University of Minnesota
- *Charissa Johnson* – Undergraduate Student, University of Minnesota
- *Susanna Webb* – Undergraduate Student, University of Minnesota, **UROP**

### **Past Students**

- *Amy Chen* – Masters student. Currently in a PhD program at the University of Munich.
- *Yifan Hu* – Masters student. Currently at the University of Florida.
- *Julia Prokop* – Masters student in the Dept. of Geography.
- *Shaun Williams* – Masters student, University of Bristol.
- *Travis Drake* – **REU Intern**, Undergraduate Student, Carleton College.
- *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.
- *Rebecca Smith*– **REU Intern**, University of California, Berkeley.
- *Lucy Sullivan* – Undergraduate Student, Cambridge University.