

Joshua M. Feinberg

Department of Earth & Environmental Sciences
University of Minnesota
116 Church Street S.E.
Minneapolis, Minnesota, 55455-0219
United States of America

feinberg@umn.edu
612.624.8429 (Office)
[Research website](#)
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Academic Appointments

June 2024 to present	Director, Institute for Rock Magnetism
Jan. 2024 to present	Director, Office of Undergraduate Research, Univ. of Minnesota
July 2019 to present	Professor, University of Minnesota
July 2013 to June 2019	Associate Professor, University of Minnesota
Nov. 2007 to June 2013	Assistant Professor, University of Minnesota
Nov. 2007 to June 2024	Associate Director, Institute for Rock Magnetism

Education

Ph.D., Earth and Planetary Science, University of California, Berkeley (2007)
B.A., Geology, Carleton College (1997)

Narrative of Research Experience

Josh Feinberg is a geophysicist and mineral magnetist whose research uses the magnetic properties of rocks, minerals, soils, and archaeological materials to investigate processes ranging from Earth's core dynamics to climate change, environmental contamination, and planetary evolution. Since joining the University of Minnesota in 2007, he has built an internationally recognized research program in rock magnetism, paleomagnetism, and environmental magnetism, and currently serves as Professor of Earth & Environmental Sciences and Director of the Institute for Rock Magnetism.

Feinberg has authored more than 125 peer-reviewed publications, including papers in *Nature*, *Science*, *Proceedings of the National Academy of Sciences*, and *Geology*. His research spans a wide range of interdisciplinary applications, including reconstructing geomagnetic field behavior, extracting high-resolution paleoclimate records from cave deposits, characterizing microbial and environmental transformations of iron minerals, investigating archaeological and planetary materials, and developing new instrumentation and analytical methods for magnetic studies.

His work has been supported by agencies including the U.S. National Science Foundation and the U.S. National Aeronautics and Space Administration. He has led numerous collaborative projects and facility grants that have expanded research infrastructure and training opportunities for scientists and students worldwide. Recognition of his scientific contributions includes election as a Fellow of the American Association for the Advancement of Science and the Geological Society of America.

Short List of Key Publications

(Bold indicates undergraduate, graduate student or postdoctoral member of my research group. Full list of 120+ peer-reviewed papers available at <https://magnetism.esci.umn.edu/publications>)

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. doi: 10.1130/G36695.1.

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. doi: 10.1130/G21290.1.

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., **Lascu, I.**, Lima, E.A., Weiss, B.P., Dorale, J.A., Alexander Jr., E.C., Edwards, R.L., 2020. Magnetic detection of paleoflood layers in stalagmites and implications for historical land use changes. *Earth and Planetary Science Letters*, 530(115946),1-6, doi.org/10.1016/j.epsl.2019.115946.
- Frahm, E.**, Feinberg, J.M., Schmidt-Magee, B.A., Wilkinson, K.N., Gasparian, 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. [doi: 10.1016/j.jhevol.2015.10.008](https://doi.org/10.1016/j.jhevol.2015.10.008).
- 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](https://doi.org/10.1029/2008GC001987).
- Lascu, I.**, and Feinberg, J.M., 2011. Speleothem Magnetism. *Quaternary Science Reviews*, [doi:10.1016/j.quascirev.2011.08.004](https://doi.org/10.1016/j.quascirev.2011.08.004).
- Lascu, I.**, Feinberg, J.M., Dorale, J.A., Cheng, H., and Edwards, R.L., 2016. Age of the Laschamp excursion determined by U-Th dating of a speleothem geomagnetic record from North America. *Geology*, 44(2), 139-142, [doi: 10.1130/G37490.1](https://doi.org/10.1130/G37490.1)
- Lindquist AK**, Feinberg J.M., 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. [Doi: 10.1002/2014JB011335](https://doi.org/10.1002/2014JB011335).
- Maxbauer DP**, Feinberg J.M., Fox DL. 2016. MAX UnMix: A web application for unmixing magnetic coercivity data. *Computers & Geosciences*. 95:140-145. [Doi:10.1016/j.cageo.2016.07.009](https://doi.org/10.1016/j.cageo.2016.07.009).
- 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. [doi: 10.1016/j.earscirev.2016.01.014](https://doi.org/10.1016/j.earscirev.2016.01.014).
- 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](https://doi.org/10.1021/acs.cgd.5b01471).
- 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. [doi: 10.1016/j.epsl.2011.02.053](https://doi.org/10.1016/j.epsl.2011.02.053).
- Zhu, Z.**, Feinberg, J.M., Xie, S., **Bourne, M.D.**, Huang, C., Hu, C., and Cheng, H. 2017. Holocene ENSO-related cyclic storms recorded by magnetic minerals in speleothems of central China. *Proceedings of the National Academy of Sciences*, [doi:10.1073/pnas.1610930114](https://doi.org/10.1073/pnas.1610930114).

Selected Honors and Awards

2024	Fellow of the American Association for the Advancement of Science
2024	Distinguished McKnight University Professor, University of Minnesota
2023	University of Minnesota Award for Excellence in Academic Unit Service
2019-20	Distinguished Lecturer, Mineralogical Society of America
2019	Professional Geologist (PG), Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience & Interior Design
2018	Fellow of the Geological Society of America
2018	Fellow of the Institute on the Environment, University of Minnesota
2012-14	McKnight Land-Grant Professorship, University of Minnesota

Professional Society Memberships

- American Association for the Advancement of Science
- American Geophysical Union, *lifetime*
- American Institute of Professional Geologists
- Council on Undergraduate Research
- Geological Society of America, *lifetime*
- Mineralogical Society of America, *lifetime*
- National Association of Geoscience Teachers