William Joseph Shinevar

wshinevar@gmail.com; website: https://shinevar.com/

NSF EAR Postdoctoral Fellow at University of Colorado, Boulder

2200 Colorado Ave, Office 465, Boulder, CO 80309

Education:

MIT/WHOI Joint Program, Cambridge/Woods Hole, MA, Geophysics	Ph.D. 2021
Brown University, Providence, RI, Geology/Physics/Mathematics	B.Sc. 2015
Brown University, Providence, RI, German Studies	A.B. 2015

Appointments:

Postdoctoral Researcher, CU Boulder	2023-present
NSF EAR Postdoctoral Research Fellow, CU Boulder	2021–2023
Ph.D. student, MIT/WHOI Joint Program	2015–2021
Research Assistant, Brown University	2011–2015
Summer Student Fellow, WHOI	2014
Research Intern, Courant Institute of Mathematical Sciences, NYU	2010–2011

Honors & Awards:

Charles M. Vest Presidential Fellow, Massachusetts Institute of Technology, Fall 2015
Member of Phi Beta Kappa, Brown University Chapter, inducted Spring 2015
Member of Sigma Xi, Brown University Chapter, inducted Spring 2015
Department of Earth, Atmospheric, and Planetary Sciences Senior Award, 2015
Adolf Conrad Ely Prize, Brown University German Studies Department, 2015
Sarah LaMendola Award, Brown University Geology Department, 2014
Member of Delta Phi Alpha, National German Honor Society, inducted Spring 2014
Undergraduate Teaching and Research Award, Advisor: Marc Parmentier, Summer 2012
Eagle Scout, Boy Scouts of America, 2008

Invited Presentations:

Shinevar, W. J., Golos, E. M., Murphy, B., Schulte-Pelkum, V., Bedrosian, P. (2023) Mantle Thermochemical Variations beneath the Continental United States: Next Steps Understanding Water and Tectonic Segmentation, Invited Seminar at *SeismoTea, Department of Geosciences, University of Utah*

Shinevar, W. J., Golos, E. M., Jagoutz, O., Behn, M. D., & Van der Hilst, R. D. (2023) Mantle Thermochemical Variations beneath the Continental United States Through Petrologic Interpretation of Seismic Tomography, Invited Seminar at *Department of Geosciences, Colorado State University*

Shinevar, W. J., Klein, B. Z., Rezeau, H., Molitor, Z., Mittal, T. Jagoutz, O. (2022) The Rheology of Active and Extinct Arcs, Invited Oral Presentation at *Gordon Research Conference for Rock Deformation*

Shinevar, W. J., Jagoutz, O., & VanTongeren, J. (2021) Gore Mountain Garnet Amphibolite records UHT Conditions: Implications for the Rheology of the Lower Continental Crust During Orogenesis, Invited Seminar at *The Department of Mineral Sciences, National Museum of Natural History, Smithsonian Institution.*

Shinevar, W. J., Behn, M. D., Hirth, G., & Jagoutz, O. (2018) Inferring Crustal Viscosity from Seismic Velocity: Applications to the Lower Crust of Southern California, Invited Oral Presentation at the *2018 SCEC Community Rheology Workshop.*

Funding ($289,586 Total to Shinevar):

*National Earthquake Hazard Reduction Program, '***Southern California Community Thermal Model: Constraining Temperature and Inherent Uncertainty Using WISTFUL, Community Velocity Models, and Multidisciplinary Geothermal Constraints'** USGS, 2024 (recommended for funding) $85,886

EAR Tectonics Grant 2234125 (Co-I), **'Roles of lithology and water on deep continental crustal rheology from a natural setting and laboratory experiments'** National Science Foundation, 2022 $18,700 to Shinevar ($464,509 total)

*EAR Postdoctoral Fellowship, '***Quantifying Scale of Lower Crust and Mantle Heterogeneities Beneath the Continental United States: Bridging Seismology, Mineral Physics, Petrology, and Magnetotellurics'**, National Science Foundation, 2020 $174,000

Student Research Fund, MIT, 2018–2019 $900

Ocean Venture Fund, WHOI, 2018 $7,700

Graduate Student Research Grant, Geological Society of America, 2018 $2,400

Teaching Experience:

Instructor of Record for Exploring Earth (GEOL1010), CU Boulder 2022

MIT Kaufman Teaching Certificate 2020

Teaching Assistant for Flow, Deformation, and Fracture in Earth and Other Terrestrial Bodies (12.202), MIT 2019

Teaching Assistant for Introduction to Geophysics and Planetary Science (12.002), MIT 2019

Teaching Assistant for Essentials of Global Geophysics (12.201), MIT 2016

Teaching Assistant for Geochemistry: Earth and Planetary Materials and Processes (GEOL 0230), Brown University 2015

Teaching Assistant for Computational Approaches to Modeling and Quantitative Analysis in Natural Sciences (GEOL 0250), Brown University 2013

Service:

Communications Committee Member, CU Boulder Department of Geological Sciences 2023
CU Boulder Postdoctoral Peer Mentor 2023
AGU Primary Convener: **Shinevar, W. J.**, James, E., Meyers, C. (2023) From grain to Earth: Understanding plate tectonics through rock microphysics and recrystallization to mantle-scale analyses 2023
AGU Early Career Session Convener: Klemperer, S., Li, Z., Delph, J. R., Schulte-Pelkum, V., & **Shinevar, W. J.** (2023) The Fate of the Lithosphere During Continental Collision: Slab Deformation, Lithospheric Removal, and Tectonic Segmentation in Active Orogenic Systems 2023
Reviewer for NSF Marine Geology and Geophysics (MG&G) Proposal 2023
Reviewer for *Journal of Geophysical Research: Solid Earth* 2023
Reviewer for *American Mineralogist* 2023
Reviewer for *Journal of Metamorphic Geology* 2023
Reviewer for *Science Advances* 2022–2023
Reviewer for *Geophysical Research Letters* 2022–2023
AGU Primary Session Convener: **Shinevar, W. J.**, James E., Russell, J., & Wu, J. (2022) Bridging the observational gap: Integrating laboratory, field, and geophysical datasets to quantify mantle properties and processes 2022
Reviewer for *Nature Geoscience* 2022
Reviewer for *Journal of Petrology* 2021–2022
AGU Session Convener: Liu, T., Blatter, D. B., Russell, J. B., & **Shinevar, W. J.** (2021) Interdisciplinary Studies of the Lithosphere-Asthenosphere System 2021
Reviewer for *Tectonophysics* 2020
Reviewer for *Geochemistry, Geophysics, Geosystems* 2020
Reviewer for *Journal of Geophysical Research: Planets* 2020
EAPS REFS, Resource for Easing Friction and Stress 2018–2021
MIT Chemical Oceanography, Geochemistry, Geophysics, and Geology Seminar Organizer 2016–2018

Student Mentoring:

CU Boulder STEM UPLIFT Research Mentor for Oliver Quinonez 2022–2023
UNAVCO RESESS Research Mentor for Keneni Godana 2022
MIT Research Mentor for Shunjie Han 2018

Outreach:

Elementary School Outreach Teacher: ‘Rock On’, Blue Mountain Elementary School, Longmont, CO 2022
Elementary School Outreach: Blue Mountain Elementary School, Longmont, CO 2018
Elementary School Outreach: ‘Questions for Scientists!’ San Diego Cooperative Charter School, San Diego, CA 2017

Elementary School Outreach: 'What is the Earth?' Excel Academy, Boston, MA 2016
Cambridge Science Fair Outreach, MIT, Cambridge, MA 2016

Publications in Preparation:

Shinevar, W. J. & V. Schulte-Pelkum. (submitting to *Geophysical Research Letters by January, 2024*) Cold Tibetan Lower Crust from the Eclogite-Granulite Seismic Thermometer https://doi.org/10.22541/essoar.169867706.67194196/v1

Publications:

Cui, D., Guo, J. L., **Shinevar, W. J.**, Guo, L., Xu, W. C., Zhang, H. F., & Jin, Z. M. (2023) Geophysical-Geochemical Modeling of Deep Crustal Compositions: Examples of Continental Crust in Typical Tectonic Settings and North China Craton, *Journal of Geophysical Research: Solid Earth* https://doi.org/10.1029/2022JB025536

Shinevar, W. J., Golos, E. M., Jagoutz, O., Behn, M. D., & Van der Hilst, R. D. (2023) Mantle Thermochemical Variations beneath the Continental United States Through Petrologic Interpretation of Seismic Tomography *Earth and Planetary Science Letters* https://doi.org/10.1016/j.epsl.2022.117965

Shinevar, W. J., Jagoutz, O., & Behn, M. D. (2022) WISTFUL: Whole-rock Interpretative Seismic Toolbox for Ultramafic Lithologies, *Geochemistry, Geophysics, Geosystems* https://doi.org/10.1029/2022GC010329

Shinevar, W. J., Jagoutz, O., & VanTongeren, J. (2021) Gore Mountain Garnet Amphibolite records UHT Conditions: Implications for the Rheology of the Lower Continental Crust During Orogenesis, *Journal of Petrology* https://doi.org/10.1093/petrology/egab007

Guo, L. Jagoutz, O., **Shinevar, W. J.**, Zhang, H.F (2020) Formation and composition of the Late Cretaceous Gangdese arc lower crust in southern Tibet. *Contributions to Mineralogy and Petrology* https://doi.org/10.1007/s00410-020-01696-y

Shinevar, W. J., Mark, H. F., Clerc, F., Codillo, E. A., Gong, J., Olive, J. A., Brown, S. M., Smalls, P. T., Liao, Y. Le Roux, V., & Behn, M. D. (2019) Causes of oceanic crustal thickness oscillations along a 74-Myr Mid-Atlantic Ridge flow line. *Geochemistry, Geophysics, Geosystems* https://doi.org/10.1029/2019GC008711

Shinevar, W. J., Behn, M. D., Hirth, G., & Jagoutz, O. (2018). Inferring crustal viscosity from seismic velocity: Application to the lower crust of Southern California. *Earth and Planetary Science Letters*, 494, 83-91. https://doi.org/10.1016/j.epsl.2018.04.055

Shinevar, W. J., Behn, M. D., & Hirth, G. (2015). Compositional dependence of lower crustal viscosity. *Geophysical Research Letters*, 42(20), 8333-8340. https://doi.org/10.1002/2015GL065459

Publications in Preparation:

Shinevar, W. J., Klein, B. Z., Rezeau, H., Molitor, Z., Mittal, T., Jagoutz, O. (in prep. for *Geophysical Research Letters*) The Rheology of Active and Extinct Arcs

Shinevar, W. J., M. D. Behn, & Jagoutz, O. (in prep. for *Geophysical Research Letters*) Grain Size Difference Causes Wave Speed Difference Between the Atlantic and Pacific Mantle

Presentations: (* indicates mentee)

Shinevar, W. J., Murphy, B. S., Schulte-Pelkum, V., & Bedrosian, Paul A. (2023) Mapping water content in the western United States through the interpretation of mantle conductivity with WISTFUL-derived mantle temperatures, *American Geophysical Union, Fall Meeting.*

Shinevar, W. J., Golos, E. M., & Schulte Pelkum, V. (2023) Bouguer Gravity Spectral Power and Anisotropy Records Regional Response to Tectonomagmatic History in the Contiguous United States, *American Geophysical Union, Fall Meeting.*

Shinevar, W. J., & Golos, E. M., (2023) Periodic Lithosphere-Asthenosphere Boundary variations in the southwestern United States as evidence for oscillatory convection, Poster Presentation at *Gordon Research Conference for Interior of the Earth*

Shinevar, W. J., Klein, B. Z., Rezeau, H., Molitor, Z., Mittal, T., Jagoutz, O. (2022) The Rheology of Active and Extinct Arcs, Oral Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W. J. & Schulte-Pelkum, V. (2022) The Eclogite-out Seismic Thermobarometer: Interpreting the Himalayan Moho Doublet, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Godana, K.* & **Shinevar, W. J.** (2022) Shallow Mantle Enrichment Beneath the Midcontinent Rift from Seismo-petrological Interpretation, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Golos, E. M., **Shinevar, W. J.**, Jagoutz, O., Behn, M. D., & Van der Hilst, R. D. (2022) Lithospheric Thermochemical Heterogeneity in the Continental United States From Seismic Tomography, Oral Presentation at *Seismological Society of America Tomography 2022*

Shinevar, W.J., Golos, E. M., Behn, M.D., & Jagoutz, O. (2021). Stability of the North American Craton from Petrologic Interpretations of Seismic Tomography, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W.J., Golos, E. M., Behn, M.D., & Jagoutz, O. (2020). Constraining Modal Error in Ultramafic Thermodynamic Solution Models: Validating Interpretations of Seismic Wave Speed, Oral Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W.J., Jagoutz, O., & VanTongeren, J.A. (2020). Gore Mountain Garnet Amphibolite records UHT Conditions: Implications for the Rheology of the Lower Continental Crust During Orogenesis, Oral Presentation at the *Geological Society of America Annual Meeting*

Shinevar, W.J., Golos, E. M., Behn, M.D., & Jagoutz, O. (2019). WISTContin & WISTFUL: New Toolboxes for Interpreting Seismic Wave Speed into Whole Rock Compositions, Oral Presentation at the *American Geophysical Union, Fall Meeting.*

Golos, E. M., **Shinevar, W. J.**, Behn, M.D., Jagoutz, O., & van der Hilst, R. D. (2019). WISTFUL thinking: seismic evidence for mantle iron enrichment beneath the Midcontinent Rift, Oral Presentation at the *American Geophysical Union, Fall Meeting.*

Montesi, L., Izquierdo, K., Holt, W. E., Bahadori, A., & **Shinevar, W. J.** (2019) The strength of Southern California from rheological and geodynamical approaches, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W. J., & Jagoutz, O. (2019) Origin and Tectonic Implications of the Megacrystic Gore Mountain Garnet Granulites, Poster Presentation at *Gordon Research Conference for Interior of the Earth*

Shinevar, W. J., Mark, H. F., Clerc, F., Codillo, E. A., Gong, J., Olive, J. A., Brown, S. M., Smalls, P. T., Liao, Y. Le Roux, V., & Behn, M. D. (2018) Temporal variability of seafloor spreading processes documented along an 80-Myr geophysical transect across the Mid-Atlantic Ridge, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W. J., Behn, M. D., Hirth, G., and O. Jagoutz, (2018) Inferring Crustal Viscosity from Seismic Wavespeeds: Applications to the Rheologic Structure of Southern California, Poster Presentation at *SCEC Annual Meeting, 2018*

Shinevar, W. J., & Jagoutz, O. (2018) Origin and Tectonic Implications of the Megacrystic Gore Mountain Garnet Granulites, *Oral Presentation at Goldschmidt Conference.*

Shinevar, W. J., Behn, M. D., Hirth, G., & Jagoutz, O. (2017). Inferring Crustal Viscosity from Seismic Wavespeeds: Applications to the Rheologic Structure of the Himalayas, *Poster Presentation at the American Geophysical Union, Fall Meeting.*

Shinevar, W. J., Behn, M. D., Hirth, G., and O. Jagoutz, (2017) Inferring Crustal Viscosity from Seismic Wavespeeds: Applications to the Rheologic Structure of Southern California, Poster Presentation at *SCEC Annual Meeting, 2017*

Shinevar, W. J., Behn, M. D., Hirth, G., and O. Jagoutz, (2017) Inversion of seismic velocity for rheology, Oral Presentation at *SCEC Annual Meeting Workshop: Community Rheology Model*

Shinevar, W. J., Behn, M. D., Hirth, G., & Jagoutz, O. (2016). Inferring Crustal

Viscosity Structure from Seismic Velocity Data, Poster Presentation at the *American Geophysical Union, Fall Meeting.*

Shinevar, W. J., Behn, M. D., Hirth, G., and O. Jagoutz (2016), Inferring Crustal Viscosity Structure From Seismic Velocity Data, Poster Presentation at *Gordon Research Conference for Rock Deformation*

Shinevar, W. J., Behn, M., & G. Hirth (2014), Crustal Viscosity Structure Estimated from Multi-Phase Mixing Theory Poster Presentation at *AGU Fall Meeting*