

## Yuval Boneh

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### Research Positions

- Ben-Gurion University, Department of Geological and Environmental Sciences, Israel - Lecturer<sup>1</sup> (from January 2019)
- Massachusetts Institute of Technology, Department of Earth, Atmospheric, and Planetary Sciences - Visiting Researcher (April to July 2019)
- Brown University, Department of Earth, Environmental and Planetary - Postdoctoral Research Associate (2017-2018)
- Bayerisches Geoinstitut, University of Bayreuth, Germany - Visiting Scientist (May 2017).
- Geological Survey of Israel - Research Assistant (2007-2009)

### Education

|                                    |             |       |                        |
|------------------------------------|-------------|-------|------------------------|
| Washington University in St. Louis | 2012 – 2017 | Ph.D. | Geophysics             |
| Oklahoma University                | 2010 – 2012 | M.S.  | Geology                |
| The Hebrew University of Jerusalem | 2005 – 2009 | B.Sc. | Geology and Philosophy |

### Publications

**Boneh Y.**, Chin E., Parks B.C., and Hirth G., Mechanism of microstructural recovery of the lithospheric mantle – Evidence from the Wyoming craton, *In prep.*

**Boneh Y.**, Shottenfels E., Kwong K., van Zelst I., Tong X., Eimer M., Miller M. S., Moresi L., Warren J. M., Wiens D. A., Billen M., Naliboff J., Zhan Z., Intermediate-depth earthquakes controlled by incoming plate hydration along bending-related faults, 2019, *Geophysical Research Letters*. <https://doi.org/10.1029/2018GL081585>.

**Boneh Y.**, and Reches Z., Geotribology - Friction, wear and lubrication of faults, 2018, *Tectonophysics*, v. 733, p. 171-181. <https://doi.org/10.1016/j.tecto.2017.11.022>.

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<sup>1</sup> Equivalent to assistant professor of the American system

- Boneh Y.**, Wallis D., Hansen L. N., Krawczynski M. J., and Skemer P., Oriented grain growth and modification of ‘frozen texture’ in the lithospheric mantle, 2017, *Earth and Planetary Science Letters*, v. 474, p. 368-374. <https://doi.org/10.1016/j.epsl.2017.06.050>.
- Hansen L., Conrad C. P., **Boneh Y.**, Skemer P., Warren J. M., Kohlstedt D. L., 2016, Viscous anisotropy of textured olivine aggregates, Part 2: Micromechanical model, *Journal of Geophysical Research – Solid Earth*, v. 121, p. 7137-7160, <http://dx.doi.org/10.1002/2016JB013240>.
- Boneh Y.**, Reches Z., 2016, Wear of geo-materials by mechanical impulse, In *50th US Rock Mechanics/Geomechanics Symposium*. American Rock Mechanics Association.
- Boneh Y.**, Morales L. F. G., Kaminski E., and Skemer P., 2015, Modeling olivine CPO evolution with complex deformation histories: Implications for the interpretation of seismic anisotropy in the mantle, *Geochem. Geophys. Geosyst.*, v. 16, <http://dx.doi.org/10.1002/2015GC005964>.
- Siman-Tov S., Aharonov E., **Boneh Y.**, Reches Z., 2015, Fault mirrors along carbonate faults: Formation and destruction during shear experiments, *Earth and Planetary Science Letters*, v. 430, p. 367-376, <http://dx.doi.org/10.1016/j.epsl.2015.08.031>.
- Boneh Y.** and Skemer P., 2014, The effect of deformation history on the evolution of olivine CPO, *Earth and Planetary Science Letters*, v. 406, p. 213-222. <http://dx.doi.org/10.1016/j.epsl.2014.09.018>.
- Boneh Y.**, Chang J. C., Lockner, D. A., and Reches Z., 2014, Fault evolution by transient processes of wear and friction, *Pure and Applied Geophysics*. <http://dx.doi.org/10.1007/s00024-014-0801-3>.
- Lyakhovsky V., Sagy A., **Boneh Y.**, Reches Z., 2014, Fault-wear by damage evolution during steady-state slip, *Pure and Applied Geophysics*. <http://dx.doi.org/10.1007/s00024-014-0787-x>.
- Boneh Y.**, Sagy A., and Reches Z., 2013, Frictional strength and wear-rate of carbonate faults during high-velocity, steady-state sliding, *Earth and Planetary Science Letters*, v. 381, p. 127-137, <http://dx.doi.org/10.1016/j.epsl.2013.08.050>.

## **Invited Talks**

**Scripps Institution of Oceanography, UC San Diego, April 25, 2018** – “Effects of deformation history on the microstructure and texture of the upper mantle”.

**BGI – Bayerisches Geoinstitut, Germany, May 30, 2017** – “Evolution of olivine crystallographic preferred orientation and anisotropy in the upper mantle”.

**Invited speaker at the PPEM session, AGU Meeting, December 14, 2016** – “Upper mantle seismic anisotropy and the evolution of olivine crystallographic preferred orientation”.

**Ben-Gurion University of the Negev, Beer-Sheva, Israel, October 13, 2016** – “Experimental and microstructural analysis of rheological processes in the crust and mantle”.

**Gordon Research Seminar on Rock Deformation, August 20, 2016** – “Evolution of olivine crystallographic preferred orientation – How can we interpret seismic anisotropy?”.

**Southern Illinois University, Geology department, January 21, 2016** – “The effect of deformation history on texture evolution and seismic anisotropy in the upper mantle”.

**GFZ - German Research Centre for Geosciences, Potsdam, Germany, September 8, 2014** – “Effect of deformation history on texture evolution in experimentally deformed Åheim dunite”.

**The Geological Survey of Israel, Jerusalem, Israel, July 22, 2012** – “Wear and strength of faults in high-velocity experiments”.

## **Funding**

MISTI Global Seed Funds - MIT-Israel - Ben-Gurion University of the Negev Seed Fund - \$20,000.

## **Teaching Experience**

CIRTL Practitioner (CIRTL - Center for the Integration of Research, Teaching, and Learning)

### **Teaching Assistant**

Earth forces (fall, 2015, Washington University)

Intro to geology (fall, 2013, Washington University)

Stratigraphy and Structural Geology for Petroleum Engineers (fall, 2011, University of Oklahoma)

Structural geology (fall, 2011, University of Oklahoma)

## **Professional Service**

AGU Fall Meeting session chair:

“Rheology, Microstructure, and Chemistry of the Upper Mantle” (2018)

AGU Fall Meeting session convener:

“Localized deformation of lithospheric materials: From grains to tectonic plates” (2017)

Peer review: Geophysical Research Letters, Journal of Geophysical Research: Solid Earth, G-cubed, Minerals, Energies, The Journal of Geology, NSF - Geophysics, and NSF - EarthScope.

## **Workshops**

Conference on Experimental Studies of Subduction Zone Processes (EssZP) – at Washington University in Saint-Louis (June 5 – 6, 2018)

Cooperative Institute for Dynamic Earth Research (CIDER) - "Subduction Zone Dynamics" - at the University of California, Berkeley (June 19 to July 21, 2017)

Seismic student workshop at Lamont Doherty Earth Observatory (February 2015)

‘Texture analysis with MTEX’ workshop at SFSU (December 2013)

‘Workshop on Advancing Experimental Rock Deformation Research: Scientific and Technical Needs’ – Harvard University (August 2012)

SAFOD workshop, EarthScope National Meeting, the University of Texas at Austin (May 2011)

## Summary of Conferences

American Geophysical Union (AGU) – 2010-2018 (19 total abstracts)  
 Geological Society of America – 2010  
 Rock Deformation, Gordon Research Conference – 2014, 2016, 2018  
 American Rock Mechanics Association – 2016  
 European Geophysical Union (EGU) – 2017  
 Deformation Mechanisms, Rheology, and Tectonics (DRT) - 2017

## Abstracts

- Boneh Y.**, Chin E., Parks B.C., and Hirth G., 2018, **(Talk)**, New perspective on recovery processes in the upper mantle and their geophysical implications from natural and experimental peridotites, AGU Meeting, Washington D.C., 10 -14 Dec.
- Carruthers S., **Boneh Y.**, Rowe C., Hirth G., 2018, Experimental Investigation of Geologic Controls on Blueschist Deformation in Slow Slip and Tremor Regions, AGU Meeting, Washington D.C., 10 -14 Dec.
- Boneh Y.**, Hirth G., 2018, Rheology of hydrous minerals under high pressures, Rock Deformation Gordon Research Conference, Andover, New Hampshire, 21-25 August.
- van Zelst I., **Boneh Y.**, et al., 2018, Linking Intermediate Depth Seismicity to Plate-bending Related Faulting, EGU Meeting, Vienna, Austria, 9-13 April.
- Boneh Y.**, Marquardt K., Skemer P., 2017, Chemical signature of migrating grain boundaries in polycrystalline olivine, AGU Meeting, New-Orleans, LA, 11 -15 Dec.
- Kwong K., **Boneh Y.**, et al., 2017, Exploring the Characteristics and Dynamics of Oceanic Plates Entering Subduction Zones, AGU Meeting, New-Orleans, LA, 11 -15 Dec.
- Boneh Y.**, Hansen L., Wallis D., and Skemer P., 2017, **(Talk)**, Anisotropic grain growth and modification of 'frozen texture' in the lithospheric mantle, DRT, Inverness, Scotland, 30 April – 4 May.
- Boneh Y.**, Reches Z., 2017, **(Talk)**, A general law of fault wear and its implication to gouge zone evolution, Abstract 3767, EGU, Vienna, Austria, 23-27 April.
- Boneh Y.**, Hansen L., Wallis D., and Skemer P., 2017, Anisotropic grain growth and modification of 'frozen texture' in the lithospheric mantle, EGU, Vienna, Austria, 23-27 April.
- Boneh Y.**, Hansen L., Wallis D., and Skemer P., 2016, Modification of olivine CPO during high temperature annealing, Fall Meeting, AGU, San-Francisco, Calif., 12-16 Dec.
- Reches Z., **Boneh Y.**, Liao Z., 2016, Energy Dissipation and Fault Slip Kinematics: Effects of Velocity History, AGU Fall Meeting, San-Francisco, Calif., 12-16 Dec.
- Boneh Y.**, Skemer P., 2016, **(Talk)**, Evolution of olivine crystallographic preferred orientation – How can we interpret seismic anisotropy? Rock Deformation Gordon Research Conference, Andover, New Hampshire, 21-25 August.
- Boneh Y.**, Reches Z., 2016, **(Talk)**, Wear of geo-materials by mechanical impulse, 50th US Rock Mechanics/Geomechanics Symposium, American Rock Mechanics Association.
- Boneh Y.**, Skemer P., Morales L.F., Kaminski E., 2015, **(Talk)**, The effect of deformation history on the interpretation of seismic anisotropy in the upper mantle: experiments and numerical modeling, 2015, AGU Fall Meeting, San-Francisco, Calif., 14-18 Dec.
- Boneh Y.**, Skemer P., Morales L.F., Kaminski E., 2015, **(Talk)**, The effect of deformation history on the texture and seismic anisotropy of the upper mantle, Seismic Student Workshop, Lamont-Doherty Earth Observatory, New-York, 18 March.

- Boneh Y.**, Skemer P., Morales L.F., 2014, *(Talk)*, Effects of deformation history on the texture and seismic anisotropy of the upper mantle: results from experiments and numerical modeling, 2014, Fall Meeting, AGU, San-Francisco, Calif., 15-19 Dec.
- Siman-Tov S., Aharonov E., **Boneh Y.**, Reches Z., 2014, Fault mirror formation and destruction correlates with slip rates on carbonate faults, AGU Fall Meeting, San-Francisco, 15-19 Dec.
- Boneh Y.**, Skemer P., 2014, Effects of deformation history on texture evolution in experimentally deformed Åheim dunite, Rock Deformation Gordon Research Conference, Andover, New Hampshire, 16-21 August.
- Reches Z., **Boneh Y.**, Sagy A., Siman-Tov S., Chen X., 2014, Brittle-to-ductile transition during extreme loading rates, 2014 EGU Meeting, Vienna, Austria, 27 April – 2 May.
- Boneh Y.**, Skemer P., 2013, Effects of deformation history on texture evolution in experimentally deformed Åheim dunite, AGU Fall Meeting, San-Francisco, Calif., 9-13 Dec.
- Reches Z., Chen X., **Boneh Y.**, Madden A., 2013, Cohesion, friction and wear of carbonate faults: high-velocity experiments, AGU Fall Meeting, San-Francisco, Calif., 9-13 Dec.
- Boneh Y.**, Sagy A., Reches Z., 2012, Friction and wear of carbonate rocks under high-velocity sliding, Abstract S21B-2463, AGU Fall Meeting, AGU, San-Francisco, Calif., 3-7 Dec.
- Reches Z., Sagy A., **Boneh Y.**, 2012, Breaking down of linear models of rock fracturing and fault wear, Abstract T14C-05, AGU Fall Meeting, San-Francisco, Calif., 3-7 Dec.
- Boneh Y.**, Chang J. C., Lockner D. A., Reches Z., 2011, Fault wear and friction evolution: Experimental analysis, T13A-2357, AGU Fall Meeting, San-Francisco, Calif., 5-9 Dec.
- Liao Z., Chang J. C., **Boneh Y.**, Chen X., Reches Z., 2011, Dynamic strengthening during high-velocity shear experiments with siliceous rocks, T23E-2471, AGU Fall Meeting, San-Francisco, Calif., 5-9 Dec.
- Boneh Y.**, Chang J. C., Lockner D. A., Reches Z., 2010, Fault-Wear under Constant Slip-Velocity: Experimental Observations, T41B-2117, AGU Fall Meeting, San Francisco, 13-17 Dec.
- Reches Z., Chang J. C., **Boneh Y.**, Lockner D. A., 2010, Fault Wear During Earthquake-Like Slip-Events in Laboratory Experiments, 31D-05, AGU Fall Meeting, San Francisco, 13-17 Dec.
- Boneh Y.**, Chang J. C., Lockner D. A., Reches Z., 2010, Fault wear experiments, Part 1: Transition and steady-state stages under constant slip-velocity, GSA Annual Meeting, Denver, Vol. 42, No. 5, p. 475, 31 Oct – 3 Nov.
- Chang J. C., **Boneh Y.**, Lockner D. A., Reches Z., 2010, Fault wear experiments, Part 2: Transition and steady-state stages under Earthquake-Like-Slip-Velocity history, 2010 GSA Denver Annual Meeting, Vol. 42, No. 5, p. 475, 31 Oct – 3 Nov.