Will Steinhardt

(609) 462-9970 | wsteinh@gmail.com | Google Scholar: http://bit.ly/wmsscholar | willsteinhardt.com

Appointments

UC Santa Cruz | Postdoctoral Scholar **Current**

Education

Harvard University | Ph.D. in Earth & Planetary Sciences **Feb 2020**
Caltech | B.A. in Geophysics **2011**

Honors and Awards

Jason Morgan Early Career Award | AGU **2024**
Koret Scholar Mentoring Award | UCSC **2023**
Outstanding Student Presentation Award | AGU **2018**
Shaler Teaching Award | Harvard Earth & Planetary Sciences **2016**
Certificate of Distinction in Teaching | Harvard Bok Center **Spring 2015, Spring 2016**
NASA Earth and Space Science Fellowship | NASA (declined) **2013**
Fritz Burns Prize | Caltech Division of Geologic & Planetary Sciences **2011**
Student Life and Masters Award | Caltech **2011**

Publications

1. Steinhardt, W & Brodksy, E.E., "Precursory Locking Precedes Slip Events on Laboratory Fault" (*submitted*)
2. **Steinhardt, W.** & Rubinstein, S. M. "Geometric rules for the annihilation dynamics of step lines on fracture" fronts. Phys. Rev. E 107, 055003 (2023). (LINK)
3. **Steinhardt, W.,** Dillavou, S., Agajanian, M., Rubinstein, S. M. & Brodsky, E. E. "Seismological Stress Drops for Confined Ruptures Are Invariant to Normal Stress". Geophysical Research Letters 50, e2022GL101366 (2023). (LINK)
4. **Steinhardt, W.** & Rubinstein, S.M. "How Material Heterogeneity Creates Rough Fractures" *Phys. Rev. Lett.,* 129, 128001 (2022). (LINK) (*Chosen For Cover*)
5. Solomatova, N.V., Jackson, J.M., Sturhahn, W., Wicks, J.K., Zhao, J., Toellner, T.S., Kalkan, B. and **Steinhardt, W.** "Equation of state and spin crossover of (Mg, Fe) O at high pressure, with implications for explaining topographic relief at the core-mantle boundary." *American Mineralogist*, 101(5), pp.1084-1093. (2016).
6. Bindi, L., Yao, N., Lin, C., Hollister, L.S., Andronicos, C.L., Distler, V.V., Eddy, M.P., Kostin, A., Kryachko, V., MacPherson, G.J., **Steinhardt, W.,** Yudovskaya M., Steinhardt P.J., "Decagonite, $Al_{71}Ni_{24}Fe_5$, a quasicrystal with decagonal symmetry from the Khatyrka CV3 carbonaceous chondrite." American Mineralogist, 100(10), pp.2340-2343. (2015).
7. Bindi, L., Yao, N., Lin, C., Hollister, L.S., Andronicos, C.L., Distler, V.V., Eddy, M.P., Kostin, A., Kryachko, V., MacPherson, G.J., **Steinhardt, W.,** Yudovskaya M., Steinhardt P.J., 2015. "Natural quasicrystal with decagonal symmetry." Scientific Reports, 5, p.9111. (2015).
8. Bindi, L., Yao, N., Lin, C., Hollister, L.S., MacPherson, G.J., Poirier, G.R., Andronicos, C.L., Distler, V.V., Eddy, M.P., Kostin, A., Kryachko, V., **Steinhardt, W.,** Yudovskaya M., Steinhardt P.J., "Steinhardtite, a new body-centered-cubic allotropic form of aluminum from the Khatyrka CV3 carbonaceous chondrite." American Mineralogist, 99(11-12), pp.2433-2436. (2014).
9. Hollister, L.S., Bindi, L., Yao, N., Poirier, G.R., Andronicos, C.L., MacPherson, G.J., Lin, C., Distler, V.V., Eddy, M.P., Kostin, A., Kryachko, V., **Steinhardt, W.,** Yudovskaya M., Eiler J.M., Guan Y., Clarke J.J., Steinhardt P.J, "Impact-induced shock and the formation of natural quasicrystals in the early solar system." Nature Communications, 5, p.4040. (2014).
10. MacPherson, G.J., Andronicos, C.L., Bindi, L., Distler, V.V., Eddy, M.P., Eiler, J.M., Guan, Y., Hollister, L.S., Kostin, A., Kryachko, V., **Steinhardt, W.,** Yudovskaya M., Steinhardt P.J., "Khatyrka, a new CV 3 find from the Koryak Mountains, Eastern Russia." Meteoritics & Planetary Science, 48(8), pp.1499-1514. (2013).
11. M. Obrić, Ž Ivezić, P. N. Best, R. H. Lupton, C. Tremonti, J. Brinchmann, M. A. Agüeros, G. R. Knapp, J. E. Gunn, C. M. Rockosi, D. Schlegel, D. Finkbeiner, M. Gaćša, V. Smolčić, S. F. Anderson, W. Voges, M. Jurić, R. J. Siverd, **Steinhardt, W.,** A. S. Jagoda, M. R. Blanton, D. P. Schneider; "Panchromatic properties of 99 000 galaxies detected by SDSS, and (some by) ROSAT, GALEX, 2MASS, IRAS, GB6, FIRST, NVSS and WENSS surveys", Monthly Notices of the Royal Astronomical Society, Volume 370, Issue 4, 1677–1698 (2006).
12. Sesar, B., Svilković, D., Ivezić, Ž., Lupton, R.H., Munn, J.A., Finkbeiner, D., **Steinhardt, W.,** Siverd, R., Johnston, D.E., Knapp, G.R. and Gunn, J.E., "Variable faint optical sources discovered by comparing the POSS and SDSS catalogs." The Astronomical Journal, 131(6), p.2801. (2006).

13. Ivezić, Ž., Richards, G., Hall, P., Lupton, R., Jagoda, A., Knapp, G., Gunn, J., Strauss, M., Schlegel, D., **Steinhardt, W.** and Siverd, R., June. "Quasar Radio Dichotomy: Two Peaks, or not Two Peaks, that is the Question." AGN Physics with the Sloan Digital Sky Survey (Vol. 311, p. 347). (2004).

Invited Talks

Cornell Civil and Environmental Engineering Seminar	**12 / 2024**
Berkeley Seismo Lab Seminar	**10 / 2024**
Princeton Center fro Theoretical Physics: Fracture Across Fields	**5 / 2024**
Computational Infrastructure for Geodynamics Seminar	**3 / 2023**
Brandeis MRSEC Seminar	**10 / 2022**
MIT Geophysics Seminar	**10 / 2022**
USGS Earthquake Science Center Seminar	**7 / 2022**
University of Washington Earth and Space Science Colloquium	**1 / 2022**
UCSC IGPP Seminar	**2 / 2020**
American Physical Society (March Meeting 2019)	**3 / 2019**

Teaching

Teaching Fellow for *ENG-SCI 123: Introduction to Fluid Mechanics and Transport Processes*	**Spr 2015, Spr 2016**
Teaching Assistant for *GE 1: Earth and Environment*	**Spr 2010**

Service and Outreach

Reviewer for *Scientific Reports*	
Reviewer for *Review of Scientific Instruments*	
Reviewer for *Journal of Geophysical Research*	
Organized UCSC IGPP Seminar	**2020 - 2022**
Supervised undergraduate Shannon Iron on earthquake statistics research	**2023 - Present**
Supervised undergraduate Jaiden Zak on friction research	**2022 - 2023**
Supervised undergraduate Sydney Haith on interacting asperity research	**2022 –2024**
Supervised graduate student Caroline Martin on fracture surface analysis project	**2019 - 2019**
Supervised graduate student Rodrigo Telles on hydrogel heterogeneity project	**2018 - 2019**
Supervised undergraduate Aria Hamann on interfacial hydrogel fracture project through Harvard REU Program	**2014**
Led *Science Days* lab tours and demonstrations for middle school students	**2015, 2016**