

CURRICULUM VITAE

WEISEN SHEN

Center for Imaging the Earth's Interior,
Department of Physics, CU Boulder
Boulder, CO, 80309
Research ID: J-3969-2012
<http://www.researcherid.com/rid/J-3969-2012>

Citizenship: China
Office: (303) 735-1850
Cell: (303) 547-2021
Email: weisen.shen@colorado.edu
Web: <http://ciei.colorado.edu/~weisen/>

EDUCATION

- 2008-2014 Ph. D. Geophysics | University of Colorado at Boulder
Advisor: Dr. Michael H. Ritzwoller
- 2004-2008 BS, Geophysics | University of Science & Technology of China (USTC)
Advisor: Dr. Sidao Ni

RESEARCH INTEREST

- Technical innovation of seismic inversion, data quality control, and construction of isotropic/anisotropic 3-D crustal and uppermost mantle models using large seismic arrays (i.e., Earthscope/USArray, China Array).
- Thermal structure of the earth's uppermost mantle and its implications inferred from seismological (e.g., OBS observations) and mineralogical evidences.
- Tectonic interpretation of 3-D crustal and uppermost mantle models. Systematical study of mid-crustal layering and lower crustal complications beneath E. Asia/US (particularly beneath the Tibetan Plateau).

RESEARCH & TEACHING EXPERIENCE

- 2014.5 – Present **Postdoc Research Associate**
Department of Physics, University of Colorado at Boulder
- 2008-2014 **Research/Teaching Assistant**
Department of Physics, University of Colorado at Boulder
- 2007-2008 **Undergraduate Research Assistant**
Department of Earth and Space Sciences, USTC

AWARDS

- 2014 Outstanding Reviewer of the year, Geophysical Journal International
- 2013 CU Boulder Graduate School Graduate Dissertation Completion Fellowship
- 2007/2008 USTC outstanding student fellowship

PROFESSIONAL AFFILIATIONS AND SERVICES

- Society of Exploration Geophysicists | American Geophysics Union | Geological Society of America
- Reviewer for JGR, GJI, GRL, EPSL, PEPI, BSSA, JAES, tectonophysics, and Tera Nova.

Publications

- **Shen, W.***, M.H. Ritzwoller, D. Kang, Y. Kim, J. Ning, F.-C. Lin, W. Wang, Y. Zheng, and L. Zhou, A seismic reference model for the crust and uppermost mantle beneath China from surface wave dispersion, *Geophys. J. Int.*, submitted, 2015.
- Deng, Y., **W. Shen***, T. Xu, and M.H. Ritzwoller, Crustal layering in northeastern Tibet: A case study based on joint inversion of receiver functions and surface wave dispersion, *Geophys. J. Int.*, submitted, 2015.
- Kang, D., **W. Shen***, J. Ning, and M.H. Ritzwoller, Seismic evidence for lithospheric modification associated with intra-continental volcanism in Northeastern China, *Geophys. J. Int.*, submitted, 2015.
- **Shen, W.***, M.H. Ritzwoller, and V. Schulte-Pelkum, Crustal and uppermost mantle structure in the central US encompassing the Midcontinent Rift, *J. Geophys. Res.*, 118, 4325-4344, doi:10.1002/jgrb.50321, 2013. (cited **11** times by 2015.7)
- **Shen W.***, M. H. Ritzwoller, and V. Schulte-Pelkum, A 3-D model of the crust and uppermost mantle beneath the central and western US by joint inversion of receiver functions and surface wave dispersion, *J. Geophys. Res.*, doi: 10.1029/2012JB009602, 118, 1-15, 2013. (cited **52** times by 2015.7)
- **Shen W.***, M.H. Ritzwoller, V. Schulte-Pelkum, F.-C. Lin, Joint inversion of surface wave dispersion and receiver functions: A Bayesian Monte-Carlo approach, *Geophys. J. Int.*, 192(2),807-836, doi: 10.1093/gji/ggs050., 2013 (cited **32** times by 2015.7)
- Tian, Y., **Shen, W.**, & Ritzwoller, M. H. (2013). Crustal and uppermost mantle shear velocity structure adjacent to the Juan de Fuca Ridge from ambient seismic noise. *Geochemistry, Geophysics, Geosystems*, 14(8), 3221-3233.
- Levandowski, W., C. Jones, **W. Shen**, M.H. Ritzwoller and V. Schulte-Pelkum, Origins of topography in the Western US: Mapping crustal and upper mantle density variations using a uniform seismic velocity model, *J. Geophys. Res.*, 119, 2375-2396, doi: 10.1002/2013JB010607, 2014.
- Xie, Jiayi, M.H. Ritzwoller, **W. Shen**, Y. Yang, Y. Zheng, and L. Zhou. "Crustal radial anisotropy across eastern Tibet and the western Yangtze craton." *Journal of Geophysical Research: Solid Earth* 118, no. 8 (2013): 4226-4252.
- Yang, Y., M.H. Ritzwoller, Y. Zheng, W. Shen, A.L. Levshin, and Z. Xie, A synoptic view of the distribution and connectivity of the mid-crustal low velocity zone beneath Tibet, *J. Geophys. Res.*, 117, B04303, doi: 10.1029/2011JB008810, 2012.
- Zhou, L., J. Xie, **W. Shen**, Y. Zheng, Y. Yang, H. Shi, and M.H. Ritzwoller, The structure of the crust and uppermost mantle beneath South China from ambient noise and earthquake tomography, *Geophys. J. Int.*, doi: 10.1111/j.1365-246X.2012.05423.x, 2012.
- Zheng, Y., **W. Shen**, L. Zhou, Y. Yang, Z. Xie, and M.H. Ritzwoller, Crust and uppermost mantle beneath the North China Craton, northeastern China, and the Sea of Japan from ambient noise tomography, *J. Geophys. Res.*, 116, B12312, doi: 10.1029/2011JB008637, 2011.

- Yang, Y., **W. Shen** and M.H. Ritzwoller, Surface wave tomography in a large-scale seismic array combining ambient noise and teleseismic earthquake data, *Earthquake Science*, 24, 55-64, 2011.
- Ritzwoller, M.H., F.C. Lin, and **W. Shen**, Ambient noise tomography with a large seismic array, *Compte Rendus Geoscience*, 13 pages, doi: 10.1016/j.crte.2011.03.007, 2011.
- Lin, F.C., M.H. Ritzwoller, and **W. Shen**, On the reliability of attenuation measurements from ambient noise cross-correlations, *Geophys. Res. Letts.*, 38, L11303, doi: 10.1029/2011GL047366, 2011.
- **Shen, W.***, Luo Y, Ni S, Chong J, Chen Y. Resolving near surface S velocity structure in natural earthquake frequency band: A case study in Beijing region. *Acta Seismologica Sinica*, 32(2): 137-146. 2010

***: Corresponding Author**

Presentations & Invited Talks

- Shen, W., M. H. Ritzwoller, J. Xie, Y. Zheng, L. Zhou, and Z. Xu. "Surface wave tomography with multiple data sets and its systematic application to USArray and CEArray." In AGU Fall Meeting Abstracts, vol. 1, p. 05. 2013. (Invited)
- Shen, W., M. H. Ritzwoller, J. Xie, Y. Tian, Y. Zheng, Z. Xu, and L. Zhou. "Aspects of surface wave tomography across CEArray and USArray." In AGU Fall Meeting Abstracts, vol. 1, p. 2397. 2013.
- Lin, F., B. Schmandt, V. C. Tsai, W. Shen, and M. H. Ritzwoller. "Probing the earth with EarthScope USArray." In AGU Fall Meeting Abstracts, vol. 1, p. 03. 2013.
- Tian, Y., W. Shen, and M. H. Ritzwoller. "Shallow structure and surface wave propagation characteristics of the Juan de Fuca plate from seismic ambient noise." In AGU Fall Meeting Abstracts, vol. 1, p. 08. 2013.
- Zheng, Y., Y. Yang, W. Shen, M. H. Ritzwoller, X. Xiong, and S. Ni. "Crustal and uppermost mantle shear velocity structure in the Qinling-Dabie-Sulu Orogen and its geodynamic implications." In AGU Fall Meeting Abstracts, vol. 1, p. 2398. 2013.
- Shen, W. "SURFACE WAVE TOMOGRAPHY WITH MULTIPLE DATA SETS APPLIED TO USARRAY." In 2013 GSA Annual Meeting in Denver. 2013.
- Ritzwoller, M. H., J. Xie, W. Shen, P. H. Molnar, Y. Yang, L. Zhou, and Y. Zheng. "Crustal Anisotropy in Eastern Tibet." In AGU Fall Meeting Abstracts, vol. 1, p. 03. 2012.
- Shen, W., J. Xie, M. H. Ritzwoller, and V. Schulte-Pelkum. "3-D crustal and uppermost mantle model from Monte Carlo inversion of seismic data across Earthscope/USArray." In AGU Fall Meeting Abstracts, vol. 1, p. 2684. 2012.
- Xie, J., W. Shen, M. H. Ritzwoller, Y. Yang, L. Zhou, and Y. Zheng. "Imaging crustal anisotropy in eastern Tibet and South China using ambient noise and earthquake data." In AGU Fall Meeting Abstracts, vol. 1, p. 2683. 2012.

- Zheng, Y., Y. Yang, W. Shen, M. H. Ritzwoller, and X. Xiong. "The crustal and upper mantle structure of the Tien Shan Orogen and surroundings from ambient noise and earthquake tomography." In AGU Fall Meeting Abstracts, vol. 1, p. 2682. 2012.
- Mahan, K. H., V. Schulte-Pelkum, W. Shen, and M. H. Ritzwoller. "Seismic and Petrological Constraints on Deep Crustal Evolution in North America: Where and What are 7. x Layers?." In AGU Fall Meeting Abstracts, vol. 1, p. 06. 2012.
- Levandowski, W., C. H. Jones, W. Shen, M. H. Ritzwoller, and V. Schulte-Pelkum. "Density, buoyancy and gravitational potential energy in the western US." In AGU Fall Meeting Abstracts, vol. 1, p. 2627. 2012.
- Levandowski, W., C. H. Jones, M. H. Ritzwoller, W. Shen, and H. J. Gilbert. "Buoyancy sources in the Western US: Two case studies at different scales." In AGU Fall Meeting Abstracts, vol. 1, p. 2308. 2011.
- Zheng, Y., W. Shen, Z. L. Quan, Y. Yang, and M. H. Ritzwoller. "Ambient Noise Tomography of East China." In AGU Fall Meeting Abstracts, vol. 1, p. 06. 2011.
- Shen, W., V. Schulte-Pelkum, and M. H. Ritzwoller. "A 3-D crustal and uppermost mantle model of the western US from receiver functions and surface wave dispersion derived from ambient noise and teleseismic earthquakes." In AGU Fall Meeting Abstracts, vol. 1, p. 2177. 2011.
- Xie, J., Z. L. Quan, F. Lin, W. Shen, Y. Zheng, Y. Yang, and M. H. Ritzwoller. "Azimuthal anisotropy within the crust and uppermost mantle of southeastern China from both ambient noise and teleseismic earthquake Rayleigh wave tomography." In AGU Fall Meeting Abstracts, vol. 1, p. 2410. 2011.
- Ritzwoller, M. H., F. Lin, W. Shen, J. Xie, Y. Yang, Y. Zheng, and Z. L. Quan. "Crustal and uppermost mantle anisotropy in the western US and China inferred from surface wave dispersion." In AGU Fall Meeting Abstracts, vol. 1, p. 01. 2011.
- Shen, W., F. Lin, and M. H. Ritzwoller. "Tracking the Progress of EarthScope/USArray: The crust and upper mantle beneath the transition region between tectonic western US and cratonic eastern US." In AGU Fall Meeting Abstracts, vol. 1, p. 02. 2010.
- Ritzwoller, M. H., F. Lin, Y. Yang, and W. Shen. "Ambient Noise Tomography Across Large Continental Seismic Arrays." In AGU Fall Meeting Abstracts, vol. 1, p. 01. 2010.
- Moschetti, M. P., M. H. Ritzwoller, F. Lin, W. Shen, and Y. Yang. "Unveiling the lithospheric structure of the US Interior using the USArray Transportable Array." In AGU Fall Meeting Abstracts, vol. 1, p. 1619. 2009.
- Shen, W., Y. Yang, M. H. Ritzwoller, J. Pulliam, and S. P. Grand. "The crust and upper mantle beneath the Rio Grande Rift and surrounding regions inferred from ambient noise and earthquake tomography." In AGU Fall Meeting Abstracts, vol. 1, p. 1624. 2009.

- Modelling the western/central US from joint inversion of surface wave and receiver functions. Berkeley Seismological Lab, University of California, Berkeley, 2012.
- Modeling the western/central US from joint inversion of surface wave and receiver functions. IRIS webinar, 2012. (Link: https://www.youtube.com/watch?v=hgeiuLBM_jc)

COURSES TAUGHT

- Lectured classes and labs of 150+ total students on subjects such as geophysics, general and mathematical physics, and the principles of electricity and magnetism.
- The selected courses I have instructed are listed below, and the evaluations performed by the students that took the classes are also provided.

COURSE NAME	ROLE	Semesters	FCQ Results*
PHYSICS 2010 (General Physics I)	Experiment/Recitation Instructor	2008 Fall, 2009 Spring, 2010 Fall, 2013 Spring	5.5/6 5.7/6 5.3/6 5.0/6
PHYSICS 3320 (Principles of Electricity and Magnetism II)	Grader and Course Instructor	2008 Fall	
Physics 5030 (Intermediate Mathematical Physics)	Grader	2010 Fall	

*: FCQ (Faculty Course Questionnaire). The points of “instructor over all” in the FCQ are valued by the students of the course. The average score of a teaching assistant is ~ 4.5 in the Department of Physics.