

## Publications

### In preparation:

**Li, M.**, and S., Zhong, The radial deflection and lateral movement of mantle plumes from 3D dynamic models.

**Li, M.**, and A.K., McNamara, Effects of thermochemical convection in the lowermost mantle on core-mantle heat flow and Earth's thermal evolution.

**Li, M.**, and A.K., McNamara, The evolving morphology of oceanic crustal accumulations in Earth's lowermost mantle.

### In review:

Frost, D.A., Rost, S., Garnero, E.J., and **Li, M.** Seismic evidence for Earth's crusty deep mantle, Earth and Planetary Science Letters.

### In revision

**Li, M.**, and Zhong, S., The source location of mantle plumes from 3D spherical models of mantle convection, Earth and Planetary Science Letters.

**Li, M.**, Zhong, S., and Olson, P., Dynamics of thermochemical plumes and their influence on core-mantle boundary heat flux and occurrence of geomagnetic superchrons, Geophysical Research Letters.

**Li, M.**, McNamara, A.K. and Garnero, E., 2016. Compositionally-distinct ultra-low velocity zones on Earth's core-mantle boundary, **Nature Communications**.

### Published:

Zhao, C.P., Garnero., E.J., **Li, M.**, McNamara, A.K., and Yu, S., "Intermittent and lateral varying ULVZ structure at the northeastern margin of the Pacific LLSVP, Journal of Geophysical Research-Solid Earth, in press.

**Li, M.**, Black, B., Zhong, S., Manga, M., Rudolph, M.L. and Olson, P., 2016. Quantifying melt production and degassing rate at mid-ocean ridges from global mantle convection models with plate motion history. *Geochemistry, Geophysics, Geosystems*, 17: 2884-2904.

Gu, T., **Li, M.**, McCammon, C. and Lee, K.K.M., 2016. Redox-induced lower mantle density contrast and effect on mantle structure and primitive oxygen. **Nature Geoscience**, 9: 723-727.

Zhang, Z., Dorfman, S.M., Labidi, J., Zhang, S., **Li, M.**, Manga, M., Stixrude, L., McDonough, W.F. and Williams, Q., 2016. Primordial metallic melt in the deep mantle. *Geophysical Research Letters*, 43(8): 3693-3699.

**Li, M.**, 2015, Thermochemical Structure and Dynamics of Earth's Lowermost Mantle, PhD dissertation.

Williams, C.D., **Li, M.**, McNamara, A.K., Garnero, E.J. and van Soest, M.C., 2015. Episodic entrainment of deep primordial mantle material into ocean island basalts. **Nature Communications**, 6: 8937.

**Li, M.**, McNamara, A.K. and Garnero, E.J., 2014. Chemical complexity of hotspots caused by cycling oceanic crust through mantle reservoirs. **Nature Geoscience**, 7(5): 366-370.

Cottaar, S., **Li, M.**, McNamara, A.K., Romanowicz, B. and Wenk, H.-R., 2014. Synthetic seismic anisotropy models within a slab impinging on the core–mantle boundary. *Geophysical Journal International*, 199(1): 164-177.

**Li, M.** and McNamara, A.K., 2013. The difficulty for subducted oceanic crust to accumulate at the Earth's core-mantle boundary. *J. Geophys. Res.*, 118(4): 1807-1816.

**Li, M.** and He, Y.M., 2011. Lithospheric structure beneath northeastern boundary region of the North China Craton from Rayleigh wave dispersion inversion. *Acta Seismologica Sinica*, 33(2): 143-155.