

Curriculum Vitae

Yan Liang

Professor, Department of Earth, Environmental and Planetary Sciences, Brown University

EDUCATION

B.Sc.	Geology	Peking University, P. R. China	1984
M.Sc.	Geosciences	University of Houston	1989
Ph.D.	Geophysical Sciences	The University of Chicago	1994

PROFESSIONAL APPOINTMENTS

Professor	Brown University	2012-present
Assistant, Associate Professor	Brown University	1998-2012
Visiting, Research Scientist	Rensselaer Polytechnic Institute	1995-1998
Postdoctoral Research Associate	The University of Chicago	1995-1997

COMPLETED RESEARCH AND SCHOLARSHIP

Refereed Publications († = student under supervision of Liang, * = post-doc)

Liang Y. and Elthon D. (1990) Evidence from chromium abundance in mantle rocks for extraction of picrite and komatiite melts. *Nature* 343, 551-553.

Liang Y. and Elthon D. (1990) Geochemistry and petrology of spinel lherzolite xenoliths from Xalapasco de La Joya, San Luis Potosi, Mexico: Partial melting and mantle metasomatism. *J. Geophys. Res.* 95, 15859-15877.

Richter F. M. and **Liang** Y. (1993) The rate and consequences of Sr diagenesis in deep-sea carbonates. *Earth Planet. Sci. Lett.* 117, 553-565.

Liang Y., Richter F. M. and Watson B. E. (1994) Convection in multicomponent silicate melts driven by coupled diffusion. *Nature* 369, 390-392.

Liang Y. (1995) Axisymmetric double-diffusive convection in a cylindrical container: Linear stability analysis with applications to molten CaO-Al₂O₃-SiO₂. In: *Double-Diffusive Convection* (eds. A. Brandt and J. Fernando). Geophysical Monograph Series 94, 115-124. American Geophysical Union.

Watson E. B. and **Liang** Y. (1995) A simple model for sector zoning in slowly-grown crystal: Implications for growth rate and lattice diffusion, with emphasis on accessory minerals in crustal rocks. *Am. Mineral.* 80, 1179-1187.

Liang Y., Richter F. M., Davis A. M., and Watson E. B. (1996) Diffusion in silicate melts: I. Self diffusion in CaO-Al₂O₃-SiO₂ at 1500°C and 1 GPa. *Geochimica et Cosmochimica Acta* 60, 4353-4367.

Liang Y., Richter F. M., and Watson E. B. (1996) Diffusion in silicate melts: II. Multicomponent diffusion in CaO-Al₂O₃-SiO₂ at 1500°C and 1 GPa. *Geochimica et Cosmochimica Acta* 60, 5021-5035.

- Liang Y.**, Richter F. M., and Chamberlin L. (1997) Diffusion in silicate melts: III. Empirical models for multicomponent diffusion. *Geochimica et Cosmochimica Acta* 61, 5295-5312.
- Richter F. M., **Liang Y.**, and Minarik W. (1998) Multicomponent diffusion and convection in molten MgO-Al₂O₃-SiO₂. *Geochimica et Cosmochimica Acta* 62, 1985-1991.
- Richter F. M., **Liang Y.**, and Davis A. M. (1999) Isotope fractionation by diffusion in molten oxides. *Geochimica et Cosmochimica Acta* 63, 2853-2861.
- Liang Y.** (1999) Diffusive dissolution in ternary systems: Analysis with applications to quartz and quartzite dissolution in molten silicates. *Geochimica et Cosmochimica Acta* 63, 3983-3995.
- Liang Y.** (2000) Dissolution in molten silicates: Effects of solid solution. *Geochimica et Cosmochimica Acta* 64, 1617-1627.
- Liang Y.**, Price J. D., Wark D. A., and Watson E. B. (2001) Nonlinear pressure diffusion in a porous medium: Approximate solutions with applications to permeability measurements using transient pulse-decay method. *J. Geophys. Res.* 106, 529-535.
- Liang Y.** and Davis A. M. (2002) Energetics of multicomponent diffusion in molten CaO-Al₂O₃-SiO₂. *Geochimica et Cosmochimica Acta* 66, 635-646.
- Liang Y.** (2003) Kinetics of crystal-melt reaction in partially molten silicates. 1. Grain scale processes. *Geochemistry, Geophysics, Geosystems* 4(5), 1045, doi: 10.1029/2002GC000375.
- Liang Y.** (2003) On the thermo-kinetic consequences of slab melting. *Geophys. Res. Lett.* 30(24), 2270, doi: 10.1029/2003GL018969.
- Liang Y.** and Guo Y. (2003) Reactive dissolution instability driven by chemical diffusion with applications to harzburgite reactive dissolution. *Geophysical Research Letters* 30, doi: 10.1029/2003GL017687.
- † Morgan Z. T. and **Liang Y.** (2003) An experimental and numerical study of the kinetics of harzburgite reactive dissolution with applications to dunite dike formation. *Earth Planet. Sci. Lett.* 214, 59-74.
- † Lo Cascio M, **Liang Y.**, and Hess P. C. (2004) Grain-scale processes during isothermal-isobaric melting of lherzolite. *Geophysical Research Letters* 31, L16605, doi: 10.1029/2004GL020602.
- † Morgan Z. T. and **Liang Y.** (2005) An experimental study of the kinetics of lherzolite reactive dissolution with applications to melt channel formation. *Contributions to Mineralogy and Petrology* 150, 369-385, doi: 10.1007/s00410-005-0033-8.
- † Beck A. R., † Morgan Z. T., and **Liang Y.**, and Hess P. C. (2006) Dunite channels as viable pathways for mare basalt transport in the deep lunar mantle. *Geophysical Research Letters* 33, doi: 10.1029/2005GL024008.
- † Morgan Z. T., **Liang Y.**, and Hess P. C. (2006) An experimental study of the kinetics of anorthosite dissolution in lunar picritic magmas with applications to lunar crustal assimilation processes. *Geochimica et Cosmochimica Acta* 70, 3477-3491.
- Cherniak D. and **Liang Y.** (2007) Rare earth element diffusion in natural enstatite. *Geochimica et Cosmochimica Acta* 71, 1324-1340, doi: 10.1016/j.gca.2006.12.001.
- Saal A. E., Kurz M. D., Hart S. R., Blusztajn J. S., Blichert-Toft J., **Liang Y.** and Geist D. J. (2007) The role of lithospheric gabbros on the composition of Galapagos lavas. *Earth and Planetary Science Letters* 257, 391-406.

- † Lo Cascio M, **Liang Y.**, Shimizu N., and Hess P. C. (2008) An experimental study of the grain scale processes of peridotite melting: Implications for major and trace element distribution during equilibrium and disequilibrium melting. *Contributions to Mineralogy and Petrology* 156, 87-102, doi: 10.007/s00410-007-0275-8.
- Liang Y.** (2008) Simple models for concurrent melting and melt migration in an upwelling heterogeneous mantle column: Analytical solutions. *Geochimica et Cosmochimica Acta* 72, 3804-3821, doi: 10.1016/j.gca.2008.05.050.
- † Morgan Z. T., **Liang Y.**, and Kelemen P. B. (2008) Significance of the composition profiles associated with dunite bodies in the Josephine and Trinity ophiolites. *Geochemistry, Geophysics, Geosystems* doi: 10.1029/2008GC001954.
- † Thacker C., **Liang Y.**, † Peng Q., and Hess P. C. (2009) The stability and major element partitioning of ilmenite and armalcolite during lunar cumulate mantle overturn. *Geochimica et Cosmochimica Acta* 73, 820-836 (doi: 10.1016/j.gca.2008.10.038).
- Koleszar A. M., Saal A. E., Hauri E. H., Nagle A. N., **Liang Y.**, Kurz M. D. (2009) Melt inclusions, the volatiles contents of the Galapagos plume and evidence of open system behavior. *Earth and Planetary Science Letters* doi: 10.1016/j.epsl.2009.08.029.
- Liang Y.** and † Peng Q. (2010) Non-modal melting in an upwelling mantle column: Steady-state models with applications to REE depletion in abyssal peridotites. *Geochimica et Cosmochimica Acta* 74, 321-339, doi: 10.1016/j.gca.2009.09.029.
- Liang Y.** and Parmentier E. M. (2010) A two-porosity double lithology model for partial melting, melt migration and melt-rock reaction in the mantle: The nature of channel melt and the role of matrix dissolution. *Journal of Petrology* 51, 125-152, doi: 10.1093/petrology/egp086.
- Liang Y.**, Schiemenz A., Hesse M., Parmentier E. M., and Hesthaven J. S. (2010) High-porosity channels for melt migration in the mantle: Top is the dunite and bottom is the harzburgite and lherzolite. *Geophysical Research Letters* 37, L15306, doi: 10.1029/2010GL044162.
- Liang Y.** (2010) Multicomponent diffusion in molten silicates: Theory, experiments, and geological applications. *Reviews in Mineralogy and Geochemistry*. 72, 409-446, doi: 10.2138/rmg.2010.72.9.
- * Schiemenz A., **Liang Y.**, Parmentier E. M. (2011) A high-order numerical study of reactive dissolution in an upwelling heterogeneous mantle: I. Channelization, channel lithology, and channel geometry. *Geophysical Journal International*, 186, 641-664, doi: 10.1111/j.1365-246X.2011.05065.x.
- * Hesse M., Schiemenz A., **Liang Y.**, and Parmentier E. M. (2011) Compaction-dissolution waves in an upwelling mantle column. *Geophysical Journal International*, 187, 1057-1075, doi: 10.1111/j.1365-246X.2011.05177.x.
- Liang Y.**, Schiemenz A., Hesse M., and Parmentier E. M. (2011) Waves, channels, and the preservation of chemical heterogeneities during melt migration in the mantle. *Geophysical Research Letters* 38, L20308, doi: 10.1029/2011GL049034.
- † Sun C. and **Liang Y.** (2012) Distribution of REE between clinopyroxene and basaltic melt along a mantle adiabat: Effects of major element composition, water, and temperature. *Contributions to Mineralogy and Petrology* 163, 807-823, doi: 10.1007/s00410-011-0700-x.

- † Tursack E. and **Liang Y.** (2012) A comparative study of melt-rock reactions in the mantle: laboratory dissolution experiments and geological field observations. *Contributions to Mineralogy and Petrology* 163, 861-876, doi: 10.1007/s00410-011-0703-7.
- † Yao L., Sun C. and **Liang Y.** (2012) A parameterized model for REE partitioning between low-Ca pyroxene and basaltic melts with applications to adiabatic mantle melting and pyroxenite-derived melt and peridotite interaction. *Contributions to Mineralogy and Petrology* 164, 261-280, doi: 10.1007/s00410-012-0737-5.
- Cherniak D. and **Liang Y.** (2012) Ti diffusion in natural pyroxene. *Geochimica et Cosmochimica Acta* 98, 31-47, doi: 10.1016/j.gca.2012.09.021.
- Liang Y.**, Sun C., and Yao L. (2013) A REE-in-two-pyroxene thermometer for mafic and ultramafic rocks. *Geochimica et Cosmochimica Acta* 102, 246-260, doi: 10.1016/j.gca.2012.10.035.
- † Dygert N., **Liang Y.**, and Hess P. C. (2013) The importance of melt TiO₂ in affecting major and trace element partitioning between Fe-Ti oxides and lunar picritic glass melts. *Geochimica et Cosmochimica Acta* 106, 134-151, doi: 10.1016/j.gca.2012.12.005.
- † Sun C. and **Liang Y.** (2013) Distribution of REE and HFSE between low-Ca pyroxene and lunar picritic melts around multiple-saturation points. *Geochimica et Cosmochimica Acta* 119, 340-358, doi: 10.1016/j.gca.2013.05.036.
- † Sun C. and **Liang Y.** (2013) The importance of crystal chemistry on REE partitioning between mantle minerals (garnet, clinopyroxene, orthopyroxene, and olivine) and basaltic melts. *Chemical Geology* 358, 23-36, doi: 10.1016/j.chemgeo.2013.08.045.
- * Zhang N., Parmentier E. M., and **Liang Y.** (2013) A 3D numerical study of the thermal evolution of the Moon after lunar cumulate mantle overturn: The importance of rheology and inner core solidification. *Journal of Geophysical Research* 118, 1-16, doi: 10.1002/jgre.200121.
- † Wang C., **Liang Y.**, Xu, W., and Dygert N. (2013) Effect of melt composition on basalt and peridotite interaction: Laboratory dissolution experiments with applications to mineral compositional variations in mantle xenoliths from the North China Craton. *Contributions to Mineralogy and Petrology* 166, 1469-1488, doi: 10.1007/s00410-013-0938-6.
- * Zhang N., Parmentier E. M., and **Liang Y.** (2013) Effects of lunar cumulate mantle overturn and megaregolith on the expansion and contraction history of the Moon. *Geophys. Res. Lett.* doi: 10.1002/grl.50988.
- † Saper L. and **Liang Y.** (2014) Formation of plagioclase-bearing peridotites and peridotite-wehrlite-gabbro suite through melt-rock reaction: An experimental study. *Contributions to Mineralogy and Petrology* 167: 985, doi: 10.1007/s00410-014-0985-7.
- † Dygert N., **Liang Y.**, Sun C. and Hess P. C. (2014) An experimental study of trace element partitioning between augite and Fe-rich basalts. *Geochimica et Cosmochimica Acta* 132, 170-186, doi: 10.1016/j.gca.2014.01.042.
- Liang Y.** (2014) Time scales of diffusive re-equilibration in bi-mineralic systems with and without a fluid phase. *Geochimica et Cosmochimica Acta* 132, 274-287, doi: 10.1016/j.gca.2014.02.008.

- † Sun C. and **Liang Y.** (2014) An assessment of subsolidus reequilibration on REE distribution among mantle minerals olivine, orthopyroxene, clinopyroxene, and garnet in peridotites. *Chemical Geology*, 372, 80-91, doi: 10.1016/j.chemgeo.2014.02.014.
- Watkins J. M., **Liang Y.**, Richter F. M., Ryerson F. J., and DePaolo D. J. (2014) Diffusion of multi-isotopic chemical species in molten silicates. *Geochimica et Cosmochimica Acta* 139, 313-326, doi: 10.1016/j.gca.2014.04.039.
- Cherniak D. and **Liang Y.** (2014) Titanium diffusion in olivine. *Geochimica et Cosmochimica Acta* 147, 43-57, doi: 10.1016/j.gca.2014.10.016.
- † Sun C. and **Liang Y.** (2015) A REE-in-garnet-clinopyroxene thermobarometer for eclogites, granulites and garnet peridotites. *Chemical Geology* 393-394, 79-92, doi: 10.1016/j.chemgeo.2014.11.014.
- † Wang C., **Liang Y.**, and Xu W. (2015) On the significance of temperatures derived from major element and REE based two-pyroxene thermometers for mantle xenoliths for the North China Craton. *Lithos* 224-225, 101-113, doi: 10.1016/j.lithos.2015.01.022.
- † Dygert N. and **Liang Y.** (2015) Temperatures and cooling rates recorded in REE coexisting pyroxenes in ophiolitic and abyssal peridotites. *Earth and Planetary Science Letters*, 420, 151-161, doi: 10.1016/j.epsl.2015.02.042.
- † Yao L. and **Liang Y.** (2015) Closure temperature in cooling bi-mineralic systems: I. Definition and with application to REE-in-two-pyroxene thermometer. *Geochimica et Cosmochimica Acta* 162, 137-150, doi: 10.1016/j.gca.2015.03.041.
- Liang Y.** (2015) Simple models for closure temperature of a trace element in cooling bi-mineralic systems. *Geochimica et Cosmochimica Acta* 165, 35-43, doi: 10.1016/j.gca.2015.05.028.
- Tirupathi S., Heshavan J. and **Liang Y.** (2015) Modeling 3D magma dynamics using a Discontinuous Galerkin method. *Communications in Computational Physics* 18, 230-246, doi: 10.4208/cicp.090314.151214a.
- Tirupathi S., Heshavan J., **Liang Y.**, and Parmentier E. M. (2015) Multilevel and local time-stepping Discontinuous Galerkin methods for magma dynamics. *Computational Geosciences*, 19, 965-978, doi: 10.1007/s10596-015-9514-7.
- † Baltzell C., Parmentier E. M., **Liang Y.**, and Tirupathi S. (2015) A high-order numerical study of reactive dissolution in an upwelling heterogeneous mantle: II. Effect of shear deformation. *Geochemistry, Geophysics, Geosystems*, 16, doi: 10.1002/2015GC006038.
- Liang Y.** and Liu B. (2016) Simple models for disequilibrium fractional melting and batch melting with application to REE fractionation in abyssal peridotites. *Geochimica et Cosmochimica Acta* 173, 181-197, doi: 10.1016/j.gca.2015.10.020.
- † Dygert N. J., Hirth G., and **Liang Y.** (2016) A flow law for ilmenite in dislocation creep: Implications for lunar cumulate mantle overturn. *Geophysical Research Letters* 43, 532-540, doi: 10.1002/2015GL066546.
- † Dygert N. J., **Liang Y.**, and Kelemen P. (2016) Formation of plagioclase lherzolite and associated dunite-harzburgerite-lherzolite sequence by multiple episodes of melt percolation and melt-rock reaction: An example from Trinity ophiolite. *Journal of Petrology* 57, 815-838, doi: 10.1093/petrology/egw018.

- † Wang C., **Liang Y.**, Dygert N., and Xu W. (2016) Formation of orthopyroxenite by reaction between peridotite and hydrous basaltic melts: An experimental study. *Contributions to Mineralogy and Petrology* 171: 77, doi: 10.1007/s00410-016-1287-z.
- Liang Y.** (2017) Effect of pressure on closure temperature of a trace element in cooling petrological systems. *Contributions to Mineralogy and Petrology* 172:8, doi: 10.1007/s00410-016-1327-8.
- † Liu B. and **Liang Y.** (2017) An introduction of Markov chain Monte Carlo method to geochemical inverse problems: Inversion of melting parameters from REE abundances in abyssal peridotites. *Geochimica et Cosmochimica Acta* 203, 216-234, doi: 10.1016/j.gca.2016.12.040.
- † Dygert N. J., Kelemen P., and **Liang Y.** (2017) Spatial variations in cooling rate in the mantle section of the Samail ophiolite in Oman: Implications for formation of lithosphere at mid-ocean ridges. *Earth and Planetary Science Letters* 465, 134-144, doi: 10.1016/j.epsl.2017.02.038.
- † Sun C., Graff M., and **Liang Y.** (2017) Trace element partitioning between plagioclase and silicate melt: the importance of temperature and plagioclase composition, with implications for terrestrial and lunar magmatism. *Geochimica et Cosmochimica Acta* 206, 273-295, doi: 10.1016/j.gca.2017.03.003.
- † Sun C. and **Liang Y.** (2017) A REE-in-plagioclase-clinopyroxene thermometer for crustal rocks. *Contributions to Mineralogy and Petrology* 172: 24, doi: 10.1007/s00410-016-1326-9.
- * Zhang N., Dygert N. J., **Liang Y.**, and Parmentier E. M. (2017) The effect of ilmenite viscosity on the dynamics and evolution of an overturned lunar cumulate mantle. *Geophysical Research Letters* 44, doi: 10.1002/2017GL073702.
- † Shimizu K., **Liang Y.**, Sun C., Jackson C., and Saal A. (2017) Parameterized lattice strain models for REE partitioning between amphibole and silicate melt. *American Mineralogist* 102, 2254-2267, doi: 10.2138/am-2017-6110.
- † Liu B. and **Liang Y.** (2017) The prevalence of kilometer-scale heterogeneity in the source region of MORB mantle. *Science Advances* 3:e170872, doi: 10.1126/sciadv.1701872.
- Liang Y.** (2018) Diffusion. In W.M. White (ed.), *Encyclopedia of Geochemistry*, Springer International Publishing. https://doi.org/10.1007/978-3-319-39193-9_336-1.
- Liang Y.** and Liu B. (2018) Stretching chemical heterogeneities by melt migration in an upwelling mantle: An analysis based on time-dependent batch melting and fractional melting models. *Earth and Planetary Sciences Letters* 498, 275-287, doi: 10.1016/j.epsl.2018.06.042.
- Li H., Zhang N., **Liang Y.**, Wu B., Dygert N., Huang J., and Parmentier E. M. (2019) Lunar cumulate mantle overturn: A new model constrained by the ilmenite rheology. *Journal of Geophysical Research: Planets* 124, doi: 10.1029/2018JE005905.
- * Yang A. Y., † Wang C., **Liang Y.**, and Lissenberg J. (2019) Reaction between mid-ocean ridge basalt and lower oceanic crust: An experimental study. *Geochemistry, Geophysics, Geosystems* 20, doi: 10.1029/2019GC008368.
- Le Roux V. and **Liang Y.** (2019) Ophiolitic pyroxenites record boninite percolation in subduction zone mantle. *Minerals* 9, 565, doi: 10.3390/min9090565.
- † Liu B. and **Liang Y.** (2019) Importance of permeability and deep channel network to the distribution of melt, fractionation of REE in abyssal peridotites and U-series disequilibria in

- basalts beneath mid-ocean ridges: A numerical study based on a 2D double-porosity ridge model. *Earth and Planetary Science Letters* 528: 115788, doi: 10.1016/j.epsl.2019.115788.
- † Liu B. and **Liang Y.** (2020) Importance of the size and distribution of chemical heterogeneities in the mantle source to the variations of isotope ratios and trace element abundances in mid-ocean ridge basalts. *Geochimica et Cosmochimica Acta* 268, 383-404, doi: 10.1016/j.gca.2019.10.013.
- † Wang C., † Lo Cascio M., **Liang Y.**, and Xu W. (2020) An experimental study of peridotite dissolution in eclogite-derived melts: Implications for styles of melt-rock interaction in lithospheric mantle beneath the North China Craton. *Geochimica et Cosmochimica Acta* 278, 157-176, doi: 10.1016/j.gca.2019.09.022.
- Liang Y.** (2020) Trace element fractionation and isotope ratio variation during melting of a spatially distributed and lithologically heterogeneous mantle. *Earth and Planetary Science Letters* 552: 116594, doi: 10.1016/j.epsl.2020.116594.
- Tokle L., Hirth G., **Liang Y.**, Raterron P., and Dygert N. (2021) The effect of pressure and Mg-content on ilmenite rheology: Implications for lunar mantle overturn. *Journal of Geophysical Research: Planets*, 126, e2020JE006494, doi: 10.1029/2020JE006494.
- † Wang C., **Liang Y.**, and Xu W. (2021) Formation of amphibole-bearing peridotite and amphibole-bearing pyroxenite through hydrous melt-peridotite reaction and in situ crystallization: An experimental study. *Journal of Geophysical Research: Solid Earth*, 126, e2020JB019382, doi: 10.1029/2020JB019382.
- Liang Y.**, † Ji Z., and † Liu B. (2021) What can we learn from REE abundances in clinopyroxene and orthopyroxene in residual mantle peridotites? *Contributions to Mineralogy and Petrology*, 176:24, doi: 10.1007/s00410-021-01780-x.
- Zhang Z. Y., Liu C. Z., **Liang Y.**, Zhang C., Liu T., Zhang W. Q., and Ji W. B. (2022) Decoupled trace element and isotope compositions recorded in orthopyroxene and clinopyroxene in composite pyroxenite veins from the Xiugugabu Ophiolite (SW Tibet). *Journal of Petrology*, 63, 1-28, doi: 10.1093/petrology/egac046.
- Cherniak D. and **Liang Y.** (2022) Ca diffusion in enstatite, with application to closure temperature of the Ca-in-opx thermometer. *Geochimica et Cosmochimica Acta*, 332, 124-137, doi: 10.1016/j.gca.2022.06.018.
- Liang Y.** (2022) Mixing loops, mixing envelopes, and scatter correlations among trace elements and isotope ratios produced by mixing of melts derived from a spatially heterogeneous mantle. *Journal of Petrology*, 63, 1-16, doi: 10.1093/petrology/egac092.
- Zhang W., Zhang N., **Liang Y.**, and Tokle L. (2023) The effect of pressure-dependent viscosity on the dynamics of the post-overturn lunar mantle. *Journal of Geophysical Research: Planets*, 128, e2023JE007933, doi: 10.1029/2023JE007933.
- Zhang Z., Liu C., **Liang Y.**, Liu T., Zhang C., Liu B., Lin Y., Zhang W., and Ji W. (2023) Pyroxenite-harzburgite sequences in the Dazhuqu ophiolite (Southern Tibet) formed through hydrous melt infiltration and melt-peridotite reaction. *Contributions to Mineralogy and Petrology* 178: 92, doi: 10.1007/s00410-023-02076-y.
- Wang C., **Liang Y.**, Xu W., Sun C., and Shimizu K. (2024) Distribution of REE between amphibole and pyroxenes in the lithospheric mantle: An assessment from the lattice strain model. doi: 10.2138/am-2022-8831.

Liang Y. (2024) Simple models for trace element fractionation during decompression melting of a two-lithology mantle. In: *Chemical Evolution and Dynamics of the Earth's Mantle* (C. Bonadiman and E. Rampone, editors). EMU Notes in Mineralogy, **21**, European Mineralogical Union and the Mineralogical Society of the United Kingdom and Ireland, London, doi: 10.1180/EMU-notes.21/4.

Honors/Fellowships

Fellow of Mineralogical Society of America, since 2016

Professional Affiliations

- American Geophysical Union - The Geochemical Society
- Mineralogical Society of America

Graduate Advisors:

M.Sc. Don Elthon, University of Houston
Ph.D. Frank Richter, The University of Chicago

Postdoctoral Advisors:

Bruce Watson, Rensselaer Polytechnic Institute
Frank Richter, The University of Chicago

SERVICE

To the University

Conflict of Interest Review Board (COIRB), (2020-present)
Tenure, Promotion, Appointment Committee, 2014 – 2017
Graduate Council, 2007-2010.
Freshman and Sophomore Advising, 2009-present

To the Department

Chair's Advisory Committee, 2001, 2004-2005, 2011-2014, 2016 – 2018, 2020-2022
Curriculum committee (Chair), 2021-2022
Award Committee, 2022-present
Admission Committee, 2022-present
Planetary Faculty Search, 2023-present
Computer Committee, 2017-2022
Fall Department Field Trip, 2019, 2021
Geophysics Faculty Search Committee, 2015
Earth System History Faculty Search Committee, 2011-2012
Geological Sciences Department Postdoc Committee, 2011-2015
Geological Sciences Computer Committee, 2009-present
Geological Sciences Department Outside Lecture Committee, 1999-2000, 2005-2006, 2012
Geological Sciences Curriculum Committee, 1998 – 1999, 2000-2002, 2007-2008
Department X-ray Facility Committee, 1999 – 2006
Physics and Chemistry of Magmatic Processes Search Committee, 2001, 2002, 2005-2006
Safety Committee, 2003 – 2005
Advisory, Prelim or Thesis Examination Committee of several Graduate Students

To the Profession

- Co-organized and convened a special session on *Basalt Genesis* at the Goldschmidt Conference, Germany, 2007.
- Co-convened the lunar session at the LPSC, Houston, 2007.
- Co-organized and convened a special session on *Melting and Melt Migration in a Multiscale Heterogeneous Mantle* at the American Geophysical Union, Fall Meeting, 2009.
- Co-organized and convened a special session on *Melting and Melt-Rock Reaction: From source to surface* at the American Geophysical Union, Fall Meeting, 2013.
- Co-organized and convened a special session on *Diffusion and Kinetics in Petrologic Systems* at the Goldschmidt Conference, California, 2014.
- NASA panelist, 2014, 2015, 2018, 2021, 2022 (twice)
- NSF panelist, 2017, 2019
- Associate Editor, *Journal of Geophysical Research, Solid Earth*, 2017-2020

TEACHING

- EEPS 0010, *Face of the Earth*, spring semesters, 2023, 2024
- EEPS 2920D, *Introduction to Geochemical Modeling*, fall semester 2023
- EEPS 1960C, *Planetary Petrology*, spring semester 2022
- EEPS 1420, *Petrology*, spring semester, 2017 – 2021
- EEPS 2910Z, Trace Element Geochemistry, fall, 2021
- GEO 1410, *Mineralogy*, fall semesters, 1998 – 2014
- GEO 0230, *Geochemistry: Earth and Planetary Materials and Processes*, spring, 2016, 2020
- GEO 2920, *Introduction to Geochemical Modeling*, spring semester, 2000, 2004, 2007, 2010, and 2014, fall semester 2019.
- GEO 1580, *Quantitative Elements of Physical Hydrology*, spring semester, 2013
- GEO 2920, *Evolution of the Moon*, fall semester, 2010 (team-taught with Professor Alberto Saal).
- GEO 2920, *Evolution of the Moon II*, fall semester, 2011.
- GEO 292, *Convection in the Oceanic Upper Mantle*, fall semester, 2007 (team-taught with Professor Don Forsyth).
- GEO 292, *Physics of Melt Migration*, spring semester (team-taught with Prof. Marc Parmentier), 2006, 2012
- GEO 2410, *Kinetics of Mineralogical and Petrologic Processes*, spring semester, 2001, 2003, 2006, 2009, 2011, 2017, fall 2020
- GEO 291, *Phase Equilibrium II* (team-taught with Professor Paul Hess), fall semester, 2002, spring 2005
- GEO 196, *Archean Crust Genesis*, spring semester, 2004 (team-taught with Professor Paul Hess)

STUDENT ADVISING

- Postdoc: Marc Hesse (2008-2009), Alan Schiemenz (2009-2010), Nan Zhang (2011-2013)
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Lijing Yao, Ph.D. (2016) Conroy Baltzell, M.Sc. (2016)

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Zhenyu Zhang, visiting Ph.D. student (2019-2021)
Raven Grazulis, M.A. (2023)
Beau Boring, fall 2021-fall 2023
Noah Hooper, fall 2022-present

Undergraduate Students:

Kevin Wheeler, UTRA (2000), senior thesis (2001)	Keith Bocian, UTRA (2000)
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Carla Thacker, senior thesis (2007)	Emily Tursack, senior thesis (2011)
Lee Saper (2012-2013)	Michelle Graff, senior thesis (2013)
Sophia Tsang senior thesis (2014 – 2015)	Jake Acquadro UTRA (2017)
Taylor Hough (2017-2018)	Jasper Miura, senior thesis (2019)
Isaiah Spencer (summer, 2019)	Jake Acquadro, senior thesis (2020)
Jack Jacoby (2021)	Luke Randall (2022)
Daniel Zhou, senior thesis (2023)	Emilio Allan, summer (2023)