

- 1) Cin-Ty Lee
- 2) Rice University
- 3) Houston, TX, USA
- 4) History of employment

2016-2021 Chair of the Department of Earth, Environmental and Planetary Science

2002 to present – Professor at Rice University

2001-2002 – postdoctoral fellow, California Institute of Technology

- 5) Degrees

2001 – 2002 California Institute of Technology (post-doctoral Fellow)

2001 Harvard University (Ph.D. - geochemistry)

1996 University of California, Berkeley (B.A.- geology)

- 6) Narrative of research experience

I am a geologist who primarily uses geochemistry and petrology to investigate magma differentiation, volcanic eruptions, continental crust formation, and ore formation. I have deep interests in Earth history, especially in how the Earth's deep interior interacts with its surface. I also link physics-based models to geochemistry, geology and tectonics to tell the story of how our planet differentiated. Recently, I have become interested in crystal growth kinetics and bioacoustics.

- 7) Short list of key publications

**Lee, C.T.** and Liu, B., 2021. Thick crust, hydrous magmas, and the paradox of voluminous cold magmatism. *Volcanica*, 4(2), pp.227-238.

**Lee, C.-T.**, Aquila, G., Birch, A., 2021, Acoustic survey of nocturnal bird migration at Rice University in Houston, Texas during fall 2020, *Bulletin of the Texas Ornithological Society*. 54: 37-57

Liu, B. and Lee, C.T., 2021. Fast melt expulsion from crystal-rich mushes via induced anisotropic permeability. *Earth and Planetary Science Letters*, 571, p.117113.

Phelps, P. R., **Lee, C. T. A.**, & Morton, D. M. (2020). Episodes of fast crystal growth in pegmatites. *Nature Communications*, 11(1), 1-10.

Liu, B., & Lee, C. T. (2020). Large silicic eruptions, episodic recharge, and the transcrustal magmatic system. *Geochemistry, Geophysics, Geosystems*, 21(9), e2020GC009220.

Tang, M., **Lee, C.-T. A.**, Ji, W., Wang, R., Costin, G., 2020, Crustal thickening and endogenic oxidation of magmatic sulfur, *Science Advances* 631): eaba6342; DOI: 10.1126/sciadv.aba6342

**Lee, C.-T. A.**, Tang, M., 2020, How to make a copper porphyry ore deposit, *Earth and Planetary Science Letters*, 529:115868; <https://doi.org/10.1016/j.epsl.2019.115868>

**Lee, C.-T. A.**, Jiang, H., Dasgupta, R., Torres, M., A framework for understanding whole Earth carbon cycling. Cambridge University Press.

Tang, M., **Lee, C.-T. A.**, Chen, K., Erdman, M., Costin, G., 2019, Nb/Ta systematics in arc magma differentiation and the role of arclogites in continent formation, *Nature Communication* 10, Article number: 235; <https://doi.org/10.1038/s41467-018-08198-3>

Jiang, H., **Lee, C.-T. A.**, 2018, Trace elements and U-Pb ages in petrified wood as indicators of paleo-hydrologic events, *Chemical Geology*, <https://doi.org/10.1016/j.chemgeo.2018.06.002>.

Tang, M., Erdman, M., Eldridge, G., **Lee, C.-T. A.**, 2018, The redox “filter” beneath magmatic orogens and the formation of continental crust, *Science Advances* 4, 10.1126/sciadv.aar4444.

**Lee, C.-T. A.**, Caves, J., Jiang, H., Cao, W., Lenardic, A., McKenzie, N. R., Shorttle, O., Yin, Q.-Z., Dyer, B., 2017, Deep mantle roots and continental emergence: implications for whole-Earth elemental cycling,

long-term climate, and the Cambrian explosion, *International Geology Review*  
<http://dx.doi.org/10.1080/00206814.2017.1340853>.

Farner, M., Lee, C.-T. A., 2017, Effects of crustal thickness on magmatic differentiation in subduction zone volcanism: a global study, *Earth and Planetary Science Letters* 470:96-107, doi.org/10.1016/j.epsl.2017.04.025

Lee, C.-T. A., Yeung, L. Y., McKenzie, N. R., Yokoyama, Y., Ozaki, K., Lenardic, A., 2016. Two-step rise of atmospheric oxygen linked to growth of continents, *Nature Geoscience* doi:10.1038/NGEO2707.

Erdman, M. E., Lee, C.-T. A., Levander, A., Jiang, H., 2016, Rise of arc magmatism and lower crustal foundering in controlling elevation history of the Nevadaplano and Colorado Plateau: a case study of pyroxenitic lower crust from central Arizona, USA, *Earth and Planetary Science Letters* 439:48-57.

Lee, C.-T. A., Thurner, S., Paterson, S., Cao, W., 2015, The rise and fall of continental arcs: interplays between magmatism, uplift, weathering, and climate, *Earth and Planetary Science Letters*, doi: 10.1016/j.epsl.2015.05.045.

Lee, C.-T. A., Bachmann, O., 2014, How important is the role of crystal fractionation in making intermediate magmas? Insights from Zr and P systematics, *Earth Planet. Sci. Letters*, 393:266-274; <http://dx.doi.org/10.1016/j.epsl.2014.02.044>.

Chin, E. J., Lee, C.-T. A., Barnes, J., 2014, Thickening, refertilization, and the deep lithosphere filter in continental arcs: constraints from major and trace elements and oxygen isotopes, *Earth Planet. Sci. Lett.* 397:184-200; <http://dx.doi.org/10.1016/j.epsl.2014.04.022>

Lee, C.-T. A., Lee, T.-C., Wu, C.-T., 2013, Modeling the compositional evolution of recharging, evacuating, and fractionating (REFC) magma chambers: implications for differentiation of arc magmas, *Geochimica Cosmochimica Acta*, <http://dx.doi.org/10.1016/j.gca.2013.08.009>.

Lee, C.-T. A., P. Luffi, Chin, E. J., Bouchet, R., Dasgupta, R., Morton, D. M., Le Roux, V., Yin, Q.-Z., Jin, D., 2012. Copper systematics in arc magmas and implications for crust-mantle differentiation. *Science* 336:64-68.

Lee, C.-T. A., Luffi, P., Chin, E., 2011, Building and destroying continental mantle, *Annual Reviews of Earth and Planetary Sciences* 39:59-90.

## 8) Honors

2021 Dana Medal, Mineralogical Society of America

2019 Geochemical Society Fellow

2018 American Geophysical Union Fellow

2017 Guggenheim Fellow

2016 Mineralogical Society of America Distinguished Lecturer

2014 Mineralogical Society of America Fellow

2012 Miller Visiting Professor, UC Berkeley

2010 Geological Society of America Fellow

2009 Donath Medal – Geological Society of America

2009 Clarke Medal – Geochemical Society

2008 Kuno Award – American Geophysical Union – Volcanology, Geochemistry, Petrology

2005 David and Lucile Packard Fellow

## 9) Professional Society Memberships

Geochemical Society, AGU, Mineralogical Society, Geological Society of America, Texas Ornithological Society