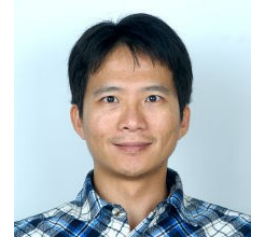


Curriculum Vitae

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[Education]

- 2006 : Ph.D., Geological and Planetary Sciences, California Institute of Technology. 加州理工學院地質與行星科學系博士
- 1997 : B.S., Department of Physics, National Taiwan University. 國立臺灣大學學系學士

[Experiences]

- 2020/04 - present : Associate Research Fellow, Institute of Earth Sciences , Academia Sinica, Taiwan 中央研究院地球科學研究所 副研究員
- 2012/07 - 2020/04 : Assistant Research Fellow, Institute of Earth Sciences , Academia Sinica, Taiwan 中央研究院地球科學研究所 助理研究員
- 2012/02 - 2012/03 : Visiting Scholar, Earth Science and Engineering Program, King Abdullah University of Sciences and Technology, Saudi Arabia
- 2010/02 - 2012/01 : Post-doctoral Fellow, Institute for Geophysics, University of Texas at Austin
- 2006/07 - 2010/01 : Staff Scientist, Computational Infrastructure for Geodynamics, California Institute of Technology

[Research Projects of Past Five Years]

- MOST, Taiwan: Bending and shearing in the subducting Eurasian lithosphere under Taiwan: constraining the state of deformation with geodynamics and seismology. 科技部：西太平洋隱沒帶研究: 化解台灣構造上的爭議與探索新課題-由地體動力及地震學探討隱沒在台灣底下之歐亞板塊岩石圈的變形模式: 撓曲或是剪切 (2018/08/01 ~ 2020/07/31)
- MOST, Taiwan: The elasto-plastic models of southwest Taiwan. 科技部：台灣西南部之彈塑性模型 (2017/08/01 ~ 2018/07/31)
- MOST, Taiwan: Elasto-plastic model on the surface deformation of SW Taiwan and offshore region. 科技部：台灣西南部及外海的地表變形之彈塑性模型 (2016/08/01 ~ 2017/07/31)
- MOST, Taiwan: Developing a Simple and Novel Method for Modeling Convection in the Mantle Wedge. 科技部：研發模擬地函楔形體內的對流之新方法 (2015/08/01 ~ 2016/07/31)

[Publications]

Journal Papers:

1. Peng, C.-C., Kuo, B.-Y., and Tan, E. (2021). Dual structure of poloidal and toroidal flow under the Cocos subduction zone. *Earth Planet. Sci. Lett.*, 565, 116911. doi:10.1016/j.epsl.2021.116911
2. Tan, E. (2020). Subduction of transitional crust at the Manila Trench and its geophysical implications. *J. Asian Earth Sciences*, 187, 104100. doi:10.1016/j.jseaes.2019.104100
3. Citron, R.I., M. Manga, and E. Tan (2018), A hybrid origin of the Martian crustal dichotomy: Degree-1 convection antipodal to a giant impact, *Earth Planet. Sci. Lett.*, 491, 58-86, doi:10.1016/j.epsl.2018.03.031.
4. Persaud, P., E. Tan, J. Contreras, and L. Lavier (2017), A bottom-driven mechanism for distributed faulting in the Gulf of California Rift, *Tectonophysics*, 719-720, 51-65, doi:10.1016/j.tecto.2016.11.024.
5. Tan, E. (2017), Mantle wedge serpentinization effects on slab dips, *Terr. Atmos. Oceanic Sci.*, 28, 259-269, doi:10.3319/TAO.2016.09.21.01.
6. Chang Y.Y., W.P. Hsieh, E. Tan, and J. Chen (2017), Hydration-reduced lattice thermal conductivity of olivine in Earth's upper mantle, *Proc. Natl. Acad. Sci. USA*, 114, 4078-4081 doi:10.1073/pnas.1616216114.
7. Logan, L.C., L.L. Lavier, E. Choi, E. Tan, and G.A. Catania (2017) Semi-brittle rheology and ice dynamics in DynEarthSol3D, *Cryosphere*, 11, 117-132, doi:10.5194/tc-2016-88.
8. Ta, T., K. Choo, E. Tan, B. Jang, E. Choi (2015), Accelerating DynEarthSol3D on tightly coupled CPU-GPU heterogeneous processors, *Computers & Geosciences*, 79, 27-37, doi:10.1016/j.cageo.2015.03.003.
9. Choi, E., E. Tan, L.L. Lavier, and V.M. Calo (2013), DynEarthSol2D: An efficient unstructured finite element method to study long-term tectonic deformation, *J. Geophys. Res.*, 118, doi:10.1002/jgrb.50148.
10. Burstedde, C., G. Stadler, A. Alisic, L.C. Wilcox, E. Tan, M. Gurnis, and O. Ghattas (2013), Large-scale adaptive mantle convection simulation, *Geophys. J. Int.*, 192, 889-906, doi:10.1093/gji/ggs070.
11. Tan, E., L.L. Lavier, H.J.A. van Avendonk, and A. Heuret (2012), The role of frictional strength on plate coupling at the subduction interface, *Geochem. Geophys. Geosyst.*, 13, Q10006, doi:10.1029/2012GC004214.
12. DiCaprio, L., M. Gurnis, R.D. Mueller, and E. Tan (2011), Mantle dynamics of continent-wide Cenozoic subsidence and tilting of Australia, *Lithosphere*, 3, 311-316, doi:10.1130/L140.1.
13. Tan, E., W. Leng, S. Zhong, and M. Gurnis (2011), On the location of plumes and lateral movement of thermochemical structures with high bulk modulus in the 3-D compressible mantle, *Geochem. Geophys. Geosyst.*, 12, Q07005, doi:10.1029/2011GC003665.
14. King, S.D., C. Lee, P.E. van Keken, W. Leng, S. Zhong, E. Tan, N. Tosi, and M.C. Kameyama (2010), A Community Benchmark for 2D Cartesian Compressible Convection in the Earth's Mantle, *Geophys. J. Int.*, 180, 73-87, doi:10.1111/j.1365-246X.2009.04413.x.
15. Helmberger, D., D. Sun, L. Liu, E. Tan, and M. Gurnis (2009), Review of large low shear velocity provinces in the lower mantle, *Geochim. Cosmochim. Ac.*, 73, A520.
16. Burstedde, C., O. Ghattas, M. Gurnis, G. Stadler, E. Tan, T. Tu, L. C. Wilcox, and S. Zhong (2008), Scalable adaptive mantle convection simulation on petascale supercomputers, *International Conference for High Performance Computing, Networking, Storage, and Analysis (ACM/IEEE Supercomputing 2008)*, 15 pp.
17. Zhong, S., A. McNamara, E. Tan, L. Moresi, and M. Gurnis (2008), A benchmark study on mantle convection in a 3-D spherical shell using CitcomS, *Geochem., Geophys., Geosyst.*, 9, Q10017,

doi:10.1029/2008GC002048.

18. Sun, D., E. Tan, D. Helmberger, and M. Gurnis (2007), Seismological support for the metastable superplume model, sharp features, and phase changes within the lower mantle, *Proc. Nat. Acad. Sci.*, 104, 9151-9155, doi:10.1073/pnas.0608160104.
19. Tan, E., and M. Gurnis (2007), Compressible thermochemical convection and application to lower mantle structures, *J. Geophys. Res.*, 112, B06304, doi:10.1029/2006JB004505.
20. Tan, E., E. Choi, P. Thoutireddy, M. Gurnis, and M. Aivazis (2006), GeoFramework: coupling multiple models of mantle convection within a computational framework, *Geochem. Geophys. Geosyst.*, 7, Q06001, doi:10.1029/2005GC001155.
21. Tan, E., and M. Gurnis (2005), Metastable superplumes and mantle compressibility, *Geophys. Res. Lett.*, 32, L20307, doi:10.1029/2005GL024190.
22. Tan, E., M. Gurnis, and L. Han (2002), Slabs in the lower mantle and their modulation of plume formation, *Geochem. Geophys. Geosyst.*, 3, 1067, doi:10.1029/2001GC000238.
23. Ni, S., E. Tan, M. Gurnis, and D. Helmberger (2002), Sharp sides to the African superplume, *Science*, 296, 1850-1852.

Books and Book Chapters:

1. Gurnis, M., W. Landry, E. Tan, L. Armendariz, L. Strand, and M. Aivazis (2010), Development, verification and maintenance of computational software in geodynamics, in G. R. Keller and C. Baru, eds., *Geoinformatics: Cyberinfrastructure for the Solid Earth Sciences*, Cambridge University Press, p49-p67.
2. Tan, E., M. Gurnis, L. Armendariz, L. Strand, and S. Kientz (2010), CitcomS User Manual, <http://www.geodynamics.org/cig/software/citcoms/citcoms.pdf>, 132 pp..
3. Tan, E. (2006), I. Multi-scale dynamics of mantle plumes and II. Compressible thermo-chemical convection and the stability of mantle superplumes, *Ph.D. Thesis*, California Institute of Technology, 180 pp..

[Research Interests]

- Applying numerical lithospheric deformation models to study the dynamics of rifting, subduction and collision processes.
- Applying numerical mantle convection model to study the dynamics of subducted slabs, mantle plumes, and the thermo-chemical structures in the mantle.
- Developing next-generation geophysical modeling tools with high performance and parallelism.