

## Curriculum Vita

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January 2022

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### 1. Educational Background:

Ph.D. in *Geophysics and Scientific Computing*, 1994, (thesis advisor: M. Gurnis)  
University of Michigan  
M.S. in *Geophysics*, 1988, Institute of Geophysics, Chinese Academy of Sciences  
B.S. in *Geophysics*, 1985, University of Science and Technology of China

### 2. Academic Employment History:

2010-present, Professor, University of Colorado at Boulder.  
2004-2010, Associate Professor, University of Colorado at Boulder.  
2000-2004, Assistant Professor, University of Colorado at Boulder.  
1997-2000, Research Scientist, Massachusetts Institute of Technology.  
1994-1997, Postdoctoral Research Fellow, California Institute of Technology.  
1990-1994, Graduate Research Assistant, University of Michigan.  
1988-1990, Research Assistant, Institute of Geophysics, Chinese Academy of Sciences.

### 3. Honors and Awards:

2015, Visiting Fellowship, IGP, France.  
2014, Fellow, American Geophysical Union.  
2014, Agassiz Visiting Lectureship, Harvard University.  
2014, College Scholar Award, College of Arts and Sciences, University of Colorado  
2008, J. T. Oden Research Fellowship, University of Texas at Austin.  
2007, Faculty fellowship, University of Colorado at Boulder.  
2006, Excellence in refereeing, American Geophysical Union.  
2001-2006, Packard Fellowship, David and Lucile Packard Foundation.  
2002-2004, Sloan Fellowship, Alfred P. Sloan Foundation.  
2002-2006, Early Career Award, National Science Foundation.  
1997, Visiting Fellowship, Australian National University.  
1994-1995, Texaco Postdoctoral Fellowship, California Institute of Technology.

### 4. Research:

#### 4.1. *Research Interests:*

1. Mantle convection and large-scale tectonics for Earth and other planets.
2. Viscoelastic and transient deformation of the Earth in response to glacial loads and sediments loads.
3. Deformational properties and rheology of the planetary mantles.
4. High performance computing.

#### 4.2. *Publications (peer-reviewed) (graduate students are underlined):*

1. Devin, E., and S.J. Zhong, Characterization of Viscous Dissipative Heating in the Earth's Mantle Caused by Surface Forces, *Geophysics, Geochemistry, Geosystems*, in review, **2022**.
2. Shijie Zhong, Kaixuan Kang, Geruo A, Chuan Qin, CitcomSVE: A Three-dimensional Finite Element Software Package for Modeling Planetary Mantle's Viscoelastic Deformation in Response to Surface and Tidal Loads, *Geophysics, Geochemistry, Geosystems*, in review, **2022**.
3. Bellas, A., S.J. Zhong, and A.B. Watts, Reconciling lithospheric rheology between laboratory experiments, field observations, and different tectonic settings, *Geophys. J. Int.*, 228, 857-875, <https://doi.org/10.1093/gji/ggab382>, **2022**.
4. Kang, K.S., S.J. Zhong, G.R., A, W. Mao, The effects of non-Newtonian rheology in the upper mantle on relative sea level change and geodetic observations induced by glacial isostatic adjusted process, *Geophys. J. Int.*, 228, 1887-1906, **2022**.
5. Bellas, A., and S.J. Zhong, Seismic Strain Rate and Flexure at the Hawaiian Islands Constrain the Fictional Coefficient, *Geochemistry, Geophysics, Geosystems*, 22, e2020GC009547. <https://doi.org/10.1029/2020GC009547>, **2021**.
6. Bellas, A., and S.J. Zhong, Effects of a Weak Lower Crust on the Flexure of Continental Lithosphere, *Journal of Geophysical Research: Solid Earth*, 126, e2021JB022678. <https://doi.org/10.1029/2021JB022678>, **2021**.
7. Mao, W., and S.J. Zhong, Constraints on mantle viscosity from intermediate-wavelength geoid anomalies in mantle convection models with plate motion history, *J. Geophys. Res.*, 126, e2020JB021561. <https://doi.org/10.1029/2020JB021561>, **2021**.
8. Mao, W., and S.J. Zhong, Formation of horizontally deflected slabs in the mantle transition zone caused by spinel-to-post-spinel phase transition, its associated grain-size reduction effects, and trench retreat, *Geophys. Res. Lett.*, 48, e2021GL093679. <https://doi.org/10.1029/2021GL093679>, **2021**.
9. Zhong, S.J., Mantle dynamics on large spatial and temporal scales, *Chinese J. Geophys.*, 64(10): 3478-3502, doi:10.6038/cjg2021P0530, **2021**.
10. Bellas, A., S.J. Zhong, A.B. Watts, Constraints on the rheology of the lithosphere from flexure of the Pacific plate at the Hawaiian islands, *Geochemistry, Geophysics, Geosystem*, vol. 21, <https://doi.org/10.1029/2019GC008819>, **2020**.
11. Li, M.M., S.J. Zhong, Lateral motion of mantle plumes in 3-D geodynamic models, *Geophys. Res. Lett.*, 46, <https://doi.org/10.1029/2018GL081404>, **2019**.
12. Mao, W., S.J. Zhong, Controls on global mantle convective structures and their comparison with seismic models, *J. Geophys. Res.- Solid Earth*, 124, <https://doi.org/10.1029/2019JB017918>, **2019**.
13. Huang, C., N. Zhang, Z.X. Li, M. Ding, Z. Dang, A. Pourteau, S.J. Zhong, Modeling the inception of supercontinent breakup: Stress state and the importance of orogens, *Geochemistry, Geophysics, Geosystems*, 20, <https://doi.org/10.1029/2019GC008538>, **2019**.
14. Mao, W., and S.J. Zhong, Slab stagnation due to a reduced viscosity layer beneath the mantle transition zone, *Nature-Geo*, 11, 876-881, **2018**.
15. Bellas, A., S.J. Zhong, D. Bercovici, and E. Mulyukova, Dynamic weakening with grain-damage and implications for slab detachment, *Phys. Earth Planet. Int.*, 285, 76-90, **2018**.

16. Qin, C., S.J. Zhong, and R. Phillips, Formation of the lunar fossil bulges and its implication for the early Earth and Moon, *Geophys. Res. Lett.*, 45, 10.1002/2017GL076278, **2018**.
17. Li, M.M., S.J. Zhong, and P. Olson, Linking lowermost mantle structure, core-mantle boundary heat flux and mantle plume formation, *Phys. Earth Planet. Int.*, 10.1016/j.pepi.2018.01.010, **2018**.
18. Li, M.M., and S.J. Zhong, The source location of mantle plumes from 3D spherical models of mantle convection, *Earth Planet. Sci. Lett.*, 478, 47-57, <http://dx.doi.org/10.1016/j.epsl.2017.08.033>, **2017**.
19. Wang, Y.M., J. Huang, S.J. Zhong, and J. Chen, Heat flux and topography constraints on thermochemical structure below North China Craton regions and implications for evolution of cratonic lithosphere, *J. Geophys. Res.*, 121, 3081-3098, **2016**.
20. Li, M.M., B. Black, S.J. Zhong, M. Manga, M.L. Rudolph, P. Olson, 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, **2016**.
21. Qin, C., S.J. Zhong, J. Wahr, Elastic tidal response of a laterally heterogeneous planet: a complete perturbation formulation, *Geophys J Int.*, 207, 89-110, DOI: <https://doi.org/10.1093/gji/ggw257>, **2016**.
22. Zhong, S.J., and X. Liu, The long-wavelength mantle structure and dynamics and their implications for large-scale tectonics and volcanism in the Phanerozoic, *Gondwana Res.*, 29, 83-104, 10.1016/j.gr.2015.07.007, **2016**.
23. Liu, X., and S.J. Zhong, Constraining mantle viscosity structure for a thermochemical mantle using the geoid observation, *Geochem. Geophys. Geosyst.*, DOI: 10.1002/2015GC006161, **2016**.
24. Liu, X., and S.J. Zhong, The long-wavelength geoid from 3-dimensional spherical models of thermal and thermo-chemical mantle convection, *J. Geophys. Res.*, 120, doi:10.1002/2015JB012016, **2015**.
25. Zhong, S.J., and M. L. Rudolph, On the temporal evolution of long-wavelength mantle structure of the Earth mantle since the Early Paleozoic, *Geochem. Geophys. Geosyst.*, 16, 1599-1615, doc10.1002/2015GC005782, **2015**.
26. Wang, Y.M., J.S. Huang, and S.J. Zhong, Episodic and multistaged gravitational instability of cratonic lithosphere and its implications for reactivation of the North China Craton, *Geochem. Geophys. Geosyst.*, 16, 815-833, doi:10.1002/2014GC005681, **2015**.
27. Olson, P., R. Deguen, M.L. Rudolph and S.J. Zhong, Core evolution driven by mantle global circulation, *Phys. Earth Planet. Int.*, 243, 44-55, **2015**.
28. Qin, C., S.J. Zhong, and J. Wahr, A perturbation method and its application: elastic tidal response of a laterally heterogeneous planet, *Geophys. J. Int.*, **199**, 631-647, **2014**.
29. Rudolph, M.L. and S.J. Zhong, History and dynamics of net rotation of the mantle and lithosphere, *G<sup>3</sup>*, **15**, doi:10.1002/2014GC005457, **2014**.
30. A. Geruo, J. Wahr and S.J. Zhong, The effects of laterally varying icy shell structure on the tidal response of Ganymede and Europa, *J. Geophys. Res. Planets*, **119**, 659-678, doi:10.1002/2013JE004570, **2014**.
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32. Scheinberg, A., L.T. Elkins-Tanton, and S.J. Zhong, Timescale and morphology of Martian mantle overturn immediately following magma ocean solidification, *J.*

- Geophys. Res.-Planets.*, **119**, doi:10.1002/2013JE004496, **2014**.
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  34. Rudolph M. L. and S.J. Zhong, Quadrupole stability implies LLSVP fixity? Arising from: C. Conrad et al., *Nature*, **503**, doi:10.1038/nature12792.
  35. Liu, X. and S.J. Zhong, Analysis of marginal stability, heat transfer and boundary layer properties for thermal convection in a compressible fluid, *Geophys. J. Int.*, **194**, 125-144, **2013**.
  36. Watts, A.B., S.J. Zhong, J. Hunter, The behavior of the lithosphere on seismic to geologic time-scales, *Annu. Rev. Earth Planet. Sci.*, **41**, 443-468, **2013**.
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  61. Li, Z.X. and S.J. Zhong, Supercontinent-superplume coupling, true polar wander and plume mobility: plate dominance in whole-mantle tectonics? *Phys. Earth Planet. Int.*, doi:10.1016/j.pepi.2009.05.004 , **2009**.
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  66. Leng, W., and S. J. Zhong, Controls on plume heat flux and plume excess temperature, *J. Geophys. Res.*, 113, B04408, doi:10.1029/2007JB005155, **2008**.
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## 5. Teaching:

Physics 1110: General Physics 1.



Physics 1115: General Physics 1.  
 Physics 1110h: General Physics 1 honors.  
 Physics 1120: General Physics 2.  
 Physics 1125: General Physics 2.  
 Physics 1140: Experimental Physics 1.  
 Physics 1230: Light and Color.  
 Physics 2130: General Physics 3 / Modern Physics.  
 Physics 2210: Math Methods and Analytic Mechanics.  
 Physics 3210: Analytic Mechanics.  
 Physics 3310: Electrodynamics  
 Physics 5030: Intermediate Mathematic Physics.  
 Physics 5120: Theoretical Mechanics.  
 Physics 6630: Earth and Planetary Physics, Part 3.  
 ASTR/GEOL 6650: Geophysics seminar.

## 6. Professional Service:

Proposal Review Panels for NASA and NSF multiple times.  
 2021- Editorial Board for Chinese Geophysical Journal.  
 2019-2020, AGU Fellow Mentoring Network.  
 2017-present, Advisory committee of Inst of Earth Science, Academia Sinica, Taipei.  
 2015, Co-convener of Dynamic topography workshop, Boulder, Colorado.  
 2015, Convener of two special sessions at the fall meeting of the AGU.  
 2014, Convener of a special session at the fall meeting of the AGU.  
 2012, Convener of special session at 34th International Geological Congress, Brisbane, Australia  
 2012, Co-organizer of international mantle convection workshop at UC-Davis.  
 2012, Co-organized a special session on Comparative Planetology for 2nd Symposium of Earth System Science in Shanghai, China.  
 2011, Convener of special session at Fall AGU.  
 2010, Convener of special session at Fall AGU.  
 2010, Convener of special session at Western Pacific Geophysics Meeting.  
 2010, Co-organizer of GLADE 2010 at UCSD.  
 2008, Convener of two special sessions at EGU.  
 2008, Convener of two special sessions at the fall meeting of the AGU.  
 2008-2009, Member of the Nomination Committee of Computational Infrastructure for Geodynamics (a NSF-funded national center).  
 2005-2008, Elected member of the Scientific Steering Committee of Computational Infrastructure for Geodynamics.  
 2007, Organizer of the workshop on adaptive mesh refinement in Boulder, Colorado.  
 2007, Convener of special session at the fall meeting of the AGU.  
 2006, Co-organizer of compressible mantle convection workshop in West Lafayette, Indiana.  
 2006, Convener of special session at Western Pacific Geophysics Meeting the AGU.  
 2005, Main organizer of mantle convection workshop in Boulder, Colorado.  
 2005, Convener of special session at the fall meeting of the AGU  
 2003, Convener of special session at the fall meeting of the AGU.  
 2001-2004, Associate Editor, Journal of Geophysical Research-Solid Earth (the main research journal of American Geophysical Union).  
 2001, Convener of special session at the fall meeting of the AGU.