

Curriculum Vita

Shijie Zhong
January 2024

Department of Physics
University of Colorado at Boulder
Boulder, Colorado 80309, USA
E-mail: szhong@colorado.edu. Phone: 303-735-5095. Fax: 303-492-7935.

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, Awards and Grants:

3.1. Honors and Awards:

2023, Visiting Professor Fellowship, Universite Cote d'Azur, France
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) (mentees 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, <https://doi.org/10.1029/2021GC010218>, **2022**.
2. Zhong, S.J., K.X. Kang, G.R. A, C. 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, <https://doi.org/10.1029/2022GC010359>, **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.X., 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 grainsize 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, doi:10.1002/2015GC005782, **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, *G³*, **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 Europe, *J. Geophys. Res. Planets*, **119**, 659-678, doi:10.1002/2013JE004570, **2014**.
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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**.
37. A. G.R., J. Wahr, and S.J. Zhong, Computations of the viscoelastic response of a 3-D compressible Earth to surface loading: an application to glacial isostatic adjustment in Antarctica and Canada, *Geophys. J. Int.*, **192**, 557-572, **2013**.
38. Huang, J.H., A. Yang, and S.J. Zhong, Constraints of the topography, gravity and volcanism on Venusian mantle dynamics and generation of plate tectonics, *Earth Planet. Sci. Lett.*, **362**, 207-214, **2013**.
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44. Flowers, R.M., A.K. Ault, S.A. Kelley, N. Zhang, and S.J. Zhong, Epeirogeny or eustasy? Paleozoic–Mesozoic vertical motion of the North American continental interior from thermochronometry and implications for mantle dynamics, *Earth Planet. Sci. Lett.*, **317-318**, 438-445, doi:10.1016/j.epsl.2011.11.015, **2012**.

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4.3. Invited Talks (since coming to University of Colorado):

1. Invited colloquium at Geoazur, Universite Cote d'Azur, Nice, France, April, 2023.
2. Invited colloquium at Observatoire de la Côte d'Azur, Nice, France, May, 2023.
3. Invited talk at the IPACES meeting, University of Science and Technology of China, Hefei, July, 2023.
4. Invited talk at Institute of Geology and Geophysics, Chinese Academy of Sciences, July, 2023.
5. Invited talk at Institute of Earth Sciences, Academia Sinica, Taipei, June, 2023.
6. Invited colloquium (Zoom) at Institute of Geology and Geophysics, Chinese Academy of Sciences, December, 2021.
7. Invited Keynote speaker (Zoom) at Symposium for late Professor WANG Ren, Organized by Peking University, October, 2021.
8. Invited lectures at an International summer school of Planetary Sciences organized by University of Science and Technology of China, July, 2020.
9. Invited Colloquium at State University of New York at Stony Brook, October, 2020.
10. Invited Keynote speaker at the International conference on mantle and lithospheric dynamics, Siena, Italy, 2019.
11. Invited presentation at NASA Solid Earth Dynamics Symposium, La Jolla, CA, 2019.
12. Invited lectures at Southern China University of Science and Technology, Shenzhen, China, 2019
13. Invited departmental colloquium talk at Michigan State University, 2018
14. Invited Departmental colloquium talk at Beijing University, 2018
15. Invited talk at workshop on Deep Earth's Geophysics, Wuhan University, 2018
16. Invited Division colloquium talk at Caltech, 2018
17. Invited talk at international symposium on Geodynamics, University of Chinese Academy of Science, Beijing, 2018.
18. Invited seminar talk at Southwest Research Institute, Colorado, 2018.
19. Invited seminar talk at Laboratory for Atmospheric and Space Physics of the University of Colorado, 2018.
20. Departmental colloquium at McGill Space Institute, McGill University, Canada, 2018.
21. Departmental colloquium at Carnegie Institution of Washington, 2017.
22. Keynote talk at International symposia on Post-glacial rebound, Iceland, 2017
23. Keynote talk at International symposia on Geo-neutrino science, Beijing, 2017.
24. Departmental colloquium at Institute of Geophysics, Chinese Academy of Science, Beijing, 2017.
25. Departmental colloquium at Beijing University, Beijing, 2017.
26. Departmental colloquium at University of Sci. Tech. China, Hefei, 2017.
27. Steven Zatman Memorial Colloquium, Washington Univ. in St. Louis, 2016.
28. Invited talk at CIDER workshop at UCSB, 2016
29. Invited keynote talk at 50th anniversary Wilson Cycle symposium, London, UK, 2016.

30. Invited talk at a special Oxford University symposium, Oxford, UK, 2016.
31. Invited keynote at international conference on Deep Earth, Wuhan, China, 2016.
32. Invited talk at CIDER post-AGU meeting at UC-Berkeley, 2015
33. Departmental colloquium, University of Illinois Urbana Champaign, 2015.
34. Departmental colloquium, IPGP, France, 2015.
35. Departmental colloquium, ENS Lyon, France, 2015.
36. Departmental colloquium, Univ. Munich, Germany, 2015.
37. Departmental colloquium, German Aerospace Center (DLR), Germany, 2015.
38. Invited talk at Japanese Geophysical Meeting, 2014.
39. Invited talk at AGU Fall Meeting, 2014
40. Departmental colloquium, Harvard University, 2014.
41. Agassiz lectures, Harvard University, 2014.
42. Departmental colloquium, University of Southern California, 2013.
43. Invited presentation and lecture for the summer school of CIDER (NSF-funded center) at UC-Berkeley, 2013.
44. Invited speaker at the 3rd Global COE International Symposium on Deep Earth Mineralogy, Ehime University, Japan, 2013
45. Departmental colloquium, Earthquake Research Institute, University of Tokyo, 2013.
46. Invited talk at AGU Fall Meeting, 2012.
47. Departmental colloquium, University of Toronto, Canada, 2012
48. Invited speaker for 34th IGC, Brisbane, Australia, 2012
49. Invited talk for Frontiers in Computational Physics: Modeling the Earth System, Boulder, Colorado, 2012.
50. Invited presentation and lecture for the summer school of CIDER (NSF-funded center) in Santa Barbara, 2012.
51. Department seminar, University of Science and Technology of China, 2012.
52. Invited talk for conference on hemispheric structure and dynamics of the inner core, Wuhan, 2012.
53. Invited speaker at IUGG, Melbourne, Australia 2011.
54. Invited speaker at workshop on Lithosphere-Asthenosphere Boundary, Oregon, 2011.
55. Invited lecturer and speaker for ICTP Summer School, Italy, 2011.
56. Invited presentations at AGU Fall Meeting 2011.
57. Department seminar, University of Science and Technology of China, 2011
58. Invited presentation and session chair at Chapman conference, Galapagos, 2011.
59. Applied mathematics seminar, Colorado State University, Fort Collins, 2011.
60. Invited speaker for International Conference on Multi-scale Continental Dynamics, China Geoscience University, Wuhan, China 2010.
61. Invited speaker at GEOMOD - modeling in Geoscience 2010 conference in Lisbon, Portugal, 2010.
62. Invited presentation at AGU Fall Meeting 2010
63. Colloquium speaker at the School of Earth and Space Exploration, Arizona State University, 2010.
64. Colloquium speaker at Department of Earth Science, Boston University, 2010.
65. Fermor Meeting on Rodinia, Geol. Society of London, Edinburgh, U.K., 2009.
66. Cooperative Inst. For Dynamic Earth Res., Marconi Center, California, 2009.
67. School of Earth and Space Sciences, Univ. Sci. Tech. Hefei, China, 2009.
68. Inst. Geology and Geophysics, Chinese Academy of Sci., Beijing, China, 2009.
69. International workshop on Geodynamics, Graduate School of Chinese Academy of Sci., Beijing, China, 2009.
70. School of Earth Sciences, Peking University, Beijing, China, 2009.
71. Workshop on Geoscience-Mathematics, New Mexico, 2008.
72. Workshop on Grand Challenge in Mantle Rheology, Massachusetts, 2008.

73. Workshop on the dynamics of the mantle and lithosphere, UC-Davis, 2008.
74. US-China Workshop on Geophysics, Boulder, Colorado, 2008.
75. Department of Earth and Ocean Sciences, Univ. of British Columbia, 2008.
76. Fall Meeting of American Geophysical Union, San Francisco, 2008.
77. Two invited talks at the European Geophysical Union Meeting, Vienna, 2008.
78. Pardee keynote symposia, Geological Society of America, Denver, 2007.
79. Keynote speaker of Gordon Research Conference on the Interiors of the Earth, Massachusetts, 2007.
80. Department of Earth Sciences, University of Oxford, 2007.
81. Department of Earth Sciences, Durham University, 2007.
82. School of Earth and Environment, University of Leeds, 2007.
83. Geophysics seminar series, University of Colorado at Boulder, 2007.
84. Fall Meeting of American Geophysical Union, San Francisco, 2006.
85. Workshop on Petascale Computing, San Diego, 2006.
86. Workshop on Computational Geophysics, Austin, 2006.
87. Western Pacific Geophysics Meeting of American Geophysical Union, Beijing, 2006.
88. International workshop on Geoinformatics, Beijing, 2006.
89. Packard Fellows meeting, Monterey, California, 2006.
90. Fall Meeting of American Geophysical Union, San Francisco, 2005.
91. Keynote speaker of Gordon Research Conference on the Interiors of the Earth, Massachusetts, 2005.
92. Department of Geosciences, Univ. Texas at Austin, 2005.
93. Canadian Institute of Advanced Studies-Earth Sciences, Montreal, 2005.
94. Spring Meeting of American Geophysical Union, New Orleans, 2005.
95. Univ of Science and Technology of China, Hefei, 2005
96. Meeting of the European Geophysical Union, Vienna, 2005.
97. Fall Meeting of American Geophysical Union, San Francisco, 2004.
98. Department of Earth and Planetary Sciences, Harvard University, 2004.
99. Keynote speaker for MYRES-I, UC-San Diego, 2004.
100. Workshop on Structure and Evolution of the Antarctic Plate, Colorado, 2003.
101. Workshop on Cooperative Institute for Deep Earth Research, California, 2003.
102. Department of Geosciences, Princeton University, 2003.
103. Workshop on IT for EarthScope, Utah, 2002.
104. Conference on Computational Geodynamics, Utah, 2002.
105. Packard Fellows meeting, California, 2002.
106. Institute of Geophysics, Chinese Academy of Sciences, Beijing, 2002.
107. LASP, University of Colorado at Boulder, 2001.

5. Teaching:

5.1. Courses taught.

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 I

Physics 3320: Electrodynamics II
Physics 5030: Intermediate Mathematic Physics.
Physics 5120: Theoretical Mechanics.
Physics 6630: Earth and Planetary Physics, Part 3.
ASTR/GEOL 6650: Geophysics seminar.

5.2. Mentoring graduate students, post-doctoral scholars and research associates.

Graduate Students:

Donna DePolo (PhD student, current), Tao Yuan (PhD student, current), Shunjie Han (PhD student, current), Kaixuan Kang (PhD 2022, post-doc at UT-Austin), Ashley Bellas (PhD 2021, post-doc at MIT), Wei Mao (PhD 2021, post-doc at Caltech), Xi Liu (PhD, 2016, post-doc at Caltech), Chuan Qin (PhD 2015, post-doc at Harvard), Geruo A (PhD 2013, post-doc at UCI after PhD), Robert Citron (MS, 2012), Wei Leng (PhD, 2010, post-doc at Caltech after PhD), Nan Zhang (PhD, 2011, post-doc at Brown University after PhD), Chris Harig (PhD, 2010, co-advised with Peter Molnar, post-doc at Princeton after PhD), Archie Paulson (PhD, 2006, post-doc at UC at Berkeley after PhD), James Roberts (PhD, 2006, post-doc at UC at Santa Cruz after PhD).

Post-doctoral Scholars and Research Associates:

Jinshui Huang (2001-2003, now a faculty member at Univ. Sci. Tech. China).
Jeroen van Hunen (2002-2004, now a faculty member at Univ. of Durham, UK).
Allen McNamara (2002-2004, now a faculty member at Michigan State Univ.).
Ondrej Sramek (2008-2011, now a faculty member at Charles Univ., Czech).
Maxwell Rudolph (2012-2014, now a faculty member at UC-Davis).
Mingming Li (2015-2017, now a faculty member at Arizona State Univ.)

6. Professional Service:

Proposal Review Panels for NASA and NSF multiple times.
2021- Editorial Board for Chinese Geophysical Journal.
2020, AGU Jointed committee for AGU Fellow selection.
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, Convenor of special session at the fall meeting of the AGU.
2006, Co-organizer of compressible mantle convection workshop in West Lafayette, Indiana.
2006, Convenor of special session at Western Pacific Geophysics Meeting the AGU.
2005, Main organizer of mantle convection workshop in Boulder, Colorado.
2005, Convenor of special session at the fall meeting of the AGU
2003, Convenor 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, Convenor of special session at the fall meeting of the AGU.