LINDA TARBOX ELKINS-TANTON

Curriculum Vitae
July 2025

University of California, Berkeley
Director, Space Sciences Laboratory and Professor of Earth and Planetary Science
Principal Investigator, NASA Psyche mission
Co-founder, Beagle Learning
(617) 784-3817 | lindyelkins@berkeley.edu

RESEARCH

Terrestrial planetary formation and subsequent planetary evolution. Creation of effective interdisciplinary teams, setting culture, maximizing discovery, and surviving crises, in organizations from startups to mega-projects. Inquiry and exploration learning and the reformation of education for the Information Age.

Research Achievements

- The evolution of planetesimals includes partially differentiated and other complex compositional structures, explaining physical and compositional observations from meteorites and asteroids.
- The Siberian flood basalts caused the end-Permian extinction: The flood basalts erupted most of their volume before the end-Permian extinction occurred; the magmatism released carbon, sulfur, and halocarbons sufficient to drive catastrophic global climate change; the flood basalts began with a world-record volume of volcaniclastics, many erupted as tuffs and burning a significant coal volume.
- Rocky planets are born habitable: Magma ocean stages of terrestrial planet formation retained sufficient water to create habitable planets without additional water delivery (though that is inevitable as well), and the silicate differentiation produced by magma ocean solidification creates successful predictions about current-day Moon, Earth, Mercury, and Mars.
- Drip magmatism: Lithospheric gravitational instabilities heat, melt, and produce magmatism while they sink into the mantle; verified in Chile, in Tibet, in the Sierra Nevada, and in east Africa.
- The productivity of research questions can be rated using a rubric and scored successfully by artificial intelligence.

Leadership Achievements

- Led the Psyche mission team in NASA competition with 27 other mission proposals, resulting in selection for flight, and now responsible for the ~$1.2B budget. Tied together ~6 major organizations and a dozen subcontractors to produce the spacecraft; united the science and engineering teams.
- Brought the ASU School of Earth and Space Exploration to #1 in the NSF HERD rankings in our discipline, with >$65M/year in research expenditures. Maintaining positive culture was a high priority in this group of ~70 faculty with ~350 people on payroll. Between 2014 and 2019, raised the percentage of women faculty from ~10 to ~30%.
- Conceived of and created with ASU President Michael Crow the ASU Interplanetary Initiative, a pan-university effort to create the research and education necessary for a human interplanetary future. Our process for building interdisciplinary teams has produced an 8x return in the form of external grants and gifts following our seed funding of 45 research projects.

EDUCATION

PhD, Geology and Geophysics, MIT, 2002. Advisors: Timothy L. Grove and Bradford H. Hager.
MS, Geochemistry, MIT, 1987. Advisor: Timothy L. Grove.

BS, Geology, MIT, 1987.

EMPLOYMENT

Present: University of California, Berkeley
Director, Space Sciences Laboratory, 2025 – present
Professor, Earth and Planetary Science, 2025 – present
Principal Investigator, NASA Psyche mission, 2011 (work began) – 2017 (flight selection) – present (cruise)
Co-Founder, Beagle Learning, 2015 – present

Arizona State University, NASA Psyche mission, and Beagle Learning
ASU University, Foundation, and Regents Professor for the State of Arizona, 2021-2025
ASU Vice President of the Interplanetary Initiative, 2021–2025
Managing Director and Co-Chair, Interplanetary Initiative, ASU, 2017 – 2021
Director, School of Earth and Space Exploration, Arizona State University, 2014 – 2019

Carnegie Institution for Science
Director, Dept. of Terrestrial Magnetism, Carnegie Institution for Science, 2011 – 2014

MIT
Mitsui Assistant Professor of Geology, MIT, 2008 – 2011
Assistant Professor of Geology, MIT, 2007 – 2008

Previous
Research Associate and Senior Research Associate, Brown University, 2002 – 2007
PhD candidate, MIT, 1997 – 2002
Lecturer in Mathematics, St. Mary's College of Maryland, 1995 – 1997
Principal, Business Plan Writing, Annapolis, MD, 1990 – 1995
Circulation Analyst, US News & World Report, Washington DC, 1989 – 1990
Interim Publisher, International Wine Review Magazine, Ithaca, NY, 1988 – 1989
Research Associate, Touche Ross & Co., Philadelphia, PA, 1987 – 1988

PEER-REVIEWED PUBLICATIONS (INCLUDING BOOK CHAPTERS AND REVIEWED ENGINEERING CONFERENCE PAPERS)

List available on Google citations.
In bold: Students and postdocs for whom I was primary or secondary advisor on the specific published project.
2025

151. Baijal N., E. Asphaug, A. Denton, M. Jutzi, S. Raducan, S. Cambioni, L. T. Elkins-Tanton, A. M. Alexander, Exploring the interior structure of (16) Psyche through basin-scale collisions, *Journal of Geophysical Research: Planets*, 2025.
150. **Courville, S.W.** Hannah Sanderson, **Carver J. Bierson,** Linda T. Elkins-Tanton, Rona Oran, Joseph Ghilarducci O'Rourke, Christopher T. Russell, Benjamin P Weiss, David A Williams**,** Ferrovolcanic intrusions on asteroid (16) Psyche may be magnetized, *Journal of Geophysical Research: Planets*, 2025.
149. **Bierson, Carver J., Samuel W. Courville**, Anton Ermakov, Linda T. Elkins-Tanton, Mark Wieczorek, Ryan S. Park, and Namya Baijal, (16) Psyche's different possible formation scenarios and internal structures from current constraints, *Journal of Geophysical Research: Planets,* DOI**:** 10.1029/2024JE008640.

2024

148. **Hubbard, K.M**., L.T. Elkins-Tanton, T. Masson-Zwaan, A Mining Code for Regulating Lunar Water Ice Mining Activities, *Proc. Nat. Acad. Sci.,* 2024.
147. Jarmack, S., …L.T. Elkins-Tanton, et al.,Estimate of water and hydroxyl abundance on asteroid (16) Psyche from JWST data, *The Planetary Science Journal*, 5(8) 2024.
146. **Schaefer, L.** K. Pahlevan, L.T. Elkins-Tanton, Ferric iron evolution during crystallization of the Earth and Mars, *Journal of Geophysical* Research, https://doi.org/10.1029/2023JE008262, 2024.
145. de Soria-Santacruz, M.…L.T. Elkins-Tanton….Systems Engineering of the Psyche Payload, *IEEE Aerospace* 1-24, 2024.
144. Arredondo, A., M.M.McAdam, T.M. Becker, L. Elkins-Tanton, Z. Landsman, T. Müller, Rotationally Resolved Mid-infrared Spectroscopy of (16) Psyche, *The Planetary Science Journal* 5(2), 33, 2024.
143. **Dibb, S.D**., E. Asphaug, J. F. Bell, C. Bierson, R. P. Binzel, W. F. Bottke, Saverio Cambioni, J. M. Christoph, L.T. Elkins-Tanton, R. Jaumann, D. J. Lawrence, R. Oran, J. G. O'Rourke, C. Polansky, B. Weiss, M. Wieczorek, D. A. Williams, and the Psyche Mission Team, A Post-Launch Summary of the Science of NASA's Psyche Mission, *AGU Advances*, 2024/4.

2023

142. Gaffney, A.M., J. Gross, L. E. Borg, K. L. Donaldson Hanna, D. S. Draper, N. Dygert, L. T. Elkins-Tanton, K. B. Prissel, T. C. Prissel, E. S. Steenstra, W. van Westrenen, Magmatic Evolution I: Initial Differentiation of the Moon, *Reviews in Mineralogy and Geochemistry* 89, 103-145, 2023.
141. Bowman C.D.D., L.T. Elkins-Tanton, A. Talamante, J.F. Bell III, E. Cizneros, A. Cook, J.D. Frieman, D. Gainor, J. Hunziker, S. Shan. C.R.Lawler, J. Maschino, T.J. McCoy, K. Nessi, R. Oran, D. Seal, A. Simon, R. Singh, C.M. Tolbert, K. Valentine, B.P. Weiss, D.D. Wenkert, D.A. Williams, Mission to Psyche: Including Undergraduates and the Publc on the Journey to a Metal World, *Space Science Reviews*, 2(12), 2023, https://doi.org/10.1007/s11214-023-00967-x.
140. Weiss,B.P., J. M. G. Merayo, J. B. Ream, R. Oran, P. Brauer, C. J. Cochrane, K. Cloutier, L. T. Elkins-Tanton, J. L. Jørgensen, C. Maurel, R. S. Park, C. A. Polanskey, M. de Soria Santacruz-Pich, C. A. Raymond, C. T. Russell, D. Wenkert, M. A. Wieczorek, M. T. Zuber. The Psyche Magnetometry Investigation. *Space Science Reviews* 219, 2023, https://doi.org/10.1007/s11214-023-00965-z.
139. **Zhang, Zhongtian**, D. Bercovici, L. Elkins-Tanton, Melt migration in rubble-pile planetesimals: Implications for the formation of primitive achondrites. *Earth and Planetary Science Letters,* 2023, 605, https://doi.org/10.1016/j.epsl.2023.118019.
138. **Hubbard, Kevin M**., Chris W. Haberle, Linda T. Elkins-Tanton, Phil R. Christensen[1]and Steven Semken, Thermal-Infrared Emission Spectroscopy of Graybody Minerals (Sulfide): Implications for Extraterrestrial Exploration for Magmatic Ore Deposits, *Earth and Space Sci.*, 2023, 10(2), https://doi.org/10.1029/2022EA002641.
137. **Dibb, Steven**, J.F. Bell III, L.T. Elkins-Tanton, D.A. Williams, and the Psyche Mission Team. Visible to Near-Infrared Reflectance Spectroscopy of Asteroid (16) Psyche: Implications for the Psyche Mission's Science Investigations. *Earth and Space Science*, 2023, 10(1) https://doi.org/10.1029/2022EA002694.

2022

136. **Zhang, Zhongtian**, D. Bercovici, L. Elkins-Tanton. Cold compaction and macro-porosity removal in rubble-pile asteroids: 2. Applications. *Journal of Geophysical Research-Planets*, 2022, 127(10), https://doi.org/10.1029/2022JE007343.
135. **Zhang, Zhongtian**, D. Bercovici, L. Elkins-Tanton. Cold compaction and macro-porosity removal in rubble-pile asteroids: 1. Theory. *Journal of Geophysical Research-Planets*, 2022, *127*(10), e2022JE007342.
134. **Pahlevan, K., L. Schaefer**, L.T. Elkins-Tanton, S.J. Desch, P.R. Buseck, A primordial atmospheric origin of hydrospheric deuterium enrichment on Mars, *Earth and Planetary Science Letters* 595 (2022): 117772.
133. **Bierson**, **Carver J. ,** L. T. Elkins-Tanton, J.G. O'Rourke, The geologic impact of 16 Psyche's surface temperatures, *The Planetary Science Journal* 3.8 (2022): 196.
132. **Courville**, **Samuel W. ,** Joseph G. O'Rourke, Julie C. Castillo-Rogez, Roger R. Fu, Rona Oran, Benjamin P. Weiss, Linda T. Elkins-Tanton, Magnetization of carbonaceous asteroids by nebular fields and the origin of magnetized chondrites, *Nature Astronomy*, 2022, DOI: 10.1038/s41550-022-01802-z.

131. Oran, R. B.P. Weiss, M. De Soria Santacruz-Pic, I. Jun, D J. Lawrence, C.A. Polanskey, J.M. Ratli, C.A. Raymond, J.B. Ream, C.T. Russell, Y.Y. Shprits, M.T. Zuber, L.T. Elkins-Tanton, Maximum energies of trapped particles around magnetized planets and small bodies, *Geophysical Research Letters* 49, e2021GL097014, 2022.
130. McCoy, T.J., SD Dibb, PN Peplowski, C Maurel, **HL Bercovici**, CM Corrigan, JF Bell, BP Weiss, DJ Lawrence, DD Wenkert, TH Prettyman, LT Elkins-Tanton, Deciphering Redox State for a Metal-Rich World, *Space Science Reviews* 218(2) 1-28, 2022.
129. Elkins-Tanton, L.T., E. Asphaug, J. F. Bell III, **C. J. Bierson**, B. G. Bills, W. F. Bottke, **S. Courville**, **S. Dibb**, I. Jun, D. J. Lawrence, S. Marchi, T. J. McCoy, J. Merayo, R. Oran, J. G. O'Rourke, R. S. Park, P. N. Peplowski, T. H. Prettyman, C. A. Raymond, B. P. Weiss, M. A. Wieczorek, M. T. Zuber, Distinguishing the origin of asteroid (16) Psyche, *Space Science Reviews*, 2022, 218:17, doi.org/10.1007/s11214-022-00880-9.
128. **Bercovici**, **H.,** L.T. Elkins-Tanton, J.G. O'Rourke, L. Schaefer, The effects of bulk composition on planetesimals core sulfur content and size, *Icarus* 180, doi.org/10.1016/j.icarus.2022.114976, 2022.
127. M.T. Zuber, R.S. Park, L.T. Elkins-Tanton, J. Bell, C.A. Polanskey, D. Bercovici, B.R. Bills, R.P. Binzel, R. Jaumann, S. Marchi, C.A. Raymond, T. Roatsch, B.P. Weiss, and M.A. Wieczorek, The Psyche gravity investigation, *Space Science Reviews*, 2022, accepted.
126. **Christoph, J**., C. Bu, G. Minesinger, C. Dukes, L.T. Elkins-Tanton, Space weathering effects in troilite by simulated solar-wind hydrogen and helium ion irradiation, *Journal of Geophysical Research*, 2022, 127(5).

2021

125. Bohlen, T., L. Elkins-Tanton, C. Bickers, and J. Tanton, Make It Matter: A collaborative student-led engagement and persistence program, *In* D. Guralnick, M.E. Auer, A. Poce, Eds., *Innovations in Learning and Technology for the Workplace and Higher Education, Proceedings of 'The Learning Ideas Conference'* Springer, Cham, Switzerland, pp 40-48, 2021.
124. Ream, J.; Weiss, B.; Oran, R.; Raymond, C.; Polanskey, C.; Wenkert, D.; Elkins-Tanton, L.; Hart, R.; Russell, C., Magnetic Gradiometry Using Frequency-Domain Filtering, *Measurement Science and Technology* 33(1) 015104, 2021.
123. Lawrence, D.L., J.O. Goldsten, P.N. Peplowski, Z.W. Yokley, A.W. Beck, M. Burks, L.T. Elkins-Tanton, I. Jun, T. McCoy, T.H. Prettyman, Planetary Neutron Spectroscopy for Metal-rich Compositions: Development of Analysis Framework for Measurements at the Asteroid (16) Psyche, in revision 2021.
122. Elkins-Tanton, L.T., The "Frozen, Darkened Soul" rises into space: Travels in Siberia and the plight of life on Earth, *Leonardo* (Journal of the International Society for the Arts, Sciences and Technology) 54(1), 49-55, 2021.
121. Maurel, C., J.F.J. Bryson, J. Shah, R. V. Chopdekar, L. T. Elkins-Tanton, C. A. Raymond, B. P. Weiss, A long-lived planetesimal dynamo powered by core crystallization, *Geophysical Research Letters* 48, https://doi.org/10.1029/2020GL091917, 2021.
120. Ortega, C., C. Polanskey, M. Llopis, P. Rosemurgy, C. Lawler, E.K. Alonge, M. Dailis, and L. Elkins-Tanton, Psyche Science Planning with the Science Opportunity Analyzer, 16th International Conference on Space Operations, The International Committee on Technical Interchange for Space Mission Operations and Ground Data Systems, International Aeronautical Federation, 2021.
119. Elkins-Tanton, L.T., S.E. Grasby, B.A. Black, R.V. Veselovskiy, O.H. Ardakani, F. Goodarzi, Reply to the comment by Davydov et al. on "Field evidence for coal combustion links the 252 My-old Siberian Traps with global carbon disruption," *Geology* 48(10), 986-991, 2021.

2020

118. Elkins-Tanton, L.T., E. Shkolnik, M.C. Crow, The Arizona State University Interplanetary Initiative: Envisioning and Creating Our Human Space Future, *New Space*, https://doi.org/10.1089/space.2020.0036, 2020.
117. Elkins-Tanton, L.T., S.E. Grasby, B.A. Black, R.V. Veselovskiy, O.H. Ardakani, F. Goodarzi, Field evidence for coal combustion links the 252 My-old Siberian Traps with global carbon disruption, *Geology* v48(1), v. 48(10), 986–991, 2020.

116. Elkins-Tanton, L.T., E. Asphaug, J.F. Bell III, H. Bercovici, B.Bills,R. Binzel, W.F. Bottke, **S. Dibb**, D.J. Lawrence, S. Marchi, T.J. McCoy, R. Oran, R.S. Park, P.N. Peplowski, C.A. Polanskey, T.H. Prettyman, C.T. Russell, **L. Schaefer**, B.P. Weiss, M.A. Wieczorek, D.A. Williams, M.T. Zuber, Observations, meteorites, and models: A pre-flight assessment of the composition and formation of (16) Psyche, *Journal of Geophysical Research: Planets*, 10.1029/2019JE006296, 2020.
115. Becker, T.M., N. Cunningham, P. Molyneux, L. Feaga, K.D. Retherford, R. Lotenz, Z.A. Landsman, E. Peavler, L.T. Elkins-Tanton, J.-E. Walhund, HST UV Observations of Asteroid (16) Psyche, *The Planetary Journal*, 1 (3), 53, 2020.
114. de Soria-Santacruz, M., M. Soriano, O. Quintero, F. Wong, S. Hart, M. Kokorowski, B. Bone, B. Solish, D. Trofimov, E. Bradford, C. Raymond, P. Narvaez, C. Keys, P. Lord, J. Ream, R. Oran, B.P. Weiss, C. Russell, K. Ascrizzi, L. Elkins-Tanton, An approach to magnetic cleanliness for the Psyche mission, IEEE Aerospace Conference Proceedings, 1-15, 2020.
113. Gales, E., B. Black, L.T. Elkins-Tanton, Carbonatites as a record of the carbon isotope composition of large igneous province outgassing, *Earth and Planetary Science Letters* 535, 2020.
112. Marchi, S., D.D. Durda, C.A. Polanskey, E. Asphaug, W.F. Bottke, L.T. Elkins-Tanton, L. A. J. Garvie, S. Ray, S. Chocron, and D.A. Williams, Hypervelocity impact experiments in iron-nickel ingots and meteorites: Implications for the NASA Psyche mission. *Journal for Geophysical Research*, 10.1029/2019JE005927, 2020.

2019

111. Oh, D., S. Collins, T. Drain, W. Hart, T. Imken, K. Larson, D. Marsh, D. Muthulingam, J.S. Snyder, D. Trifomov, L.T. Elkins-Tanton, I. Johnson, P. Lord, Z. Pirkl, Development of the Psyche mission for NASA's Discovery Program, IEPC-2019-192, 2019.
110. Oran, R, B.P. Weiss, M. De Soria Santacruz-Pich, I. Jun, D.J. Lawrence, C. Polanskey, M. Ratliff, J.B. Ream, C.T. Russell, Y. Sphrits, M. Zuber, L.T. Elkins-Tanton, and the Psyche Team, Minimum conditions for radiation belts around planets and small bodies, *Geophysical Research Letters*, 2019.
109. Pavlov V.E., F. Fluteau, A.V. Latyshev, A.M. Fetisova, L. T. Elkins-Tanton, **B.A. Black**, S.D. Burgess, R.V.Veselovskiy, Geomagnetic Secular Variations at the Permian-Triassic Boundary and Pulsed Magmatism During Eruption of the Siberian Traps, *Geochemistry, Geophysics, Geosystems*, http://dx.doi.org/10.1029/2018GC007950, 2019.
108. Wang Y., Bohlen T., Elkins-Tanton L., Tanton J., Motivating Students to Ask More Questions. *In*: Isotani S., Millán E., Ogan A., Hastings P., McLaren B., Luckin R. (eds) Artificial Intelligence in Education. AIED 2019. Lecture Notes in Computer Science, vol 11626. Springer. https://doi.org/10.1007/978-3-030-23207-8_75, 2019.
107. Hart W., S. Boland, T. Drain, P. Lai, K. Lum, D.Y. Oh, B. Solish, S. Snyder, N. Warner, A. Williams, P. Lord, L. Elkins-Tanton, Requirements Development and Management on the Psyche Project, IEEE Aerospace, 2019.

2018

106. Polanskey C.A., L. Elkins-Tanton, R. Jaumann, D. J. Lawrence, D. M. Marsh, R. R. Moore, R. S. Park, M. de Soria-Santacruz Pic, C. T. Russell, D. Wenkert, D. A. Williams, Psyche Science Operations: Maximize Reuse to Minimize Risk, American Institute of Aeronautics and Astronautics, Published Online 25 May 2018 https://doi.org/10.2514/6.2018-2703
105. Bowman, C.D.D., L.T. Elkins-Tanton, D. Bacalzo, D. Briggs, Y. Chen, P. Howell, D. McCarville, R. Meuth, E. J. Montgomery, A. Sanft and M. Zhao, Coordinating Opportunistic Interdisciplinary Projects Across Single-Discipline Capstone Courses, International Journal of Engineering Education, Proceedings of the 2018 Capstone Design Conference, 1-4, 2018.
104. Wu, J., S.J. Desch, **L. Schaefer**, L.T. Elkins-Tanton, **K. Pahlevan**, P.R. Buseck, Origin of Earth's water: chondritic inheritance plus nebular ingassing and storage of hydrogen in the core, Journal of Geophysical Research, Planets, 123 (10), 2691-2712, https://doi.org/10.1029/2018JE005698, 2018.
103. Black, B.A., R.R. Neely, J.-F. Lamarque, L. Elkins-Tanton, J.T. Kiehl, C.A. Shields, M. Mills, C. Bardeen, Systemic swings in end-Permian climate from Siberian Traps carbon and sulfur outgassing, Nature Geoscience 11, 949-954, 2018.

102. **Schaefer, L.** and L. T. Elkins-Tanton, Magma oceans as a critical stage in the tectonic development of rocky planets, Philosophical Transactions of the Royal Society A 376: 20180109, 2018.
101. Ikoma, M., L. Elkins-Tanton, K. Hamano**, J. Suckale**, Water partitioning in planetary embryos and protoplanets with magma oceans, Space Science Reviews 214, 76, 2018.
100. **Scheinberg, A**., K. Soderlund, L. T Elkins-Tanton, A basal magma ocean dynamo to explain the early lunar magnetic field, Earth and Planetary Science Letters 492, 144-151, 2018.
99. **Perera, V**., A. Jackson, L.T. Elkins-Tanton, E. Asphaug, Effect of Re-impacting Debris on the Solidification of the Lunar Magma Ocean, Journal of Geophysical Research, 123 (5) 1168-1191, 2018.
98. Clark, B. E., M.A. Barucci, X.-D. Zou, M. Fulchignoni, A. Rivkin, C. Raymond, M. Yoshikawa, L. Elkins-Tanton, and H. Levison, Chapter 1: A brief history of spacecraft missions to asteroids and protoplanets, In Abrey, N. editor, Meteorites and Asteroids, Elsevier press, 2018.
97. Oh, D.Y, S. Collins, D. Goebel, B. Hart, G. Lantoine, S. Snyder, G. Whiffen, L. Elkins-Tanton, P. Lord, L. Rotlisburger. Development of the Psyche Mission for NASA's Discover Program, 35th International Electric Propulsion Conference, 2018.
96. Hart, W., G. Mark Brown, S. M. Collins, M. De Soria-Santacruz Pich, P. Fieseler, D. Goebel, D. Marsh, D. Y. Oh, S. Snyder, N. Warner, G. Whiffen, L. Elkins-Tanton, J. F. Bell III, D. J. Lawrence, P. Lord, Z. Pirkl, Overview of the spacecraft design for the Psyche mission concept, IEEE Aerospace, 2018.
95. Morbidelli A., M. Wieczorek, D. Nesvorny, V. Laurenz, S. Marchi, D. Rubie, L. T. Elkins-Tanton, S. Jacobsen, The timeline of the lunar bombardment - revisited, Icarus 305, 262-276, 2018.

2017

94. Saxena, P., L. T. Elkins-Tanton, N. Petro, A. Mandell, A model of the primordial lunar atmosphere, Earth and Planetary Science Letters 474, 198-205, 2017.
93. Lord, P., Tilley, S., Oh, D. Y., Goebel, D., Polanskey, C., Snyder, S., ... & Elkins-Tanton, L., Psyche: Journey to a metal world. In *2017 IEEE Aerospace Conference,* 1-11, 2017.
92. **Tikoo, S**. and L.T. Elkins-Tanton, The fate of water within Earth and super-Earths and implications for plate tectonics, Philosophical Transactions of the Royal Society A 375: 20150394, 2017.
91. **Blackburn, T**., C. M O'D. Alexander, R. Carlson, L.T. Elkins-Tanton, The accretion and impact history of the ordinary chondrite parent bodies, Geochimica et Cosmochimica Acta 200, 201-217, 2017.
90. Tian, ZhenLiang , J. Wisdom, L. Elkins-Tanton, Coupled orbital-thermal evolution of the early Earth-Moon system with a fast-spinning Earth, Icarus 281, 90-102, 2017.

2016

89. Ehlmann, Andrews-Hanna, Carter, Catling, Christiansen, Cohen, Dressing, Edwards, Elkins-Tanton, Farley, Fassett, Fischer, Fraeman, Golombek, Grotzinger, Hamilton, Hayes, Herd, Horgan, Hu, Jakosky, J. Johnson, Kasting, Kerber, Kite, Knutson, Lunine, Mahaffey, Mangold, McCubbin, Mustard, Niles, Quantin, Rice, Stack Morgan, Stevenson, Stewart, Toplis, Usui, Weiss, Werner, Wordsworth, Wray, Yingst, Yung, Zahnle, The Sustainability of Habitability on Terrestrial Planets: Insights, Questions, and Needed Measurements from Mars for Understanding the Evolution of Earth-like Worlds, Journal of Geophysical Research 121, 1927-1961, 2016.
88. Oh, D., Goebel, D., Polanskey, C., Snyder, S., Carr, G., Collins, S., Lantoine, G., Landau, D., Elkins-Tanton, L., Lord, P., Tilley, S., Psyche: Journey to a Metal World, AIAA-2016-4541, 52nd AIAA/ASME/SAE/ASEE Joint Propulsion Conference, Salt Lake City, UT, July 25-27, 2016. (Full research paper published in engineering conference proceedings.)
87. Furman, T., W.R. Nelson, L.T. Elkins-Tanton, Evolution of the East African Rift: Drip Magmatism, Lithospheric Thinning and Mafic Volcanism, Geochimica et Cosmochimica Acta 185, 418-434, 2016.
86. Lichtenegger, H.I.M., K.G. Kislyakova, P. Odert, N.V. Erkaev, H. Lammer, H. Gröller, C.P. Johnstone, L. Elkins-Tanton, L. Tu, M. Güdel, M. Holmström, Solar XUV and ENA-driven water loss from early Venus' magma ocean outgassed steam atmosphere, Journal of Geophysical Research Space Physics 121, 4718–4732, 2016.
85. Marchi, S., B.A. Black, L.T. Elkins-Tanton, W.F. Bottke, Massive impact-induced release of carbon and sulfur gases in the early Earth's atmosphere, Earth and Planetary Science Letters 449, 96–104, 2016.

84. **Scheinberg, A**., B. Weiss, R. Fu, S. Stanley. G. Schubert, L.T. Elkins-Tanton, Magnetic fields on asteroids and planetesimals, In Planetesimals: Early Differentiation and Consequences for Planets, Ed. L.T. Elkins-Tanton, B. Weiss, Cambridge University Press, 2016.
83. **Fu, R**., L.T. Elkins-Tanton, E. Young, R. Greenwood, Silicate melting and volatile loss during differentiation in planetesimals, In Planetesimals: Early Differentiation and Consequences for Planets, Ed. L.T. Elkins-Tanton, B. Weiss, Cambridge University Press, 2016.
82. Elkins-Tanton, L.T., The taxonomy of planetesimals: Consequences for Planets, In Planetesimals: Early Differentiation and Consequences for Planets, Ed. L.T. Elkins-Tanton, B. Weiss, Cambridge University Press, 2016.
81. **Scheinberg, A**., L.T. Elkins-Tanton, G. Schubert, D. Bercovici, Core solidification and dynamo evolution in a mantle-stripped planetesimal, Journal of Geophysical Research 121, 2-20, 2016.

2015

80. **Black, B.A.**, B.P. Weiss, L.T. Elkins-Tanton, R.V. Veselovskiy, A. Latyshev, Siberian Traps volcaniclastic rocks and the role of magma-water interactions, Geological Society of America Bulletin 127, 1437-1452, 2015.
79. **Scheinberg A., Fu R. R**., Elkins-Tanton L. T., and Weiss B. P., Asteroid differentiation: Melting and large-scale structure. In Asteroids IV Ed. P. Michel et al., Univ. of Arizona, Tucson, 2015.
78. Pavlov, V., F. Fluteau, R. Veselovskiy, A. Fetisov, A. Latyshev, L. T Elkins-Tanton, A. Sobolev, N. Krivolutskaya, Volcanic Pulses in the Siberian Traps as Inferred from Permo-Triassic Geomagnetic Secular Variations, In Volcanism and Global Environmental Change, Ed. A. Schmidt, K. Fristad, L. Elkins-Tanton, Cambridge University Press. 2015.
77. Ukstins Peate, I. and L.T. Elkins-Tanton, Large igneous provinces and explosive basaltic volcanism, In Volcanism and Global Environmental Change, Ed. A. Schmidt, K. Fristad, L. Elkins-Tanton, Cambridge University Press, 2015.
76. **Black, B**., J.-F. Lamarque, C. Shields, L. T. Elkins-Tanton, J. Kiehl, Environmental effects of large igneous province magmatism: A Siberian perspective, In Volcanism and Global Environmental Change, Ed. A. Schmidt, K. Fristad, L. Elkins-Tanton, Cambridge University Press, 2015.

2014

75. **Piskorz, D**., L. T. Elkins-Tanton, S. Smrekar, Coronae formation on Venus via extension and lithospheric instability, Journal of Geophysical Research, Planets, 119, 2568-2582, 2014.
74. Foley, B., D. Bercovici, L.T. Elkins-Tanton, Initiation of Plate Tectonics from Post-Magma Ocean Thermo-Chemical Convection, Journal of Geophysical Research, Solid Earth, 119, 8538-8561, 2014.
73. **Brown, S**., L.T. Elkins-Tanton, R. Walker, Effects of magma ocean crystallization and overturn on the development of ^{142Nd} and ^{182}W isotopic heterogeneities in the primordial mantle, Earth and Planetary Science Letters, 408, 319-330, 2014.
72. Marchi, S., W.F. Bottke, L.T. Elkins-Tanton, M. Bierhaus, K. Wuennemann, A. Morbidelli, D. A., Kring, Widespread mixing and burial of Earth's Hadean crust by asteroid impacts, Nature, 511, 578-582, 2014.
71. Elkins-Tanton, L.T. and D. Bercovici, Contraction or expansion of the Moon's crust during magma ocean freezing? Philosophical Transactions of the Royal Society A, 372, 20130240, http://dx.doi.org/10.1098/rsta.2013.02402014, 2014.
70. **Black, B.A**., E.H. Hauri, L.T. Elkins-Tanton, Sulfur isotopic evidence for sources of volatiles in Siberian Traps magmas, Earth and Planetary Science Letters, 394, 58-69, 2014.
69. **Scheinberg, A**., L.T. Elkins-Tanton, S. Zhong, Timescale and morphology of Martian mantle overturn immediately following magma ocean solidification, DOI: 10.1002/2013JE004496, Journal of Geophysical Research 119, 454-467, 2014.
68. **Fu, Roger R**. and L. T. Elkins-Tanton, The fate of magmas in planetesimals and the retention of primitive chondritic crusts, Earth and Planetary Science Letters 390, 127-138, 2014.
67. **Black, B.A**, J.-F. Lamarque, C. Shields, L. Elkins-Tanton, J. Kiehl, Acid rain and ozone depletion from pulsed Siberian Traps magmatism, Geology, 42, 67-70, 2014.
66. Erkaev, N. V., H. Lammer, L. Elkins-Tanton, P. Odert, K. G. Kislyakova, Yu. N. Kulikov, M. Leitzinger, M. Güdel, Escape of the martian protoatmosphere, Planetary and Space Science 98, 106-119, 2014.

2013

65. Elkins-Tanton, L.T., Occam's origin of the Moon, Nature Geoscience (News and Views), 2013.
64. Elkins-Tanton, L.T., Evolutionary dichotomy for rocky planets, Nature (News and Views), 2013.
63. Lammer H., M. Blanc, W. Benz, M. Fridlund, V. Coudé du Foresto, M. Güdel, H. Rauer, S. Udry, R.-M. Bonnet, M. Falanga, D. Charbonneau, R. Helled, W. Kley, J. Linsky, L. T. Elkins-Tanton, Y. Alibert, E. Chassefière, T. Encrenaz, A. P. Hatzes, D. Lin, R. Liseau, W. Lorenzen, S. N. Raymond, The Science of Exoplanets and their Systems. Astrobiology 13 (9) 793-813, 2013.
62. Elkins-Tanton, L.T., What makes a habitable planet? Eos, Transactions of the American Geophysical Union 94, 149-150, 2013.
61. **Mandler, B.E**. and L. T. Elkins-Tanton, The origin of eucrites, diogenites and olivine diogenites: magma ocean crystallization and shallow magma chamber processes on Vesta, Meteoritics & Planetary Science, 1–17, doi: 10.1111/maps.12135, 2013.
60. Vilim, R., S. Stanley, L. Elkins-Tanton, The effect of lower mantle metallization on magnetic field generation in rocky exoplanets, Astrophysical Journal Letters, 768, L30, doi:10.1088/2041-8205/768/2/L30, 2013.
59. Weiss, B.P. and L.T. Elkins-Tanton, Differentiated Planetesimals and the Parent Bodies of Chondrites, Annual Review of Earth and Planetary Sciences, 41, 21.1–21.32, DOI: 10.1146/annurev-earth-040610-133520, 2013.

2012

58. Johnson B.C., C.M. Lisse, C.H. Chen, H.J. Melosh, M.C. Wyatt, P. Thebault, W.G. Henning, E. Gaidos, L.T. Elkins-Tanton, J.C. Bridges, A. Morlok. A self-consistent model of the circumstellar debris created by a giant hypervelocity impact in the HD172555 system. Astrophysical Journal, 761, 45, doi:10.1088/0004-637X/761/1/45, 2012.
57. **Suckale, J**., L. Elkins-Tanton, and J. A. Sethian, Crystals stirred up: 2. Numerical insights into the formation of the earliest crust on the Moon, Journal of Geophysical Research, VOL. 117, E08005, doi:10.1029/2012JE004067, 2012.
56. **Suckale, J**., J.A. Sethian, J.-D. Yu, and L.T. Elkins-Tanton, Crystals stirred up: 1. Direct numerical simulations of crystal settling in nondilute magmatic suspensions, Journal of Geophysical Research, VOL. 117, E08004, doi:10.1029/2012JE004066, 2012.
55. **Black, B.A**., L.T. Elkins-Tanton, M.C. Rowe, I. Ukstins-Peate, Magnitude and Consequences of Volatile Release from the Siberian Traps, Earth and Planetary Science Letters 317-318, 363-373, 2012.
54. Elkins-Tanton, L.T., Magma oceans in the inner solar system, Annual Review of Earth and Planetary Sciences, 40, 113-139, 2012.
53. Zuber, M.T., H. Y. McSween, R.P. Binzel, L.T. Elkins-Tanton, A.S. Konopliv, C.M. Pieters, D.E. Smith, Origin, internal structure, and evolution of 4 Vesta, Space Science Reviews, DOI 10.1007/s11214-011-9806-8, p1 – 17, 2012.
52. Weiss, B.J., L.T. Elkins-Tanton, M.A. Barucci, H. Sierks, C. Snodgrass, J.-B. Vincent, S. Marchi, M. Pätzold, I. Richter, P.R. Weissman, M. Fulchugnoni, R.P. Binzel, Possible evidence for partial differentiation of asteroid Lutetia from Rosetta, Planetary and Space Science, 66, doi:10.1016/j.pss.2011.09.012, 137-146, 2012.

2011

51. **Suckale, J**., B. H. Hager, L. T. Elkins-Tanton, and J. Nave, Reply to the comment by Mike R. James et al. on "It takes three to tango: 2. Bubble dynamics in basaltic volcanoes and ramifications for modeling normal Strombolian activity", Journal of Geophysical Research., 116, B06208, doi:10.1029/2011JB008351, 2011
50. Elkins-Tanton, L.T. and T.L. Grove, Water (hydrogen) in the lunar mantle: Results from petrology and magma ocean modeling, Earth and Planetary Science Letters 307, 173-179, 2011.
49. **Gelman, S.E.,** L.T. Elkins-Tanton, and S. Seager, Mantle evolution in tidally locked terrestrial planets: Degree-1 convection and implications for habitability, The Astrophysical Journal 735, 1-8, DOI: 10.1088/0004-637X/735/2/72, 2011.
48. Elkins-Tanton, L.T., B.P. Weiss, M.T. Zuber, Chondrites as samples of differentiated planetesimals, Earth and Planetary Science Letters 305, 1-10, DOI: 10.1016/j.epsl.2011.03.010, 2011.

47. Carporzen L., B.P. Weiss, L. Elkins-Tanton, D.L. Shuster, D.S. Ebel, J. Gattacceca, Magnetic evidence for a partially differentiated carbonaceous chondrite parent body, Proceedings of the National Academy of Science, DOI:10.1073/pnas.1017165108e, 2011.
46. Elkins-Tanton, L.T., **S. Burgess**, and Qing-Zhu Yin, The lunar magma ocean: Reconciling the solidification process with lunar petrology and geochronology, Earth and Planetary Science Letters 304, 326-336, DOI: 10.1016/j.epsl.2011.02.004, 2011.
45. Elkins-Tanton, How much water does it take to be wet? Water on the Moon, invited Quick Study in Physics Today, March 2011.
44. Elkins-Tanton, L.T., Formation of early water oceans on rocky planets, Astrophysics and Space Science, 302(2), 359, DOI: 10.1007/s10509-010-0535-3, 2011.

2010

43. Bottke, W.F., R.J. Walker, J.M.D. Day, D. Nesvorny, L.T. Elkins-Tanton, Stochastic late accretion to Earth, the Moon, and Mars, Science 330, DOI 10.1126/science.1196874 , 1527-1530, 2010.
42. Ford, H.A., K. Fischer, D. Abt, C.A. Rychert, and L.T. Elkins-Tanton, The lithosphere–asthenosphere boundary and cratonic lithospheric layering beneath Australia from Sp wave imaging, Earth and Planetary Science Letters 300, 299-310, doi:10.1016/j.epsl.2010.10.007, 2010.
41. **Till, Christy B**, Linda T. Elkins-Tanton, and Karen M. Fischer, A mechanism for low extent melts at the lithosphere-asthenosphere boundary, Geochem. Geophys. Geosyst., 11, Q10015, doi:10.1029/2010GC003234, 2010.
40. **Suckale, Jenny**, Bradford Hager, Linda T. Elkins-Tanton, and Jean-Christophe Nave, It takes three to tango: 2. Bubble dynamics in basaltic volcanoes and ramifications for modeling normal Strombolian activity, Journal of Geophysical Research, 115, B07410, doi:10.1029/2009JB006917, 2010.
39. Meyer, Jennifer, Linda T. Elkins-Tanton, Jack Wisdom, Coupled thermal-orbital evolution of the early Moon, Icarus 208, 1-10, 2010.
38. Smrekar, Suzanne E., E.R. Stofan, N. Mueller, A. Treiman, L. Elkins-Tanton, J. Helbert, Recent hotspot volcanism on Venus from VIRTIS emissivity data, Science 328, 605-608, 2010.

2009

37. Miller-Ricci, E., M. Meyer, S. Seager, L. Elkins-Tanton, On the emergent spectra of hot protoplanet collision afterglows, Astrophysical Journal 704, 770-780, 2009.
36. **Brown, S.** and L. T. Elkins-Tanton, Composition of Mercury's oldest crust from magma ocean models, Earth and Planetary Science Letters 286, 446-455, 2009.
35. West, John D., Matthew J. Fouch, Jeffrey B. Roth, Linda T. Elkins-Tanton, Vertical mantle flow associated with a lithospheric drip beneath the Great Basin, Nature Geoscience 2, 438-443, 10.1038/NGEO526, 2009.
34. McCanta, M., L. Elkins-Tanton, M.J. Rutherford, Expanding the application of the Eu-oxybarometer to the lherzolitic shergottites and nakhlites: implications for the oxidation state heterogeneity of the Martian interior, Meteoritics and Planetary Science 44(5), 725-745, 2009.

2008

33. Weiss, B.P., J.S. Berdahl, L. Elkins-Tanton, S. Stanley, A. J. Irving, E.A. Lima, L. Carporzen, M.E. Zucolotto, Magnetism on the angrite parent body and the early evolution of planetesimals, Science 322, 713-716, 2008.
32. Elkins-Tanton L.T. and S. Seager, Coreless terrestrial exoplanets, Astrophysical Journal 688, 628-635, 2008.
31. Stanley, S., L. Elkins-Tanton, M. Zuber, and E.M. Parmentier, Mars' paleomagnetic field as the result of a single-hemisphere dynamo, Science 321, 1822-1825, 2008.
30. Elkins-Tanton L.T. and S. Seager, Ranges of atmospheric mass and composition for terrestrial exoplanets, Astrophysical Journal 685, 1237-1246, 2008.
29. Elkins-Tanton L.T., Linked magma ocean solidification and atmospheric growth for Earth and Mars, Earth and Planetary Science Letters 271, 181-191, 2008.
28. Adams E.R., S. Seager, L. Elkins-Tanton, Ocean planet or thick atmosphere: On the mass-radius relation for solid exoplanets with massive atmospheres, Astrophysical Journal 673, 1160-1164, 2008.

27. Farmer, G.L., T. Gailley, L.T. Elkins-Tanton, Mantle "source volumes" and the origin of the mid-Tertiary ignimbrite flare-up in the southern Rocky Mountains, Western U.S., Lithos 102, 279-294, 2008.

2007

26. Smrekar, S.E., L.T. Elkins-Tanton, J. Leitner, A. Lenardic, S. Mackwell, L. Moresi, C. Sotin, E.R. Stofan, Tectonic and thermal evolution of Venus and the role of volatiles: Implications for understanding the terrestrial planets, In AGU monograph 176, Venus as a Terrestrial Planet, 45-71, 2007.
25. Cagnioncle, A., E. M. Parmentier, and L. T. Elkins-Tanton. Effect of solid flow above a subducting slab on water distribution and melting at convergent plate boundaries, Journal of Geophysical Research 112, B09402, doi:10.1029/2007JB004934, 2007.
24. Elkins-Tanton, L. T., S. E. Smrekar, P. C. Hess, and E. M. Parmentier, Volcanism and volatile recycling on a one-plate planet: Applications to Venus. Journal of Geophysical Research 112, E04S06, doi:10.1029/2006JE002793, 2007.
23. Elkins-Tanton, L. T., Continental magmatism, volatile recycling, and a heterogeneous mantle caused by lithospheric gravitational instabilities, Journal of Geophysical Research 112, B03405, doi:10.1029/2005JB004072, 2007.
22. Elkins-Tanton L.T., D. Draper, C. Agee, J. Jewell, A. Thorpe, P. Hess, The last lavas erupted during the main phase of the Siberian flood basalts: Results from experimental petrology, Contributions to Mineralogy and Petrology 153(2), doi:10.1007/s00410-006-0140-1, 191-209, 2007.
21. Barr, J., T.L. Grove, L. Elkins-Tanton, High-magnesian andesite from Mount Shasta: Aproduct of magma mixing and contamination, not a primitive melt: Comment and reply. Geology 35, p 147, doi: 10.1130/G24058C.1, 2007.

2006

20. Shearer C.K., P.C. Hess, M.A. Wieczorek, M.E. Pritchard, E.M. Parmentier, L.E. Borg, J. Longhi, L.T. Elkins-Tanton, C.R. Neal, I. Antonenko, R.M. Canup, A.N. Halliday, T.L. Grove, B.H. Hager, D.-C. Lee, U. Weichert, Thermal and magmatic evolution of the Moon, in New Views of the Moon, B.L. Joliff, M.A Wieczorek, C.K. Shearer, C.R. Neal, Eds, Reviews in Mineralogy and Geochemistry 60, Mineral. Soc. America, Chantilly, Virginia, 2006.

2005

19. Elkins-Tanton L.T., E.M. Parmentier, P.C. Hess, Possible formation of ancient crust on Mars through magma ocean processes, Journal of Geophysical Research 110, E12S01, doi:10.1029/2005JE002480, 2005.
18. Elkins-Tanton L.T. and B. H. Hager, Giant meteoroid impacts can cause volcanism, Earth and Planetary Science Letters, 239, 219-232, doi: 10.1016/j.epsl.2005.07.029, 2005.
17. Elkins-Tanton L.T., S. Zaranek, and E.M. Parmentier, Early magnetic field and magmatic activity on Mars from magma ocean overturn, Earth and Planetary Science Letters 236, 1-12, 2005.
16. Elkins-Tanton L.T., Continental magmatism caused by lithospheric delamination, in Plates, Plumes, and Paradigms, eds. G.R. Foulger, J.H. Natland, D.C. Presnall, D.L. Anderson, Geological Society of America, 449-461, 2005.
15. Grove T.L., M.B. Baker, R.C. Price, S.W. Parman, L.T. Elkins-Tanton, N. Chatterjee, and O. Müntener, Magnesian andesite and dacite lavas from Mt. Shasta, northern California: products of fractional crystallization of H2O-rich mantle melts. Contributions to Mineralogy and Petrology: DOI: 10.1007/s00410-004-0619-6, 2005.

2004

14. Elkins-Tanton L.T., B. H. Hager, and T.L. Grove, Magmatic effects of the Lunar Late Heavy Bombardment. Earth and Planetary Science Letters: 222, 17-27, 2004.
13. Kelly, D.C. and L.T. Elkins-Tanton, Bottle-green microtektites from the South Tasman Rise: Deep-sea evidence for an impact event near the Miocene/Pliocene boundary, Meteoritics and Planetary Science 39, 1921-1929, 2004.

2003

12. Elkins-Tanton L.T. and T.L. Grove, Evidence for deep melting of hydrous, metasomatized mantle: Pliocene high potassium magmas from the Sierra Nevadas, Journal of Geophysical Research: 108, 2350, DOI 10.1029/2002JB002168, 29 July 2003.
11. Elkins-Tanton L.T., P. Aussillous, J. Bico, D. Quéré, J.W.M. Bush, A laboratory model of splash-form tektites, Meteoritics and Planetary Science: 38, 1331-1340, 2003.
10. Elkins-Tanton L.T., E.M. Parmentier, and P.C. Hess, Magma ocean fractional crystallization and cumulate overturn in terrestrial planets: Implications for Mars, Meteoritics and Planetary Science: 38, 1753-1771, 2003.
9. Elkins-Tanton L.T., N. Chatterjee, and T.L. Grove, Magmatic processes that produced lunar fire fountains, Geophysical Research Letters: 30(10), p. 1513, DOI 10.1029/2003GL017082, 2003.
8. Grove T.L., L.T. Elkins-Tanton, S.W. Parman, N. Chatterjee, O. Müntener, G.A. Gaetani, Fractional crystallization and mantle-melting controls on calc-alkaline differentiation trends, Contributions to Mineralogy and Petrology: 145, p 515-533, DOI 10.1007/s00410-003-0448-z, 2003.
7. Elkins-Tanton L.T., N. Chatterjee, and T.L. Grove, Experimental and petrological constraints on lunar differentiation from the Apollo 15 green picritic glasses, Meteoritics and Planetary Science: 38, 515-527, 2003.

2002 and previous

6. Elkins-Tanton L.T., J. A. Van Orman, B. H. Hager, and T. L. Grove, Reexamination of the lunar magma ocean cumulate overturn hypothesis: Melting or mixing is required, Earth and Planetary Science Letters: 196, 249-259, 2002.
5. Elkins Tanton L.T., T.L. Grove, and J. Donnelly-Nolan, Hot shallow melting under the Cascades volcanic arc, Geology: 29, 631-634, 2001.
4. Elkins Tanton L.T. and Bradford H. Hager, Melt intrusion as a trigger for lithospheric foundering and the eruption of the Siberian flood basalt, Geophysical Research Letters: 27, 3937-3940, 2000.
3. Elkins L.T., T.L. Grove, J. Delano, V. Fernandez, Origin of lunar ultramafic green glasses: Constraints from phase equilibrium studies, Geochimica et Cosmochimica Acta: 64, 2339-2350, 2000.
2. Elkins, Linda T. and Timothy L. Grove, Ternary feldspar experiments and thermodynamic models, American Mineralogist: 75, 544-559, 1990.
1. Karig, D.E. and L.T. Elkins, Geology of the Cayuga Lake region, NYSGA Annual Meeting Guidebook, 1986.

BOOKS

A Portrait of the Scientist as a Young Woman, 2022, William Morrow, Lindy Elkins-Tanton, ISBN-13: 978-0063086906. In print.

Earth, Chinese edition: Shanghai Literature and Arts Publishing House, 2021, Jeffrey Jerome Cohen and L.T. Elkins-Tanton, ISBN-13: 978-7532179879.

Earth, Bloomsbury Academic, 2017, Jeffrey Jerome Cohen and L.T. Elkins-Tanton, ISBN-13: 978-1501317910. In print.

Planetesimals: Early Differentiation and Consequences for Planets, (edited volume) Cambridge University Press, 2017, editors L.T. Elkins-Tanton and B. Weiss, ISBN-13: 978-1107118485. In print.

Volcanism and Global Environmental Change, (edited volume) Cambridge University Press, 2015, editors A. Schmidt, K. Fristad, L.T. Elkins-Tanton, ISBN-13: 978-1107058378. In print.

The Solar System, a six-book reference series, published by Chelsea House, an imprint of Facts on File, Inc, 1st edition 2006; 2nd edition 2010. L.T. Elkins-Tanton. *The Sun, Mercury, and Venus* (ISBN-13: 978-0816077007), *The Earth and the Moon* (ISBN-13: 978-0816076970), *Mars* (ISBN-13: 978-0816076994), *Asteroids, Meteorites, and Comets* (ISBN-13: 978-0816076963), *Jupiter and Saturn* (ISBN-13: 978-0816076987), *Uranus, Neptune, Pluto and the Outer Solar System* (ISBN-13:978-0816077014). In print.

SPACECRAFT PROPOSAL, REVIEW, AND MISSION INVOLVEMENT

Psyche Discovery mission, Principal Investigator, 2011 – present. Selected for flight as Discovery 14 Jan. 2017.
Mars Sample Caching Strategy Steering Committee member 2020 – 2021.
Standing Review Board for the NASA Europa Clipper flagship mission, 2016 – present.
Europa Lander Tiger Team, 2017.
Europa Clipper Instrument Risk Assessment Team, 2020.
VERITAS Venus orbiter Discovery mission proposal, Co-I, 2010 - 2015. PI: S. Smrekar.
Mars 2020 Rover, Science Definition Team member, 2013.
Athena, SIMPLEx proposal, Co-I 2018, 2020. PI: J. O'Rourke.
SAGE Venus lander, New Frontiers proposal, Co-I, 2010 - 2012. PI: Larry Esposito. Reached Phase A in 2011.
International Lunar Network, Science Definition Team member, 2008.

HONORS AND AWARDS

The Herzberg Lecture, Carleton College Ottawa, 2024
The Jardezkty Lecture, Columbia University, 2023
The Ørsted Lecture, Danish Technical University, 2023
Mineral elkinstantonite, found in Somali meteorite El Ali by Prof. Chris Herd and colleagues, 2022
The Bownocker Medal and Lecture, The Ohio State University, 2022
Member of the National Academy of Sciences, 2021
NASA Group Achievement Award for outstanding execution and successful completion of the formulation phase of Psyche mission, 2020
Arthur L. Day Prize and Lectureship, National Academy of Sciences, 2020
Fellow of the Meteoritical Society, 2020
Speaker at Chile's Congreso Futuro, 2020
The Flatté Lecture in Science at UC Santa Cruz, 2019
Member of the American Academy of Arts and Sciences, 2018
Fellow of the American Mineralogical Society, 2017
Fellow of the American Geophysical Union, 2016
Thomas A. Mutch Lecture at Brown University, 2016
Mineralogical Society of America Distinguished Lecturer, 2013-2014
The Goldsmith Lecture, University of Chicago, 2014
The Wilson Lecture, University of Oslo, Norway, 2014
Astor Fellow, Oxford University, 2013, including the inaugural Lobanov Planetary Science Lectureship
The Masursky Lecture, Lunar and Planetary Science Conference, 2013
Asteroid (8252) Elkins-Tanton
Lowell Thomas Award from The Explorers Club, 2010
Outstanding MIT Faculty Undergrad Research Mentor Award, 2008-2009
MIT Mitsui Career Development Chair, 2008-2011
NAS Kavli Fellow, Frontiers of Science, U.S. (participant), 2008
NAS Kavli Fellow, Frontier of Science France-US, France (speaker), 2008
National Science Foundation CAREER award, June, 2008
National Defense Science and Engineering Graduate fellowship, 1997-2000
Amelia Earhart graduate fellowships from Xonta International, 1999 and 2000

SERVICE

Geneva Science and Diplomacy Anticipator (GESDA) chair of the space section, 2024 – present
Aerospace Corporation Center for Space Policy and Strategy Senior Advisory Council member, 2024 – present
A Science Strategy for the Human Exploration of Mars, NAS Consensus Study, Co-Chair with Co-Chair Dava Newman, 2024 – present
National Academies' Committee on International Security and Arms Control member, 2023 – present
Good Growth Capital, Advisor, 2023 – present
AstroForge Inc. Advisor, 2022 – present
MIT Earth, Atmospheric, and Planetary Science Visiting Committee member, 2018 – present (other visiting committees: Lowell Observatory, Stanford Geology, Stanford Geophysics, University of Maryland College Park)
Open Lunar board member, 2018 – present
MILO Institute board member, 2018 – present
New Space Editorial Board founding member, 2012 – present

Intelligence Science and Technology Experts Group, Nat'l Academy of Sciences, 2015 – 2024 (program close)
National Academies' Action Collaborative on Preventing Sexual Harassment in Higher Education, Leadership, 2023 – 2025
Congreso Futuro, Chile, Advisory Board, 2021 – 2022
The Hague Space Resources Technical Panel, 2018
The Explorers Club Space Advisory Committee member, 2013 – 2016
Centre for Earth Evolution and Dynamics, Oslo, Int'l Advisory Board Member, 2012 – 2017
NAS Committee on Astrobiology and Planetary Science (CAPS), 2012 – 2015
Planetary Division of the American Geophysical Union Secretary, 2010 – 2012, President-Elect, 2012 – 2014, President, 2015 – 2016
Flag and Honors Committee, The Explorers Club, 2011 – 2013
Journal of Geophysical Research: Planets Associate Editor, 2010 – 2012
NAS Decadal Survey for Planetary Science, 2009 – 2010, Mars Panel Member

POSTDOCTORAL, GRADUATE, AND UNDERGRADUATE RESEARCHERS SUPERVISED

Primary advisor for:
John Morgan Christoph, ASU Ph.D. 2017 – 2023; now postdoc at Smithsonian.
Kevin Hubbard, ASU Ph.D., 2017 – 2023; now proposal manager at Honeybee Robotics.
Carver Bierson, ASU postdoctoral fellow, 2020 – 2024; now at Scottsdale Community College.
Hannah Bercovici, ASU Master's, 2017 – 2020, now freelance science writer.
Joe O'Rourke, ASU Postdoctoral Exploration Fellow, 2017 – 2019; now tenure-track at ASU.
Laura Schaefer, ASU postdoctoral fellow 2016-2018; now assistant professor at Stanford.
Kaveh Palevan, ASU postdoctoral fellow 2016 – 2018, now research scientist at the SETI Institute.
Terrence Blackburn, Carnegie postdoctoral fellow 2012-2014, now associate professor at UC Santa Cruz.
Aaron Scheinberg, MIT Ph.D. 2015, Mantle dynamics and geodynamos in the early solar system, now computational scientist at Jubilee Development in Boston.
Benjamin Black, MIT Ph.D., 2013, Links between the volcanism and atmospheric chemistry, subsequently postdoc at Berkeley, now associate professor at Rutgers.
Jenny Suckale, MIT Ph.D. 2011, Numerical models of bubbles and crystals in magmatic systems, subsequently fellow at Harvard University, now associate professor at Stanford University.
Stephanie Brown Krein, MIT S.B. Thesis 2010, S.M. 2011, now private sector in Boston.
Alessondra Springmann, MIT S.M. 2011, now a postdoc at Southwest Research Institute.
Sean Wahl, MIT S.B. Thesis 2011, now at Privateer Space.
Danielle Piskorz, MIT S.B. 2011, subsequently Ph.D. at CalTech, now at JPL.

Romain Meyer, MIT Postdoctoral scholar 2008-2010, now at Service Géologique du Luxembourg.
Sarah Gelman, MIT S.B. Thesis, 2009, Goetze award for best thesis, now geologist at the USGS.
Andrew Thorpe, B.S. Honors Thesis 2004 at Brown University, now research technologist at JPL.
Jessica Jewell, B.S. Honors Thesis 2004 at Brown University, now Assistant Professor at Chalmers University of Technology in the Department of Space, Earth and Environment, Division of Physical Resource Theory (Sweden).

Secondary Advisor for:
Sam Courville, ASU Ph.D. 2020 – present.
Lena Heffern, ASU Ph.D. 2022, now research professor at UC Boulder.
Steven Dibb, ASU Ph.D. 2021, now research scientist at Bay Area Environmental Research Institute.
Ben Mandler, MIT Ph.D. 2016, now Research Scientist at Jackson Family Wines.
Roger Fu, MIT Ph.D. 2015, now associate professor at Harvard.
Seth Burgess, MIT Ph.D. 2014, now research geologist at the USGS.
Sonia Tikoo, MIT Ph.D. 2013, now assistant professor at Stanford.
Christy Till, MIT Ph.D. 2011, now professor at ASU.

TEACHING EXPERIENCE (NOT INCLUDING TEACHING OF PROFESSIONAL DEVELOPMENT CLASSES)

The following ASU courses all used the Beagle question cycle to train students in conducting a literature review, assessing the quality of their sources, asking their own questions, and progressing toward broad knowledge around a specific goal. The courses are driven by the students' questions.

ASU IPI296/496, Online Open Inquiry: Space, Fall 2020, Spring and Fall 2021; Spring and Fall 2022.

ASU IPI296-SES598, What is life and can we detect it on icy moons, Spring 2021

ASU IPI296-SES598, Sustainable Space Exploration, Spring 2020

ASU SES494-591, Human Biosystem in Space, Fall 2019

ASU SES494-591, Planetary Life Detection, Spring 2019

ASU SES494-591, Introduction to Interplanetary Initiative Research, Fall 2018

ASU SES494-591, The Moon After Settlement, Fall 2018

ASU SES494-591, Earth Without Life, Fall 2017

ASU SES494-591, Life on Small Worlds, Fall 2016

ASU SES395, Exploration: The Human Imperative, Spring 2016. Spring 2017.

ASU SES494-591, Detecting Habitable Planets, Fall 2015

MIT 12.001, Introduction to Geology, Spring 2007, Spring 2008. This course is MIT's introduction to geology for undergraduate majors and included a strong lab component. The subject was rated 6.1/7 and I was rated 6.6/7.

MIT 12.472, Building Earth-like planets: From nebular gas to ocean worlds, Fall 2008, Fall 2009, Spring 2011. A graduate investigation in the current understanding of how planets form and what makes them habitable. The subject was rated 6.7/7 and I was rated 6.5/7.

MIT 12.470, Essentials of Geology, Spring 2009, Spring 2010 This course was an intense, one-semester introduction for physics, math, and engineering students entering Ph.D. programs in Earth and planetary science. The subject was rated 6.3/7 and I was rated 6.7/7.

MIT 21L.A23/12.A41, Catastrophes, tedium, discoveries: When expeditions do science, Fall 2009. This freshman seminar on the historic place of science in exploration covered the *Beagle* and the American Exploration Expedition, as well as space flight and searches for the northwest passage.

Earth and Space Science, a summer course for middle- and high-school science teachers, Summer 2010, 2011, 2012, 2013. Originally funded through my CAREER grant, this course brought secondary-school

teachers up to date on the science and integrated the needed math at each step. Assessments were very high, and we attracted teachers from five states.

For two years before beginning my Ph.D. I taught full-time as a lecturer in mathematics at St. Mary's College of Maryland, the University of Maryland's honors college. At St. Mary's I taught ten courses, including general geology, calculus, precalculus, statistics, number theory, and mathematical modeling, and received consistently high teaching assessments even in general service mathematics classes.

RESEARCH CONTRACTS AND GRANTS

Title	Agency	Total Funds	Duration	E-T %	Role
Psyche: Journey to a Metal World	NASA Discovery Program	$1.2B	2017-2031	6%	PI
Variability and Abundance of Hydration on M-Type Asteroid (16) Psyche: The search for water on the largest metallic asteroid	Space Telescope Foundation	James Webb Space Telescope time in Cycle 1	2022	0%	Co-I with PI S. Jarmak, SwRI
SBIR Phase I: Training Platform and Machine Learning for Faster Team Problem Solving	AFWERX	$49,998	2020 3 mths	0%	Co-I with PI T. Bohlen, Beagle Learning
SBIR Phase I: Creating the Critical University-to-Workforce Connection: Providing Quantitative Evidence of Collaboration Skills	NSF Education	$185,500	2019 - 2020	0%	Co-I with PI T. Bohlen, Beagle Learning
Psyche's UV Reflectance Spectra: Exploring the origins of the largest exposed-core metallic asteroid	Space Telescope Foundation	Hubble time allocation	2017	0%	Co-I with PI T. Becker, SwRI
Water from the Heavens: The Origins of Earth's Hydrogen	Keck Foundation	$1,500,000	1/1/2016 - 12/31/2018	3%	Co-I with PI P. Buseck, ASU
Psyche: Mission to a metal world (NNM16AA09C, NNN12AA01C)	NASA	$3,000,000	11/13/15 – 11/12/16	12%	PI
STEM Education Exploration Connection (NNX16AD79A)	NASA	$10,183,000	1/1/16 – 1/1/21	50%	PI (later passed to Ariel Anbar)
How strong is the Venusian crust? The roles of trace amounts of water and ductile shear zones	NASA Solar System Workings	$357,053	7/1/15-6/30/18	0%	Collaborator with PI D. Kohlstedt, U Minn.
Infrastructure for Interdisciplinary Research in Earth and Space Science at the Carnegie Institution (0963396)	NSF ARI	$1,093,000	9/1/2010 – 9/1/2014	100% for infrastructure	PI from 2011-2014
Collaborative Research: Application of siderophile elements to mantle geodynamics (1160656, 1160728)	NSF CSEDI	$545,965	5/1/2012 – 4/30/2016	31%	Co-I with PI R. Walker, U MD
ASGARD: Development of a seismometer for planetary applications (NNX10AJ84G)	NASA Planetary Instrumentation Dev.	$899,919	6/1/10 – 5/30/13	16%	Co-I with PI Draper Labs
Upgrade of the Alliance for Computational Earth Science (ACES) High Performance Computing Facility	NSF EAR Instrumentation and Facilities	$75,000	5/1/10 – 4/30/11	100% for infrastructure	Co-I with PI B. Hager, MIT
Catastrophes, tedium, discoveries: When expeditions do science	MIT Research Funds	$16,388	6/1/09 – 6/1/10	50%	Co-I with PI M Fuller, MIT
Lunar volatiles and magma ocean differentiation: Reconciling new results with old ideas (NNX09AM63G)	NASA LASER	$173,481	7/1/09 – 6/30/12	20%	Co-I with PI M. McCanta, Tufts
Moon as cornerstone to the terrestrial planets: The formative years (NNA09DB34A)	NASA Lunar Institute	$2,790,282	8/1/2011 – 7/31/2014	100% for shared students	Team member with PI C. Pieters, Brown U., & Institutional PI M. Zuber, MIT

Unusual lavas in Arctic Siberia: Connections to the world's largest volcanic event, the world's largest extinction, and river channels on Venus	MIT Research grant from the Wade fund	$50,000	7/1/08 – 6/30/09	100%	PI
Collaborative research: The Siberian Traps and the end-Permian extinction: Coincidence and causality (0807585 etc)	NSF Continental Dynamics	$3,000,000	8/1/08 – 7/31/13	44%	Lead PI
CAREER: Building rocky planets: From Mercury and Vesta to GL 581c	NSF Astronomy	$724,320	3/7/08 – 5/31/13	100%	PI
The role of water in the early formation of Mars: Wet magma ocean crystallization, the growth of a water atmosphere, and retention of water in the mantle (NNX06AB18G)	NASA Mars Fundamental Research	$258,025	6/1/06 – 1/31/11	100%	PI
Collaborative research: Lithospheric removal: The Sierra Nevada as the prototype of a fundamental process in mountain building	NSF Continental Dynamics	$102,297	9/1/06 – 8/31/10	100%	PI
Consequences of tidal heating on the internal evolution of the early Earth, with comparison to Venus, Mars, and Mercury	Strategic University Research Partnership MIT-JPL	$19,320	7/1/08-6/30/09	100%	PI
The lithosphere-asthenosphere boundary: Integrated modeling of scattered wave observations and mantle dynamics	NSF Geophysics	$380,000	4/1/06 – 3/31/09	50%	Co-I with PI K. Fischer, Brown U.
Workshop on the Siberian traps and the end-Permian extinction	NSF Continental Dynamics	$20,075	9/1/05 – 12/31/06	100%	PI
Early crustal formation on Mars	NASA Mars Fundamental Research	$54,361	7/1/05 – 12/31/06	100%	PI
Petrology and physics of magma ocean crystallization (NNG04GB30G)	NASA Mars Fundamental Research	$48,700	4/1/04 – 3/31/05	100%	PI
Lithospheric controls on flood basalt volcanism (EAR-0309057)	NSF Petrology & Geochem.	$113,912	7/1/03 – 12/1/05	100%	PI

SELECTED ESSAYS, ARTICLES, TALKS, INTERVIEWS

Represented by American Program Bureau for speaking engagements, and by Aevitas Creative for writing.

- Psyche Launch – Two Days Science Press Briefing, October 2023
- Alan Alda's Clear+Vivid Podcast "What's at the Core?" Nov. 14, 2022 https://clear-vivid-with-alan-alda.simplecast.com/episodes/lindy-elkins-tanton-whats-at-the-core
- NBC *Today Show* profile July 11 2022 https://www.today.com/video/how-one-mom-started-her-phd-at-31-and-made-nasa-history-143801413612
- Elkins-Tanton, Time to Say Goodbye to Our Heroes? *Issues in Science and Technology*, 2021.
- Learning Futures Podcast Collaborative Problem-Solving with Meaningful Action released Sept 21st 2021
- Teaching both problem-solving and standard content is not impossible for *Times Higher Education*, 2021
- Articles for *Slate*
- Blogs on Medium.com
- Utah Public Radio interview Undisciplined: Prehistory Repeats Itself, 2020
- Storycorps interview, 2019
- Testimony (video) to the Senate Commerce, Science, and Transportation subcommittee on the NASA workforce and STEM education, 2019
- American Academy of Arts and Sciences Class 1 Speaker, 2018 Induction Ceremony
- The "mission trailer" for the NASA Psyche mission

- Lucy and Psyche mission interviews on *Science Friday*, 2017.
- Elkins-Tanton, Our Solar System was born Through High-Energy Crashes, Not Stately Growth, *Scientific American*, 2016.
- TEDx St. Mark's School talk about education: Change Begins with a Question, 2015
- Zócalo Public Square Green Room Interview in preparation for Can Space Exploration Save Humanity?