Curriculum Vitae

Lars Stixrude

Professor, Department of Earth Sciences, University College London
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Education

B. S.: University of Delaware, 1985 (Geology and Physics)
Ph.D.: University of California at Berkeley, 1991 (Geophysics)

Positions Held

Head of Department, Dept. of Earth Sciences, University College London	2013-present
Professor, Dept. of Earth Sciences, University College London	2007-present
Visiting Professor, Dept. of Geological Sciences, University of Michigan	2007-2011
Visiting Miller Professor, Miller Institute, UC Berkeley	2005
Professor, Dept. of Geological Sciences, University of Michigan	2003-2007
Associate Professor, Dept. of Geological Sciences, University of Michigan	2000-2003
Assistant Professor, Dept. of Geological Sciences, University of Michigan	1997-2000
Visiting Investigator, Carnegie Institution of Washington	1993-2000
Assistant Professor, Earth & Atmospheric Sciences, Georgia Tech	1992-1997
Humboldt Foundation Fellow, Institut für Geophysik, Universität Göttingen	1994
Postdoctoral Associate, Carnegie Institution of Washington	1991-1992

Awards and Honors

Member, Academia Europaea	2012
Cozzarelli Prize, U. S. National Academy of Sciences	2009
Fellow, American Association for the Advancement of Science	2006
Visiting Miller Professorship, Miller Institute, UC Berkeley	2005
Fellow, Mineralogical Society of America	2002
James B. Macelwane Medal, American Geophysical Union	1998
Fellow, American Geophysical Union	1998
Sigma Xi Junior Faculty Award, Georgia Institute of Technology	1995
Alexander von Humboldt Foundation Fellowship	1993
Achievement Rewards for California Scientists (A.R.C.S. Foundation) Award	1989

Professional Society Membership

Mineralogical Society of America	1996-present
American Physical Society	1994-present
American Association for the Advancement of Science	1990-present
American Geophysical Union	1985-present

Service on Editorial Boards

Editor, *Treatise on Geophysics: Vol. 2 Mineral Physics*	2010-2015
Editor, *Earth and Planetary Science Letters*	2008-2014
Editorial Board, *Earth and Planetary Science Letters*	2007

Associate Editor, *American Mineralogist*	1996-2000
Associate Editor, *Journal of Geophysical Research*	1994-1997

Organization of International Conferences

Goldschmidt Conference, Organizer of Theory Theme, Prague, Czech Republic, August, 2011.
Mineralogical Society of America Short Course on Computational Mineral Physics, One of two organizers, Berkeley, CA, 2009.
U.S. Dept. of Energy Workshop on Molecular Dynamics, Organizer, Berkeley, CA, 2007.
American Physical Society March Meeting, Special session on planetary materials, One of two organizers, Denver, CO, 2007.
Gordon Research Conference on The Interior of the Earth, Chair, Mt. Holyoke, MA, 2005.
Cooperative Institute for Deep Earth Research Steering Group, planning biennial meetings at the Kavli Institute for Theoretical Physics in Santa Barbara, CA, 2004-2014.
Gordon Research Conference on The Interior of the Earth, Vice-Chair, Mt. Holyoke, MA, 2003.
American Geophysical Union Spring Meeting, Program Committee, 2000-2002.
American Geophysical Union Fall Meeting Planning Session, 1999.
American Geophysical Union Spring and Fall Meeting, Co-organizer of more than 10 special sessions, 1993-present.

Other Selected Professional Service

NERC Peer Review College Member	2012-
Univearths Scientific Advisory Board	2011-2013
Discussion Leader and Co-author, C21 Earth Sciences Forward Look	2010
Committee of Visitors, U. S. Dept. of Energy Chemistry Program	2008
Macelwane Medal Committee, American Geophysical Union (AGU)	2006-present
U. S. National Research Council Committee: Earth, Grand Research Questions	2006
Council on Earth Sciences, U. S. Department of Energy	2005-2008
Cooperative Institute for Deep Earth Research Steering Committee	2003-2014
Lehmann Medal Committee, American Geophysical Union	2002-2006
U. S. National Science Foundation Committee of Visitors (EAR I&F)	2001
AGU Tectonophysics Executive Committee	2000-2002
Mineral and Rock Physics Committee, AGU	1999-2003
U. S. National Science Foundation Panel: POWRE Program	1997

Community Outreach

UCL Lunch Hour Lecture: *How did Earth Begin*, University College London, London, March, 2014.
Presentation: "My Journey in Science" to Trevor Roberts School, London, January, 2012.
Presentation: "The Color of Minerals" to the Architectural Association, School of Architecture, London, February, 2012.
Founder, UCL branch of the UK School Seismology Project, ***www.bgs.ac.uk/schoolSeismology***, 2009.
Presentation to The Science Research Club of Ann Arbor: *Secrets from Earth's center: Physics of dense iron and the Earth's inner core*, Ann Arbor, 2001.

Invited Lectures

Future Directions Towards Earth's Deep Past, Gordon Research Conference on the Interior of the Earth, Mt. Holyoke, June, 2017.

Origins of Lateral Heterogeneity in the Lower Mantle, CIDER Workshop, San Francisco, CA, May, 2016.

Protons to Planets: Materials Simulation as a Window into Earth and Planetary Interiors, The Thomas J. and Earleen Ahrens Lecture, California Institute of Technology, Pasadena, CA, May, 2015.

Molten Earth: Magma in Earth's Deep Interior, California Institute of Technology, Pasadena, CA, May, 2015.

Origin of the Low Velocity Zone, Lithosphere-Asthenosphere Boundary Conference, Geological Society, London, February, 2015.

Molten Earth: Magma in Earth's Deep Interior, University of Cambridge, Bullard Laboratories, Cambridge, UK, November, 2014.

Melting in Super-Earths, Workshop on Structure and Dynamics of Earth-like Planets, College de France, Paris, November, 2014.

Melting in Super-Earths, Workshop on Circumstellar Disks and Planet Formation, University of Michigan, Ann Arbor, MI, October, 2014.

Melting in Super-Earths, Pure-V, Institut du Physique du Globe, Paris, June, 2014.

The Chemically Heterogeneous Transition Zone, American Geophysical Union Fall Meeting, San Francisco, December, 2013.

HeFESTo: Thermodynamics and Elasticity of the Mantle, American Geophysical Union Fall Meeting, San Francisco, December, 2013.

Molten Earth: Magma in Earth's Deep Interior, American Geophysical Union Fall Meeting, San Francisco, December, 2013.

Geophysics of Chemical Heterogeneity in the Deep Mantle, American Geophysical Union Fall Meeting, San Francisco, December, 2013.

Molten Earth: Magma in Earth's Deep Interior, University of Oxford, Oxford, UK, November, 2013.

Geophysics of Chemical Heterogeneity in the Mantle, Rosenqvist Lecture, Kongsberg Seminar, Oslo, May, 2013.

Dynamics and Composition of the Mantle: From the Atomic to the Global Scale, Short course (series of 4 lectures), Dipartimento di Scienze Geologiche, Universitá Roma Tre, Rome, Italy, March 25-28, 2013.

Molten Exo-planets, Characterizing Exoplanets Meeting, Royal Society, London, March, 2013.

Fluid Silicates at the Origin of the Earth Moon System, Royal Astronomical Society, November, 2012.

Geophysics of Chemical Heterogeneity in the Mantle, SEDI2012: 15th Symposium on Study of Earth's Deep Interior, Leeds, UK, July, 2012.

Molten Earth: Silicate Liquids in the Deep Interior, Bristol University, Bristol, UK, March, 2012.

Molten Earth: Silicate Liquids in the Deep Interior, Carnegie Institution of Washington, Washington, DC, February, 2012.

Iron in Silicate Liquids at High Pressure, American Geophysical Union Fall Meeting, San Francisco, December, 2011.

Molten Earth: Silicate Liquids in the Deep Interior, Thomas Young Centre, London, UK, October, 2011.

Dynamics of Silicate Liquids, CECAM Workshop on Dynamics of Materials, Lausanne, Switzerland, October, 2011.

Materials Physics in Giant Planetary Interiors, University of Warwick (Physics), October, 2011.

Dynamics of Silicate Liquids, PURE-III Meeting, Paris, France, September, 2011.
Structure of Silicate Liquids, International Union of Crystallography Meeting, Madrid, Spain, August, 2011.
Protons to Planets: First Principles Materials Simulation as a Window into Earth and Planetary Processes, University of Leeds, Leeds, UK, April, 2011.
Silicate Liquids at the Base of the Mantle, American Geophysical Union Fall Meeting, San Francisco, December 2010.
Molten Earth: Magma in the Deep Interior, CECAM Workshop on Computational Mineral Physics, Zürich, Switzerland, October, 2010.
Molten Earth: Magma in the Deep Mantle, University of Texas, Austin, Texas, September, 2010.
Protons to Planets: First Principles Materials Simulation as a Window into Earth and Planetary Processes, University of Texas, Austin, Texas, September, 2010.
Molten Earth: Magma in the Deep Mantle, Princeton University, Princeton, New Jersey, March, 2010.
Molten Earth: Magma in the Deep Mantle, University of Durham, Durham, UK, February, 2010.
Materials Physics in Giant Planetary Interiors, University of Muenster (Physics), Muenster, Germany, February, 2010.
Thermodynamics of Earth's Mantle, MSA Short Course on Computational Mineral Physics, Berkeley, California, December 2009.
Mantle Heterogeneity: Origins and Observables, American Geophysical Union Fall Meeting, San Francisco, December 2009.
Thermodynamics of Silicate Liquids in the Deep Earth, American Geophysical Union Fall Meeting, San Francisco, December 2009.
Molten Earth: Magma in the Deep Mantle, Conference: "From Crust to Core", International Center for Theoretical Physics, Trieste, Italy, July, 2009.
Origins of Mantle Heterogeneity, Gordon Research Conference, Mt. Holyoke, Massachusetts, June, 2009.
Minerals to Mantles: The Planetary Mosaic, Bullard Laboratory, Cambridge, UK, May, 2009.
Protons to Planets: Advances and Perspectives in Computational Mineral Physics, Workshop on Long-Range Plan for High Pressure Earth Sciences, Tempe, Arizona, March, 2009.
Molten Earth: Silicate liquids in Planetary Interiors, University of Cambridge, Cambridge, UK, January, 2009.
Minerals to Mantles: The Planetary Mosaic, American Geophysical Union Fall Meeting, San Francisco, December, 2008.
Minerals to Mantles: The Planetary Mosaic, University College London, London, UK, October, 2008.
Minerals to Mantles: The Planetary Mosaic, British Geophysical Association, Durham, UK, September, 2008.
Silicate liquids in Planetary Interiors, International Geological Congress, Oslo, Norway, August, 2008.
Minerals to Mantles: The Planetary Mosaic, International Geological Congress, Oslo, Norway, August, 2008.
Minerals to Mantles: The Planetary Mosaic, Rice University, Houston, Texas, February, 2008.
Silicate liquids in Planetary Interiors, University of Bayreuth, Bayreuth, Germany, September, 2007.
Minerals to Mantles: The Planetary Mosaic, Wilhelm and Else Heraeus Seminar, Munich, Germany, September, 2007.
Silicate liquids in Planetary Interiors, High Pressure Mineral Physics Symposium, Matsushima, Japan, May, 2007.

Fluids in Planetary Interiors, Wes Huntress Symposium, Carnegie Institution of Washington, Washington, DC, October, 2007.

Is the Asthenosphere Partially Molten?, Gordon Research Conference on Interior of the Earth, Mt. Holyoke, Massachusetts, June, 2007.

Silicate liquids in Planetary Interiors, Case Western Reserve University, Cleveland, Ohio, March, 2007.

Silicate liquids in Planetary Interiors, University of Colorado at Boulder (Physics), Boulder, Colorado, March, 2007.

Minerals to Mantles: The Planetary Mosaic, c2c Marie Curie Research Training Network Kickoff Meeting, Bergamo, Italy, February, 2007.

Mineral Physics: Modeling from the Atomic to the Global Scale, Short course (series of 9 lectures), Dipartimento di Scienze della Terra, Universitá degli Studi di Milano, Milan, Italy, February 19-23, 2007.

Subduction as a Source of Major Element Heterogeneity and Consequences for Earth Structure, American Geophysical Union Fall Meeting, San Francisco, December, 2006.

Physical properties of multi-phase mantle assemblages, International Mineralogical Association Meeting, Kobe, Japan, July, 2006.

Structure and Freezing of MgSiO3 liquid in Earth's Interior, International Mineralogical Association Meeting, Kobe, Japan, July, 2006.

Magma In Earth's Deep Interior, Johns Hopkins University, Baltimore, Maryland, March, 2006.

Fluids in Planetary Interiors, University of Michigan (Physics), Ann Arbor, Michigan, February, 2006.

Magma In Earth's Deep Interior, Harvard University, Cambridge, Massachusetts, February, 2006.

From Minerals to Mantles: The Planetary Mosaic, Brown University, Providence, Rhode Island, November, 2005.

Silicate Liquids in Earth's Deep Interior, California Institute of Technology, Pasadena, California, October, 2005.

Magma In Earth's Deep Interior, University of Chicago, Chicago, Illinois, September, 2005.

Ab initio molecular dynamics simulations of silicate liquids at high pressure, Goldschmidt Conference, Moscow, Idaho, May, 2005.

Magma in Earth's Deep Interior, Lawrence Livermore National Laboratory, Livermore California, May, 2005.

Minerals and Melts in Earth's Interior, University of California at Berkeley (Physics), Berkeley, California, May, 2005.

Minerals to Mantles, University of California at Berkeley, Berkeley, California, February, 2005.

Physics of Iron in the Earth's Interior, University of Illinois, Champaign-Urbana, Illinois, November, 2003.

Physics of Iron in the Earth's Interior, Yale University, New Haven, Connecticut, February, 2002.

Thermoelasticity of dense iron and Earth's inner core, CECAM/Psi-k Workshop, Lyon, France, July, 2001.

The origin of lateral heterogeneity in the mantle, American Geophysical Union Spring Meeting, Boston, Massachusetts, May, 2001.

Elasticity of iron at high pressure and temperature - Implications for the earth's inner core, Goldschmidt Conference, Hot Springs, Virginia, May, 2001.

Talc under tension and compression: spinodal instability and structure at high pressure, Goldschmidt Conference, Hot Springs, Virginia, May, 2001.

First principles theory of mantle and core phases, MSA Short Course on Molecular Modeling Theory: Applications in the Geosciences, Roanoke, Virginia, May, 2001.

Origin of Laterial Heterogeneity in the Earth's Mantle, University of Chicago, Chicago, Illinois, April, 2001.

Is there partial melt in the earth's upper mantle?, American Geophysical Union Fall Meeting, San Francisco, December, 2000.

Phase transitions and lateral heterogeneity in the mantle, American Geophysical Union Spring Meeting, Washington, DC, May, 2000.

Causes and consequences of lateral heterogeneity in the earth's mantle, Institut de Physique du Globe de Paris, Paris, France, November, 1999.

Physics and chemistry of the earth's inner core, International Union of Geodesy and Geophysics General Assembly, Birmingham, UK, July, 1999.

New probes of the dynamics of earth's deep mantle, International Union of Geodesy and Geophysics General Assembly, Birmingham, UK, July, 1999.

Unified description of phase equilibria and physical properties of mantle assemblages, IRIS Workshop, Yosemite, California, July, 1999.

New probes of the dynamics of earth's deep mantle, Princeton University, Princeton, New Jersey, April, 1999.

Origin of anisotropy in the earth's inner core, American Geophysical Union Fall Meeting, San Francisco, California, December, 1998.

The earth's inner core: significance and role in geochemical and geophysical processes, Studies of the Earth's Deep Interior, Tours, France, July, 1998.

First principles investigation of the elasticity of earth materials at high pressure, Materials Research Society Spring Meeting, Boston, Massachusetts, March, 1998.

New Windows into the Earth's Deep Interior, University of Chicago, Chicago, Illinois, January, 1998.

Anisotropy in the deep earth: Elastic constants of major constituents, Fall Meeting of the American Geophysical Union, San Francisco, December, 1997.

Elastic Anisotropy of Major Materials of the Earth's Mantle, Geophysical Laboratory, Carnegie Institution of Washington, Washington, DC, April, 1997.

First Principles Investigations of Earth's Inner Core, Fall Meeting of the American Geophysical Union, San Francisco, December, 1996.

Probing the Earth's Deep Interior: New Discoveries from the Heart of our Planet, University of Michigan, Ann Arbor, Michigan, June, 1996.

Probing the Earth's Deep Interior: New Discoveries from the Heart of our Planet, University of Minnesota, Minneapolis, Minnesota, May, 1996.

Physics of Iron in the Earth's inner core, US-Japan Conference on High Pressure-Temperature Research: Properties of the Earth and Planetary Materials, Maui, Hawaii, Jan. 1996.

From Electrons to Planets: Theoretical Study of Planetary Interiors, University of Toronto (Physics), Toronto, Canada, October, 1995.

Mantle Composition and Structure of Mantle Discontinuities, International Union of Geodesy and Geophysics Meeting, Boulder, Colorado, July, 1995.

The Depths of Schrödinger's Equation: Investigation of Planetary Interiors from First Principles, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California, July, 1995.

The Depths of Schrödinger's Equation, Harvard University, Cambridge, Massachusetts, March, 1995.

Density Functional Theory: New Windows into Planetary Interiors, International Mineralogical Association, Pisa, Italy, July, 1994.

First Principles Investigations of Earth Materials, International Mineralogical Association, Pisa, Italy, July, 1994.

The Depths of Schrödinger's Equation, Universität Göttingen (Physics), Göttingen, Germany, June, 1994.

First Principles Study of the Electronic Band Structure of Iron at High Pressure, 14th AIRAPT Conference on High Pressure Science and Technology, Colorado Springs, Colorado, July, 1993.

Stability of Orthorhombic $MgSiO_3$ Perovskite in the Lower Mantle from First Principles, Spring Meeting of the American Geophysical Union, Baltimore, Maryland, May, 1993.

First Principles Investigation of the Band Structure and Physical Properties of Iron at Core Pressures, Spring Meeting of the American Geophysical Union, Baltimore, Maryland, May, 1993.

Composition of the transition zone and the lower mantle, Fall Meeting of the American Geophysical Union, San Francisco, December, 1992.

The Atomic Structure of Liquid, Crystalline and Vitreous Tectosilicates and their Response to Pressure, Geophysical Laboratory, Carnegie Institute of Washington, Washington, DC, January, 1991.

Melting of $MgSiO_3$ Perovskite: Bounds on the Temperature in the Deep Earth, Gordon Research Conference on Research at High Pressure, Meridan, New Hampshire, June, 1990.

Rings, Topology and the Density of Tectosilicates: Implications for the Compression of Silicate Liquids, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, March, 1990.

Compression Mechanisms in Liquid SiO_2, High Pressure Physics Group, Lawrence Livermore National Laboratory, Livermore, California, May, 1988.

Research Grants

Date	*Source*	*Amount (FEC)*	*Responsbility (%)*	*Duration*
4/12	ERC	€2,500,000	100	6 years
MoltenEarth: Fluid silicates at extreme conditions and the magma ocean				
7/10	NERC	£464,885	20	3 years
Melting in the deep Earth				
2/10	NERC	£512,906	20	3 years
The thermal conductivity of lower mantle minerals				
2/09	NERC	£363,567	100	3 years
Magma generation and transport throughout the Earth's mantle: ab initio simulation of silicate melts				
11/06	NSF	$360,000	100	3 years
Collaborative Research: Quantum Mechanical Modeling of Major Mantle Materials				
4/05	NSF	$96,390	100	3 years
CSEDI Collaborative Research: 3D Temperature and Composition Structure of the Upper Mantle Using Seismological and Mineral Physics Constraints				
8/04	NSF	$197,967	100	3 years
Collaborative Research: First Principles Investigation Of Silicate Liquids At Mantle Conditions				
11/02	NSF	$381,541	100	4 years
Collaborative research: Quantum Mechanical Modeling of Major Mantle Materials				
8/02	NSF	$22,650	100	5 years
Collaborative research: Elasticity Grand Challenge of the COMPRES Initiative				
12/99	NSF	$279,398	100	4 years
Collaborative research: Theoretical Investigation of Core Materials				
7/99	NSF	$205,402	100	3 years
In situ Characterization of Hydrous Silicate Melts				
7/99	NSF	$124,749	100	3 years

Collaborative research: Quantum Mechanical Modeling of Major Mantle Materials
7/97 NSF $45,238 100 3 years
Collaborative research: Redox state of the earth's interior
7/97 NSF $79,725 100 2 years
Collaborative research: Theoretical Investigation of Core Materials from First Principles
7/96 NSF $119,033 100 3 years
Collaborative research: Quantum Mechanical Modeling of Major Mantle Materials
7/93 NSF $187,214 100 3 years
Collaborative research: Theoretical Investigation of Core Materials from First Principles

Summary of Courses Taught

Course #	*Title*	*FormatType*	*Credits*	
University College London				
GEOL 3037	Deep Earth Modeling	Lecture/Lab	Year 3	1.0 unit
GEOL 3003	Geodynamics and Tectonics	Lecture/Lab	Year 3	1.0 unit
University of Michigan				
GS 113	Planets and Moons	Lecture	Non-Majors	1
GS 115	Geologic Time	Lecture	Non-Majors	1
GS 157	History of Earth Science	Seminar	Freshmen	3
GS 201	Introduction to Geography	Lecture/Lab	Non-Majors	4
GS 232	Earth Materials	Lecture/Lab	Majors	4
GS 426	Mineral Physics	Lecture	Majors/Grad	3
GS 525	Tectonophysics (team taught)	Lecture	Majors/Grad	4
GS 534	Advanced Thermodynamics	Seminar	Grad	1
Georgia Tech				
EAS 1101	Intro. to Earth & Atmo. Sci.	Lecture	Non-Majors	3
EAS 3400	Mineralogy	Lecutre/Lab	Majors	4
EAS 3513	Geophysics	Lecture	Majors	3
EAS 6052	Geomagnetism	Lecture	Grad	3

Student and Post-Doctoral Supervision

Name	Date*	Responsibility	Current Position
MSc Students			
Boris Kiefer	1998	100%	Associate Professor, New Mexico State University
Gerd Steinle-Neumann	1998	100%	Staff Scientist, Bayerisches Geointitut
Jianlong Chen	2002	100%	Ph.D. student, University of Texas
Sun Ni	2006	100%	Operations Analyst, HSBC Bank, Chicago
Chloe Brillatz	2012	100 %	CGG Geophysics, Paris
Doctoral Students			
Bijaya Karki (U. Edinburgh)	1997	30%	Professor, Louisiana State University
Gerd Steinle-Neumann	2001	100%	Staff Scientist, Bayerisches Geointitut
Boris Kiefer	2002	100%	Associate Professor, New Mexico State University

M. Kathleen Davis	2005	100%	Geoscientist, Shell Exploration & Production
Sun Ni	2008	100%	Operations Analyst, HSBC, Chicago
Nico de Koker	2008	100%	Assistant Professor, Witwatersrand Univ.
Adam Martins	2015	100 %	Programmer, Met Office, Exeter
James Braithwaite	2017	100 %	Ph.D. student, University College London
Lee Bardon	2018	100 %	Ph.D. student, University College London
Fred Wilson	2019	100 %	Ph.D. student, University College London

Post-Doctoral Scholars

Evgeny Wasserman	1994-1996	100%	ProPlus Design Solutions Inc., San Jose, CA
Donald Snyder	1997-2000	100%	Senior Scientist, Rand Corporation
Bijay Karki	1997-2002	50%	Professor, Louisiana State University
Patrizia Fumagalli	2000-2001	100%	Assistant Professor, Univ. Milan, Italy
Wendy Panero	2001-2004	50%	Associate Professor, Ohio State University
Mainak Mookherjee	2003-2005	100%	Assistant Professor, Florida State University
Stephen Stackhouse	2006-2008	100%	Lecturer, University of Leeds
David Muñoz Ramo	2009-2011	100%	Post-Doc, University of Cambridge
Roberto Scipioni	2012-	100%	Post-Doc, UCL
Eero Hölmstrom	2012-2014	100%	Post-Doc, Aalto University, Finland
Carlos Pinilla	2014-2015	100 %	Assistant Professor, Univ. del Norte, Colombia
Bing Xiao	2014-	100 %	Post-Doc, UCL
Hang Cui	2014-	100 %	Post-Doc, UCL
Gabriella Graziano	2015-2016	100 %	Editor, Nature Chemistry
Neil Cagney	2015-	50 %	Post-Doc, UCL

*Date of degree or expected date of degree for students, dates of supervision for post-docs.

Publications

121. Scipioni, R., L. Stixrude, and M. P. Desjarlais, Electrical conductivity of SiO_2 at extreme conditions and planetary dynamos, *Proceedings of the National Academy of the United States of America*, 2017 (in press).
120. Holmström, E., and L. Stixrude, Spin crossover in liquid (Mg,Fe)O at extreme conditions, *Physical Review B, 93*, 195142, 2016.
119. Zhang, Z., S. M. Dorfman, J. Labidi, S. Zhang, M. Li, M. Manga, L. Stixrude, W. F. McDonough, and Q. Williams, Primordial metallic melt in the deep mantle, *Geophysical Research Letters, 43,* 3693-3699, 2016.
118. Tinetti, G., P. Drossart, P. Eccleston, P. Hartogh, K. Isaak, M. Linder, C. Lovis, G. Micela, M. Ollivier, L. Puig, I. Ribas, I. Snellen, B. Swinyard, …, L. Stixrude, … (and 326 others), The EChO science case, *Experimental Astronomy, 40*, 329-391, doi: 10.1007/s10686-015-9484-8, 2015.
117. Stackhouse, S., L. Stixrude, and B. B. Karki, First-principles calculations of the lattice thermal conductivity of the lower mantle, *Earth and Planetary Science Letters, 427*, 11-17, 2015.
116. Holmström, E., and L. Stixrude, Spin-crossover in ferropericlase from first-principles molecular dynamics, *Physical Review Letters, 114*, 117202, 2015.
115. Godwal, B. K., F. Gonzales-Cataldo, A. K. Verma, L. Stixrude, and R. Jeanloz, Stability of iron crystal structures at 0.3-1.5 TPa, *Earth and Planetary Science Letters, 409*, 299-306, 2015.
114. Stixrude, L., Properties of rocks and minerals - Seismic properties of rocks and minerals, and the structure of the Earth, in *Treatise on Geophysics, Volume 2: Mineral Physics*, G. Schubert, ed., pp. 417-439, Elsevier Ltd., Second Edition, doi:10.1016/B978-0-444-53802-4.00041-5, 2015.
113. Stixrude, L., and R. Jeanloz, Constraints on seismic models from other disciplines - Constraints from mineral physics on seismological models, in *Treatise on Geophysics, Volume 1: Seismology and the Structure of the Earth*, G. Schubert, ed., pp. 829-852, Second Edition, doi:10.1016/B978-0-444-53802-4.00022-1, 2015.
112. Muñoz Ramo, D. and L. Stixrude, Spin crossover in liquid Fe_2SiO_4 at high pressure, *Geophysical Research Letters, 41*, 4512-4518, 2014.
111. Gosh, D. B., B. B. Karki, and L. Stixrude, A first principles study of $MgSiO_3$ glass at high pressure, *American Mineralogist, 99*, 1304-1314, 2014.
110. Stixrude, L., Melting in Super-Earths, *Philosophical Transactions of the Royal Society A, 372*, 20130076, 2014.
109. Zhang, Z., L. Stixrude, and J. B. Brodholt, Elastic properties of $MgSiO_3$-perovskite under lower mantle conditions from first principles molecular dynamics simulations, *Earth and Planetary Science Letters, 379*, 1-12, 2013.
108. Richards, M., E. Contreras-Reyes, C. Lithgow-Bertelloni, M. Ghiorso, and L. Stixrude, Petrological interpretation of deep crustal intrusive bodies beneath oceanic hotspot provinces, *Geochemistry, Geophysics, Geosystems, 14*, 604-619, 2013.
107. Karki, B. B., J. Zhang, and L. Stixrude, Viscosity model derived from first principles simulations for MgO-SiO_2 melt system, *Geophysical Research Letters, 40*, 94-99, doi:10.1029/2012GL054372, 2013.
106. de Koker, N., B. Karki, and L. Stixrude, Thermodynamics of the MgO-SiO_2 liquid system in Earth's lower mantle from first principles, *Earth and Planetary Science Letters, 361,* 58-63, doi: 10.1016/j.epsl.2012.11.026, 2013.
105. Mookherjee, M., B. B. Karki, L. Stixrude, C. Lithgow-Bertelloni, Energetics, equation of state, and elasticity of NAL phase: potential host for alkali and aluminum in the lower mantle, *Geophysical Research Letters, 39*, L19306, doi: 10.1029/2012GL053682, 2012.

104. Capitani, G. C. and L. Stixrude, A first principles investigation of antigorite up to 30 GPa: structural behavior under compression, *American Mineralogist, 97*, 1177-1186, 2012.
103. Tinetti, G., J. P. Beaulieu, T. Henning, M. Meyer, G. Micela, I. Ribas, D. Stam, M. Swain, O. Krause, M. Olivier, E. Pace, B. Swinyard, …, L. Stixrude, … (and 121 others), EChO – Exoplanet Characterisation Observatory, *Experimental Astronomy, 34*, 311-353, doi: 10.1007/s10686-012-9303-4, 2012.
102. Stixrude, L., Structure of iron to 1 Gbar and 40,000 K, *Physical Review Letters, 108*, 055505, doi: 10.1103/PhysRevLett.108.055505, 2012.
101. Stixrude, L. and C. Lithgow-Bertelloni, Geophysics of chemical heterogeneity in the mantle, *Annual Reviews of Earth and Planetary Sciences, 40*, 569-595, doi: 10.1146/annurev.earth.36.031207.124244, 2012.
100. Sun, N., L. Stixrude, N. de Koker, and B. B. Karki, First principles molecular dynamics simulations of diopside ($CaMgSi_2O_6$) liquid to high pressure, *Geochimica et Cosmochimica Acta, 75*, 3792-3802, 2011.
99. de Koker, N. and L. Stixrude, Theoretical computation of diffusion in minerals and melts, *Reviews in Mineralogy and Geochemistry, 72*, 971-996, 2011.
98. Karki, B. B., B. Bohara, and L. Stixrude, First-principles study of diffusion and viscosity of anorthite ($CaAl_2Si_2O_8$) liquid at high pressure, *American Mineralogist, 96*, 744-751, doi: 10.2138/am.2011.3646, 2011.
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