Jie (Jackie) Li

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Education

1992 B.S. University of Science and Technology of China (Geochemistry)
1997 M.A. Harvard University (Geophysics)
1998 Ph.D. Harvard University (Earth and Planetary Sciences)

Positions Held

2016- Professor, University of Michigan
2010-2016 Associate Professor, University of Michigan
2009 Associate Professor, University of Illinois
2003-2009 Assistant Professor, University of Illinois
2000-2003 Postdoctoral Associate, Carnegie Institution for Science
1998-2000 Gilbert Postdoctoral Fellow, Carnegie Institution for Science

2018 Blaustein Visiting Adjunct Professor, Stanford University
2013 Short-Stay Visitor, Institute of Advanced Studies, University of Western Australia
2012 Japan Global Center of Excellence Scholar, Tohoku University
2012 Tharp Fellow, Columbia University
1996-1997 Resident Tutor, Winthrop House, Harvard University

Awards and Honors

2013 Kavli Fellow, National Academy of Sciences
2010 Fellow, Mineralogical Society of America
2009-2010 COMPRES (*Consortium for Materials Properties Research*) Distinguished Lecturer
2009 Helen Corley Petit Scholar, University of Illinois, College of Liberal Arts and Sciences
2009-2010 Center for Advanced Study Fellow, University of Illinois
2003-2008 Teachers Ranked as Excellent by Their Students, University of Illinois
1992 Presidential Guo Morou Prize, University of Science and Technology of China

Professional Society Membership

2016- American Association for the Advancement of Science (AAAS)
1998- Mineralogical Society of America (MSA)
1996- Geochemical Society (GS)
1993- American Geophysical Union (AGU)

Professional Service

2021 Nominations Committee, COMPRES (*Consortium for Materials Properties Research)*
2019-2022 National Synchrotron Light Source II (NSLS-II) High Energy Diffraction Proposal Review Panel
2018 NASA "InSight" Participating Scientist Review Panel
2018 Lead organizer, Deep Carbon Observatory International Workshop on "Earth in Five Reactions", Washington DC
2018-2019 Associate Editor, *American Mineralogy* special collection on "Earth in Five Reactions"
2017 Co-organizer, MIRA Conference "The Origins of Volatiles in Habitable Planets: The Solar System and Beyond ", University of Michigan, Ann Arbor, MI
2016-2019 Executive Committee, COMPRES (*Consortium for Materials Properties Research)*
2016-2017 Scientific Program Committee for Deep Carbon Observatory (DCO)'s 3rd International Science Meeting in St. Andrews, Scotland, March 22-24, 2017

2016-2020 Steering Committee of DCO Extreme Physics and Chemistry (EPC) Community
2015 Nominations Committee, COMPRES (*Consortium for Materials Properties Research)*
2014 Co-organizer, MIRA Conference "Circumstellar Disks and Planet Formation", University of Michigan, Ann Arbor, MI
2013-2016 Infrastructure Development Committee, COMPRES (*Consortium for Materials Properties Research*)
2012-2016 Chair, Advisory Committee, CIDER (*Cooperative Institute for Dynamic Earth Research*)
2012 CSEDI Review Panel, the US NSF (*National Science Foundation*)
2011 Advisory Committee, CIDER (*Cooperative Institute for Dynamic Earth Research*)
2011 Cosmochemistry Review Panel, Planetary Science Division, NASA
2010 Organization Committee, CIDER (*Cooperative Institute for Deep Earth Research*) Summer School, University of California, Santa Barbara, CA
2008-2011 Infrastructure Development Committee, COMPRES (*Consortium for Materials Properties Research*)
2007-2010 Geochemistry and Petrology Review Panel, the US NSF (*National Science Foundation*)
2007-2009 High Pressure Review Panel, APS (*the Advanced Photon Source*), Argonne National Laboratory
2006 Nominations Committee, COMPRES (*Consortium for Materials Properties Research)*
2002-2004 Represent MRP (*Mineral and Rock Physics*) at the AGU Program Committee

Invited Talks

2022 **Keynote**, Nature Conference “Frontiers of High-Pressure Research Science under Extreme Conditions”, Beijing, China, 2022
2019 "Deep Carbon 2019" by Deep Carbon Observatory, 10/26/2019
2019 Michigan Center for Materials Characterization Raman Imaging Workshop, 10/9/2019
2019 Goldschmidt Conference, Barcelona, Spain, 08/20/2019
2019 The 4th International Conference on Matter and Radiation at Extremes, Hefei, China, 06/01/2019
2019 China University of Geosciences, 04/27/2019
2019 Institute of Geochemistry, Chinese Academy of Science, Guangzhou, China, 06/19, 06/20/2019,
2018 Helmholtz-Zentrum Potsdam, Deutsches GeoForschungsZentrum, Germany, 09/30/2018
2018 Bayerisches Geoinstitut, Universität Bayreuth, Germany,10/02/2018
2018 Das Institut für Geowissenschaften, Universitaet Frankfurt, Germany, 10/04/2018
2018 Center for High Pressure Science & Tech. Advanced Research (HPSTAR), Shanghai, PR China, 07/25/18
2018 **Keynote**: review on mineral physics, Wuhan University, 06/30/18
2017 NextProf 2017 workshop, *Faculty Search Process_Part2 (On-campus visit)* 05/04/2017
2017 American Geophysical Union Fall meeting, New Orleans, LA, 12/13/2017
2017 Annual Meeting Michigan Microscopy and Microanalysis Society and (MC)2 Open house Workshop, 11/01/17
2017 Workshop on "Challenges in the study of materials at extreme conditions using DAC at NSLS-II" 10/28/17
2017 Michigan State University, 10/27/17
2017 Goldschmidt Session Conference, Paris, France, 08/16/2017
2017 Center for High Pressure Science & Tech. Advanced Research (HPSTAR), Beijing, PR China, 06/09/17
2017 State Key Lab of Superhard Materials, Jilin University, Changchun, P.R. China, 06/06/17
2017 The Edwin Allday Lectureship Distinguished Lecturer in Geology for the DeFord Lecture Series, Jackson School, UT Austin, 02/09/17
2017 Departmental Seminar, 12-1 W, IPGST (Informal Petrology, Geochemistry, Structure, and Tectonics); F. morning, UTIG (Institute of Geophysics), 02/08/17,
2017 GRC (*Geodynamics Research Center)*, Ehime University, Japan, 01/13/17
2016 University of Michigan "Saturday Morning Physics" Public Lecture, 10/08/16
2016 Japan Geoscience Union Meeting, Chiba, Japan, 05/16/16
2016 Geophysical Laboratory, Carnegie Institution of Washington, 01/13/16
2015 American Geophysical Union Fall meeting, San Francisco, CA, 12/15/15

2015 Deep Carbon Observatory "Synthesis and Planning workshop", U. Rhode Island, 10/29/15
2015 Department of Earth Sciences seminar series, ETH Zurich, Switzerland, 10/12/15
2015 Goldschmidt Conference, **Keynote Speaker,** Prague, Czech Republic, 08/15/15
2015 Deep Carbon Observatory "Carbon Modeling and Visualization Workshop", Smithsonian Institution, Washington, D.C., 05/15/15
2015 Physics Department Colloquium, University of Michigan, 04/01/15
2015 Deep Carbon Observatory Second International Conference, Munich, Germany, 03/26/15
2015 Center for High Pressure Science & Tech. Advanced Research, Shanghai, China, 02/10/15
2015 Caltech Planetary Science Seminar, 01/15/15
2015 Kavli Inst. for Theoretical Physics "Dynamics and Evolution of Earth-like Planets", 01/15/15
2014 American Geophysical Union Fall meeting, San Francisco, CA, 12/14/14
2014 Geoneutrino Working Group Meeting, Santa Barbara, CA, 07/14/14
2013 Department of Earth and Atmospheric Sciences, Cornell University, 04/17/13
2013 Study of Matter under Extreme Conditions (SMEC) Conference, Cruise Miami to Caribbean islands, 03/29/13
2013 Institute of Advanced Studies Public lecture, University of Western Australia, 03/04/13
2013 School of Physics, University of Western Australia, 03/05/13
2012 American Geophysical Union Fall meeting, San Francisco, CA, 12/07/12
2012 Department of Earth and Planetary Sciences, Tokyo Inst. Technology, Japan, 06/05/12
2012 Department of Earth Science, Tohoku University, Japan, 05/30/12
2012 Department of Earth and Space Sciences, Osaka University, Japan, 05/29/12
2012 Japan Geophysical Union Annual Meeting, 05/20/12
2012 Lamont-Doherty Earth Observatory Geochemistry Seminar, Columbia University, 02/29/12
2010 Gordon Conference on High Pressure Research, **Keynote Speaker**, Holderness, NH
2010 University of California at Berkeley (COMPRES Distinguished Lecture)
2010 University of California at Davis (COMPRES Distinguished Lecture)
2010 University of Western Ontario, London, Canada (COMPRES Distinguished Lecture)
2010 Winona State University, Winona, MN (COMPRES Distinguished Lecture)
2010 Stanford University, Palo Alto, CA
2009 Harvard University, Cambridge, MA
2009 Gordon Conference on the Interior of the Earth, **Keynote Speake**r, South Hadley MA
2008 American Geophysical Union Fall Meeting, San Francisco CA
2008 Advances in High-Pressure Science Using Synchrotron X-rays, National Synchrotron Light Source, Brookhaven National Laboratory, Long Island NY, 10/08
2008 COMPRES Annual Meeting, **Keynote Speaker,** Colorado Springs CO
2008 Workshop to Introduce High-Resolution Inelastic X-ray Scattering on Earth Materials using Synchrotron Radiation, Argonne National Laboratory, Argonne IL, 05/08
2008 Northwestern University, Evanston, IL, 05/08
2008 Carnegie Institution of Washington, Washington DC, 05/08
2008 University of Michigan, Ann Arbor, MI, 03/08
2008 University of Illinois, Urbana IL, 02/08
2007 Carnegie Institution of Washington, Washington DC 10/07
2007 21st Century Center of Excellence EASTEC Symposium on Dynamic Earth: Its Origin and Future, Sendai, Japan, 09/07
2007 University of Michigan Smith Lecture Series, Ann Arbor MI, 04/07
2007 University of New Mexico, Albuquerque NM, 02/07
2006 American Geophysical Union Spring Meeting, Baltimore MD, 05/06
2006 Japanese Geoscience Union Meeting, Chiba City, Japan, 05/06
2006 Tohoku University, Sendai, Japan, 05/06
2006 Tokyo Institute of Technology, Tokyo, Japan, 05/06
2006 Workshop on Synergy of 21st Century High-Pressure Science and Technology, Argonne IL, 05/06
2005 American Geophysical Union Fall Meeting, San Francisco CA, 12/05
2005 Purdue University, West Lafayette IN, 09/05
2005 High-Pressure Melts Workshop, Institute of Meteoritics, Albuquerque NM, 07/05

2005 Gordon Conference on "the Interior of the Earth", **Keynote Speaker**, Mount Holyoke College, South Hadley MA, 06/05
2004 University of Michigan Smith Lecture Series, Ann Arbor MI, 10/04
2004 Meeting of Young Researchers in Earth Sciences (MYRES), **Keynote Speaker**, University of California, San Diego CA, 08/04
2004 COMPRES Annual Meeting, Lake Tahoe CA, 06/04
2004 Elasticity Grand Challenge Workshop, University of Illinois, Urbana IL, 05/04
2003 University of Illinois Geoclub Seminar Series, 09/03
2004 European Geophysical Society-American Geophysical Union-European Union of Geosciences Joint Assembly, Nice, France, 05/04
2002 Centennial Symposium on *The Living Planet*, Carnegie Institution of Washington, 09/02
2002 Carnegie Institution of Washington, Geophysical Laboratory Colloquium Series, 06/02
2002 University of Toronto, Department of Geology, 02/02
2002 University of Illinois, Department of Geology, 02/02
2001 The International Symposium on *Transport of Material in the Dynamic Earth*, Japan, 09/01
2001 The 18th International Conference on *High Pressure Science and Technology*, P. R. China, 07/01
2000 Princeton University, Department of Geosciences, 04/00
2001 Bayerisches Geoinsitut, Germany, 01/01
1998 University of Maryland, Department of Geology, 10/98
1997 University of Chicago, Department of Geophysical Sciences, 11/97
1997 Carnegie Institution of Washington, Geophysical Laboratory Colloquium Series, 03/97
1997 Woods Hole Oceanographic Institution, 02/97

Research Grants

University of Michigan

2021-2022 Jason Nicholas, **Jie Li** Collaborative: EAGER: Demonstration that Thin Film Phase Transformations Can Be Monitored at High-Temperature and High-Pressure in a Diamond Anvil Cell, NSF Geophysics, Nicholas EAR-2031331, Li 2031149. Total $100,000, Li $35,000, 01/15/2021-04/30/2022
2021 **Jie Li,** Sweetland Senior Fellow $4,000
2019-2020 Emmanouil (Manos) Kioupakis, Ferdinand Poudeu, **Jie Li**, Mcubed, $15,000, " Synthesis and characterization of semiconducting rutile oxides". Li's share $5,000, 02/15/19-12/31/20
2018-2021 Aaron Wolf, **Jie Li**, Rebecca Lange, "Alkaline-Earth Carbonate Melts at Deep Earth Conditions", NSF SEDI EAR1763189, Li $230,000,00, Total $680,031, 04/01/18-03/31/22
2019-2020 **Jie Li** (Allison Pease). “Liquidus determination of the (Fe,Ni)-S system with implications for The Geological Society of America (GSA) 12345-19, $2,500, 07/01/19-04/30/20
2017-2019 **Jie Li** "Physics and chemistry of carbides and carbonates in Earth's mantle and core, Sub-award 0995 G TA489 to Sloan Foundation Deep Carbon Observatory Grant G-2015-14085 (Craig Manning), Li $44,800, 11/01/17-10/31/19
2017-2018 Jie Li, "Making a habitable planet from Earth materials", sub-award to (Howard Huges Medical Institution) grant "Does Authentic Research in Introductory Courses Increase Persistence in STEM" (Deborah Goldberg), Li $31,000, 08/01/17-08/31/19
2016-2019 Jie Li, Simon Redfern (U. Cambridge), "Earth in five reactions (5R) - A Deep Carbon Perspective", Sloan Foundation G-2016-7157, Li $125,000, 11/01/16-09/30/19
2016-2017 **Jie Li**, CIDER (Cooperative Institute for Dynamic Earth Research" Working Group on "Reference Geotherms", Li $15,000, 05/31/2016-8/31/2017
2015-2017 **Jie Li** "Physics and chemistry of carbides and carbonates in Earth's mantle and core, Sub-award 0995 G TA489 to Sloan Foundation Deep Carbon Observatory Grant G-2015-14085 (Craig Manning), Li $44,800, 11/01/15-10/31/17
2015-2019 Sarah Stewart-Mukhopadhyay (UC Davis), **Jie Li**, Dylan Spaulding, "Shock-induced melting and vaporization experiments on planetary materials", NASA Solar System Working NNX15AG54G, Li $175,340, Total $1,494,970, 07/01/15-06/30/19
2014-2015 Zhao, J. Alp E.E, Bi W., Lin J-F, Struzhkin V., Shim S-H, **Li J.**, Chen B., "Development of High-Pressure and Low-Temperature Nuclear Resonant Scattering Capabilities for Studying

Planetary Materials in Extreme Environments", COMPRES Infrastructure Development, Li Access, Total $40,331
2014-2015 **Jie Li**, Subcontract from Sarah Stewart, Harvard University, $28,900
2013-2017 Edwin Bergin, **Jie Li**, Geoffrey A. Blake (Caltech), Marc M. Hirschmann (UMN), "Following the Carbon Trail in Planetary Formation", NSF INSPIRE Track 1 AST 1344133, Li $192,959, Total $799,868, 09/15/13-08/31/17
2013-2014 **Jie Li,** Terry Plank, David Walker, “Experimental investigations of Earth's deep carbon cycle”, Umich Elizabeth Crosby Faculty Grants Program, Li $20,000, Total $20,000
2012 **Jie Li**, Spring Summer Graduate Partnership, University of Michigan, $6,000
2012 **Jie Li**, LSA Associate Professor Support Fund, University of Michigan, $100,000
2012-2014 **Jie Li**, Bin Chen, “Experimental investigations of carbon in Earth’s core”, NSF Petrology and Geochemistry EAR 129891, $318,745, 07/15/12-06/30/14
2011-2012 Hongwu Xu, **Jie Li,** “Understanding Earth’s Deep Water Cycle: Neutron Diffraction and Calorimetric Studies of Hydrous Minerals”, LANL/IGPP, Li $14,000, Total $14,000
2010-2013 **Jie Li,** Hongwu Xu, “Pressure-Induced Magnetic Transitions in Iron Carbides", Carnegie/Department of Energy Alliance (CDAC), DOE/NNSA DE-FC52-08NA28554, $171,173
2010-2012 **Jie Li,** “Chemical convection in iron-rich planetary cores”, NASA Cosmochemistry NXX10AG97G, $169,250
2010-2011 Dane Morgan, **Jie Li**, “Collaborative research: Theoretical and experimental investigation on the role of iron the physics and chemistry of the lower mantle”, National Science Foundation Geophysics EAR-1025629, Li $120,085*,* Total $120,085
2010-2011 **Jie Li**, Wolfgang Sturhahn, “Constraints on core composition from nuclear resonant scattering and x-ray diffraction studies on Fe-light-element compounds”, National Science Foundation Geophysics EAR-1023729, Li $116,207, Total $116,207
2009-2010 Ercan Alp, Wolfgang Sturhahn, **Jie Li**, Jennifer Jackson, Jung-Fu Lin, D. E. Brown, "A Mossbauer Spectroscopy Facility for the High Pressure Community", National Science Foundation, COMPRES Infrastructure Development, Li Access, Total $110,000

University of Illinois
2009 **Jie Li,** “Chemical convection in iron-rich planetary cores”, NASA Cosmochemistry NXX09AB94G, $90,000
2008-2009 **Jie Li,** David Cahill, “Thermal conductivity of high-pressure ices and iron-rich phases using time-domain thermo-reflectance method and diamond anvil cells”, Carnegie/Department of Energy Alliance (CDAC), DOE/NNSA, DE-FC52-08NA28554, $127,513
2008-2009 Dane Morgan, **Jie Li**, “Collaborative research: Theoretical and experimental investigation on the role of iron the physics and chemistry of the lower mantle”, National Science Foundation Geophysics EAR-0738886*,* Li: $158,866
2008-2011 **Jie Li**, Ercan Alp, Wolfgang Sturhahn, “Pressure-induced magnetic transition and sound velocities of iron-carbon alloys”, Argonne National Laboratory No. 4J-00181*,* Li $127,807
2006-2009 **Jie Li**, Wolfgang Sturhahn, “Constraints on core composition from nuclear resonant scattering and x-ray diffraction studies on Fe-light-element compounds”, National Science Foundation Geophysics EAR-0609639, $337,405
2006-2008 **Jie Li**, “Investigating Earth and planetary cores using a novel diffusion multiples method” University of Illinois Research Board Award 06238, $18,500
2003-2006 **Jie Li**, “Experimental investigations of solid-liquid boundary in the Earth’s core” National Science Foundation, Geochemistry and Petrology EAR-0337612, $242,297

University Service
2015-2017 LSA Academic Judiciary Committee

Departmental Service (selected)
University of Michigan
2019-2020 Qualifying Exam Committee
2015-2016 Executive Committee

2015-2016 Undergraduate advisor
2016- EMAL Oversight Committee

2013-2015 Turner Postdoctoral Fellowship Committee (Chair)
2011-2012 Executive Committee
2010 Preliminary Exam Standing Committee
2010 Graduate Admission Committee
2010 Faculty lead, Cluster hire proposal on "Exoplanets"

University of Illinois
2005-2007 Placement Committee (Chair)
2005-2009 Undergraduate Committee (Chair)
2004-2009 Graduate Admission Committee
2003-2005 Library Committee (Chair)
2003 Search Advisory Committee for “Water as a Complex System”

Summary of Courses Taught

Earth 111 Formation of a Habitable Planet
Earth 113 Planets and Moons (enrollment up to 400, best Q1/Q2=4.4/5.0)
Earth 116 Intro Geology (field course, taught at Camp Davis)
Earth 153 Earth-Like Planets (freshman seminar, 3 credits, best Q1/Q =4.9/5.0)
Earth 315 Earth Materials (4 credits, best Q1/Q2 =4.9/5.0)
Earth 396 Making a habitable planet from Earth materials (1 credit, Q1/Q2=4.2/4.8)
Earth 525 Tectonophysics (1 of 4 credits, lecture, best Q1/Q2 4.8/5.0)
Earth 554 Thermodynamics and Kinetics (2 of 4 credits, lecture, best Q1/Q2 4.5/5.0)
Q1: Overall, this was an excellent course.
Q2: Overall, the instructor was an excellent teacher.

Postdoctoral Researchers Supervision

2015-2018 Dr. Feng Zhu, now Professor at China University of Geosciences
2010-2012 Dr. Leslie Hayden, now Lab Manager at U.S. Geological Survey, Menlo Park, California
2011-2013 Dr. Bin Chen, now Associate Professor at U. Hawaii
2004-2005 Dr. Maoshuang Song, now Staff Scientist at Guangzhou Institute of Geochemistry, PR China

Graduate Student Supervision

2020- Dongyuan Zhou
2019-2020 Chengwei Zhang
2018-2020 Allison Pease, M. Sci
2018-2020 Yanhan Si
2015-2016 Forrest Gilfoy, M.Sc.
2014-2015 Tonghui Ming
2009-2015 Jiachao Liu, Ph.D.
2009-2015 Zeyu Li, Ph.D.
2009-2011 Xinyang Chen, M.Sc.
2007-2009 Holly Vescogni, M.Sc.
2007-2008 Xing Ding (visiting from Guangzhou Institute of Geochemistry, PR China)
2004-2010 Lili Gao, Ph.D.
2004-2009 Bin Chen, Ph.D.

Undergraduate Student Supervision

2017-2018 Cassandra Seltzer (Senior Honor thesis, 04/17/18, Now Ph.D. candidate at MIT)
2015-2017 Junjie Dong (Senior Honor thesis, 04/17/17, Now Ph.D. candidate at Harvard)
2015-2016 Heather Kirkpatrick (Lab manager, Now Ph.D. candidate at UCLA)
Supervised more than **30** UROP students and undergraduate hourly research assistants

Synergistic activities

2019 Deep Carbon Observatory Webinar on “Earth in Five Reactions”
2018 AGU Tutorial talk "Earth in five reactions: What makes our planet unique in the solar system?"
2018 Co-convene AGU session "Forms and fluxes of deep carbon in Earth"
2017 Co-convene Goldschmidt session “Deep carbon”
2017 Lecturer, Winter School "Origin and Evolution of Deep Primordial Reservoirs", Japan
2017 Panelist for NextProf Workshop, 05/04/17
2014-2016 Partner, Low Temperature and High Pressure (LTHP) Nuclear Resonant Scattering Capability for Geoscience and Condensed Matter Physics Applications at Argonne National Laboratory
2014 Participant, "Beyond Habitability: Life and the Early Earth!" workshop jointly organized by NASA, NSF, and Smithsonian Institution, Washington DC
2013 Guest lecturer, "History 238 Zoom: A History of Everything", University of Michigan
2013 Public viewing of Perseids meteor shower, The Headlands International Dark Sky Park in Michigan
2012 Instructor, CIDER (*Cooperative Institute for Dynamic Earth Research*) Summer School, “Deep Time: How did early Earth become our modern world?”, Santa Barbara, CA
2012 Instructor, Department of Earth and Planetary Sciences, Tokyo Inst. Technology, Japan
2012 Instructor, Michigan Math and Science Scholars Program "From Star to Stone"
2010 Instructor, CIDER (*Cooperative Institute for Dynamic Earth Research*) Summer School "Water and volatiles in the Earth's Mantle and core", Santa Barbara, CA
2009-2010 Partner, Mossbauer Spectroscopy Facility for the High Pressure Community at Argonne National Laboratory
2008 Instructor, CIDER (Cooperative Institute for Dynamic Earth Research) Summer School, "Boundary layers in the Earth: A multidisciplinary view", Santa Barbara, CA
1999-2009 Co-convene AGU sessions

Advisors

Senior thesis: Dr. Shuguang Li
PhD: Dr. Carl B Agee, Stein B Jacobsen
Postdoctoral: Dr. Yingwei Fei, Dr. Ho-kwang (Dave) Mao