

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Jie Li, associate professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	1998	Harvard University
M.A.	1997	Harvard University
B.S.	1992	University Science and Technology of China

Professional Record:

2010 – present	Associate Professor, Department of Earth and Environmental Sciences, University of Michigan
2009 – 2010	Associate Professor, Department of Geology, University of Illinois
2003 – 2009	Assistant Professor, Department of Geology, University of Illinois
2000 – 2003	Post-doctoral Associate, Geophysical Laboratory, Carnegie Institution for Science
1999	Consultant, NASA Johnson Space Center
1998 – 2000	Gilbert Post-doctoral Fellow, Carnegie Institution for Science

Summary of Evaluation:

Teaching – Professor Li is an effective and committed instructor who has contributed significantly to the educational mission of her department. She has established a diverse teaching record that includes introductory courses for non-majors, upper-level undergraduate courses for concentrators, and graduate courses. Her teaching efforts extend well beyond the classroom and laboratory. She has been active in education outreach, including serving as an instructor in the Michigan Math and Science Scholars summer program. Her two week class, “From Star to Stone,” includes an overnight field trip.

Research – Professor Li is an experimental mineral physicist, who conducts laboratory experiments under high temperature and pressure to investigate the properties of materials in planetary interiors. She has made fundamental contributions to our understanding of Earth’s core, and is credited with discovering that the Earth’s inner core may be a significant reservoir of carbon. She is widely known for producing high quality, impactful work and for developing new experimental techniques to investigate materials under conditions of high pressure and temperature. Professor Li has a productive and well-funded research program; she has published 43 papers and raised over \$1.3 million in external funds.

Recent and Significant Publications:

“Ingredients for a habitable Earth: Tracing C/N ratios from interstellar space through planet formation,” with E. Bergin, et al., *Proceedings of the National Academy of Sciences, USA*, 112(29), 2015, pp. 8965-8970.

“Hidden carbon in Earth’s inner core revealed by shear softening in dense Fe₇C₃,” with B. Chen, et al., *Proceedings of the National Academy of Sciences, USA*, 111(50), 2014, pp. 17755-17758 (doi:10.1073/pnas.1411154111).

“Experimental constraints on core composition,” with Y. Fei in *Treatise on Geochemistry (2nd edition)*, H. D. Holland and K. K. Turekian (eds.), 3 (The Mantle and Core), Elsevier Limited, 2014, pp. 527-557.

“Effect of temperature on sound velocities of compressed Fe₃C, a candidate component of the Earth’s inner core,” with L. Gao, et al., *Earth and Planetary Science Letters*, 309, 2011, pp. 213-220.

Service – Professor Li has contributed significant service through her participation on several departmental committees, including the Curriculum, Executive, Turner Post-doctoral Fellowship (chair), Library, and Promotion committees, as well as three Preliminary Examination Committees. She has also served as an undergraduate advisor.

External Reviewers:

Reviewer (A)

“...Jackie made a remarkable finding that greatly strengthens the case that carbon is a major light element of the core. Jackie’s experimental results showed for the first time that an iron carbide alloy undergoes shear softening at very high pressures. ... Jackie is well recognized as a leader in the high-pressure mineral physics and chemistry community.”

Reviewer (B)

“...Professor Li enjoys an international reputation in Earth science, and she is a collaborator in the best sense of engaging openly and constructively across the research community. It speaks highly of Professor Li’s abilities, in my view, that she has worked as a respected peer with world-class, senior scholars who have demanding standards and expectations. More generally, it is a reflection of the high regard with which she is held by the scientific community that she has been asked to serve on review panels for NASA and the National Science Foundation, as well as within the NSF-sponsored COMPRES and CSEDI consortia.”

Reviewer (C)

“Dr. Li has an excellent international reputation in her field and this continues to grow due to the continued high-quality of her work, and the way she comports herself in the scientific community. ... My overall assessment is that I continue to be impressed with the consistent, very high quality research output and professional service by Dr. Li, and see her as an international leader in her field. I have no reservations in recommending promotion to Professor.”

Reviewer (D)

“There is no question that she is one of the top mineral physicists. ... Jackie is a very accomplished mineral physicist with abundant impact and quality research, the kind of person you should be delighted to have on your faculty. And you should of course promote her.”

Reviewer (E)

“Dr. Li has mastered an unusually broad range of powerful experimental methods and is also remarkable for being expert in both diamond anvil cell and multi-anvil experiments. She has

been a leader in a revolution in diamond anvil cell technology that has dramatically increased the range of energy and momentum transfer with which the sample can be probed in situ.”

Reviewer (F)

“Prof. Li has assumed a leadership role, particularly in studies of the roles of carbon in Earth’s deep interior—both the lower mantle and core. ... I anticipate that Jackie Li’s contributions and influence will only increase in the coming years. I know that we will increasingly call upon her to assume leadership roles as the 2019 culmination of the DCO approaches. ...Prof. Jie (Jackie) Li is an outstanding and productive researcher, an enthusiastic and effective leader, and a thoughtful and engaging colleague who deserves the highest consideration for advancement to full professorship at the University of Michigan.”

Reviewer (G)

“Since coming to the University of Michigan in 2010, she has been an author on 17 papers in peer-reviewed journals, including three of which she has been the first author and 6 of which one of her graduate students has been first author; this is an admirable publication record. These papers are well-written and have attracted considerable attention in the Earth science community. Her research programs have attracted continuous funding from the NSF, DOE and NASA during her time at Michigan.”

Reviewer (H)

“Dr. Li shows outstanding scholarly accomplishments on research of the earth’s [sic] core. ...she successfully made significant achievements on the existence of carbon in the Earth’s core as was shown in her publications with Bin Chen and Lili Gao who were excellent students supervised by Dr. Li. ...I can conclude that Dr. Jie Li is one of the most active and capable...scholars in mineral physics, and that she can lead [the] mineral physics community further in [the] future.”

Summary of Recommendation:

Professor Li is one of the top mineral physicists in the world and is respected for producing high quality, impactful work. She is also a dedicated instructor and mentor, and a valued colleague. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Jie Li be promoted to the rank of professor of Earth and environmental sciences, with tenure, College of Literature, Science, and the Arts.



Andrew D. Martin, Dean
Professor of Political Science and Statistics
College of Literature, Science, and the Arts

May 2016