

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

Lu Li, assistant professor of physics, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of physics, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2008	Princeton University
B.S.	2002	University of Science and Technology of China

Professional Record:

2011 – present	Assistant Professor, Department of Physics, University of Michigan
2008 – 2011	Pappalarado Fellow in Physics, Massachusetts Institute of Technology

Summary of Evaluation:

Teaching – Professor Li is a dedicated teacher who has taught both lecture and laboratory classes. From the beginning, he had a clear mission that focused on providing the best learning experience for his students. He has pushed himself to be an excellent teacher through self-assessment of his teaching and his work with CRLT. His students view him as an instructor who truly cares about them. Professor Li has also been an excellent mentor for the undergraduate and graduate students who work in his laboratory. He has created an environment where students rapidly become involved in research projects and they have blossomed there. Professor Li has been able to attract and mentor sixteen undergraduate students from five different departments.

Research – Professor Li is an experimental condensed matter physicist, who is recognized as a leading researcher in correlated electron systems. He studies some of the most interesting materials at extremely low temperatures and high magnetic fields using a highly sensitive torque magnetometry technique that he invented. His research is considered to be of the highest quality in a highly competitive and rapidly evolving field of topological materials. Professor Li's standing in the field is reflected in his receipt of the Department of Energy Early Career Award (2012-present), Lee Osheroff Richardson North American Science Prize (Oxford Instruments, 2013), Office of Naval Research Early Career Award (2015-present), and the Outstanding Young Researcher Award (Macronix Prize, International Organization of Chinese Physicists and Astronomers, 2015). He has presented numerous invited talks, received two significant National Science Foundation grants, and published papers in *Science*, *Physical Review Letters*, and *Physical Review B*.

Recent and Significant Publications:

- “Two-dimensional Fermi surfaces in Kondo insulator SmB₆,” with G. Li, et al., *Science*, 346, 2014, p. 1208.
- “Quantum oscillations in Cu_{0.25}B₁₂Se₃ in high magnetic fields,” with B. J. Lawson, et al., *Physical Review B*, 90, 2014, p. 195141.
- “High-field magnetic ground state in S=1/2 kagome lattice antiferromagnet ZnCu₃(OH)₆Cl₂,” with A. Tomoya, et al., *Physical Review B*, 90, 2014, p. 064417.

“Quantum oscillations in topological superconductor candidate $\text{Cu}_{0.25}\text{Bi}_2\text{Se}_3$,” with B. J. Lawson and Y. S. Hor, *Physical Review Letters*, 109, 2012, p. 226406.

Service – Professor Li carries out his service to the department and the physics community with great success. He has served on important committees in the Department of Physics and the college. He serves as a reviewer for many high visibility journals and reviews proposals for funding agencies. He was also a co-organizer for an International Conference on “Correlated Topological Insulators: SmB_6 and Beyond” here at the University of Michigan.

External Reviewers:

Reviewer (A)

“He has become a major actor in the active field of quantum materials... ..Li’s skill in sorting out the measurements should be admired—an exercise involving considerable theoretical understanding as well as experimental know[er]how.”

Reviewer (B)

“His experimental work is broadly known to be of the highest quality, and the analysis is insightful with an admirable degree of independence from fads and over[er]interpretation. It is significant that he is able to obtain the highest quality materials needed to pursue this work through collaborations with leading sample synthesis experts. I believe that his most influential and important contributions must include his demonstration of the coexistence of superconductivity and magnetism in $\text{LaAlO}_3/\text{SrTiO}_3$ interfaces, an experimental tour de force.”

Reviewer (C)

“Lu has demonstrated great versatility and a nose for finding new and exciting physics. In his short time at Michigan, Lu has several important discoveries. He has written two important papers studying magnetization of topological insulator materials.”

Reviewer (D)

“Professor Lu Li is one of the brightest and most important experimentalists of his cohort in the physics of correlated electrons in condensed matter physics, a cohort of several hundred physics professors around the world. I recommend him strongly for promotion to the rank of Associate Professor with tenure...”

Reviewer (E)

“He is a truly outstanding experimental physicist with a very impressive and highly cited portfolio of research.”

Reviewer (F)

“Dr. Li is an expert in measuring the properties of strongly correlated electron materials and oxide interfaces. He has broken new ground with the use of magnetic torque measurements on these material systems. This work is at the forefront of research in contemporary experimental condensed-matter physics...”

Reviewer (G)

“Dr. Li is an impressive condensed matter experimentalist [of his cohort]. ... At Michigan he has set up an excellent laboratory for sophisticated measurements... These techniques have allowed him, and will allow him, to make measurements that can only be done by a few groups in the world.”

Reviewer (H)

“I consider Lu to be perhaps the most promising and impactful among his peers. I believe that he stands out among a talented group of physicist [in his cohort]. Lu has made a greater impact than his peers... He has made a great start in research and he will be productive and flourish as a tenured faculty... I strongly endorse his promotion with tenure.”

Summary of Recommendation:

Professor Li has shown the highest intellectual quality, productivity, and leadership in creating and disseminating knowledge in physics. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Lu Li be promoted to the rank of associate professor of physics, 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