

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

Hui Deng, 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.	2006	Stanford University
M.S.	2003	Stanford University
B.S.	1999	Tsinghua University

Professional Record:

2008 – present	Assistant Professor, Department of Physics, University of Michigan,
2006 – 2008	Post-doctoral Fellow, California Institute of Technology

Summary of Evaluation:

Teaching – Professor Deng has taught a variety of courses that are mostly upper level undergraduate courses. Students find her approachable and committed to providing help. She has embraced innovative concepts introducing higher level demonstrations and hands on experiences in these upper level classes allowing students to more actively participate in the lectures. Professor Deng has supervised eight graduate students in her laboratory; one has successfully defended. She has supervised sixteen undergraduate students and many are now in doctoral programs. One has received a National Science Foundation pre-doctoral fellowship.

Research – Professor Deng is an experimental physicist working in condensed matter physics with strong overlap in atomic and optical physics. She has published ten papers based solely on her activities in her Michigan group and collaborations she initiated after coming to Michigan. Her recent, Michigan-based, work has been cited about 70 times. In addition, she recently published a first-authored review paper which reviewers describe as very significant in the field; this paper has 156 citations. Her h-index (Web of Science) is 15. Professor Deng's ability to obtain external funding has been impressive.

Recent and Significant Publications:

- “Zero-dimensional polariton laser in a subwavelength grating-based vertical microcavity,” with B. Zhang, et al., *Light Science and Applications - Nature*. 3, 2014, e135; doi:10.1038/lsa.2014.16.
- “Single photon emission from site-controlled InGaN/GaN quantum dots,” with L. Zhang, et al., *Applied Physics Letters*, 103, 2013, p. 192114.
- “High fidelity detection of the orbital angular momentum of light by time mapping,” with P. Bierdz, et al., *New Journal of Physics*, 15, 2013, p. 113062.
- “Exciton-Polariton Bose-Einstein Condensation,” with H. Haug and Y. Yamamoto, *Reviews of Modern Physics*, 82, 2010, p. 1489.

Service – Professor Deng has a strong record of departmental service. During her time at Michigan, she has served on the following committees: Faculty Search, Condensed Matter and AMO Physics Seminars, Graduate Student Mentor, and Graduate Admissions. She has also advised the Society of Women in Physics (SWIP), a group of undergraduate and graduate women. Under her leadership, SWIP organized numerous outreach activities. She has been involved in the Michigan Physics Olympiad and mentored women in physics through the E-mentoring service mentor.net. Professor Deng’s external service includes reviewing papers for prestigious scientific journals and reviewing grant proposals for science funding agencies (such as the National Science Foundation). She has been involved in organizing international and domestic conferences and summer schools, including the 6th and 7th International Conference on Spontaneous Coherence in Excitonic Systems, the 16th International Conference on Luminescence, and the International Summer School on Quantum Simulation and Metrology.

External Reviewers:

Reviewer (A)

“She has continued to develop innovative methods, in particular her new work using short period gratings as the upper mirror in these structures. ... She is steadily developing stronger programmes, and her research quality is very high. ... Overall I would see her as very well suited for tenure at the University of Michigan.”

Reviewer (B)

“Professor Hui Deng is now a mature and very well established scientist. She has demonstrated her ability to drive a research group in a very efficient way, to collaborate with different groups and has imposed herself as a major actor in the field of semiconductor physics and quantum optics.”

Reviewer (C)

“During her work at the University of Michigan, Hui Deng has continued the studies of exciton-polaritons and extended them beyond GaAs materials and beyond conventional microcavity structures. ... The results of these studies include remarkable demonstrations of room-temperature polariton lasers. ... I endorse enthusiastically her promotion to Associate Professor with tenure.”

Reviewer (D)

“Deng’s accomplishments are well documented by significant publications and a growing number of invited conference talks and seminars/colloquia. I think that Professor Deng’s standing in the field is strong and see her as a rising star. Her accomplishments are comparable to other faculty members in similar fields and at a similar career stage.”

Reviewer (E)

“Hui is as well positioned to ride the excitonic BEC wave; it is in my opinion one of the most interesting things going on in optical physics today. ... Hui ranks very high among those in her age group. ... I think your department should proceed with the promotion of Hui Deng to Associate Professor with tenure; I don’t see how you could go wrong.”

Reviewer (F)

“Professor Hui Deng is a bright, motivated, and hard-working...scientist of very high caliber. In her research programs at the University of Michigan, she has demonstrated the creative spark to generate important new ideas, as well as the energy and skills to carry them forward to fruition.”

Reviewer (G)

“I believe that Professor Deng is an outstanding scientist. ...based on materials provided in the dossier, it is clear that she produced an impressive body of work, with several high profile publications that are at the leading edge of this research field.”

Reviewer (H)

“...Professor Deng has co-authored an excellent and very well-known review on polariton lasers and condensates. In my opinion this paper should be counted among the most significant publications in her field. ... she has established an effective international collaboration with a leading research group in her area in Germany. ... Overall this is a very solid research program and holds considerable promise for future accomplishment.”

Reviewer (I)

“...in my view this is a strong application for tenure from an active and successful...faculty member. ...the University can look forward to long and distinguished service in her case.”

Summary of Recommendation:

Professor Deng 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 Hui Deng be promoted to the rank of associate professor of physics, with tenure, College of Literature, Science, and the Arts.



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

May 2015