Approved by the Regents May 21, 2015

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

Jon M. Miller, associate professor of astronomy, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of astronomy, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2002	Massachusetts Institute of Technology
B.S.	1997	University of Pennsylvania

Professional Record:

2010 – present	Associate Professor, Department of Astronomy, University of Michigan
2005 – 2010	Assistant Professor, Department of Astronomy, University of Michigan
2002 – 2005	National Science Foundation Post-doctoral Fellow, Harvard University

Summary of Evaluation:

Teaching – Professor Miller is passionate about having students become deeply involved in the scientific process, whether he is teaching an introductory non-majors class or a more advanced class. He played an important role in revising the large 100-level introductory classes in astronomy and added a new feature to these classes, the popular astronomical "challenges" in which students work with real data and make a variety of observations. Professor Miller was awarded the 2014 Provost's Teaching Innovation Prize and is a co-principal investigator on the department's successful Third Century Initiative proposal to improve the 100-level introductory courses even further. Beyond the traditional classroom, Professor Miller has engaged undergraduates from a number of majors in research projects that led to publications.

Research – Professor Miller is a world expert in the study of the consequences of accretion under the most extreme conditions and has made fundamental contributions that range from measuring the spin of supermassive black holes to the mass and radius of neutron stars, thereby probing the physics of the densest known objects. His productivity is absolutely astonishing as is his ability to attract National Aeronautics and Space Administration funding in support of his research. His expertise is widely sought out and he plays important roles in the scientific development of future X-ray observatories.

Recent and Significant Publications:

"Reflection from the strong gravity regime in a lensed quasar at redshift z = 0.658," with M. T. Reynolds, et al., *Nature*, 2014, 507, p. 207.

"NuSTAR spectroscopy of GRS 1915+105: Disk reflection, spin, and connections to jets," with F. A. Harrison, et al., *The Astrophysical Journal Letters*, 775, 2013, L45.

"Black hole accretion disks in the canonical low/hard state," with R. C. Reis and A. C. Fabian, *Monthly Notices of the Royal Astronomical Society*, 402, 2010, pp. 836-854.

"Relativistic lines and reflection from the inner accretion disks around neutron stars," with E. M. Cackett, et al., *The Astrophysical Journal*, 720(1), 2010, p. 205.

Service – Professor Miller has taken on significant service roles in the astronomical community and in the university. Within the department, he has rendered excellent service on the usual committees and he has worked hard to improve the success of the graduate admissions process. He is currently serving as the associate chair for graduate studies and is working to improve the outcomes for those students. Due to his efforts, the time to Ph.D. has decreased, the productivity of graduate students has increased, and graduates have become more successful in competing for prestigious post-doctoral fellowships. He is also the co-developer of the Michigan Institute for Research in Astrophysics (MIRA), which brings together faculty from two colleges and several departments to attack leading issues in astronomy and astrophysics. Externally, he is chair of the Chandra Observatory (the X-ray "Hubble") User's Committee and vice-chair of the Science Working Group for the upcoming Japanese-U.S. X-ray telescope Astro-H. These are roles typically filled by more senior scientists.

External Reviewers:

Reviewer (A)

"He has established himself as a leader in a number of areas… Miller is clearly one of the best X-ray astronomers [of his cohort] in the world."

Reviewer (B)

"He has been able to attract to the University of Michigan several…astronomers on very prestigious postdoctoral fellowships. …I must emphasize that with his excellent accomplishments as a researcher and his solid and steady record in publishing, obtaining funding, and maintaining a vibrant research group, Dr. Miller is on a par with members of my own department…and others at peer institutions who have recently been promoted to the rank of full professor. Moreover, his record of service and teaching is extraordinary…"

Reviewer (C)

"He has been an excellent mentor for several research students and postdocs. … He leads by example, setting a very high but accessible standard."

Reviewer (D)

"Jon has taken on a number of leadership positions within the community that reflect his stature and influence."

Reviewer (E)

"…I can't resist noting that both his contribuitons [sic] to your graduate program and his creative approaches to the introductory undergraduate offerings appear to me very valuable and represent the type of activities beyond research that I value highly in a senior colleague."

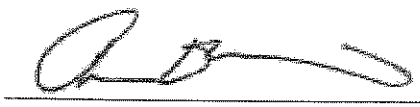
Reviewer (F)

"…[Professor Miller is] a world-class researcher who also understands the value of research interactions and is willing to put the time and effort into continual improvement of his and others' environments. … He would absolutely and unhesitatingly be promoted at my institution."

Reviewer (G)
"The fact that Miller has been invited to be on so many x-ray satellite science teams…attests to his visibility and standing in the international community. He is acting as a leader in the x-ray astronomy community. He runs one of the world[']s most active x-ray observing groups, expanding our knowledge of the physics in the strong gravity regime and of accretion and outflow physics. With NuSTAR up and running, his trajectory looks great. He is a credit to the already strong astronomy program at the University of Michigan."

Reviewer (H)
"Prof. Miller has had a spectacular career in high-energy astrophysics… His work has been at the forefront of research and has produced many new and important results. … I fully anticipate that he will continue his prolific career and take a leading role in the future of high energy astrophysics."

Summary of Recommendation:
Professor Miller is one of the world leaders in the field of high energy astrophysics, where he has made important contributions to our understanding of the behavior of black holes and neutron stars. Through his teaching he provides students with exceptional educational opportunities not found at most other institutions. He also plays important service roles locally and nationally. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Jon M. Miller be promoted to the rank of professor of astronomy, 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