

May 17, 2007

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

Timothy A. McKay, associate professor of physics, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of physics, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	1992	University of Chicago
B.S.	1986	Temple University

Professional Record:

2005 – present	Arthur F. Thurnau Professor, University of Michigan
2001 – present	Associate Professor, Department of Physics, University of Michigan
1995 – 2001	Assistant Professor, Department of Physics, University of Michigan
1992 – 1995	Leon Lederman Fellow, Fermi National Accelerator Laboratory

Summary of Evaluation:

Teaching – Professor McKay has been a leader in the education of undergraduate students. This is evident in his role as associate chair for the undergraduate program, innovative approaches to teaching, mastery of large introductory classes, and mentoring of students in research. His contributions have been recognized by his being named a Thurnau Professor and through numerous teaching awards. Even with the administrative load he currently carries, he continues to develop new courses, teach large classes, and serve as concentration counselor. He is an outstanding teacher and his students hold him in high esteem. His passion for exploiting the natural synergy between research and teaching is evidenced by more than thirty undergraduate alumni from his lab.

Research – Professor McKay’s research uses optical imaging to explore two astrophysical areas of widely separated scope and scale: the large-scale structure of the universe as traced by galaxies as well as the rapid, transient phenomenon of gamma ray bursts. His work is characterized by the development of new methods to collect and analyze large data samples of superior quality. His groundbreaking measurements of gravitational lensing in the Sloan Digital Sky Survey is widely praised.

Recent and Significant Publications:

- “Early-time observations of the GRB 050319 optical transient,” with R. Quimby, et al., *Astrophysical Journal*, 640, 2006, p. 402.
- “The anomalous early afterglow of GRB 050801,” with E. Rykoff, et al., *Astrophysical Journal Letters*, 2006, 638, p. 5.
- “Cosmological parameters from SDSS and WMAP,” with M. Tegmark, et al., *Physical Review D*, 69, 2004, pp. 103501.
- “A gravitationally lensed quasar with quadruple images separated by 14.62 arcseconds,” with N. Inada, et al., *Nature*, 426, 2003, p. 810.

Service – Professor McKay has performed excellent service at the department, College, and University level. He has been the driving force for many improvements in the Department of Physics and is sought out across the College. He puts energy into his service assignments and is determined to make the University a better place.

External Reviews:

Reviewer (A)

“...McKay as a physicist and astrophysicist of highest qualification and creativity. He certainly can play a key role in the University of Michigan, in particular concerning the plans of the Physics Department related to the observational cosmology and high energy astrophysics.”

Reviewer (B)

“...it is clear even to a non-expert that his research has been of the highest quality. ... I have been impressed with his passion for teaching and his thoughtful contributions to the efforts to involve more women in physics. You have a gem in Tim McKay, and he deserves immediate promotion to full professor.”

Reviewer (C)

“Tim is an expert in the work on gravitational lensing, which is a remarkable tool to measure masses of clusters and galaxies, but is very demanding and requires careful attention to details. ... I personally think this work is extremely important and brings honor to the University of Michigan.”

Reviewer (D)

“...his science speaks for itself, and his resume is most impressive. He has a superb scientific taste, and accomplishments to match. ... He also seems to be very effective in attracting funding, and is very prominent on the national astrophysics scene.”

Reviewer (E)

“...one cannot be but impressed with his teaching achievements (in fact, I cannot recall a single dossier in our College of Science that I've reviewed that matched Dr. McKay's material in this regard!).”

Reviewer (F)

“Tim makes an excellent impression from the get-go. He is smart, well informed, articulate, and always appears to have done his homework. ... He has successfully attracted funding to support his projects..., has produced several graduate students with interesting theses, and appears to have staked out a meaningful role in both SNAP and ROTSE projects.”

Reviewer (G)

“He has been a leader in the use of the data [from large datasets] to study dark matter and its role in galaxy formation. He has also been on seminal papers involving high redshift quasars and the first direct confirmation of baryon acoustic oscillations that may prove a critical tool to study the 'dark energy' driving the acceleration of the Universe.”

Reviewer (H)

“From the beginning he has straddled instrumentation and data analysis, and (as is not at all unusual) his expertise in the former allows much more critical understanding for the latter.”

Reviewer (I)

“McKay’s work with SDSS [Sloan Digital Sky Survey] data has established him as a leader in the rapidly growing field of gravitational lensing. He has carried out a long-term program that involved all stages of data analysis and interpretation. The result has been a series of important papers on the dark matter distribution in galaxies and galaxy clusters. These papers, most of them led by McKay and his students, are among the most definitive studies of dark matter in astronomy.”

Reviewer (J)

“...McKay combines a remarkable set of talents as a researcher, teacher, and science colleague. ... The field has clearly benefited from all these talents.”

Summary of Recommendation:

Professor McKay is an outstanding researcher who does high quality work. He has successfully engaged undergraduate students and is an active citizen. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Timothy A. McKay be promoted to the rank of professor of physics, with tenure, in the College of Literature, Science, and the Arts.



Terrence J. McDonald
Arthur F. Thurnau Professor,
Professor of History, and Dean
College of Literature, Science, and the Arts

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