Approved by the Regents
May 17, 2012

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

James T. Liu, 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.	1991	Princeton University
M.A.	1989	Princeton University
B.S.	1986	California Institute of Technology

Professional Record:

2007	Visiting Research Scientist, Texas A&M University
2005 – present	Associate Professor, Department of Physics, University of Michigan
2002	Visiting Scholar, Princeton University
1999 – 2005	Assistant Professor, Department of Physics, University of Michigan
1999	Adjunct Instructor, Fashion Institute of Technology
1997 – 1999	Adjunct Lecturer, Baruch College, City University of New York
1995 – 1999	Research Associate, The Rockefeller University
1993 – 1995	Assistant Research Scientist, Texas A&M University
1991 – 1993	Post-doctoral Research Associate, University of North Carolina, Chapel Hill

Summary of Evaluation:

Teaching – Professor Liu excels at simplicity and clarity in his teaching presentations. He has taught a range of courses from large pre-medicine introductory classes to a graduate electricity and magnetism sequence as well as the physics of music. Student evaluations describe him as one of the best teachers in the department. He has supervised the thesis research of four graduate students; three have obtained their Ph.D. degrees. As associate chair for the undergraduate program, he supervised all undergraduate teaching in Physics for three years.

Research – Professor Liu is widely respected as a world leader in string theory. He is known as a researcher with depth, breadth, and technical strength. He is well funded and he serves as the co-principle investigator of the theory group grant. Professor Liu has been very productive with thirty papers and nine invited talks at international meetings, workshops, or schools.

Recent and Significant Publications:

"Consistent massive truncations of IIB supergravity on Sasaki-Einstein manifolds," with P. Szepietowski and Z. Zhao, *Physical Review D*, 81, 2010, 124028 [arXiv:1003.5374 [hep-th]].

"Higher derivative effects on eta/s at finite chemical potential," with S. Cremonini, et al., *Physical Review D*, 80, 2009, 025002 [arXiv:0903.3244 [hep-th]].

"Coupling constant dependence of the shear viscosity in N = 4 supersymmetric Yang-Mills theory," with A. Buchel and A. O. Starinets, *Nuclear Physics B*, 707, 2005, 56 [hep-th/0406264].

"Universality of the shear viscosity in supergravity," with A. Buchel, *Physical Review Letters*, 93, 2004, 090602 [hep-th/0311175].

Service – Professor Liu's service contributions have been exceptional. In addition to normal committee work, he served as associate chair for undergraduate education. He also took on the task of helping to restructure the organization of the introductory physics courses. He has played major roles in the computing activities for the department and for the Michigan Center for Theoretical Physics, where he served as associate director for budget and planning. He had a similar role for the particle theory large grant.

External Reviews:

Reviewer (A)

"Jim is exceptionally knowledgeable and widely-read in high-energy physics and indeed theoretical physics generally. He also has an extremely clear way of thinking, and is gifted to be able to explain things to other people in a concise and illuminating way. ...he is an invaluable member of any research collaboration..."

Reviewer (B)

"His work demonstrating the universality of the bound and then a subsequent paper...were a technical tour de force and have had a significant impact on later work. ... Jim is one of the broadest and most technically accomplished physicists I know."

Reviewer (C)

"His scholarly achievements are outstanding, as evidenced by his research publications, excellent teaching abilities, frequent invitations to speak at seminars and conferences and the general high regard with which he is held in the theoretical physics community. ...he is one of the most accomplished physicists of his generation..."

Reviewer (D)

"Research and scholarly standing: resoundingly positive. Jim's work has only gotten better and better since his PhD and covers a wide range... Jim is very much on the international conference-invited lecture circuit..."

Reviewer (E)

"I regard Dr. Liu as an excellent physicist who has given important contributions to the development of the fields of supergravity and superstring theory. ... His contributions to the discipline are high standard and he well compares with faculties in physics department[s] of the top ten universities in the country."

Reviewer (F)

"...an impressive body of research. The overall quality and impact of Jim's research certainly justifies his promotion to full professor."

Reviewer (G)
"...this is an easy case: he has produced numerous general significant and impactful research results, and has definitely earned the promotion... ...from hearing his presentations and questions in conferences and workshops, I believe he must be a skilled teacher and a helpful colleague."

Reviewer (H)
"Jim Liu is an excellent physicist that has been doing outstanding research...with a wide variety of applications. He has been very successful at finding interesting gravity solutions. ...I expect him to continue to contribute in an important way to the field."

Summary of Recommendation:
Professor Liu has demonstrated 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 Associate Professor James T. Liu 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

May 2012