

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

Approved by the Regents

May 17, 2007

Mark E. Newman, 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	University of Oxford
B.A.	1988	University of Oxford

Professional Record:

2005 – present	Associate Professor, Department of Physics, University of Michigan
2002 – 2005	Assistant Professor, Department of Physics, University of Michigan
2000	Visiting Professor, Center for Applied Mathematics, Cornell University
1998 – 2002	Research Professor, Santa Fe Institute
1996 – 1998	Postdoctoral Fellow, Santa Fe Institute
1994 – 1996	Research Associate, Cornell Theory Center, Cornell University
1991 – 1994	Postdoctoral Fellow, Department of Physics, Cornell University

Summary of Evaluation:

Teaching – Professor Newman has established a rapidly growing reputation as an exciting teacher who is able to guide students at all levels to finding their own understanding of difficult material with great success. He has revitalized the undergraduate core class in statistical mechanics and exposed graduate students to the exciting field of network theory. His former students have been very successful, moving on to prestigious graduate and post-graduate programs. Professor Newman has leveraged his talents at teaching by writing four books. He is also a notably public figure in the department, engaging in creative discussions with students and faculty across the spectrum of physics and beyond. As a result, he has a significant impact on the intellectual climate for students.

Research – Professor Newman’s research is primarily in the areas of the development of methods of analysis of networks and applications to specific systems. He is highly productive with fifteen refereed publications, one book, and one book chapter in the past two years. His work is of very high caliber and is highly influential. By nearly any metric, he is among the top half-dozen researchers in networks in the world. He is widely cited both in the academic and popular press. He has a substantial international reputation which we expect to grow in the coming years.

Recent and Significant Publications:

- “Modularity and community structure in networks,” *Proceedings of the National Academy of Sciences USA*, 103, 2006, pp. 8577–8582.
- “Measures of sexual partnerships: Lengths, gaps, overlaps and sexually transmitted infection,” with B. Foxman, et al., *Sexually Transmitted Diseases*, 33, 2006, pp. 209–214.
- “Threshold effects for two pathogens spreading on a network,” *Physical Review Letters*, 95, 2005, p. 108701

J. Park and M. E. J. Newman, "Solution for the properties of a clustered network," with J. Park, *Physical Review E*, 72, 2005, p. 026136.

Service – Professor Newman has performed valuable service to the Department of Physics, the Center for the Study of Complex Systems (CSCS), and the College. He chaired a faculty search committee in 2005-2006, served on the department's qualifying exam committee, and the CSCS steering committee. He has also been a member of the LSA-MAIS project, bringing his expertise in computing and managing large datasets to the problem of extracting information about student performance from the M-Pathways system.

External Reviews:

Reviewer (A)

"I think Mark is one of the 10 top people in his field. ...his publication record is excellent, both in number and quality of journals, and diversity of subject matter plus technical skill."

Reviewer (B)

"Mark is basically a statistical physicist, who has been working mostly in what may loosely be called the science of complex systems or more specifically the study of networks. He is one of the very top figures in this extremely active field. I believe that his presence would add much to any Physics Department in the country."

Reviewer (C)

"Mark Newman simply is one of the most interesting, original, and influential people in this entire field (that is, 'networks'). His writing is unfailingly lucid and accurate. He is a super person, and I think his promotion to Full Professorial status is overdue."

Reviewer (D)

"I've read nearly all of Mark's papers because they generally are learning experiences and pleasurable to read. Almost all contain fresh ideas, incisive analysis, and a great literary style. This combination of attributes in a publication record is truly exceptional. ... He is an established international leader in statistical physics and I think that any department in the US would consider itself fortunate to have Mark on its faculty."

Reviewer (E)

"His research has been highly original, innovative and influential and his productivity is prodigious. It has continued to grow and shows no signs of diminishing either in quality or quantity."

Reviewer (F)

"This is an easy case. Mark Newman is a superstar who clearly deserves promotion to full professor."

Reviewer (G)

"The paper [on 'Power Laws...'] displays an amazing diverse set of references and will be of interest in a wide variety of fields."

Reviewer (H)

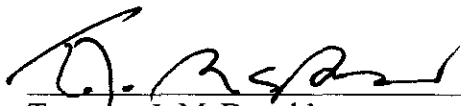
"In the last two years Prof. Newman['s] publication record has, if possible, grown to new levels of excellence. He has published about 30 papers, several of those making a mark in the area of complex networks, cartography and biological sciences."

Reviewer (I)

"Mark has gone on to become an internationally recognized expert in the dynamics, geometry and topology of network science. He has been very adept at applying his excellent training and accomplishments in condensed matter physics to a wide range of problems that have significant impact in other areas. With this as a basis Mark has matured into a truly excellent physicist, very much of the 'old school', one who can successfully attack almost any problem."

Summary of Recommendation:

Professor Newman has shown 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 Mark E. Newman be promoted to the rank of professor of physics, with tenure, in the College of Literature, Science, and the Arts.



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

May 2007