

May 17, 2007

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

Divakar Viswanath, assistant professor of mathematics, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of mathematics, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D. 1998 Cornell University
B.Tech. 1992 Indian Institute of Technology

Professional Record:

2001 – Present Assistant Professor, Department of Mathematics, University of Michigan
1999 – 2001 Dickson Instructor of Mathematics and Computer Science, University of Chicago
1998 – 1999 Postdoctoral Fellow, Mathematical Sciences Research Institute, University of California, Berkeley

Summary of Evaluation:

Teaching – Professor Viswanath is an effective instructor over a wide variety of courses, ranging from freshman calculus to advanced graduate courses. Because he concentrates his teaching in applied and numerical mathematics, more than half of his courses are targeted to graduate students. Besides mathematics majors, his undergraduate courses are taken by science and engineering majors and his graduate courses are taken by engineering graduate students. He also developed two new courses, one undergraduate and one graduate, both of which have been quite successful. He supervised the summer research projects of two undergraduates and the thesis research of a graduate student.

Research – Professor Viswanath is a leading researcher on the boundary between numerical analysis and applied dynamical systems. He has established an impressive research profile. Although his research is spread over a broad range of topics, he has a distinctive approach to problems that exhibits great technical strength, creativity, and sophistication in the design of algorithms. He has published ten articles, all but two of which are single-authored. Another article is accepted for publication and two others are under review. In 2001 he was awarded second place in the Tenth Biennial Leslie Fox Prize Competition. He received a Sloan Research Fellowship in 2004 and a three-year National Science Foundation grant to support his research. In 2006 he was an invited speaker at the Abel Symposium, an honor accorded to only ten researchers of his generation worldwide.

Recent and Significant Publications:

“Riffle shuffles of decks with repeated cards,” with M. Conger, *Annals of Probability*, 34, 2006, pp. 804-819.
“The fractal property of the Lorenz attractor,” *Physica D*, 190, 2004, pp. 115-128.
“Symbolic dynamics and periodic orbits of the Lorenz attractor,” *Nonlinearity*, 16, 2003, pp. 1035-1056.

“Random Fibonacci sequences and the number 1.13198824...,” *Mathematics of Computation*, 69, 2000, pp. 131-1155.

Service – Professor Viswanath has served on the Qualifying Exam Committee for the Applied and Interdisciplinary Mathematics (AIM) Program as well as the departmental Admissions and Fellowship Committee for graduate students. Other members of these committees describe him as being easy to work with, helpful, and dependable. For the past two years he has served as organizer of the weekly AIM Colloquium, which draws the largest attendance of the twenty or so weekly seminars held in the Department of Mathematics.

External Reviews:

Reviewer (A)

“...it is hard to be anything but enthusiastic about his work. ... The hallmark of Dr. Viswanath[’s] mathematics is to pick out an important but computationally very difficult problem in science, understand it at the level of experts within that field, and by applying to the problem his exceptional mastery of numerical methods go further than anyone before.”

Reviewer (B)

“He is remarkable in being a real mathematician who is at the same time a card carrying numerical analyst. This is a real rare breed.”

Reviewer (C)

“It was my pleasure to study the papers Dr. Viswanath submitted as part of his promotion package. They show a clear dedication to deterministic high performance computation and its application to attractive and promising problems in numerical analysis, nonlinear dynamics and fluid mechanics.”

Reviewer (D)

“Viswanath has calculated descriptions of solutions of dynamic systems that have evaded others in the field. ... Viswanath is a skilled researcher whose work is a true pleasure to read. At conferences he is one of the must-attended [sic] talks as he is well known for his interesting lectures.”

Reviewer (E)

“Certainly his receipt of an NSF grant and a Sloan Research Fellowship is a good indication that he is doing cutting edge work.”

Reviewer (F)

“Examining the portfolio of Divakar’s papers, I am struck by four observations. Firstly, he is moving across a broad front, all the time expanding in new directions. Secondly, these new directions are all important and central to modern research at the interface of pure and applied mathematics. Thirdly, he addresses difficult and deep problems... Finally, his thematic progression has an inner logic to it: he is using knowledge and tools developed in one area to understand [a] nearby area. ... There is absolutely no doubt in my mind that he deserves promotion and tenure.”

Reviewer (G)

“Viswanath has a remarkable level of accomplishment for a researcher at his level, in the eight years since his PhD, he has published eleven papers, most as a sole author, and most in top quality journals. He has also received a substantial research grant from the NSF, as well as a Sloan fellowship.”

Reviewer (H)

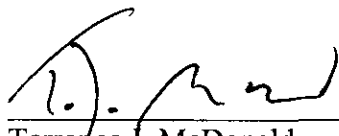
“My overall conclusion is that Divakar is an independent and original computational mathematician, working on interesting problems, whose work and future potential are indicative of someone worthy of tenure at a top-tier University such as the University of Michigan. ...Divakar’s career trajectory comprises two distinct strands, one in validated computation, the other in applied probability. Both strands have developed from promising initial work as a graduate student and postdoc, into the mature bodies of knowledge that one would hope for from an established high quality academic.”

Reviewer (I)

“...he has written a steady stream of major papers. ...these are truly substantial and varied and valuable pieces of work. The quality is extraordinarily high. The subjects he’s chosen are very major ones: dynamics, nonlinearity, turbulence. The journals are the top ones.”

Summary of Recommendation:

Professor Viswanath is recognized as a leading researcher in his field. He has a strong teaching record and has made important contributions to the teaching mission of his department. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Divakar Viswanath be promoted to the rank of associate professor of mathematics, 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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