

May 17, 2007

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

Peter D. Miller, associate professor of mathematics, with tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of mathematics, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	1994	University of Arizona
M.S.	1991	University of Arizona
B.S.	1989	Southern Methodist University

Professional Record:

2003 – present	Associate Professor, Department of Mathematics, University of Michigan
2000 – 2003	Assistant Professor, Department of Mathematics, University of Michigan
1998 – 2000	Logan Fellow, Monash University
1997 – 1998	Member, Institute for Advanced Study, Princeton University
1995 – 1997	Postdoctoral Fellow, Australian National University

Summary of Evaluation:

Teaching – Since Professor Miller was promoted to Associate Professor in 2003, he has made an important contribution to undergraduate education with his renovation of the large service course Math 216. This course is taken by about a thousand students per year and is taught in large sections of a hundred students with an instructor and a GSI assistant. There was a pressing need for renewal of the course due to the new technologies available for web-based homework and tutorials. During the two academic years, 2004-2006, Professor Miller skillfully coordinated the course, transforming it into one which made much greater use of the new technologies, and in the process uniformizing course content and exams.

Research – Professor Miller is a leading researcher in the theory of integrable systems. He has published two research monographs in the highly prestigious Annals of Mathematics Studies Series. He has also continued to publish a number of lengthy, impressive research papers. The external letters of evaluation describe his accomplishments in glowing terms and leave no doubt that the writers consider them as providing a very strong case for promotion to the rank of Professor.

Recent and Significant Publications:

*Discrete Orthogonal Polynomials: Asymptotics and Applications*, Annals of Mathematics Studies Series, Princeton University Press, 207 pages (in press), [with J. Baik, T. Kriecherbauer, and K. T.-R. McLaughlin].

*The dbar steepest descent method and the asymptotic behavior of polynomials orthogonal on the unit circle with fixed and exponentially varying non-analytic weights*, IMRP International Research Papers 2006, Art ID 48673, 1-77, [with K. T.-R. McLaughlin].

*Semiclassical soliton ensembles for the focusing nonlinear Schrödinger equation*, Annals of Mathematics Studies Series Number 154, Princeton University Press, 265 pages, 2003, [with S. Kamvissis and K. T.-R. McLaughlin].

Service – Professor Miller has been quite active in service, both within the Department and in the larger mathematical community, since he was promoted to Associate Professor. Within the Department he has been an effective member of both the Executive Committee and the Personnel (Hiring) Committee. Beyond the University, he has been a frequent organizer of minisymposia and special sessions at national meetings of the American Mathematical Society and the Society for Industrial and Applied Mathematics. He has twice served on review panels at the National Science Foundation.

External Reviews:

Reviewer (A)

“They proved strong asymptotic results for a broad class of discrete orthogonal polynomials. I view these results as absolutely fundamental. Not only were some open questions in concrete probabilistic models settled, but also the road was paved for the rigorous analysis of a much wider class of similar models. . . . . Based on this work alone, I would strongly recommend the promotion of Peter Miller to Full Professorship at the University of Michigan.”

Reviewer (B)

“Miller works in an area whose techniques are leading to the solution of an extraordinary variety of problems across the spectrum in pure and applied mathematics, from dynamics to Ulam’s problem in combinatorics, all the way to disc-scheduling problems in computer science. Through this work Miller is playing a highly significant, and often leading role, in these developments. He is an outstanding mathematician and scientist, and I support his promotion to Professor with tenure with the greatest possible enthusiasm.”

Reviewer (C)

“He is also an outstanding mentor for [junior] mathematicians. I know quite a few of the students and postdocs who have worked with Peter and they all praise the value of his advice and guidance and express appreciation for how generous he is with his time. . . . Given his achievements, I have no doubt that Peter would be promoted to Professor at this stage here at [reviewer’s institution]. His promotion to this rank at Michigan has my strongest support.”

Reviewer (D)

“In fact, the problem was posed in the early 80s and, in spite of multiple efforts of many researchers over more than two decades (I myself had been very actively involved in the thing when it started), it is only in the 2000-2006 series of works done by Miller, together with Kamvissis, McLaughlin, and Lyng, that the problem was actually solved.”

Reviewer (E)

“The research monograph on “Discrete Orthogonal Polynomials” (with Baik, Kriecherbauer, and McLaughlin) is no doubt among the top publications in the area of orthogonal polynomials in the last five years. . . . I am certain that Peter Miller would be hired as a full professor at my university, if he would be interested in such a position.”

Reviewer (F)

“Finally, let me say that Prof. Miller is running a very successful group at Michigan. I know from one of the of the very best recent students of Barry Simon’s (Nenciu) that he is a good mentor, very energetic, sincere and professional about his research, and also very communicative and collegial. In light of these facts I think there is no doubt that he deserves this promotion. He would leave a void at Michigan (and the Midwest, for that matter) should he leave your department.”

Reviewer (G)

“I am writing in response to your letter of September 1 asking my opinion of the appropriateness of promoting Peter Miller from tenured Associate Professor to tenured Professor. In brief, the case in favor of such a promotion is overwhelming. .... Miller has not merely found new applications but rather has pushed the state of the art in new directions.... These works show ingenuity and have uncovered subtle and interesting phenomena.”

Reviewer (H)

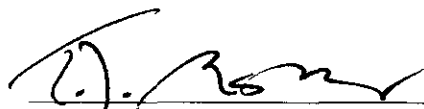
“During the last three years he published two research monographs ([M1], [M2]). In parallel, he has continued to publish papers in top mathematical journals. His papers are long and deep and constitute important contributions to the topics.... You asked me whether Miller would be successful were he to seek a similar promotion in my department. My answer is certainly positive.”

Reviewer (I)

“I believe Miller is the best of all the people of his generation who have been working in the field. He has turned into a leader in the area, having developed a comprehensive, far-reaching and challenging research program of great scientific interest and depth, in which he already has significant successes..... I give Peter Miller my highest recommendation for promotion to the rank of Professor.”

Summary of Recommendation:

Professor Miller is a leading researcher in the field of integrable systems. He has made important contributions in teaching and has been an effective member of his department. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Peter D. Miller be promoted to the rank of professor of mathematics, 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