

Approved by the
Regents
May 21, 2015

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

Kartik Prasanna, 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.	2003	Princeton University
M.S.	1998	Indian Institute of Technology

Professional Record:

2009 – present	Associate Professor, Department of Mathematics, University of Michigan
2006 – 2009	Assistant Professor, Department of Mathematics, University of Maryland
2003 – 2006	Earle Raymond Hedrick Assistant Professor, Department of Mathematics, University of California, Los Angeles

Summary of Evaluation:

Teaching — Professor Prasanna’s classroom teaching is outstanding and students give him very high ratings. On the “excellent instructor” question alone a great majority of students give him above 4.5 in courses ranging from first-year calculus to advanced graduate courses. At least two of the courses that he taught are of his own recent design. Professor Prasanna supervised a student who completed his Ph.D. thesis and went on to a good post-doctoral position, and an undergraduate student in the Research Experiences for Undergraduates program. He is currently supervising five doctoral students.

Research — Professor Prasanna is a highly regarded researcher in the field of number theory. He writes long, deep articles that make permanent contributions to his subject and that connect with difficult parts of algebraic geometry and analysis. He is known for the clarity of his writing and complete precision in obtaining results. His articles appear in the top journals in mathematics. Among other things, his work makes a significant contribution to one of the major open problems in mathematics, the Birch–Swinnerton-Dyer conjecture. Professor Prasanna has several major projects underway to extend this work in new directions.

Recent and Significant Publications:

- “Generalized Heegner cycles on CM elliptic curves and Rankin L -series,” with M. Bertolini and H. Darmon and an appendix by B. Conrad, *Duke Mathematical Journal*, 162, 2013, pp. 1033–1148.
- “On the Fourier coefficients of modular forms of half-integral weight,” *Forum Mathematicum*, 22, 2010, pp. 153–177.
- “On p -adic properties of central L -values of quadratic twists of an elliptic curve,” *Canadian Journal of Mathematics*, 62, 2010, pp. 400–414.
- “Arithmetic properties of the Shimura-Shintani-Waldspurger correspondence (with an appendix by B. Conrad),” *Inventiones Mathematicae*, 176, 2009, pp. 521–600.

Service — Professor Prasanna has carried out important service responsibilities within the university and in the broader community. He has served on his department's executive and personnel committees, in addition to some lesser assignments. Outside Michigan he has served on National Science Foundation review panels, refereed articles for many journals (including top-ranked ones), and organized a Focused Research Group/Research Training Group workshop funded by the National Science Foundation (2011). He has also served as a reviewer for the European Research Council Advanced Grants.

External Reviewers:

Reviewer (A)

"...[Prasanna's] work combines many difficult techniques from very different parts of mathematics... Another thing I like about his papers is that he writes extremely clearly and rigorously[sic] making his work a pleasure to read."

Reviewer (B)

"Kartik works in a very difficult area, employing and developing sophisticated techniques to address problems of central interest in number theory. ...he is steadily producing first-rate papers that appear in the very best journals... The recent work with Bertolini and Darmon, especially the Duke paper, is having considerable impact in the field. ... His research achievements and promise make a compelling case for promotion to the rank of full professor."

Reviewer (C)

"Kartik is well-known internationally as a brilliant researcher with a very wide view of mathematics and breadth covering automorphic forms, modular varieties, L-functions and algebraic geometry. He is making ground-breaking research and is well-respected in the community. He is known as a brilliant lecturer. ... His research program and work in progress show that he will continue to do so, and even more, in the coming years."

Reviewer (D)

"Kartik Prasanna is one of the leading number theorists of his generation, and one of a handful of mathematicians able to make equal use of the representation-theoretic techniques of automorphic forms, Iwasawa theory, and arithmetic geometry. His papers, alone or in collaboration, are characterized by their bringing to bear a wealth of disparate techniques in order to resolve concrete number-theoretic problem."

Reviewer (E)

"Prasanna is a very original mathematician having his own way of research and has produced striking results in arithmetic geometry and modular/automorphic theory. ... Prasanna's talent is not just research and teaching. He has a strong organizational skill. Indeed, he organized a big international conference at Michigan in 2011... which is hugely successful."

Reviewer (F)

"Prasan[n]a's results are both deep and beautiful and they lie at the cutting edge of the work currently being done on connections between algebraic cycles and L-functions. His joint work with Bertolini and Darmon will have a lasting impact on this field. His recent collaborative projects...are equally impressive, contain significant new ideas, and show the growing range of

Prasan[n]a's interests. He is certainly one of the people who comes immediately to mind among the world leaders of his generation in modular forms, arithmetic geometry and p-adic theory, and the new projects will only enhance his international stature."

Reviewer (G)

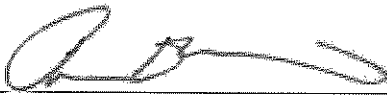
"It is no mean achievement to have a clear vision for the interaction between Geometry and Number theory that is afforded by the conjectures of Beilinson, and Bloch-Beilinson; it is altogether another matter to attack (successfully!) problems of interest involving these conjectures, and this is exactly what Kartik seems to be managing to do with a team of very able mathematicians... I end by offering my highest recommendations for promotion to Full Professorship with tenure to Kartik for his outstanding achievements."

Reviewer (H)

"Dr. Prasanna's research interests belong to one of the most difficult areas in number theory... The work of Dr. Prasanna is at the forefront of the current research in this area. ... I consider Dr. Prasanna as an internationally acknowledged leader in his area who continuously pushes forward the edge of research."

Summary of Recommendation:

Professor Prasanna has established himself as one of the leading researchers in the field of number theory. He has done an excellent job of teaching, both in the classroom and in supervising students' research. He has contributed well to the administrative functions of his department, in addition to service work outside the university. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Kartik Prasanna be promoted to the rank of professor of mathematics, with tenure, College of Literature, Science, and the Arts.



Andrew D. Martin
Dean, and Professor of Political Science
College of Literature, Science, and the Arts

May 2015