

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

Selim Esedođlu, 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.	2000	New York University
M.S.	1998	New York University
B.S.	1996	Brown University

Professional Record:

2008 – present	Associate Professor, Department of Mathematics, University of Michigan
2005 – 2008	Assistant Professor, Department of Mathematics, University of Michigan
2002 – 2005	Assistant Professor, Department of Mathematics, University of California, Los Angeles
2000 – 2005	Post-doctoral Associate, Institute for Mathematics and its Applications, University of Minnesota

Summary of Evaluation:

Teaching – Professor Esedođlu’s teaching has been confined to a 500-level course in numerical analysis in which he consistently gets high student evaluations. He has also taught a 200-level honors calculus course. He has supervised two doctoral dissertations and is currently supervising two more. He has been the faculty mentor for two summer internships and five projects in the Research Experiences for Undergraduates Program.

Research – Professor Esedođlu is an applied mathematician who is currently working in materials science, where he has continued his reputation as a leading researcher. His work has been honored with a Sloan Fellowship and a National Science Foundation CAREER Award. He has been an invited speaker at numerous conferences and has presented several multi-lecture invited courses. He has published fifteen papers since promotion in the top journals in his field.

Recent and Significant Publications:

- “Large-scale simulations and parameter study for a simple recrystallization model,” with M. Elsey and P. Smereka, *Philosophical Magazine*, 91, 2011, pp. 1607–1642.
- “Diffusion generated motion using signed distance functions,” with S. Ruuth and R. Tsai, *Journal of Computational Physics*, 229, 2010, pp. 1017–1042.
- “Analogue of the total variation denoising model in the context of geometry processing,” with M. Elsey, *SIAM Journal on Multiscale Modeling and Simulation*, 7, 2009, pp. 1549–1573.
- “Upper bounds on the coarsening rate of discrete, ill-posed nonlinear diffusion equations,” with J. Greer, *Communications on Pure and Applied Mathematics*, 62(1), 2009, pp. 57–81.

Service – Professor Esedoğlu has continued to serve on important committees in his department. He is an editor and associate editor-in-chief of two major journals in his research area. He has refereed papers for numerous journals and has served on several proposal review panels for the National Science Foundation. He currently serves as vice chair of the Activity Group on Imaging Science of the Society for Industrial and Applied Mathematics, and he has been a co-organizer of five conferences.

External Reviews:

Reviewer (A)

“...I consider Selim one of the rising stars in Computational and Applied Mathematics, and I support his case most strongly. ...he has produced a body of research work that is impressive in both quality and quantity. ...his work already has had immediate impact and has attracted the following of some senior people in the field.”

Reviewer (B)

“In my opinion...[his paper] on denoising of surfaces is brilliant, a landmark paper. ... This is the development of a mathematical theory at the highest level: the use of clever mathematical reasoning...as a critical component in the discovery of a new theory. ... He is opening a new subfield of mathematical materials science.”

Reviewer (C)

“Esedoglu is a highly versatile and highly productive scientist and a creative mathematician. He is also highly visible and recognized in the community. ... Esedoglu is emerging as a major figure in computational science and, especially, in that most important part of the field consisting of and based on rigorous mathematics.”

Reviewer (D)

“I am tremendously impressed by Selim’s recent series of papers on the evolution and coarsening of polycrystalline structures. This is an area of great scientific importance. ... Moreover, his recent activity on the evolution and coarsening of polycrystals is novel, ambitious, and important. Overall: this case is a no-brainer.”

Reviewer (E)

“Esedoglu is already one of the leading applied mathematicians working in image processing and his work in materials science is rapidly gaining recognition.”

Reviewer (F)

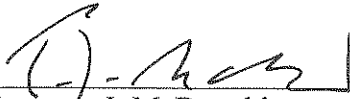
“...I am impressed with the breadth of his knowledge of applied math and of numerical issues as well as of computer vision. ...he is a first class researcher with a really excellent command of both mathematical and computational tools.”

Reviewer (G)

“I am very impressed by the fact that Selim Esedoglu has an expertise ranging from the pure theory of geometric analysis and the calculus of variations to important and practical issues in scientific computing. I think this is quite rare...”

Summary of Recommendation:

Professor Esedoğlu has compiled an impressive research record. He makes an important contribution to the teaching mission of his department, and he handles significant service responsibilities. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Selim Esedoğlu be promoted to the rank of 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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