Approved by the Regents
May 19, 2022

PROMOTION RECOMMENDATION
The University of Michigan-Dearborn
College of Arts, Sciences, and Letters

Michael G. Dabkowski, assistant professor of mathematics, Department of Mathematics and Statistics, College of Arts, Sciences, and Letters, is recommended for promotion to associate professor of mathematics, with tenure, Department of Mathematics and Statistics, College of Arts, Sciences, and Letters.

Academic Degrees:

Ph.D.	2011	Mathematics, University of Wisconsin-Madison, Madison, WIB.Sc.
B.A.	2004	Mathematics, University of Michigan-Dearborn, Dearborn, MI

Professional Record:

2018–present	Assistant Professor, Mathematics and Statistics, University of Michigan-Dearborn
2015–2018	Assistant Professor, Mathematics and Computer Science, Lawrence Technological University
2012–2015	Post-doctoral Assistant Professor, Department of Mathematics, University of Michigan
2011–2012	Post-doctoral Fellow, Department of Mathematics, the University of Toronto

Summary of Evaluation:

Teaching: Professor Dabkowski is rated excellent in teaching. A dedicated educator, Professor Dabkowski has created a media library containing hundreds of videos to support student learning in his courses and has worked to develop online classes to accommodate students' schedules. He has designed and implemented the curriculum for an upper level course on Mathematics for Finance in the newly created major in Actuarial Mathematics and is a strong supporter of open educational resources for his classes. With strong numerical scores on his student evaluations, students comment that he is passionate and enthusiastic about mathematics, as well as clear in his explanations and willing to help outside the classroom. In classroom observations, his colleagues noted the high level of interaction and opportunities for active learning. Above his usual teaching load, he has supervised two independent studies, tailoring the material to include recent research articles and more modern techniques related to his research. He has also supervised one master's project, with the student successfully extending and generalizing a known result in mathematics.

Research: Professor Dabkowski is rated excellent in research. A well-recognized expert in the analysis of partial differential equations and complex geometry, Professor Dabkowski's work has two major themes: investigating the properties of solutions to nonlinear and nonlocal partial differential equations that arise in mathematical physics and examining the structure of the certain complex geometries. He has worked on the Lifschitz-Slyozov-Wagner equations that model the time evolution of particle coarsening in alloys in materials science, the surface quasi- geostrophic equations that arise in geophysical studies of rapidly rotating fluids, and in the area of Kähler geometry.

With five articles published since his appointment began in 2018, Professor Dabkowski has a consistent and respectable publication record. Several articles demonstrate innovative techniques in the field or characterize previously unknown solutions to well-known problems and appear in top tier journals. In addition to his publications, he has given a number of presentations on his work to both technical and non-technical audiences.

Recent and Significant Publications:

Clifford, J., Dabkowski, M., and Wiggins, A., (2021) "The Numerical Range of $C* C\Phi$ and $C\Phi C*$," *Concrete Operators*, 8, 13-23.

Conlon, J. and Dabkowski, M., (2020) "Global Stability for a Class of Nonlinear PDE with Nonlocal Term," *Journal of Statistical Physics*, 178, pp. 117-177.

Conlon, J. and Dabkowski, M., (2020) "On Global Asymptotic Stability for the LSW Model with Subcritical Initial Data," *Journal of Statistical Physics*, 178, pp. 420-471.

Dabkowski, M. and Lock, M., (2019) "The Lowest Eigenvalue of Schrödinger Operators on Compact Manifolds," *Potential Analysis.*, 50, No. 4, pp. 621-630.

Dabkowski, M. and Lock, M., (2018) "On the Proportionality of Chern and Riemannian Scalar Curvatures," *Geometriae Dedicata.*, 195, No. 1, pp. 57-78.

Service: Professor Dabkoswki is rated excellent in service and his efforts have made a significant impact, both on campus and in the community. He has served as a faculty advisor for students majoring in Actuarial Mathematics, leading practice sessions and developing study materials to prepare students for the professional exams given by the Society of Actuaries. He has worked extensively with undergraduates, coaching them for competitive exams and his teams at UM-Dearborn have recently taken first place in the state on the Lower Michigan Math Competition and the Autumn Challenge. At the college level, he has served as the math lead on the CASL Digital Education Collaborative and was a member of the CASL Practice Based Learning (PBL) Taskforce.

His engagement in a number of community outreach activities including the Maize and Blue Math Circle, Math Corps, and Math Matches, demonstrate his commitment to diversity and inclusion. These outreach efforts aim to provide mathematical enrichment to underserved middle school and high school students in metro Detroit and Ypsilanti. Professor Dabkowski has also served as a reviewer for a number of journals including *Nonlinearity*, *Communications in Pure and Applied Analysis*, and *Communications in Mathematical Sciences*.

External Reviewers:

Reviewer A: "On a first glance what is incredible is the breadth of his knowledge and journals he has published in. This includes, top tier journals such as Potential Analysis. Also, his citation record is excellent (over 100 citations on https://mathscinet.ams.org) given that all his work is analytical in nature."

Reviewer B: "Dabkowski's papers with Conlon are very impressive. While this work is too new to have accumulated many citations, I expect it to be very influential"

Reviewer C: "Michael is a well-recognized researcher in the analysis of certain nonlocal partial differential equations. He has in particular contributed to regularity questions in supercritical nonlocal diffusion equations and has more recently established himself as an expert in the

analysis of the long-time behaviour of the LSW-type models."

Reviewer D: "I believe Michael's research is directed at interesting and substantial questions, and he has achieved interesting and fundamental results in novel and interesting ways. He is clearly very capable as an analyst and has wide scope for future development and achievement."

Reviewer E: "I consider Dabkowski's research output to be notable and solid. Working with an array of different collaborators over several different areas of analysis, he has produced a good number of papers in the top journals in the fields (in geometry and PDE's and nonlinear dynamics)."

Summary of Recommendation: Professor Dabkowski is a well-recognized mathematician with a substantial and impactful research program and an engaged educator who brings innovative techniques and enthusiasm to the classroom. In his research, he has attained significant and important analytical results, deepening the understanding of properties of partial differential equations and complex geometry. He is committed to student success and engagement at all levels. I am are very pleased to recommend, with strong support of the College of Arts, Sciences, and Letters Executive Committee, Michael G. Dabkowski for promotion to associate professor of mathematics, with tenure, College of Arts, Sciences, and Letters.

Martin J. Hershock

Martin J. Hershock, Dean
College of Arts, Sciences, and Letters

Domenico Grasso

Domenico Grasso, Chancellor
University of Michigan-Dearborn

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