

CURRICULUM VITA

Michael Dabkowski
Dept. of Mathematics and Statistics
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1. Education

Ph.D. – Mathematics **July 2011**
The University of Wisconsin-Madison, Madison, WI
Co-Advisors: Fedor Nazarov and Alexander Kiselev

Graduate Studies **August 2004-May 2007**
Michigan State University, East Lansing, MI

B.Sc. – Mathematics **May 2004**
The University of Michigan-Dearborn, Dearborn, MI

2. Teaching and Research Interests

Teaching: Financial and Actuarial Mathematics, Ordinary and Partial Differential Equations, Real and Complex Analysis, and Differential Geometry.

Research: Nonlinear and Nonlocal Partial Differential Equations: Carr-Penrose Equations, Lifshitz-Slyozov-Wagner Equations, Surface Quasi-Geostrophic Equation and Burgers' Equation. Conformal Kähler Geometry and Composition Operator Theory.

3. Professional Certification

- [1] Society of Actuaries Exam P, 2011
- [2] Society of Actuaries Exam FM, 2018
- [3] Society of Actuaries Exam IFM, 2019
- [4] Society of Actuaries Exam STAM, 2020
- [5] Society of Actuaries Exam LTAM, 2021
- [6] Society of Actuaries Exam SRM, 2022
- [7] Society of Actuaries Exam PA, 2023

4. Employment History

Associate Professor **September 2022 to present**
Department of Mathematics and Statistics
University of Michigan–Dearborn, Dearborn, Michigan

Assistant Professor
Department of Mathematics and Statistics
University of Michigan–Dearborn, Dearborn, Michigan

September 2018 to August 2022

Assistant Professor
Department of Mathematics and Computer Science
Lawrence Technological University, Southfield, Michigan

August 2015 to June 2018

Postdoctoral Assistant Professor
Department of Mathematics
The University of Michigan, Ann Arbor, Michigan

September 2012 to August 2015

Postdoctoral Fellow
Department of Mathematics
The University of Toronto, Mississauga, Ontario Canada

September 2011 to August 2012

5. Scientific and Professional Societies Memberships

American Mathematical Society (AMS)
Mathematical Association of America (MAA)
Society of Actuaries (SOA)

6. Honors and Awards

- [1] Student Recognition Award, Lawrence Technological University, 2017
- [2] Golden Apple Nominee, University of Michigan, 2014 and 2015
- [3] VIGRE Fellowship, University of Wisconsin-Madison, 2010
- [4] Chadbourne Residential College Teaching Award, University of Wisconsin-Madison, 2009

7. Teaching Activities

a) Chronology of Teaching Assignments at the University of Michigan Dearborn for Past 6 Years

Term	Course	Section	Title	Credits	Enrolled
F23	MATH 451/551	001	Advanced Calculus	4	7
F23	MATH 215	002	Calculus 3	4	30
W23	MATH 599	001	Independent Study: Graduate Project	3	1
W23	MATH 425/525	002	Statistical Inference	3	7
W23	MATH 215	004	Calculus 3	4	22
F22	MATH 499	001	Advanced Actuarial Mathematics	3	3
F22	MATH 215	002	Calculus 3	4	24
F22	MATH 215	006	Calculus 3	4	22

Term	Course	Section	Title	Credits	Enrolled
W21	MATH 435	001	Mathematics for Finance	3	4
W21	MATH 228	001	Differential Equations with Linear Algebra	4	29
F20	MATH 116	002	Calculus 2	4	27
F20	MATH 228	004	Differential Equations with Linear Algebra	4	30
F20	Math 499	001	Independent Study: PDE	2	2
W20	MATH 435	001	Mathematics for Finance	3	11
W20	MATH 228	004	Differential Equations with Linear Algebra	4	30
W20	Math 599	002	Independent Study: Graduate Project	2	1
F19	MATH 404/504	001	Dynamical Systems	3	6/3
F19	MATH 228	003	Differential Equations with Linear Algebra	4	28
W19	MATH 435	001	Mathematics for Finance	3	14
W19	MATH 228	002	Differential Equations with Linear Algebra	4	29
F18	MATH 228	001	Differential Equations with Linear Algebra	4	20
F18	MATH 228	003	Differential Equations with Linear Algebra	4	19

b) Curriculum Development

[1] Math 228 (Online Version)

I developed an online version of Math 228. This course is hosted on Canvas, comprises of 34 modules, and uses an open educational resource textbook that I modified with Yulia Hristova. These modules consist of lecture slides with recordings, supplemental lightboard videos, worksheets with video solutions, a Canvas quiz and WeBWorK assignment. There are optional recorded live lectures and live remote office hours.

[2] Math 335, Mathematical Interest Theory

I collaboratively developed this course to be part of the Actuarial Mathematics major core and to prepare students for SOA exam FM.

Course Description- This course will cover introductory topics in the mathematical theory of finance with a focus on interest, annuities, bonds, and loans. These topics will be studied deterministically by applying a variety of finite and infinite series. Theoretical derivations of topics including duration, portfolio immunization and interest rate swaps will be studied. Financial derivatives and stochastic methods will be studied if time permits.

c) Graduate Student Supervision

[1] Mariam Dawwas, Master's Thesis- A Statistical Analysis of Almond Production and Water Consumption in California, Winter 2023

[2] Nicholas Krupansky, Master's Thesis- Sub-critical Equilibrium Convergence Estimates in the Becker-Döring Equations, Winter 2020

8. Research Activities

a) Published Papers

- [1] Conlon, J. and **Dabkowski, M.**, "On Global Asymptotic Stability for the Diffusive Carr-Penrose Model," *Journal of Nonlinear Science*, **32**, 2022, No. 5, Paper 75.
- [2] Clifford, J., **Dabkowski, M.**, and Wiggins, A., "The Numerical Range of $C_\psi^* C_\phi$ and $C_\phi C_\psi^*$," *Concrete Operators*, **8**, 2021, 13-23.
- [3] Conlon, J. and **Dabkowski, M.**, "Global Stability for a Class of Nonlinear PDE with a Nonlocal Term," *Journal of Statistical Physics*, **178**, 2020, 117-177.
- [4] Conlon, J. and **Dabkowski, M.**, "On Global Asymptotic Stability for the LSW Model with Subcritical Initial Data," *Journal of Statistical Physics*, **178**, 2020, 420-471.
- [5] **Dabkowski, M.** and Lock, M. , "The Lowest Eigenvalue of Schrödinger Operators on Compact Manifolds", *Potential Analysis*, **50**, No.4, 2019, 621-630.
- [6] **Dabkowski, M.** and Lock, M., "On the Proportionality of Chern and Riemannian Scalar Curvatures", *Geometriae Dedicata*, **195**, No. 1, 2018, 57-78.
- [7] **Dabkowski, M.** and Lock, M., "An Equivalence of Scalar Curvatures on Hermitian Manifolds," *Journal of Geometric Analysis*, **27**, 2017, 239-270.
- [8] Conlon, J., **Dabkowski, M.**, and Wu, J., "On Large Time Behavior and Selection Principle for a Diffusive Carr-Penrose Model", *Journal of Nonlinear Analysis*, **26**, 2016, No. 2, 453-518.
- [9] **Dabkowski, M.** and Lock, M., "On Kähler Conformal Compactifications of $U(n)$ -Invariant ALE Spaces", *Annals of Global Analysis and Geometry*, **49**, No. 1, 2016, 73-85.
- [10] **Dabkowski, M.**, Kiselev, A., Silvestre, L., and Vicol, V., "Global Well-Posedness of Slightly Supercritical Active Scalar Equations", *Analysis and PDE*, **7**, 2014, No. 1, 43-72.
- [11] **Dabkowski, M.**, Kiselev, A., and Vicol, V., "Global Well-Posedness for a Slightly Supercritical Surface Quasi-Geostrophic Equation", *Nonlinearity*, **25**, 2012, No. 5, 1525-1535.
- [12] **Dabkowski, M.**, "Eventual Regularity of the Solutions to the Supercritical Dissipative Quasi-Geostrophic Equation", *GAFG*, **21-1**, 2011, 1-13.
- [13] Clifford, J. and **Dabkowski, M.**, "Singular Values and Schmidt Pairs of Composition Operators on the Hardy space", *Journal of Mathematics Analysis and Applications*, **305**, 2005, 183-196.

b) Submitted Papers

- [1] Conlon, J., and **Dabkowski, M.**, "On Properties of the Dirichlet Green's Function For Linear Diffusions On A Half Line," <https://arxiv.org/pdf/2103.03929>, *Electronic Journal of Differential Equations*, (Submitted 10/2023)

c) Selected Presentations

- [1] "Global Asymptotic Stability for the Diffusive Carr-Penrose Equation," Lehigh University, Applied Math Seminar, April 2023
- [2] "The Asymptotic Stability of the LSW Equations with Subcritical Initial Data," SIAM MS11: Coagulation-Fragmentation: Modeling & Mathematical Theory, May 2021

- [3] "Nonlocal Equations: Understanding Coagulation and Fragmentation of Particle Clusters," UM-Dearborn, CASL Research Slam, October 2020
- [4] "The LSW Equation: Particle Coarsening and Asymptotic Stability", Lawrence Technological University Society of Physics Students Geek Week, invited talk, November 2019
- [5] ""The Numerical Range of the Product of a Composition Operator and an Adjoint of a Composition Operator", Hope College, Math Department Colloquium, February 2020
- [6] "Global Asymptotic Stability of the Subcritical LSW Equation", Lawrence Technological University, Math Department Seminar, February 2020
- [7] "Break It Down and Build It Back Up: The Global Stability of a Nonlocal PDE", Kalamazoo College Math Department Colloquium, October 2018
- [8] "Course Based Research Experience at the Sophomore Level", Joint Meetings, January 2018
- [9] "Drift Diffusion Equations", Life Sciences Seminar, Lawrence Technological University, October 2017
- [10] "On the Global Stability of a Nonlinear Nonlocal PDE through Differential Delays", Mathematics Colloquium, Oakland University, October 2017
- [11] "On the Global Stability of a Nonlinear Nonlocal PDE through Differential Delays", Analysis Seminar, University of Alabama, September 2017
- [12] "On the Global Stability of a Nonlinear Nonlocal PDE through Differential Delays", Mathematical Congress of the Americas, Montreal, Fluid Mechanics, July 2017
- [13] "Linear Relationships between Riemannian and Chern Scalar Curvatures", Complex Geometry, Several Complex Variables and Related Topics, Fudan University, Shanghai, China June
- [14] "On the Numerical Range of $C_\phi C_\psi^*$ ", Complex Analysis Seminar, University of Toledo, March 2017.
- [15] "On the Numerical Range of $C_\phi C_\psi^*$ ", Special Session on Operator Theory, Joint Meeting, Atlanta, March 2017.
- [16] "The Lowest Eigenvalue of Schrödinger Operators on Compact Complex Manifolds and Applications to Curvature Problems", UM-Dearborn Analysis Day, April 2016
- [17] "Diffusive Carr-Penrose Models," AMS-Section Meeting, Michigan State University, October 2016
- [18] "The Asymptotic Behavior of the Diffusive Carr-Penrose Model", UM-Dearborn Math Colloquium, March 2016
- [19] "Regularity and Blowup of Supercritical Active Scalar Equations", Differential Equations Seminar, Michigan State University, April 2014
- [20] "Regularity and Blowup of Supercritical Active Scalar Equations", Differential Equations Seminar, United States Naval Academy, February 2014
- [21] "Global Well-posedness of Slightly Supercritical Active Scalar Equations", SIAM PDE Conference, Orlando Florida, November 2013
- [22] "Global Well-posedness of Slightly Supercritical Active Scalar Equations", Complex Analysis Seminar, University of Toledo, November 2013
- [23] "Eventual Regularity for Solutions of Supercritical Active Scalar Equations", Differential Equations Seminar, University of Michigan, April 2013
- [24] "Eventual Regularity for Solutions of the Supercritical Quasi-Geostrophic Equation", Differential Equations Seminar, University of Michigan, December 2011
- [25] "Eventual Regularity for Solutions of the Supercritical Quasi-Geostrophic Equation", SIAM PDE, San Diego, November 2011

- [26] "Global Well-posedness of a Slightly Supercritical Quasi-Geostrophic Equation", Dynamics Seminar, University of Toronto, November 2011
- [27] "Eventual Regularity for Solutions of the Supercritical Quasi-Geostrophic Equation", Ohio River Analysis Meeting, January 2011
- [28] "Eventual Regularity for Solutions of the Supercritical Quasi-Geostrophic Equation", CAMP Seminar, University of Chicago, December 2010
- [29] "Eventual Regularity for Solutions of the Supercritical Quasi-Geostrophic Equation", Analysis Seminar, University of Wisconsin, April 2010

d) Recent Conferences Attended

- [1] SIAM Conference on Mathematical Aspects of Materials Science, Virtual, May 2021
- [2] Analysis Day, University of Michigan-Dearborn (co-organizer), April 2019
- [3] Midwest PDE, The University of Indiana, March 2019
- [4] Midwest PDE, Purdue University, October 2018
- [5] Analysis Day, University of Michigan-Dearborn, April 2018
- [6] Mathematical Congress of the Americas, Montreal, July 2017
- [7] Complex Geometry, Several Complex Variables and Related Topics, Fudan University, China, June 2017

9. Service Activities

a) University Service

Campus-wide Committees

- [1] Faculty Senate (2022-present)
- [2] Faculty Senate Council (2022-present)
- [3] Alumni Awards Selection Committee - CASL Representative (2019-2020)

College Committees

- [1] CASL PBL Task Force member (2021)
- [2] CASL Digital Educational Collaborative Math Discipline Lead (2020)

Departmental Committees

- [1] Mathematical Competitions Coach (2018-Present) I run practices and organize student participation in the Autumn Challenge, Putnam Exam, and Lower Michigan Math Competition. Our teams won the 2020 LMMC and Autumn Challenge.
- [2] Actuarial Math Major Program Co-advisor (2019-Present)
I organize and run practice sessions to help students prepare for the SOA P and FM exams.
- [3] Math Club Faculty Advisor (2019-2021)
- [4] Turfe Lecture Co-organizer (2019-2021)
I jointly planned the Turfe Lecture series with Aditya Viswanathan.

b) Technical Reviews

- [1] Communications in Mathematical Sciences, Fall 2020
- [2] Nonlinearity, Fall 2019
- [3] Monatshefte Für Mathematik, Fall 2019
- [4] Communications in Pure and Applied Analysis, Fall 2019
- [5] Communications in Mathematical Sciences, Fall 2018
- [6] Journal of Physics A, Fall 2018

c) Other Services

- [1] Presenter, Maize and Blue Math Circle, University of Michigan – Dearborn, (2018 – present)
I have run math circles at Dearborn STEM Middle School, Jalen Rose High School, Detroit and University Prep Art and Design, Detroit (High School).
- [2] Member of the Michigan Math Prize Competition exam writing committee (2018-2020).
- [3] Senior Staff and Afternoon Activities Coordinator, Ypsilanti Math Corps, (Summer 2019-Summer 2020)
I coordinated the Afternoon Activities portion of the Math Corps; this involved exercise and a mathematically inspired activity. As a senior staff member, I would substitute in a variety of other roles.
- [4] Co-organizer of the Math Matches Summer Math and Boxing Camp (June 2021, June 2023)
I ran a two week summer math and boxing camp at the Jefferson Barnes Community Vitality Center in Norwayne together with Yunus Zeytuncu and Angela Krebs.
- [5] Director of Math Corps U(M)-Dearborn@KRONK (July 2022)
I ran a four week summer math camp: Math Corps U(M)-Dearborn@KRONK, at the Jefferson Barnes Community Vitality Center and KRONK Boxing Gym in Norwayne. This camp served 32 middle school students and 13 high school students.
- [6] Director of Math Corps U(M)-Dearborn (July 2023- August 2023)
I ran a four week summer math camp: Math Corps U(M)-Dearborn, at UM-Dearborn. This camp served 40 middle school students and 20 high school students.

10. Synergistic Activities

- [1] Co-organizer of the annual Analysis Day Conference (2018-present)
Together with John Clifford, Alan Wiggins and Yunus Zeytuncu I organize a two day conference on Mathematical Analysis in late April.