

Antoine Remond-Tiedrez

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Employment

Van Vleck Visiting Assistant Professor, University of Wisconsin–Madison 2020–present
Joint mentoring from Chanwoo Kim, Leslie Smith, and Sam Stechmann.
Partly funded by NSF Grant “Atmospheric Dynamics with Phase Changes and Extreme Rainfall Events” (PI: Leslie Smith and Sam Stechmann).

Education

PhD in Mathematics, Carnegie Mellon University 2014–2020
Thesis: Nonlinear partial differential equations in fluid mechanics; interfaces, microstructure, and stability.
Advisor: Ian Tice

Master’s in Mathematics and Physics, University of Warwick 2013–2014

BSc in Mathematics and Physics, University of Warwick 2010–2013

Research interests

I study nonlinear partial differential equations arising in fluid dynamics. I am particularly interested in free boundary problems, the behaviour of complex fluids (such as micropolar fluids and ferrofluids), and geophysical fluid dynamics.

Publications

Remond-Tiedrez A. and Tice I. Anisotropic micropolar fluids subject to a uniform microtorque: the stable case. [arXiv:2007.13795](https://arxiv.org/abs/2007.13795).

Remond-Tiedrez A. and Tice I. Anisotropic micropolar fluids subject to a uniform microtorque: the unstable case. *Comm. Math. Phys.*, 2021.

Remond-Tiedrez A. and Tice I. The viscous surface wave problem with generalized surface energies. *SIAM J. Math. Anal.*, 2019.

Academic visits

Visiting Graduate Student during the ICERM Semester Program on “Singularities and Waves In Incompressible Fluids”. Spring 2017

Talks

Ohio River Analysis Meeting, <i>University of Kentucky</i> <i>Instability of a Anisotropic Micropolar Fluid</i>	Mar. 2021
Applied and Computational Mathematics Seminar, <i>University of Wisconsin–Madison</i> <i>Instability of an Anisotropic Micropolar Fluid</i>	Feb. 2021
Analysis and PDE Seminar, <i>University of Southern California</i> <i>Instability of an Anisotropic Micropolar Fluid</i>	Oct. 2020
Online North East PDE and Analysis Seminar (jointly organized by Brown, Carnegie Mellon, Princeton, and Toronto) <i>Instability of an Anisotropic Micropolar Fluid</i>	May 2020
SIAM Conference on Analysis of Partial Differential Equations, <i>La Quinta</i> <i>Instability of a Non-Isotropic Micropolar Fluid</i>	Dec. 2019
Equadiff 2019, <i>Leiden</i> <i>The Viscous Surface Wave Problem with Generalized Surface Energies</i>	Jul. 2019
SIAM Conference on Computational Science and Engineering, <i>Spokane</i> <i>The Viscous Surface Wave Problem with Generalized Surface Energies</i>	Feb. 2019
Summer School on Mathematical Fluids, <i>University of Southern California</i> <i>Viscous Surface Waves and their Stability</i>	May 2017

Working groups

Working group organised

Department of Mathematics, University of Wisconsin–Madison

Introduction to PDEs and Waves for the Atmosphere and Ocean	Spring 2021
<i>SIAM Student Chapter, Carnegie Mellon University</i>	
Malliavin Calculus	Spring 2020
Koopman Spectral Analysis	Fall 2019
Concentration of Measure	Spring 2019
Analysis of Hydrodynamical Models	Fall 2018
Calculus of Variations on Manifolds and Geometric Flows	Spring 2018
Geometric Measure Theory	Fall 2017
Weak Convergence Methods in Nonlinear PDEs	Fall 2016

Working group attended

Center for Nonlinear Analysis, Carnegie Mellon University

Mathematics of Deep Neural Networks	Fall 2018
Optimal Transport	Spring 2016
Fluid Dynamics	Fall 2016

Conferences, workshops, and summer schools attended

Ohio River Analysis Meeting, <i>University of Kentucky</i>	Mar. 2021
SIAM Conference on Analysis of Partial Differential Equations, <i>La Quinta</i>	Dec. 2019
Equadiff 2019, <i>Leiden</i>	Jul. 2019
Stability of Nonlinear Waves: Analysis and Computation, <i>Institut Henri Poincaré</i>	Jul. 2019
Workshop on Mathematical Models for Pattern Formation, <i>Carnegie Mellon University</i>	Mar. 2019
Workshop on Nonlinear Differential Equations, Dynamical Systems and Applications, <i>University of Kansas</i>	Oct. 2018
SIAM Annual Meeting, <i>Pittsburgh</i>	Jul. 2017
Summer School and Workshop: Mathematical Analysis of Water Waves and Related Models, <i>UC Davis</i>	Jun. 2017
Water Waves, <i>ICERM</i>	May 2017
Computational Aspects of Water Waves, <i>ICERM</i>	Apr. 2017
Making a splash - Droplets, Jets, and Other Singularities, <i>ICERM</i>	Mar. 2017
Dynamics of Small Scales in Fluids, <i>ICERM</i>	Feb. 2017
Topics in Applied Nonlinear Analysis: Recent Advances and New Trends, <i>Carnegie Mellon University</i>	Jul. 2016
Center for Nonlinear Analysis Summer School, <i>Carnegie Mellon University</i>	Jun. 2016

Awards

Hugh D. Young Graduate Student Teaching Award, <i>Mellon College of Science, Carnegie Mellon University</i> <i>Award given to encourage and recognize effective teaching by graduate students.</i>	2020
SIAM Student Chapter Certificate of Recognition, <i>SIAM</i> <i>In recognition of outstanding efforts and accomplishments on behalf of the SIAM Chapter at Carnegie Mellon University.</i>	2020, 2019, 2018
Excellence in the MPhys Project, <i>University of Warwick</i> <i>Prize for excellence in the final year research project.</i>	2014

Teaching experience

Instructor , <i>University of Wisconsin–Madison</i>	
Linear Algebra and Differential Equations	Spring 2021
The Theory of Single Variable Calculus	Fall 2020
Instructor , <i>Carnegie Mellon University</i>	

Concepts of Mathematics	Summer 2018
Concepts of Mathematics	Summer 2017
Lead Teaching Assistant, Carnegie Mellon University	
Matrices and Linear Transformations	Spring 2020
Concepts of Mathematics	Fall 2019
Teaching assistant, Carnegie Mellon University	
Pre-Calculus (SAMS)	Summer 2017
Calculus I for Humanities	Fall 2016
Pre-Calculus (SAMS)	Summer 2016
Symbolic Programming Methods	Summer 2016
Multivariate Calculus	Spring 2016
Calculus I	Fall 2015
Differential Equations	Spring 2015
Multivariate Analysis	Fall 2014
Grader, Carnegie Mellon University	
Measure and Integration	Fall 2017
Other teaching activities	
Future Faculty Program, Carnegie Mellon University	2014–2020
<i>This program provides graduate students with support in developing and documenting their teaching skills, through seminars, workshops, and teaching consultations.</i>	
Summer Academy for Mathematics and Sciences, Carnegie Mellon University	Summer 2016, 2017
<i>The Summer Academy for Math and Sciences (SAMS) is a six-week program for minoritized student groups interested in pursuing STEM-related undergraduate majors.</i>	
Teaching and Learning Summit, Carnegie Mellon University	Oct. 2016
Evidence-Based Teaching in STEM, Carnegie Mellon University	Spring 2016
<i>Semester-long course taught within the Eberly Center for Teaching Excellence and Educational Innovation. This course helps instructors adopt research-based teaching strategies in their classes.</i>	

Service

Academic service, Mathematics Department (Carnegie Mellon University)	
President, SIAM Student Chapter	2018–2020
Treasurer, SIAM Student Chapter	2016–2018
Co-organizer, SIAM Student Chapter Graduate Student Panels	
Mini-Symposium: Road to an academic career, with faculty members	Spring 2020

Milestones of a PhD program, with senior graduate students	Fall 2019
Job panel, with recent graduates	Spring 2019
Co-founder and co-organizer, <i>SIAM Student Chapter Working Group</i>	
Malliavin Calculus	Spring 2020
Koopman Spectral Analysis	Fall 2019
Concentration of Measure	Spring 2019
Analysis of Hydrodynamic Models	Fall 2018
Calculus of Variations on Manifolds and Geometric Flows	Spring 2018
Geometric Measure Theory	Fall 2017
Weak Convergence Methods	Fall 2016
Co-organizer, <i>Women and Mathematics at Carnegie Mellon University: Conference on Partial Differential Equations in Mathematical Finance</i>	Apr. 2018
Academic service , <i>Eberly Center for Teaching Excellence and Educational Innovation (Carnegie Mellon University)</i>	
Teaching Innovation Award Selection Committee	Spring 2019, 2020
Senior Graduate Teaching Fellow	Spring 2020
Graduate Teaching Fellow	2018–2019
<i>Duties include one-on-one consultations with Eberly Center clients and facilitation of teaching workshops. Both of these services support clients by developing their teaching skills.</i>	
Miscellaneous service , <i>Carnegie Mellon University</i>	
Vice President of Finance, <i>Graduate Student Assembly</i>	2017–2019
Representative of the Department of Mathematical Sciences, <i>Graduate Student Assembly</i>	2016–2017