LAUREN LAZARUS MELFI

Assistant Professor of Applied Mathematics lauren.lazarus9@gmail.com; melfil@wit.edu
Wentworth Institute of Technology https://sites.google.com/view/laurenlazarus/home

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EDUCATION:

Cornell University 2010 - 2016
Ph.D. in Theoretical and Applied Mechanics – Advisor: R. H. Rand

University of New Hampshire 2006 - 2010
B.S. in Physics with University Honors; B.A. in Classics – Summa Cum Laude

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ACADEMIC POSITIONS:

Wentworth Institute of Technology 2020 – present
Assistant Professor, Applied Mathematics, School of Computing and Data Science

Trinity College 2017 - 2020
Harold L. Dorwart Visiting Assistant Professor, Dept. of Mathematics

Harvey Mudd College 2016 - 2017
Visiting Assistant Professor, Dept. of Mathematics

Cornell University Spring 2016
Teaching Associate, Dept. of Mathematics

PUBLICATIONS:

M. J. Panaggio, M.-V. Ciocanel, **L. Lazarus**, C. M. Topaz, and B. Xu: Model reconstruction from temporal data for coupled oscillator networks. *Chaos* **29**, 103116 (2019).

L. Lazarus, M. Davidow, and R. Rand: Periodically Forced Delay Limit Cycle Oscillator. *International Journal of Non-Linear Mechanics,* **94**, pp. 216-222 (2017).

L. Lazarus, M. Davidow, and R. Rand: Dynamics of an oscillator with delay parametric excitation. *International Journal of Non-Linear Mechanics,* **78**, pp. 66-71 (2016).

L. Lazarus, M. Davidow, and R. Rand: Dynamics of a delay limit cycle oscillator. *Nonlinear Dynamics*, **82**, pp. 481-488 (2015).

L. Lazarus and R. H. Rand: Dynamics of a System of Two Coupled Oscillators Driven by a Third Oscillator. *Journal of Applied Nonlinear Dynamics*, **3** (3), pp. 271-282 (2014).

AWARDS AND FELLOWSHIPS:

Fellow, Center for Teaching and Learning, Trinity College	2018 – 2019
Participant, AMS Mathematics Research Community, Agent-Based Modeling	June 2018
Blue '17 Fellow, MAA Project NExT	2017 – 2018
H. D. Block Teaching Prize, Cornell University	2016
Phi Beta Kappa Honor Society, Beta of New Hampshire	2010

PRESENTATIONS:

Invited Conference Talks:

SIAM/CAIMS Annual Meeting — July 17, 2020
"Model Reconstruction for Coupled Oscillator Networks from Temporal Data." — (virtual)
with M. J. Panaggio, M.-V. Ciocanel, C. Topaz, and B. Xu.

Joint Mathematics Meetings — January 17, 2019
"Network reconstruction from temporal data for coupled oscillators." — Baltimore, MD
with H. Adams, M.-V. Ciocanel, K. Houston-Edwards, M. J. Panaggio, C. Topaz, and B. Xu.

Colloquium Talks:

Talk Math With Your Friends (#TMWYF) Colloquium — April 1, 2021
"Finding Resonance with Delays" — (virtual)

Yale Undergraduate Mathematics Society Seminar — October 16, 2020
"System Delay as a Feature, Not a Bug" — (virtual)

Rose-Hulman Institute of Technology Mathematics REU Colloquium — July 16, 2020
"Modeling Oscillations with Delayed Feedback" — (virtual)

University of Hartford Mathematics Undergraduate Colloquium — September 14, 2018
"System Delay as a Feature, Not a Bug."

Claremont Center for the Mathematical Sciences Colloquium — November 30, 2016
"Delay in the System: Oscillations caused by non-trivial response time."

Contributed Conference Talks:

SIAM Conference on Applications of Dynamical Systems — May 24, 2021
"Model Reconstruction for Coupled Oscillator Networks from Temporal Data" — (virtual)
with M. Panaggio, M.-V. Ciocanel, G. McLaughlin, C. Topaz, and B. Xu

Joint Mathematics Meetings — January 17, 2020
"Comparison and machine classification of limit cycles from ODE and delayed oscillator models" — Denver, CO

SIAM Conference on Applications of Dynamical Systems — May 19, 2019
"Comparison and connection between delay oscillators and ODE oscillators." — Snowbird, UT

Joint Mathematics Meetings — January 16, 2019
"Frequency effects of various cubic resonances on a delayed oscillator." — Baltimore, MD

SIAM Conference on Applications of Dynamical Systems — May 24, 2017
"Internally delayed oscillator in coupling." — Snowbird, UT

Joint Mathematics Meetings — January 5, 2017
"Periodic forcing of a first-order delay limit cycle oscillator." — Atlanta, GA
with M. Davidow and R. H. Rand.

IUTAM Symposium, Analytical Methods in Nonlinear Dynamics — July 8, 2015
"Dynamics of a delay limit cycle oscillator." — Frankfurt, Germany
with M. Davidow and R. H. Rand.

ASME International Design & Engineering Technical Conferences — August 20, 2014
"Dynamics of a system of two coupled oscillators driven by a third oscillator." — Buffalo, NY
with R. H. Rand.

American Physical Society March Meeting — March 16, 2010
Poster: "System dynamics of non-diffusively coupled oscillators." — Portland, OR
with J. Tranquillo.

TEACHING EXPERIENCE:

Wentworth Institute of Technology — 2020 – present
Integrated Engineering Calculus I; Differential Equations;
Differential Equations & Systems Modeling; Linear Algebra & Matrix Theory

Trinity College 2017 - 2020

Intro to Mathematical Modeling; Differential Equations; Linear Algebra; Calculus II; Mathematical Pearls; Calculus III; Statistical Data Analysis

Harvey Mudd College 2016 - 2017

Intro to Differential Equations; Intermediate Differential Equations; Intro to Linear Algebra; Differential Equations and Linear Algebra II; Multivariable Calculus

Cornell University 2016

Calculus I; [also see Predoctoral Teaching Experience below]

STUDENT RESEARCH MENTORING:

Benjamin Liske, Trinity College '20 Summer 2019

Daniel Melesse, Trinity College '20 Summer 2019

Kalsang Sherpa, Trinity College '20 Summer 2018
Outstanding Poster, MAA Student Poster Session, Joint Mathematics Meetings 2019

SERVICE TO PROFESSION:

Organizing Committee Member: Dynamics Days 2020, Hartford, CT January 2020

Reviewer:

Nature Communications – Nature Research
International Journal of Systems Science – Taylor & Francis
SN Applied Sciences – Springer
College Mathematics Journal – MAA, Taylor & Francis

Contest Judging:

COMAP Interdisciplinary Contest in Modeling – Triage Feb/Mar 2021
AWM/MfA Essay Contest – Round 1 February 2021

Member:

Mathematical Association of America (MAA)
Society for Industrial and Applied Mathematics (SIAM)
Association for Women in Mathematics (AWM)
Phi Beta Kappa Honor Society

Past Member:

American Mathematical Society (AMS) – 2016-2019

SERVICE TO INSTITUTE / DEPARTMENT:

Member, Applied Mathematics Curriculum Committee 2021
Member, Women's Leadership Initiative Advisory Committee (ad hoc) 2021

SELECTED OUTREACH:

Panelist / Visitor:
AAUW Tech Savvy Conference at Trinity College, Hartford, CT March 7, 2020
Women in STEM Club at Hall High School, West Hartford, CT April 22, 2019

PREDOCTORAL TEACHING EXPERIENCE:

Cornell University

Instructional Teaching Assistant, Dept. of Mathematics Sp 2014, Sp 2015
Calculus I

Workshop Development Assistant, Engineering Learning Initiatives Sp/Fa 2013, Fa 2014
[Calculus / Multivariable Calculus] for Engineers

Recitation Teaching Assistant, Dept. of Mathematics Fa 2010, Sp/Fa 2011, Sp/Fa 2012, Fa 2015
[Calculus / Multivariable Calculus / Differential Equations / Linear Algebra] for Engineers

Instructor's Assistant, Dept. of Mathematics Sp/Fa 2011, Sp 2012, Sp/Fa 2013, Fa 2014, Fa 2015
[Calculus / Multivariable Calculus / Differential Equations / Linear Algebra] for Engineers

Teaching Assistant, Dept. of Mechanical and Aerospace Engineering Su 2011, Su 2012, Su 2013
System Dynamics, Heat Transfer

University of New Hampshire Sp 2010

Teaching Assistant, Dept. of Physics

PREDOCTORAL RESEARCH EXPERIENCE:

Bucknell University Summer 2009
Research Assistant, NSF REU Program with J. Tranquillo – coupled oscillators

Lehigh University Summer 2008
Research Assistant, NSF REU Program with D. Vavylonis – modeling cell mechanics

University of New Hampshire 2007 - 2009
Research Assistant, with P. Berglund – string theory