**Lauren Lazarus Melfi**

Assistant Professor of Applied Mathematics [lauren.lazarus9@gmail.com](mailto:lauren.lazarus9@gmail.com); [melfil@wit.edu](mailto:melfil@wit.edu)

Wentworth Institute of Technology <https://sites.google.com/view/laurenlazarus/home>

**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*

**Academic Positions:**

**Wentworth Institute of Technology** 2020 – present

*Assistant Professor, Dept. of Applied Mathematics*

**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:***

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:***

Joint Mathematics Meetings January 17, 2020

“Comparison and machine classification of limit cycles from ODE Denver, CO

and delayed oscillator models”

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:**

**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*

**Professional Memberships and Service:**

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

Reviewer:

*SN Applied Sciences* – Springer

*College Mathematics Journal* – MAA, Taylor & Francis

Member:

Mathematical Association of America (MAA)

Society for Industrial and Applied Mathematics (SIAM)

Association for Women in Mathematics (AWM)

American Mathematical Society (AMS)

Phi Beta Kappa Honor Society

**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