

Education:

- **Ph.D.**, Mathematics, Boston University, May 2017.
 - Advisor: C. Eugene Wayne.
 - Thesis title: "Rigorous Justification of Taylor Dispersion via Center Manifold Theory."
- **B.S**, Mathematics, Millersville University, May 2010.

Quantitative Research Experience:

- **Applied Mathematics research.** Over 10 years experience in applying dynamical systems techniques to problems in a variety of fields including fluid mechanics, mathematical biology, and celestial mechanics. Peer-reviewed contributions to the literature include linear- and non-linear dimension reduction techniques reminiscent of Principal Components Analysis and Manifold Learning – 2009 through present.
- **Data Science.** Coursework in Python on Datacamp.com and experience on several successful New York electoral campaigns. Contributions include data scraping, cleaning, modeling, machine learning and deep learning, geographical analysis and visualization using Python tools such as pandas, numpy, Selenium, BeautifulSoup, scikit-learn, keras, geopandas, Hadoop and more. July 2018 through present.

Selected Publications:

- Margaret Beck, Osman Chaudhary, and Gene Wayne. Rigorous Justification of Taylor Dispersion via Center Manifolds and Hypocoercivity. Accepted to Archive for Rational Mechanics and Analysis, July 2019.
- Margaret Beck, Osman Chaudhary, and Gene Wayne. Analysis of Enhanced diffusion in Taylor dispersion via a model problem. Fields Institute Communications, Hamiltonian Partial Differential Equations and Applications. Springer-Verlag, New York (2015).
- Ed Reznik, Osman Chaudhary, and Alex Watson. The Stubborn Roots of Metabolic Cycles. Journal of the Royal Society Interface (2013), volume 10 no. 83.

Employment:

- **Data Team Member**, Tiffany Caban for Queens DA campaign, July 2019. Tasks include automating voter data collection for campaign recount legal effort, and geographical analysis of recount data using Python web scraping, Python GIS tools, and Airtable.
- **Instructor / Tutor**, Multiple Agencies: Five Points Learning, Gaver & Magariel LLC, and Wallace Tutors. September 2018 to present. Teaching and tutoring individuals and classes in a wide range of mathematics topics including SHSAT and SAT test prep, Calculus, Statistics, Linear and Abstract Algebra.
- **Math Teacher**, Pikesville High School, Pikesville, MD. – Fall 2017 to June 2018. Responsibilities included lead-teaching and co-teaching mathematics for grades 9 – 12 in a wide variety of classroom environments and class sizes. Math club advisor.
- **Lecturer and Teaching Fellow**, Boston University – Fall 2010 to Summer 2017, Taught 800+ students in college mathematics courses ranging from statistics through

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multivariable calculus and differential equations.