Timothy E. Faver

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Education

Ph.D., Mathematics, Drexel University, Philadelphia, PA, June 2018.
Advisor: J. Douglas Wright.

B.S., Mathematics and Spanish, Loyola University Maryland, Baltimore, MD, 2012.

Professional Experience

Assistant Professor of Mathematics, Kennesaw State University, August 2021–Present.

Postdoctoral Researcher, Leiden University, September 2018–August 2021. Supervisor: Hermen Jan Hupkes.

Grant Support

Timothy E. Faver (PI). Nonlinear waves in discrete heterogeneous media. NSF DMS-2405535. 2024–2027. $134,001.

Timothy E. Faver (PI). AMS-Simons Research Enhancement Grant for PUI Faculty. 2024–2027. $9,000. Declined due to NSF.

Publications and Preprints

Timothy E. Faver, Hermen Jan Hupkes, and J. Douglas Wright. Small-amplitude periodic traveling waves in dimer Fermi–Pasta–Ulam–Tsingou lattices. Submitted. arXiv preprint arXiv:2412.17733

Timothy E. Faver and Hermen Jan Hupkes. Mass and spring dimer Fermi–Pasta–Ulam–Tsingou long wave nanopterons with exponentially small, nonvanishing ripples. *Studies in Applied Mathematics* 150:1046–1153 (2023).

Bente Hilder Bakker, Timothy E. Faver, Hermen Jan Hupkes, Roeland Merks, and Jelle van der Voort. Scaling relations for auxin waves. *Journal of Mathematical Biology* 85:41 (2022).

Timothy E. Faver and Hermen Jan Hupkes. Micropterons, nanopterons, and solitary wave solutions to the diatomic Fermi–Pasta–Ulam–Tsingou problem. *Partial Differential Equations in Applied Mathematics* 4:100128 (2021).

Timothy E. Faver, Roy H. Goodman, and J. Douglas Wright. Solitary waves in mass-in-mass lattices. *Z. Agnew. Math Phys.* 71:197 (2020).

Timothy E. Faver. Small mass nanopteron traveling waves in mass-in-mass lattices with cubic FPUT potential. *Journal of Dynamics and Differential Equations* 33(4):1711–1752 (2021). Published online on 7 July 2020.

Timothy E. Faver and Hermen Jan Hupkes. Micropteron traveling waves in diatomic Fermi–Pasta–Ulam–Tsingou lattices under the equal mass limit. *Physica D: Nonlinear Phenomena* 410:132538 (2020).

Timothy E. Faver. Nanopteron-stegoton traveling waves in spring dimer Fermi–Pasta–Ulam–Tsingou lattices. *Quarterly of Applied Mathematics* 78:363–429 (2020). Published online on 2 August 2019.

Timothy E. Faver and J. Douglas Wright. Exact diatomic Fermi–Pasta–Ulam–Tsingou solitary waves with optical band ripples at infinity. *SIAM Journal on Mathematical Analysis* 50(1):182–250 (2018).

Undergraduate Publications

Timothy E. Faver, Katelynn Kochalski, Mathav Murugan, Heidi Verheggen, Elizabeth Wesson, and Anthony Weston. Nonultrametric triangles in diametral additive metric spaces. Involve 8:1, 33–37 (2015).

Timothy E. Faver, Katelynn Kochalski, Mathav Murugan, Heidi Verheggen, Elizabeth Wesson, and Anthony Weston. Roundness properties of ultrametric spaces. Glasgow Mathematical Journal 56:3, 519–535 (2014).

Talks

Periodic traveling waves in dimer FPUT lattices without symmetry

SIAM Conference on Nonlinear Waves and Coherent Structures, Baltimore, MD. June 24, 2024.

Second Joint Alabama–Florida Conference on Differential Equations, Dynamical Systems and Applications, Tallahassee, FL. May 18, 2024.

Phase-shifted nanopterons in a model of KdV coupled to an oscillatory field

CDSNS Colloquium, Georgia Tech, Atlanta, GA. September 22, 2023.

Analysis and Applied Math Seminar, Kennesaw State University, Marietta, GA. September 13, 2023.

Scaling relations for auxin waves

SIAM Conference on Nonlinear Waves and Coherent Structures. Bremen, Germany (online). August 31, 2022.

Analysis Lunchtime Colloquium. Leiden University, Leiden, The Netherlands. July 1, 2022.

Faculty Research Spotlight Seminar. Kennesaw State University, Marietta, GA. January 31, 2022.

Mass and spring dimer Fermi–Pasta–Ulam–Tsingou long wave nanopterons with exponentially small, nonvanishing ripples

SIAM Conference on Applications of Dynamical Systems. Portland, OR. May 15, 2023.

Workshop on Spatial Dynamics and Related Approaches. Universität Stuttgart, Germany. September 6, 2022.

Coherent Structures: Current Developments and Future Challenges. Lorentz Center, Leiden, The Netherlands. July 5, 2022.

SIAM Conference on Analysis of Partial Differential Equations. March 14, 2022. (Virtual poster session)

SIAM Annual Meeting 2021. July 22, 2021.

SIAM Conference on Applications of Dynamical Systems (virtual). May 23, 2021.

Micropteron waves in diatomic FPUT lattices under the equal mass limit

SIAM Conference on Nonlinear Waves and Coherent Structures, Bremen, Germany. Canceled due to COVID-19.

SIAM Conference on Analysis of Partial Differential Equations, La Quinta, CA. December 11, 2019.

DMV-Jahrestagung 2019, Karlsruher Institut für Tecnologie, Karlsruhe, Germany. September 25, 2019.

Equadiff, Leiden, The Netherlands. July 9, 2019. (Poster session)

Nanopteron traveling waves in mass-in-mass lattices in the small mass limit

Faculty and Student Summer talks at NJIT, Newark, NJ. July 27, 2023.

SIAM Conference on Mathematical Aspects of Materials Science, Bilbao, Spain. Postponed due to COVID-19.

ICIAM, Valencia, Spain. July 18, 2019.

Equadiff, Leiden, The Netherlands. July 9, 2019.

SIAM Conference on Dynamical Systems, Snowbird, UT. May 21, 2019.

Leiden University–Vrije University Amsterdam Analysis Seminar. March 26, 2019.

AMS Contributed Paper Session on Applied Mathematics, Joint Mathematics Meetings 2019. Baltimore, MD. January 18, 2019.

Traveling waves in mass and spring dimer Fermi–Pasta–Ulam–Tsingou lattices

Analysis and Modeling Oberseminar, Institut für Analysis, Dynamik und Modellierung, Universität Stuttgart, Germany. February 1, 2019.

Analysis Lunchtime Colloquium. Leiden University, Leiden, The Netherlands. September 19, 2018.

SIAM Conference on Nonlinear Waves and Coherent Structures. Anaheim, CA. June 12, 2018. (Poster session)

EPaDel Spring 2018 Section Meeting. Temple University, Philadelphia, PA. March 24, 2018.

AMS Contributed Paper Session on Applied Mathematics, Joint Mathematics Meetings 2018. San Diego, CA. January 12, 2018.

SIAM Conference on Analysis of Partial Differential Equations. Baltimore, MD. December 8, 2017. (Poster session)

Loyola University Maryland Mathematics and Statistics Seminar. November 15, 2017.

SIAM Conference on Dynamical Systems. Snowbird, UT. May 22, 2017.

Drexel University Analysis Seminar. May 5, 2017.

Drexel Emerging Graduate Scholars Conference. Drexel University. April 27, 2017. (Poster session)

Periodic traveling waves in diatomic Fermi–Pasta–Ulam–Tsingou lattices

AMS Eastern Sectional Meeting. Bowdoin College, Brunswick, ME. September 24, 2016.

SIAM Conference on Nonlinear Waves and Coherent Structures. Philadelphia, PA. August 9, 2016.

Gene Golub SIAM Summer School. Drexel University. August 3, 2016. (Poster session)

11th AIMS Conference on Dynamical Systems, Differential Equations and Applications. Orlando, FL. June 20, 2016.

Analysis of Partial Differential Equations using Dynamical Systems Techniques. Boston University. June 1, 2016. (Poster session)

Drexel University Analysis Seminar. May 20, 2016.

Elements of the mathematical theory of waves

Loyola University Maryland Mathematics and Statistics Seminar. November 18, 2016.

Courses Taught

Kennesaw State University

MATH 2306: Ordinary Differential Equations (Sp22, Fa22, Fa23×2)

MATH 2345: Discrete Mathematics (Fa21)

MATH 3260: Linear Algebra I (Sp23)

MATH 4310: Partial Differential Equations (Fa22, Fa24)

MATH 4360: Linear Algebra II (Fa24)

MATH 4391: Complex Analysis (Sp23, Fa23, Sp24)

Leiden University

Analyse 3 NA: ordinary and partial differential equations, Fourier analysis, and complex variables for physicists and astrophysicists (Fa18, 19, 20)

Drexel University

Instructor of record

MATH 100: Foundations of Mathematics (Fa13)

MATH 122: Calculus II (Wi13, Sp18)

MATH 123: Calculus III (Sp16*)

MATH 183: Mathematical Analysis III (Sp15*)

MATH 200: Multivariate Calculus (Fa16)

*Uncoordinated courses in which I was responsible for all instructional policies, including syllabus and exams.

Recitation instructor

MATH 102: Introduction to Analysis II (Wi15)

Student Supervision

Timo van den Boom (Leiden University). Undergraduate thesis: *Diatomic FPUT lattices and the behavior of their limits.* January–July 2020.

Mark van den Bosch (Leiden University). Undergraduate capstone seminar in dynamical systems: *Modulation equations and the Ginzburg-Landau equation.* March–May 2019.

Organizational Experience

With Michael Herrmann and J. Douglas Wright, Minisymposium on Wave Propagation in Lattice Dynamical Systems at the SIAM Conference on Nonlinear Waves and Coherent Structures in Baltimore, MD. June 2024.

With Joshua McGinnis, Minisymposium on Nonlinear Wave Dynamics of Discrete and Heterogeneous Media at the SIAM Conference on Applications of Dynamical Systems in Portland, OR. May 2023.

With Grégory Faye and Gabriela Jaramillo, Minisymposium on Discrete and Continuous Systems with Nonlocal Interactions at the SIAM Conference on Nonlinear Waves and Coherent Structures in Bremen, Germany. July 2020. Canceled due to COVID-19.

With Hermen Jan Hupkes, Minisymposium on Nonlinear Waves and Patterns in Granular and Continuous Media at the SIAM Conference on Materials Science in Bilbao, Spain. May 2020. Postponed due to COVID-19.

With Bente Bakker, Minisymposium on Nonlinear Waves in Discrete and Continuous Media at the SIAM Conference on Analysis of Partial Differential Equations in La Quinta, CA. December 11, 2019.

With Jason Bramburger, Minisymposium on Recent Advances in Lattice Dynamical Systems at the SIAM Conference on Dynamical Systems in Snowbird, UT. May 21, 2019.

University Service

Chair, Lecturer Search Committee (KSU). May 2023–May 2024.

Chair, Upper-Division Calculus Committee (KSU): oversee and support calculus-based courses at the level of multivariable calculus and above. September 2022–present.

Co-Organizer, Math Department Colloquium (KSU). August 2022–present.

Coordinator, Math Talks Seminar (KSU): facilitate and organize talks by students and faculty on areas of mathematical interest, both research-based and expository. July 2022–present.

Dissertation defense committee for Christian Hamster (LU): *Noisy Patterns: Bridging the Gap between Stochastics and Dynamics.* September 9, 2020.

Co-organizer and regular participant, Leiden University Lunchtime Analysis Colloquium Fall 2018–Spring 2021.

Secretary of the Drexel student chapter of SIAM, 2015–2016, and regular participant 2014–2018.

Drexel TA training facilitator, 2014–2017.

Co-organizer and regular participant, Temple University Graduate Analysis Seminar, Fall 2014–Spring 2016.

Other Workshops and Programs Attended

Stability of Nonlinear Waves: Analysis and Computation. Institut Henri Poincaré, Paris, France. July 1–5, 2019.

PDE/Analysis mini-school: Dynamics of the energy critical wave equations. The University of North Carolina at Chapel, Chapel Hill, Chapel Hill, NC. February 12–15, 2017.

Gene Golub SIAM Summer School 2016. Drexel University, Philadelphia, PA. July 25–August 5, 2016.

Other Work Experience

Paradifferential calculus reading group, Drexel University, June–September 2014.

Intern and administrative assistant, Office of Campus Ministry, Loyola University MD, August 2010–July 2012.

Research assistant and secretary to James F. Salmon, S.J., Loyola University MD, May–July 2010.

Community Service

Volunteer, baker, toiletries donations coordinator, and community liaision for the University City Hospitality Coalition (meal program and homeless outreach in Philadelphia), June 2013–June 2018.

Participant and facilitator for the *Spiritual Exercises of St. Ignatius*, Parish of St. Agatha–St. James, Philadelphia, PA, September 2013–May 2015.

Honors/Awards

Albert Herr Teaching Assistant Award, Drexel University, 2017.

Drexel University Dean's Fellowship, 2012–2014. ($10,000)

Whelan Medal (highest average in all courses), Loyola University MD, 2012.

Alfons and Christine Renk Language Medal in Spanish, Loyola University MD, 2012.

Mathematics Medal, Loyola University MD, 2012.

Graduated *summa cum laude*, Loyola University MD, 2012.

Phi Beta Kappa, 2011.

Travel Grants

SIAM Student Travel Award & Teck-Kah Lim Graduate Student Travel Award — to attend and give a talk at the SIAM Conference on Applications of Dynamical Systems (DS17), Snowbird, UT, May 2017.

JMM Travel Grant & Teck-Kah Lim Graduate Student Travel Award — to attend and give a talk at the Joint Mathematics Meetings, San Diego, CA, January 2018.