Ross Hamilton Parker

Department of Mathematics, Southern Methodist University – Dallas, TX 75275

215.694.4511 • rhparker@smu.edu • www.rprkr.net

EDUCATION

Brown University — Providence, RI
Ph.D. in applied mathematics — *Feb 2020*
Advisor: Björn Sandstede
Thesis: Nonlinear waves in the fifth-order Korteweg-de Vries equation

CUNY Hunter College — New York, NY
M.A. in pure mathematics — *Jan 2013*

University of Pennsylvania School of Medicine — Philadelphia, PA
M.D. — *May 2009*

Bowdoin College — Brunswick, ME
B.A. summa cum laude with highest honors in music, minor in chemistry — *May 1998*
Thesis: The First Service of Thomas Morley: an edition, performance, and commentary

ACADEMIC AND PROFESSIONAL APPOINTMENTS

Southern Methodist University — Dallas, TX
RTG postdoctoral fellow — *Aug 2020 - present*

Brown University — Providence, RI
Visiting assistant professor / Deans' faculty fellow — *Sep 2019 - May 2020*
Full fellowship support for the fall semester, and appointment as a visiting assistant professor for the spring semester.

Columbia University Medical Center — New York, NY
Internship in internal medicine — *Jul 2009 - Jul 2010*

PUBLICATIONS AND PREPRINTS

[1] Efstathios G. Charalampidis, Ross Parker, Panayotis G. Kevrekidis, and Stéphane Lafortune. The stability of the b-family of peakon equations. *arXiv e-prints*, December 2020. arXiv:2012.13019.

[2] Ross Parker and Björn Sandstede. Periodic multi-pulses and spectral stability in Hamiltonian PDEs with symmetry. *arXiv e-prints*, October 2020. arXiv:2010.05728.

[3] Todd Kapitula, Ross Parker, and Björn Sandstede. A reformulated Krein matrix for star-even polynomial operators with applications. *SIAM Journal on Mathematical Analysis*, 52(5):4705–4750, September 2020. doi:https://doi.org/10.1137/19M124246X.

[4] Ross Parker and Alejandro Aceves. Multi-pulse solitary waves in a fourth-order nonlinear Schrödinger equation. *arXiv e-prints*, September 2020. arXiv:2009.01647.

[5] Ross Parker, P.G. Kevrekidis, and Björn Sandstede. Existence and spectral stability of multi-pulses in discrete Hamiltonian lattice systems. *Physica D: Nonlinear Phenomena*, 408:132414, July 2020. doi:10.1016/j.physd.2020.132414.

TEACHING

Southern Methodist University

Math 3304: Introduction to linear algebra — Spring 2021

Math 1337: Calculus I — Fall 2020

Brown University

APMA 1360: Applied dynamical systems — Spring 2020

Intensive review of analysis for incoming graduate students — Summer 2019

APMA 1650: Statistical inference I — Summer 2016

APMA 350: Applied ordinary differential equations (teaching assistant) — Spring 2016

APMA 1650: Statistical inference I (teaching assistant) — Fall 2015

Pedagogy Training

Course design seminar. Sheridan Center for Teaching and Learning, Brown University — 2019
Explored integrated course design principles, and developed syllabi, assignments, and activities for two courses.

Teaching consultant program. Sheridan Center for Teaching and Learning, Brown University — 2017
Developed and refined skills in peer observation and feedback, leadership, and discussion facilitation.

Reflective teaching program. Sheridan Center for Teaching and Learning, Brown University — 2015
Developed and refined fundamental teaching and assessment strategies and communication skills using a student-centered, evidence-based approach.

Mentoring

Directed Reading Program. Division of Applied Mathematics, Brown University — 2019
Mentored one undergraduate in an independent reading project on the application of dynamical systems to neuroscience.

Other

Mathematics tutor. Noyce Scholars program, CUNY Hunter College — 2011-2013
Tutored students in a scholarship program for future secondary school math teachers in calculus, differential equations, linear algebra, abstract algebra, real and complex analysis, probability, and numerical methods.

Teaching and laboratory assistant. Bowdoin College — 1995-1998
Introductory chemistry, physics, and music theory.

PRESENTATIONS

Invited Talks

Instability bubbles for periodic multi-pulse solutions to Hamiltonian systems — Virtual
Annual Meeting of the SIAM Texas-Louisiana Section — *18 Oct, 2020*

Multi-pulse solitary waves in Hamiltonian systems — Virtual
SMU Math Colloquium — *24 Sep, 2020*

Spectral stability of periodic multi-pulses in the 5th Order KdV equation — Snowbird, UT
SIAM Conference on Applications of Dynamical Systems 2019 — *19-23 May, 2019*

Spectral stability of multi-pulses via the Krein matrix — Athens, GA
IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena — *17-19 April, 2019*

Stability of double pulse solutions to the 5th order KdV equation — Amherst, MA
Applied Mathematics Colloquium, University of Massachusetts — *13 Feb, 2018*

Stability of double pulse solutions to the 5th order KdV equation — Boston, MA
Brown/BU Joint Dynamics and PDE Seminar — *30 Nov, 2017*

Contributed Talks

Solitons and multi-solitons: a spatial dynamics approach — Providence, RI
SIAM Math Slam, Brown University — *8 Nov, 2018*

Stability of double pulse solutions to the 5th order KdV equation — Providence, RI
Applied Mathematics Graduate Seminar, Brown University — *11 Dec, 2017*

Posters and Multimedia Presentations

Spectral stability of multi-pulse solutions to the suspension bridge equation — Columbia, MO
KuMuNu 2019 — *27-28 Apr, 2019*

Spectral stability of multi-pulse solutions to the suspension bridge equation — Evanston, IL
Dynamics Days 2019 — *4-6 Jan, 2019*

Stability of double pulse solutions to the 5th order KdV equation — Anaheim, CA
SIAM Conference on Nonlinear Waves and Coherent Structures 2018 — *11-14 Jun, 2018*

Stability of double pulse solutions to the 5th order KdV equation — Lawrence, KS
KuMuNu 2018 — *21-22 Apr, 2018*

Stability of double pulse solutions to the 5th order KdV equation — Denver, CO
Dynamics Days 2018 — *4-6 Jan, 2018*

Conway's Game of Lights — New York, NY
New York World Maker Faire 2013 — *21-22 Sep, 2013*
Evolving cellular automata displayed on a 10×20 grid of individually addressable RGB LEDs, controlled by Arduino and Rasbperry Pi microcontrollers

WORKSHOPS

Brown-ICERM-Kobe Summer Simulation School — *17-31 Aug, 2015*
Workshop on high performance computing in collaboration with Kobe University, Japan

OUTREACH AND SERVICE

Co-organizer — Providence, RI
Brown/BU/UMass joint dynamical systems and PDE seminar — *2019-2020*

Minisymposium organizer — Snowbird, UT
SIAM Conference on Applications of Dynamical Systems 2019 — *May 2019*
MS20 Existence and stability of nonlinear waves: theory and numerical computations

Co-organizer, weekly graduate student seminar — Providence, RI
Division of Applied Mathematics, Brown University — *2018-2019*

Review session leader, real analysis — Providence, RI
Division of Applied Mathematics, Brown University — *2017-2020*

Vice president — Providence, RI
Brown University SIAM student chapter — *2017-2019*

Small group discussion leader, reflective teaching seminar — Providence, RI
Sheridan Center for Teaching and Learning, Brown University — *2017*

Department liaison Providence, RI
Sheridan Center for Teaching and Learning, Brown University *2015-2020*

Co-chair, Pinewoods Scottish Sessions Boston, MA
Royal Scottish Country Dance Society, Boston Branch *2018*

Co-chair, Pinewoods Scottish Sessions Boston, MA
Royal Scottish Country Dance Society, Boston Branch *2017*

TRAVEL GRANTS

SIAM student travel award *19-23 May, 2019*
Attendance and minisymposium presentation at SIAM Conference on Applications of Dynamical Systems 2019

Brown University graduate school travel award *17-19 April, 2019*
Attendance and minisymposium presentation at IMACS 2019

Brown University graduate school travel award *11-14 June, 2019*
Attendance and poster presentation at SIAM Conference on Nonlinear Waves and Coherent Structures 2018

HONORS AND AWARDS

Alpha Omega Alpha University of Pennsylvania
Medical honor society *2008*

Phi Beta Kappa Bowdoin College
Undergraduate honor society *1998*

Sue Winchell Burnett Senior Prize in Music Bowdoin College
Awarded to the senior who has made the most significant contribution to the department *1998*

Edwin Herbert Hall Sophomore Prize in Physics Bowdoin College
Awarded to the best sophomore scholar in the field of physics *1996*

CRC First Year Prize in Chemistry Bowdoin College
Recognizes outstanding achievement and promise in chemistry *1995*