# Ross Hamilton Parker

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

[2] 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.

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

[4] 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 $10 \times 20$ 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*
Award for attendance and minisymposium presentation at SIAM Conference on Applications of Dynamical Systems 2019

**Brown University graduate school travel award** — *17-19 April, 2019*
Award for attendance and minisymposium presentation at IMACS 2019

**Brown University graduate school travel award** — *11-14 June, 2019*
Award for 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*