

# Ross Hamilton Parker

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

☎ 215.694.4511 • ✉ rhparker@smu.edu • 🌐 www.rprkr.net

## EDUCATION

---

### Brown University

*Ph.D. in applied mathematics*

Advisor: Björn Sandstede

Thesis: Nonlinear waves in the fifth-order Korteweg-de Vries equation

Providence, RI

*Dec 2019*

### CUNY Hunter College

*M.A. in pure mathematics*

New York, NY

*Jan 2013*

### University of Pennsylvania School of Medicine

*M.D.*

Philadelphia, PA

*May 2009*

### Bowdoin College

*B.A. summa cum laude with highest honors in music, minor in chemistry*

Thesis: The First Service of Thomas Morley: an edition, performance, and commentary

Brunswick, ME

*May 1998*

## ACADEMIC AND PROFESSIONAL APPOINTMENTS

---

### Southern Methodist University

*RTG postdoctoral fellow / instructor*

Dallas, TX

*Aug 2020 - present*

### Brown University

*Visiting assistant professor / Deans' faculty fellow*

Full fellowship support for the fall semester, and appointment as a visiting assistant professor for the spring semester.

Providence, RI

*Sep 2019 - May 2020*

### Columbia University Medical Center

*Internship in internal medicine*

New York, NY

*Jul 2009 - Jul 2010*

## PUBLICATIONS AND PREPRINTS

---

- [1] Ross Parker and Alejandro Aceves. Standing wave solutions in twisted multicore fibers. *arXiv e-prints*, February 2021. [arXiv:2102.02958](https://arxiv.org/abs/2102.02958).
- [2] Efsthios G. Charalampidis, Ross Parker, Panayotis G. Kevrekidis, and Stéphane Laforge. The stability of the  $b$ -family of peakon equations. *arXiv e-prints*, December 2020. [arXiv:2012.13019](https://arxiv.org/abs/2012.13019).
- [3] Ross Parker and Björn Sandstede. Periodic multi-pulses and spectral stability in Hamiltonian PDEs with symmetry. *arXiv e-prints*, October 2020. [arXiv:2010.05728](https://arxiv.org/abs/2010.05728).
- [4] 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](https://doi.org/10.1137/19M124246X).
- [5] Ross Parker and Alejandro Aceves. Multi-pulse solitary waves in a fourth-order nonlinear Schrödinger equation. *arXiv e-prints*, September 2020. [arXiv:2009.01647](https://arxiv.org/abs/2009.01647).

- [6] 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

<b>Course design seminar.</b> Sheridan Center for Teaching and Learning, Brown University	2019
Explored integrated course design principles, and developed syllabi, assignments, and activities for two courses.	
<b>Teaching consultant program.</b> Sheridan Center for Teaching and Learning, Brown University	2017
Developed and refined skills in peer observation and feedback, leadership, and discussion facilitation.	
<b>Reflective teaching program.</b> 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

<b>Directed Reading Program.</b> Division of Applied Mathematics, Brown University	2019
Mentored undergraduates in an independent reading project on the application of dynamical systems to neuroscience.	

### Other

<b>Mathematics tutor.</b> 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.	
<b>Teaching and laboratory assistant.</b> Bowdoin College	1995 - 1998
Introductory chemistry, physics, and music theory.	

## PRESENTATIONS

---

### Invited Talks

<b>Instability bubbles for periodic multi-pulse solutions to Hamiltonian systems</b>	Virtual
<i>Annual Meeting of the SIAM Texas-Louisiana Section</i>	18 Oct, 2020
<b>Multi-pulse solitary waves in Hamiltonian systems</b>	Virtual
<i>SMU Math Colloquium</i>	24 Sep, 2020
<b>Spectral stability of periodic multi-pulses in the 5th Order KdV equation</b>	Snowbird, UT
<i>SIAM Conference on Applications of Dynamical Systems 2019</i>	19-23 May, 2019

<b>Spectral stability of multi-pulses via the Krein matrix</b> <i>IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena</i>	Athens, GA 17-19 Apr, 2019
<b>Stability of double pulse solutions to the 5th order KdV equation</b> <i>Applied Mathematics Colloquium, University of Massachusetts</i>	Amherst, MA 13 Feb, 2018
<b>Stability of double pulse solutions to the 5th order KdV equation</b> <i>Brown/BU Joint Dynamics and PDE Seminar</i>	Boston, MA 30 Nov, 2017

### Contributed Talks

<b>Solitons and multi-solitons: a spatial dynamics approach</b> <i>SIAM Math Slam, Brown University</i>	Providence, RI 8 Nov, 2018
<b>Stability of double pulse solutions to the 5th order KdV equation</b> <i>Applied Mathematics Graduate Seminar, Brown University</i>	Providence, RI 11 Dec, 2017

### Posters and Multimedia Presentations

<b>Spectral stability of multi-pulse solutions to the suspension bridge equation</b> <i>KuMuNu 2019</i>	Columbia, MO 27-28 Apr, 2019
<b>Spectral stability of multi-pulse solutions to the suspension bridge equation</b> <i>Dynamics Days 2019</i>	Evanston, IL 4-6 Jan, 2019
<b>Stability of double pulse solutions to the 5th order KdV equation</b> <i>SIAM Conference on Nonlinear Waves and Coherent Structures 2018</i>	Anaheim, CA 11-14 Jun, 2018
<b>Stability of double pulse solutions to the 5th order KdV equation</b> <i>KuMuNu 2018</i>	Lawrence, KS 21-22 Apr, 2018
<b>Stability of double pulse solutions to the 5th order KdV equation</b> <i>Dynamics Days 2018</i>	Denver, CO 4-6 Jan, 2018
<b>Conway's Game of Lights</b> <i>New York World Maker Faire 2013</i> Evolving cellular automata displayed on a $10 \times 20$ grid of individually addressable RGB LEDs, controlled by Arduino and Raspberry Pi microcontrollers	New York, NY 21-22 Sep, 2013

## WORKSHOPS

<b>Brown-ICERM-Kobe Summer Simulation School</b> Workshop on high performance computing in collaboration with Kobe University, Japan	17-31 Aug, 2015
---	-----------------

## OUTREACH AND SERVICE

<b>Co-organizer</b> <i>Brown/BU/UMass joint dynamical systems and PDE seminar</i>	Providence, RI 2019 - 2020
<b>Minisymposium organizer</b> <i>SIAM Conference on Applications of Dynamical Systems 2019</i> MS20 Existence and stability of nonlinear waves: theory and numerical computations	Snowbird, UT May 2019
<b>Co-organizer, weekly graduate student seminar</b> <i>Division of Applied Mathematics, Brown University</i>	Providence, RI 2018 - 2019
<b>Review session leader, real analysis</b> <i>Division of Applied Mathematics, Brown University</i>	Providence, RI 2017 - 2020

<b>Vice president</b> <i>Brown University SIAM student chapter</i>	Providence, RI 2017 - 2019
<b>Small group discussion leader, reflective teaching seminar</b> <i>Sheridan Center for Teaching and Learning, Brown University</i>	Providence, RI 2017
<b>Department liaison</b> <i>Sheridan Center for Teaching and Learning, Brown University</i>	Providence, RI 2015 - 2020
<b>Co-chair, Pinewoods Scottish Sessions</b> <i>Royal Scottish Country Dance Society, Boston Branch</i>	Boston, MA 2018
<b>Co-chair, Pinewoods Scottish Sessions</b> <i>Royal Scottish Country Dance Society, Boston Branch</i>	Boston, MA 2017

## TRAVEL GRANTS

---

<b>SIAM student travel award</b> Attendance and minisymposium presentation at SIAM Conference on Applications of Dynamical Systems 2019	19-23 May, 2019
<b>Brown University graduate school travel award</b> Attendance and minisymposium presentation at IMACS 2019	17-19 April, 2019
<b>Brown University graduate school travel award</b> Attendance and poster presentation at SIAM Conference on Nonlinear Waves and Coherent Structures 2018	11-14 June, 2019

## HONORS AND AWARDS

---

<b>Alpha Omega Alpha</b> <i>Medical honor society</i>	University of Pennsylvania 2008
<b>Phi Beta Kappa</b> <i>Undergraduate honor society</i>	Bowdoin College 1998
<b>Sue Winchell Burnett Senior Prize in Music</b> <i>Awarded to the senior who has made the most significant contribution to the department</i>	Bowdoin College 1998
<b>Edwin Herbert Hall Sophomore Prize in Physics</b> <i>Awarded to the best sophomore scholar in the field of physics</i>	Bowdoin College 1996
<b>CRC First Year Prize in Chemistry</b> <i>Recognizes outstanding achievement and promise in chemistry</i>	Bowdoin College 1995