BENJAMIN LOUIS SEGAL

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EDUCATION

UNIVERSITY OF WASHINGTON, Seattle, WA. September 2012–June 2017.

Doctor of Philosophy in Applied Mathematics, June 2017.

Master of Science degree in Applied Mathematics. June 2013.

NORTHWESTERN UNIVERSITY, Evanston, IL. September 2008–June 2012.

Master of Science degree in Applied Mathematics from The Graduate School.

Bachelor of Science degree in Applied Mathematics with Department Honors and Summa cum Laude distinction from McCormick School of Engineering and Applied Sciences and a Mathematics Double Major.

Cumulative GPA: 3.909. Dean's List/Honors for all academic quarters.

UNIVERSITY OF MINNESOTA, Minneapolis, MN. September 2004–May 2007.

UMTYMP Graduate (University of Minnesota Talented Youth Mathematics Program).

ST. LOUIS PARK SENIOR HIGH SCHOOL, St. Louis Park, MN. September 2004–June 2008.

International Baccalaureate Diploma Recipient.

RESEARCH

GRADUATE RESEARCH, University of Washington, Seattle, WA. January 2013–June 2017. The stability and instabilities of stationary solutions to the nonlinear Schroedinger equation and the sine-Gordon equation.

The stability spectrum for the sine-Gordon equation with Bernard Deconinck.

The stability spectrum for the focusing nonlinear Schroedinger equation with Bernard Deconinck.

Exact periodic solutions of a coupled NLS-KdV system of equations with Bernard Deconinck and Nghiem Nguyen.

Explicit parametric solutions to a long-wave model for water waves with constant vorticity with Bernard Deconinck and Henrik Kalisch.

UNDERGRADUATE RESEARCH, Northwestern University, Evanston, IL September 2009–June 2012. A population system model with nonlocal coupling with Alvin Bayliss and Vladimir Volpert.

PUBLICATIONS

B. Deconinck, P. McGill, and B.L. Segal, The stability spectrum for elliptic solutions to the sine-Gordon equation, submitted for publication, 2017.

B. Deconinck and B.L. Segal, The stability spectrum for elliptic solutions to the focusing NLS equation, Physica D: Nonlinear Phenomena, Volume 346, 1 May 2017, Pages 1–19.

B.L. Segal, D. Moldabayev, H. Kalisch, B. Deconinck, Explicit solutions for a long-wave model with constant vorticity, European Journal of Mechanics - B/Fluids, Volume 65, 2017, Pages 247–256.

B. Deconinck, N.V. Nguyen, B.L. Segal, The interaction of long and short waves in dispersive media, Journal of Physics A: Mathematical and Theoretical, Volume 49, 2016, 415501.

B.L. Segal, V.A. Volpert, A. Bayliss, Pattern formation in a model of competing populations with nonlocal interactions, Physica D: Nonlinear Phenomena, Volume 253, 15 June 2013, Pages 12–22.

TALKS

The stability spectrum for elliptic solutions to the focusing NLS equation, Math Colloquium, Seattle University, Seattle, WA. November, 2016.

Analyzing the stability spectrum for elliptic solutions to the focusing NLS equation, Nonlinear Waves -- Theory and Applications, Beijing, China, June, 2016.

Analyzing the stability spectrum for elliptic solutions to the focusing NLS equation, Joint Mathematics Meetings, Special Session on Nonlinear Waves and Coherent Structures, Seattle, WA, January 2016.

Tips and Tricks for coding in Mathematica. SIAMUW, University of Washington, Seattle, WA. November, 2015.

Dynamics of Short and Long Capillary-Gravity Waves. Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, University of Georgia, Athens, GA. April 2015.

Explicit solution for the height of surface waves in a long-wave model with constant vorticity. Mathematical Methods Research Group. University of Washington, Seattle WA. February 2015.

Exact periodic solutions of a coupled NLS-KdV system. Mathematical Methods Research Group. University of Washington, Seattle WA. April 2014.

The Conte-Musette method. Mathematical Methods Research Group. University of Washington, Seattle, WA. October 2013.

Pattern formation in a model of competing populations with nonlocal interactions. Mathematical Methods Research Group. University of Washington, Seattle, WA. January 2013.

Pattern formation in a model of competing populations with nonlocal interactions. Undergraduate Research and Arts Exposition, Evanston, IL. May 2012.

POSTERS

The stability spectrum for elliptic solutions to the focusing NLS equations. SIAMUW Poster Competition, Seattle, WA. February 2016.

Dynamics of Short and Long Capillary-Gravity Waves. SIAM Annual Meeting, Chicago, IL. July 2014.

A model of competing populations with nonlocal interactions. Undergraduate Research Symposium, Evanston, IL. May 2010.

CONFERENCES

Nonlinear Waves - Theory and Application, Beijing, China. June 2016.

Joint Mathematics Meetings, Seattle, WA. January 2016.

Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory, University of Georgia, Athens, GA. April 2015.

Problems of PDEs Related to Fluids, Oklahoma State University, Stillwater, OK. July 2014.

SIAM Annual Meeting, Chicago, IL. July 2014.

Quantization and Mathematics Conference, Northwestern University, Evanston, IL. June 2012.

The Stability of Coherent Structures and Patterns Workshop, University of Washington, Seattle, WA. June 2012.

HONORS AND AWARDS

GRADUATE

Boeing Fellowship from the University of Washington Applied Mathematics department.

Achievement Rewards for College Scientists (ARCS) fellowship from the Seattle chapter.

UNDERGRADUATE

Graduated with departmental honors with summa cum laude distinction.

TEACHING EXPERIENCE

CFRM 460, Seattle, WA. Summer 2015. Mathematical Methods for Quantitative Finance. Instructor.

AMATH 401/501, Seattle, WA. Fall 2012–Fall 2016. Vector Calculus and Complex Variables. Teaching assistant.

AMATH 402/502, Seattle, WA. Winter 2016-Winter 2017. Introduction to Nonlinear Dynamics and Chaos. Teaching assistant.

AMATH 403/503, Seattle, WA. Spring 2017. Introduction to Nonlinear Dynamics and Chaos. Teaching assistant.

AMATH 353, Seattle, WA. Spring 2016. Partial Differential Equations and Waves. Teaching assistant.

PROGRAMMING EXPERIENCE

COURSES

Algorithms, Complexity Theory, Numerical Solutions to Differential Equations, Cryptography, Database Management, Deterministic Models and Optimization, Machine Learning.

LANGUAGES

Adept with Mathematica and MATLAB. Learning Python. Familiar with R, C, C++, FORTRAN, AMPL.

COMMUNITY INVOLVEMENT

GPSS SENATOR, Seattle, WA. 2012–2014.

Applied Mathematics representative on the Graduate and Professional Student Senate.

APPLIED MATHEMATICS GSR, Seattle, WA. 2014–2015.

Graduate Student Representative in the department of Applied Mathematics.

VOLUNTEERISM

SIAMUW MATH FAIR, Seattle, WA Dec 2012–present.

Student volunteer at an annual mathematics fair for elementary school students.

MATHCOUNTS COMPETITION AND MATH HOUR OLYMPIAD, Seattle, WA Feb 2014–present.

Judge/grader for the annual Seattle area MATHCOUNTS competition and the Math Hour Olympiad.