

Curriculum Vitae, Brenton John LeMesurier

February 28, 2008

Education, Awards and Honours

- M.S., 1982, Ph.D., 1986, New York University, New York, New York.
Dissertation: *The focusing singularity of the nonlinear Schrödinger equation*
- B. Sc. (Honours), 1980, Australian National University, Canberra.

Employment

- Associate Professor, Department of Mathematics College of Charleston, Charleston since August 2004.
- Assistant Professor, Department of Mathematics College of Charleston, Charleston, January 1999 – August 2004.
- Visiting Assistant Professor, Department of Mathematics, College of Charleston, Charleston, August 1996 – December 1998.
- Visiting Researcher, Department of Mathematics, Case Western Reserve University, Cleveland, Spring 1996.
- Lecturer, Department of Mathematics, Australian National University, Canberra, Australia, 1993–1995.
- Research Fellow, Centre for Mathematics and its Applications, Australian National University, Canberra, Australia, October 1991 – December 92.
- Assistant Professor, University of Arizona, Tucson, Arizona, 1987–1991.
- Associate Research Scientist, Courant Institute of Mathematical Sciences, New York, New York, June–August 1987.
- Postdoctoral Research Associate, Rensselaer Polytechnic Institute, Troy, New York, September 1985–August 1987.
- Exxon Research and Engineering Company, Clinton, New Jersey, June 1984–May 1985, part time.

Teaching Experience and Related Activities at the College of Charleston

College of Charleston, Fall 1996 till present.

- Math 120: Introductory Calculus
- Math 220: Calculus 2
- Math 221: Calculus 3
- Math 245: Elementary Numerical Methods/Numerical Methods and Mathematical Computing.
- Math 246: Mathematical Computing and Programming Laboratory
- Math 545: Numerical Analysis 1
- Math 645: Numerical Analysis 2

Grants and Awards

- College of Charleston 4th Century Initiative Faculty-Student Summer Research Grant of \$5,000 (estimated) for work with student Barron Whitehead, summer 2003: *Numerical simulation of nonlinear wave focusing in media with random defects.*
- South Carolina Research Initiative Grant of \$24,700 for 2001: *Investigation of the stability of symmetric solutions to models of wave collapse and self-focusing in laser propagation, plasmas, and molecular vibration.*
- College of Charleston SSM and Department of Mathematics grant of \$1000 for curriculum development, summer 2000.
- College of Charleston Starter Grant of \$2,500 for the summer of 1999: *Sustained dissipation from self-focusing waves in plasmas.*
- Travel grant of \$1,000 from the Society for Industrial and Applied Mathematics, funded by the National Science Foundation, towards costs of attending and speaking at ICIAM99, the 1999 International Conference on Industrial and Applied Mathematics in Edinburgh, Scotland.

Recent Invited Talks, Conference Presentations, and Organizing Activities

- *Models and simulation of thermal effects on nonlinear pulse propagation in biopolymers: a discrete nonlinear Schrödinger equation with damping and stochastic driving of phase* on June 22 2007 at the *Nonlinear Evolution Equations and Dynamic Systems Workshop*, L'Ametlla de Mar, Spain.
- Minisymposium talk *NLS Related Models of Random and Nonlinear Effects in Wave Motion* on September 12 2006 at the *2006 SIAM Conference on Nonlinear Waves and Coherent Structures* at the University of Washington, Seattle Washington.
- Organized the minisymposium *NLS Related Models of Random and Nonlinear Effects in Wave Motion* at the above conference.
- *Modeling thermal effects on nonlinear wave motion in biopolymers by a discrete nonlinear Schrödinger equation with damping and stochastic driving* at the *AIMS Sixth International Conference on Dynamical Systems, Differential Equations and Applications* in Poitiers, France, June 25-28, 2006.
- Jointly organized, with Roberto Cammasa of UNC Chapel Hill, the special session *Stochastic evolution equations with spatial structure and applications, from micro to macro scales* at the above conference.
- *Modeling heat effects on nonlinear wave motion in (stiff, straight, stationary) DNA molecules: discrete nonlinear Schrödinger equations with damping and stochastic driving of the phase* at the conference *Fluids and Waves Recent Trends in Applied Analysis* at The University of Memphis, Memphis, Tennessee, 11 - 13 May 2006.
- Colloquium talk *Modeling and simulating self-focussing collapse of waves in thin molecular films: a discrete nonlinear Schrödinger equation with noise and damping in the phase* at the Department of Mathematics and Statistics, University of New Mexico, October 27, 2005.
- Attended and assisted the organization of the South Eastern Atlantic Mathematical Sciences SEAMS conference (SEAMS 2005, or “Cha-Cha Days”) at the University of North Carolina, Chapel Hill, September 23-25, 2005.
- Contributed talk *Wave collapse inhibition and enhancement by phase noise and damping in 2D nonlinear Schrödinger equations* at the conference *FPU+50: nonlinear waves fifty years after Fermi-Pasta-Ulam*, INSA de Rouen (France) June 21-25, 2005.

- Co-organized the 29th annual conference of the South Eastern Atlantic Section of the Society for Industrial and Applied Mathematics with Mei Q. Chen of The Citadel and Annalisa Calini, held at the Citadel and The College of Charleston, March 25-26, 2005.
- Contributed talk with Barron Whitehead, *Control of NLS self-focusing by linear perturbations: potentials and noise* at the SIAM conference on Nonlinear Waves and Coherent Structures, University of Central Florida, October 2004.

Selected publications

- [1] Brenton LeMesurier. Modeling thermal effects on nonlinear wave motion in biopolymers by a stochastic discrete nonlinear schrödinger equation with phase damping. *Discrete and Continuous Dynamic Systems Series S*, 1(2):317–327, June 2008.
- [2] Brenton LeMesurier and Barron Whitehead. Wave energy self-trapping by self-focusing in large molecular structures: a damped stochastic discrete nonlinear Schrödinger equation model. *Physica D*, 225(1):1–12, January 2007.
- [3] Brenton John LeMesurier, Peter Leth Christiansen, Yuri B. Gaididei, and Jens Juul Rasmussen. Beam stabilization in the 2D nonlinear Schrödinger equation with attractive potential by beam splitting and radiation. *Phys. Rev. E*, 70, 2004. 046614.
- [4] Peter Leth Christiansen, Yuri B. Gaididei, and Brenton John LeMesurier. Collapse control in an inhomogeneous nonlinear Schrödinger equation model. In Luis Vázquez, Robert S. MacKay, and Maria Paz Zorzano, editors, *Proceedings of “Localization and Energy Transfer in Nonlinear Systems”*, pages 28–43. World Scientific, 2003.
- [5] Brenton John LeMesurier and Peter Leth Christiansen. Regularisation and control of self-focusing in the 2D cubic Schrödinger equation by linear potentials. *Physica D*, 184:226–236, 2003.
- [6] Brenton John LeMesurier. Multi-focusing and sustained dissipation in the dissipative nonlinear Schrödinger equation. *Mathematics and Computers in Simulation*, 55:503–517, 2001.
- [7] Brenton John LeMesurier. Dissipation at singularities of the nonlinear Schrödinger equation through limits of regularisations. *Physica D*, 138:334–343, 2000.
- [8] Brenton John LeMesurier. Dynamic rescaling methods for simulating wave collapse in plasmas. In R.L. May and A.K. Easton, editors, *Computational Techniques and Applications: CTAC95*, pages 455–462. World Scientific, 1996.

- [9] Brenton John LeMesurier, George C. Papanicolaou, Catherine Sulem, and Pierre-Louis Sulem. Local structure of the self-focusing singularity of the nonlinear Schrödinger equation. *Physica D*, 32:210–226, 1988.
- [10] Brenton John LeMesurier, George C. Papanicolaou, Catherine Sulem, and Pierre-Louis Sulem. Focusing and multi-focusing solutions of the nonlinear Schrödinger equation. *Physica D*, 31:78–102, 1988.
- [11] Brenton John LeMesurier. *The focusing singularity of the nonlinear Schrödinger equation*. PhD thesis, New York University, 1986.