Roy H. Goodman

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Citizenship: US

CURRENT POSITION

1999-2001 Visiting Research Fellow at Princeton University and Bell Laboratories under the NSF University–Industry Cooperative Research Programs in the Mathematical Sciences

RESEARCH INTERESTS

Linear and nonlinear wave propagation, PDE.
Mathematical modelling and asymptotic analysis of physical systems.
Atmospheric fluid dynamics and wave phenomena.
Numerical Simulation.
Optics
Dynamical Systems

EDUCATION

PhD, 1999 Mathematics; **Courant Institute, NYU**, New York, NY
Advisor: David W. McLaughlin;
Thesis: Modulation Theories for Atmospheric flows and their leading edges
Relevant Coursework: Computational Fluid Mechanics, Linear and Nonlinear Waves in the Atmosphere and Ocean, Numerical Analysis, PDE, ODE, Dynamical Sytstems.

BS 1994 Mathematics (with highest honors) **University of Michigan**, Ann Arbor, MI

ADDITIONAL EDUCATION

1996, 1997 Summer School on Nonlinear Waves, Patterns, and Oscillations, Cork Ireland

TEACHING EXPERIENCE

Fall 1997 *Course Instructor,* Precalculus Mathematics, New York University
Summer 1997 *Teaching Assistant,* Summer School on Nonlinear Waves, Patterns, and Oscillations, Cork Ireland
Spring 1996 *Teaching Assistant,* Calculus I, New York University,
1995-97 *Organizer,* Graduate Introductory Lecture Series, Courant Institute

COMPUTATIONAL SKILLS

I have done extensive numerical computation and managed extremely large data sets using Fortran and Matlab, knowledgeable in C++.

PUBLICATIONS

Trigger waves in a model for catalysis (with D.S. Graff, L.M. Sander, P. Leroux-Hugon, & E. Clement), Phys. Rev. E. **52**, 1995, pp. 5904–5909.

Nonlinear propagation of light in one-dimensional periodic structures (with M.I. Weinstein and P.J. Holmes), Journal of Nonlinear Science, **11**, (2001), pp 123–168.

Modulations in leading edges of midlatitude storm tracks (with A.J. Majda, and D.W. McLaughlin) submitted to SIAM Journal on Applied Mathematics.

Interaction of sine-Gordon kinks with defects: Phase space transport in a two-mode model (with P.J. Holmes and M.I. Weinstein), submitted to Physica D.

CONFERENCE PRESENTATIONS

Nonlinear waves in periodic structures and fiber optics Nonlinear Analysis in 2000 and beyond, New York University, 2000

A model for downstream development in variable media 12th Conference on Atmospheric and Oceanic Fluid Dynamics, Columbia University, 1999

Waves and fluctuations in a model for catalysys (presented by D. Graff) 1994 March Meeting of the American Physical Society, Pittsburgh, PA, 1994

FELLOWSHIPS & AWARDS

1999-2001	NSF University-Industry Cooperative Research Fellowship
1997-99	New York University McCracken Fellowship
1994-97	AFOSR National Defense Science and Engineering Graduate Fellowship

PATENTS

Apparatus for confinement of optical pulses, with M. Weinstein and R. Slusher, submitted 2001.

REFERENCES

Prof. David W. McLaughlin
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