Curriculum Vitae - Judith R. Miller

Department of Mathematics and Statistics
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EDUCATION

University of Michigan 9/89-6/94
Ph.D in Mathematics
Major area: Partial differential equations
Dissertation: *Asymptotic stability of solitary waves for the Regularized Long Wave equation*
Advisor: Michael I. Weinstein

Harvard University 9/85-6/89
A.B. in Mathematics, *cum laude* in general studies
Phi Beta Kappa

POSITIONS HELD

Georgetown University
Associate Professor 8/03-present
Assistant Professor 8/97-7/03

Simon Fraser University 9/95-7/97
Assistant Professor (limited term)

Courant Institute of Mathematical Sciences, 9/94-6/95
New York University
Visiting Member

University of Michigan 9/92-4/93
Teaching Assistant

VISITING POSITIONS (while on sabbatical leave from Georgetown University)

Université de Bordeaux II Victor Segalen/ 8/11-present
Institut de Mathématiques de Bordeaux
Visiting Member

University of British Columbia 1/04-5/04
Visiting Assistant Professor

FELLOWSHIPS HELD

Project NExT (New Experiences in Teaching) fellowship 7/97-7/98
Sponsor: Mathematical Association of America

Alfred P. Sloan Foundation doctoral dissertation fellowship 9/93-6/94
(Also awarded University of Michigan
Rackham predoctoral fellowship)

PUBLICATIONS

Refereed journal articles:

J.R. Miller and H. Zeng, *Stability of traveling waves for systems of nonlinear integral recursions in spatial population biology.* Discrete and Continuous Dynamical Systems B 16 (2011), 895–925.

E. Andjel, J.R. Miller, and E. Pardoux, *Survival of a single mutant in one dimension*. Electronic Journal of Probability 15 (2010), 386–408.

J.R. Miller, *Survival of mutations arising during invasions*. Evolutionary Applications 3 (2010), 109–121.

J.R. Miller, B.P. Wood, and M.B. Hamilton, *Fst and Qst under neutrality.* Genetics 180 (2008), 1023–1037.

S. Rottenstreich, J.R., Miller, and M.B. Hamilton, *Dynamics of Fst for the island model*, Theoretical Population Biology 72 (2007), 485-503.

S. Rottenstreich, J.R. Miller, and M.B. Hamilton, *Steady State of Homozygosity and G_{st} for the Island Model*, Theoretical Population Biology 72 (2007), 231-244.

B.P. Wood and J.R. Miller, *Linked selected and neutral loci in heterogeneous environments*, Journal of Mathematical Biology 53 (2006), 939–975.

J.R. Miller and M. O'Leary, *A diffusion model in population genetics with dynamic fitness*, Journal of Differential Equations 225 (2006), 465-512.

J.R. Miller, M.C. Pugh and M.B. Hamilton, *A finite locus effect diffusion model for the evolution of a quantitative trait*, Journal of Mathematical Biology 52 (2006), 761-787

J.R. Miller and D. Hawthorne, *Durability of marker-quantitative trait loci haplotypes in structured populations*, Genetics 171 (2005), 1353-1364.

H. Fan, S. Jin and J.R. Miller, *Wave patterns, stability and slow motions in inviscid and viscous hyperbolic equations with stiff reaction terms*, Journal of Differential Equations 189 (2003), 267-291.

PUBLICATIONS (Refereed journal articles) (cont.)

M.B. Hamilton and J.R. Miller, *Comparing relative rates of pollen and seed gene flow in the island model using nuclear and organelle measures of population structure*, Genetics 162 (2002), 1897-1909.

A. Iosevich and J.R. Miller, *Dispersive effects in a modified Kuramoto-Sivashinsky equation*, Communications in Partial Differential Equations, 27 (2002), pp 2423-2448.

J.R. Miller, M. O'Leary and M. Schonbek, *Nonexistence of singular pseudo-self-similar solutions to the Navier-Stokes system*. Mathematische Annalen 319 (2001), pp 809-815.

J. Goodman and J.R. Miller, *Long-time Behavior of Scalar Viscous Shock Fronts in Two Dimensions.* Journal of Dynamics and Differential Equations, 11 (1999), no.2, 255-277.

J.R. Miller, *Spectral Properties and Time Decay for an Airy Operator with Potential*. Journal of Differential Equations 141 (1997), 102-121.

J.R. Miller and M.I. Weinstein, *Asymptotic stability of solitary waves for the Regularized Long Wave equation.* Communications on Pure and Applied Mathematics 49 (1996), 399-441.

Refereed proceedings:

J.R. Miller, *Stability properties of solitary waves in a complex modified KdV System*. Mathematics and Computers in Simulation 55 (2001), 557-565.

J.R., Miller, *The dispersive regime in a modified Kuramoto-Sivashinsky system*, in: Proceedings of the Fifth International Conference on Mathematical and Numerical Aspects of Wave Propagation, Santiago de Compostela, Spain, July 10-14, 2000. Philadelphia: Society for Industrial and Applied Mathematics, 2000, pp. 350-353.

In review:

J.R. Miller and H. Zeng, *Non-Allee thresholds, expansion hysteresis and lag times in the evolution of a species' range.*

J.R. Miller and H. Zeng, *Multidimensional stability of planar traveling waves for an integrodifference model.*

H. Zeng and J.R. Miller, *Range limits in spatially explicit models of quantitative traits.*

GRANTS AWARDED

External funding

National Science Foundation
Mathematical Biology Research Grant DMS-0818727 — 8/08-present
($334,999 over three years). Principal investigator.

National Science Foundation/National Institutes of Health — 6/02-5/08
Joint Division of Mathematical Sciences/
National Institute of General Medical Sciences Initiative in
Mathematical Biology Research Grant DMS-0201173
($608,180 over five years). Principal investigator (PI).
Co-PI: Matthew Hamilton.

National Science Foundation — 8/98-6/02
Applied Mathematics Research Grant DMS-9804814
($76,571 over three years). Principal investigator.

Travel award, Association for Women in Mathematics — 1/94
Poster presentation, workshop in conjunction with
AMS-MAA Joint Meeting, Cincinnati, Ohio

U.S. Department of Education/ — 9/89-8/92
Rackham School of Graduate Studies graduate fellowship

Internal funding

Georgetown International Collaborative research grant ($1700) — 9/02-6/03

College Dean's Discretionary Funding — 6/01
Expenses ($1320) of participation in Statistical
Genetics Institute, North Carolina State University

Noncompetitive Grant-in-Aid (Graduate School) — 6/01
Expenses ($300) of participation in Statistical
Genetics Institute, North Carolina State University

Georgetown University Summer Academic Grant — 6/98-7/98

COURSES TAUGHT

Calculus
Probability and Statistics
Carried out major revision of this course (2000-2001),
introducing essential topics and computer use
Multivariable Calculus

Courses taught (cont.)

Numerical Analysis
Ordinary Differential Equations
Linear Algebra
Fourier series/PDE
Nonlinear Ordinary Differential Equations
Mathematical Biology

Supervision of independent study and honors thesis students
Calculus of Variations
Bifurcations and Stability (graduate course)

INVITED PRESENTATIONS (since 2002; complete list available upon request)

Workshop on Stochastic Processes in Cell and Population Biology 10/11
Mathematical Biosciences Institute, Ohio State University,
Columbus, Ohio, USA

Institut de Mathematiques, University of Bordeaux, France 6/10
Colloquium

Workshop on Synthesizing Ecology and Evolution for the Study of Invasive Species, 3/09
Lake Tahoe, California

Erwin Schrödinger Institute Workshop on Frontiers in Mathematical Biology, 4/08
University of Vienna, Austria

2007-2008 Dickinson lecture, Smith College 3/08

Population genetics working seminar, University of Marseille, France 10/07

11th Evolutionary Biology Meeting at Marseilles, Marseille, France 9/07

Howard University 4/07
Mathematics Colloquium

European Science Foundation Workshop on Adaptive vs. neutral genetic variability in conservation genetics, Tvärminne, Finland 1/07

Minisymposium on Bifurcations and Stability of Nonlinear Waves, 9/06
SIAM Conference on Nonlinear Waves and Coherent Structures,
Seattle, Washington

INVITED PRESENTATIONS (cont.)

George Washington University Summer Program for Women in Mathematics (career panel participant)	7/00, 7/04, 7/05, 7/07
University of British Columbia Mathematical Biology Seminar	2/04
University of British Columbia SOWD joint lab meeting	4/04
SIAM Conference on Applications of Dynamical Systems Snowbird, Utah (minisymposium speaker)	5/03
University of Toronto Applied Mathematics seminar Graduate student seminar	6/02
Special Session on Hyperbolic Systems of Conservation Laws and Related Problems, Fourth International Conference on Dynamical Systems and Differential Equations, Wilmington, North Carolina	5/02

CONTRIBUTED PRESENTATIONS (since 2002; complete list available upon request)

Workshop on Selection in Population Genetics, Paris, France (poster)	12/11
CMPD 3: Conference on Computational and Mathematical Population Dynamics, Bordeaux, France	5/10
Frontiers in Mathematical Biology: NSF-NIH PIs Meeting, College Park, Maryland (poster)	4/10
Frontiers in Applied and Computational Mathematics, Newark, New Jersey (poster)	5/08
CNRS Jacques Monod Conference on Evolutionary Genomics, Roscoff, France (competitive application process)	5/07
SIAM/SMB Conference on the Life Sciences, Raleigh, North Carolina (poster)	8/06
Yellow Pig Mathematics Days, Amherst, Massachusetts	7/06
Evolution Meetings, Stony Brook, New York	6/06

Contributed Presentations (cont.)

Evolution Meetings, Fairbanks, Alaska 6/05

Mississippi State/ University of Alabama at Birmingham Conference on Differential Equations and Computational Simulations, Starkville, Mississippi 5/05

Gordon Conference on Theoretical Biology and Biomathematics (poster) 6/04

International Conference on Differential and Functional Differential Equations (ICM satellite), Moscow, Russia 8/02

Society for Mathematical Biology Annual Meeting, Knoxville, Tennessee 7/02

WORKSHOP AND MEETING PARTICIPATION

Workshop on Ecology and Control of Invasive Species, Mathematical Biosciences Institute, Columbus, Ohio 2/11
Invited participant; lodging paid by MBI

American Institute of Mathematics Workshop on Stochastic and Deterministic Spatial Modeling in Population Dynamics, Palo Alto, California 5/09
Invited participant; all expenses paid by AIM

Joint Mathematics Meetings, Washington DC 1/09

Park City Mathematics Institute (Institute for Advanced Study/ University of Utah) 6-7/05
Invited participant

Workshop on "Macroscopic Organisation from Microscopic Behavior in Immunology, Ecology and Epidemiology", Newton Institute for Mathematical Sciences, Cambridge England 12/01
Invited participant

"Nonlinear Analysis 2000", Courant Institute/New York University 6/00
Invited participant

Project NExT (New Experiences in Teaching) Workshops, Mathematical Association of America Summer Meeting and Joint Mathematical Meetings 7/97-7/98
(part of year-long activities as a Project NExT Fellow; meeting fees paid by Mathematical Association of America)

Workshop and meeting participation (cont.)

"Recent Advances in the Stability Theory for Nonlinear Waves" 5/98
Little Compton, Rhode Island

IAS- Park City Mathematics Institute 7/95
Summer Program in Nonlinear Waves, Park City, Utah
Also an invited participant in pre-program for women students and researchers,
Institute for Advanced Study, Princeton, New Jersey, 5/95

AMS-SIAM Summer Seminar in Dynamical Systems and 6-7/94
Probabilistic Methods for Nonlinear Waves, MSRI, Berkeley, California

SERVICE

Georgetown University

Faculty Senate	8/08-present
Mathematics Teaching Merit Review Policy Committee	8/08-present
Mathematics Learning Objectives Committee	10/09-present
Graduate School academic misconduct hearing panelist	2008/09
Davis Chair lecture organizer	2008/09
Committee on the Masters program in Mathematics and Statistics	9/02-6/03, 6/05-5/07
Mathematics Masters degree admission committee	9/05-present
Mathematics Merit Review Committee	2005,2009
Mathematics Hiring Committee	11/02-4/03, 11/01-4/02, 11/02-4/03
Bioinformatics Task Force	3/02-9/02
Executive Faculty Merit Review Committee	9/01-9/03
Mathematics Curriculum Committee	9/01-5/02
Mathematics Web Site manager	1/99-5/02
Women's Studies Advisory Board member	10/98-5/01
Poster presenter, Georgetown Science Fair	10/99

REFEREE SERVICE

Applied Numerical Mathematics
Communications on Pure and Applied Mathematics
Contemporary Mathematics (AMS Special Session Proceedings)
Discrete and Continuous Dynamical Systems
European Journal of Applied Mathematics
Genetics
Indiana University Mathematics Journal
International Journal of Mathematics and Mathematical Sciences
Journal of Differential Equations
Journal of Mathematical Analysis and Applications

Referee Service (cont.)

Journal of Mathematical Biology
MapleTech
Molecular Ecology Resources
National Science Foundation (panelist and mail reviewer)
Nonlinear Analysis: Real World Applications
Royal Society of Edinburgh Proceedings A
Theoretical Ecology

EDUCATIONAL SUPPLEMENT

Statistical Genetics Institute, North Carolina State University 6/03, 6/01

Course on Survey Sampling Theory 6-8/00
Joint Program in Survey Methodology, College Park, Maryland

Institute for Mathematics and Applications 7-8/92
Graduate Summer School in Differential Equations, Indiana University, Bloomington, Indiana

MEMBERSHIPS

American Mathematical Society
Mathematical Association of America
Society for Industrial and Applied Mathematics
Society for Mathematical Biology
Association for Women in Mathematics