Lyubov G. Chumakova, Ph. D.

ADDRESS

Department of Mathematics
Massachusetts Institute of Technology
77 Massachusetts ave, Room 2-376
Cambridge, MA 02140

Office phone: (617) 253-5013
Cell phone: (917) 843-7753
Email: lyuba@math.mit.edu
URL: http://math.mit.edu/~lyuba

POSITIONS

2010-present	Instructor in Applied Mathematics, Massachusetts Institute of Technology (MIT)
2009-2012	NSF postdoctoral research fellow, MIT
Summer 2006	Summer research intern, Los Alamos National Lab, *Adviser*: Susan Kurien

EDUCATION

2004-2009	Ph.D. Mathematics, September 2009 Courant Institute of Mathematical Sciences, New York University (NYU) Center for Atmosphere Ocean Science (CAOS) *Thesis*: Simple waves: Shear instability and eigenvalue crossings *Adviser*: Prof. Esteban G. Tabak,
2001-2004	B.S. in Applied Mathematics, Engineering and Physics (AMEP) University of Wisconsin-Madison (UWM)
1998-2000	Undergraduate student, Department of Mathematics and Mechanics Novosibirsk State University, Novosibirsk, Russia

RESEARCH INTERESTS

Applied mathematics, Geophysical fluid dynamics, Linear and nonlinear waves, Locomotion of microswimmers, Dynamical systems, Numerical methods

GRANTS

2009-2012	NSF PostDoctoral Research Fellowship, NSF DMS-0903008

AWARDS

2008	Sandra Bleistein Prize for notable achievement in applied mathematics, NYU
2004-2009	Henry MacCracken Fellowship, NYU Graduate School of Arts and Sciences
2004	AMEP leadership prize, UWM
2004	Gold medal for undergraduate paper (research project at the University of Campinas, UNICAMP, Brazil), Institute of Pure and Applied Mathematics, Brazil

TEACHING

2010, 2012	Course Instructor, *Nonlinear dynamics 1: Chaos* (MIT 2.050J / 12.006J / 18.353J)
2010, 2011	Recitations: *Ordinary differential equations* (MIT. 18.03)
2006-2009	Course instructor: *Linear Algebra, Calculus 1, 3, Elementary Statistics,* NYU
2004-2006	Recitations: *Business Calculus, Calculus 1, Quantitative reasoning,* NYU
2010	Lecturer at IAP (Winter-break lecture series at MIT)
2006-2008	Lecturer at cSplash (Series on mathematics at NYU for high school students)

SEMINARS

Dec 2009	Physical Mathematics Seminar, MIT ``*Shear Instability for Stratified Flows and a note on Avoidance of Crossings*"
Feb 2012	Atmosphere Ocean Science Colloquium, NYU ``*Leaky rigid lid: new dissipative modes in the atmosphere*"

PAPERS

L. Chumakova, R. R. Rosales, E. G. Tabak
Leaky rigid lid: new dissipative modes in the troposphere. Part II: f-plane
(in preparation)

L. Chumakova, W. M. Durham, R. Stocker
Gyrotaxis in a steady vortical flow: dynamical systems approach
(in preparation)

G. A. Chumakov, L. G. Chumakova, N. A. Chumakova
Homoclinic Chaos in a Kinetic Model of Heterogeneous Catalytic Reaction
Under revision in J. of Math. and Com. in Simulation

L. Chumakova, R. R. Rosales, E. G. Tabak
Leaky rigid lid: new dissipative modes in the troposphere
To appear in J. Atmos. Sci.

L. Chumakova, E. G. Tabak
Simple waves do not avoid eigenvalue crossing
Comm. Pure and Appl. Math, **63**(1), 119-132, 2010

L. Chumakova, F. Menzaque, P. A. Milewski, R. R. Rosales, E. G. Tabak, C. V. Turner
Shear stability for stratified hydrostatic flows
Comm. Pure and Appl. Math, **62**(2), 183-197, 2009

L. Chumakova, F. Menzaque, P. A. Milewski, R. R. Rosales, E. G. Tabak, C. V. Turner
Stability properties and nonlinear mappings of two and three-layer stratified flows
Studies in Appl. Math., **122**(2), 123-137, 2009

A. Bronzi, L. Chumakova, W. Assuncao
Symmetry breaking for optimal periodic composite membranes (in Portuguese)
Atas das jornadas de Iniciacao Cientifica, IMPA, Rio de Janeiro, 2005

N. A. Chumakova, L. G. Chumakova, A. V. Kiseleva, G. A. Chumakov
Computation of periodic orbits in a three-dimensional kinetic model of catalytic hydrogen oxidation
Selcuk J. of Appl. Math, vol. 3, No. 1, pp. 3-20, 2002
http://www.sumam.selcuk.edu.tr/sjam023101.html

CONF. PROC.

G. A. Chumakov, L. G. Chumakova
Localization of the trajectory bundles of tunnel type
AIP Conf. Proc. 1389, pp. 1116-1119, 2011

REFERENCES

Rodolfo R. Rosales
Professor of Mathematics
Massachusetts Institute of Technology
rrr@math.mit.edu

Paul A. Milewski
Professor of Mathematics
University of Bath, England
p.a.milewski@bath.ac.uk

Esteban G. Tabak
Professor of Mathematics
Courant Institute of Mathematical Sciences
tabak@cims.nyu.edu