

## CURRICULUM VITAE

# Maria K. Cameron

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Department of Mathematics  
Courant Institute of Mathematical Science  
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## EDUCATION

University of California, Berkeley Berkeley, 2007  
Ph. D. in Applied Mathematics  
Advisor: Professor James Sethian  
Dissertation: *Seismic Velocity Estimation from Time Migration Velocities*

Moscow Institute of Physics and Technology, Russia, 1998  
M.S. in Applied Mathematics and Physics, with Honors

## POSITIONS

New York University, *Courant Instructor* 2007 - present

University of California, Berkeley, *GSR, Graduate Fellow, GSI* 2001 - 2007

The Pennsylvania State University, *Graduate Fellow, GSI* 2000 - 2001

Moscow State University, Russia *Graduate Student* 1998–2000

## RESEARCH INTERESTS

1. Applied Stochastic Processes, Dynamical Systems, Methods for the study of Rare Events
2. PDE, Geophysics, Numerical Analysis, Inverse and Ill-Posed Problems

## PUBLICATIONS

1. *The MaxFlux Functional: Derivation, Numerics, and Application to the 38-Lennard-Jones Cluster*,  
M. Cameron, R.Kohn, and E. Vanden-Eijnden, *J. Comp. Phys.*, *in preparation*
2. *Revisiting the MaxFlux Functional with application to Lennard-Jones-38*,  
M. Cameron and E. Vanden-Eijnden, *J. Chem. Phys.*, *about to be submitted*
3. *The String Method as a Dynamical System*,  
Maria Cameron, Robert Kohn, and Eric Vanden-Eijnden, *Journal of Nonlinear Science*,  
*under review*
4. *Analysis and Algorithms for a Regularized Cauchy Problem arising from a Non-Linear Elliptic PDE for Seismic Velocity Estimation*,  
Cameron, M.K., Fomel, S., Sethian, J.A., *J. Comp. Phys.*, **228**, pp.7388-7411, 2009

5. *Time-to-depth conversion and seismic velocity estimation using time-migration velocity*,  
Cameron, M.K., Fomel, S., Sethian, J.A., Geophysics, **73**, VE205, 2008
6. *Inverse Problem in Seismic Imaging*,  
Cameron, M.K., Fomel, S., Sethian, PAMM, **7**, Issue 1, pp. 1024803-1024804, 2007
7. *Seismic Velocity Estimation from Time Migration*,  
Maria K. Cameron, Ph.D. Thesis, ProQuest, UC Berkeley, 2007
8. *Seismic Velocity Estimation from Time Migration*,  
Cameron, M. K., Fomel, S. B., Sethian, J. A., Inverse Problems, **23**, pp. 1329-1369, 2007
9. *Seismic velocity estimation and time-to-depth conversion of time-migrated images*,  
Maria Cameron\*, UC Berkeley; Sergey Fomel, UT Austin; James Sethian, UC Berkeley,  
SEG/New Orleans 2006 Technical Program Online (SVIP 1.7)  
<http://abstracts.seg.org/techprog.cfm?pMeetingID=3>

## MENTORING

Shunxin Jiang, senior year undergraduate student, NYU

Arnav Chakravarty, junior year undergraduate student, NYU

## TEACHING

New York University	2007
Fall 2009: REAL VARIABLES (graduate)	
Spring 2009: PDE	
Fall 2008: ALGEBRA AND CALCULUS	
Spring 2008: STATISTICS I	
Fall 2007: CALCULUS I	
University of California, Berkeley	2005, 2006
Spring 2006: TA for course LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS	
Spring 2005: TA for graduate course METHODS OF APPLIED MATHEMATICS	
The Pennsylvania State University	2001
Summer 2001: DIFFERENTIAL EQUATIONS	
Moscow State University, Russia	1999
Spring 1999: TA for course ABSTRACT ALGEBRA	
Phystech College, Russia	1996-2000
Instructor for additional advanced math classes for high school students	

## AWARDS

The paper <i>Seismic Velocity Estimation from Time Migration</i> was selected for the highlights of 2007 by the journal Inverse Problems	2008
NSF Postdoctoral Fellowship	2007
Friedman Prize, UC Berkeley	2007

## TALKS

NJIT	October 2009
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Analysis of methods for the study of rare events and transition paths	
Columbia University	October 2009
Analysis of methods for the study of rare events and transition paths	
SIAM Geosciences, Leipzig, Germany	June 2009
Analysis and Algorithms for a Regularized Cauchy Problem arising from a Non-Linear Elliptic PDE for Seismic Velocity Estimation	
IMA Workshop: Molecular Simulations: Algorithms, Analysis, and Applications	May 2009
The string Method as a Dynamical system (poster)	
SIAM, San Diego	July 2008
Inverse Problem in Seismic Imaging	
FACM, NJIT	May 2008
Inverse Problem in Seismic Imaging	
University of Texas, Austin	March, 2008
Seismic Velocity Estimation from Time Migration	
Texas A and M University	March, 2008
Seismic Velocity Estimation from Time Migration	
Rensselaer Politechnic Institute	February, 2008
Seismic Velocity Estimation from Time Migration	
ICIAM	Zürich, 2007
Inverse Problem in Seismic Imaging	
SEG	New Orleans, 2006
Seismic Velocity Estimation and Time to Depth Conversion of Time-Migrated Images	

## REFERENCES

- Robert Kohn, Professor of Mathematics, New York University  
Eric Vanden-Einden, Professor of Mathematics, New York University  
James Sethian, Professor of Mathematics, U. C. Berkeley  
Sergey Fomel, Associate Professor, Dept. of Geophysics, U. T. Austin