

**Russel E. Caflisch**  
**Resume**

**Address:** IPAM  
UCLA  
Los Angeles, CA 90095-7121

**Tel:** 310-983-3297  
**Fax:** 310-825-4756  
**Email:** [caflisch@math.ucla.edu](mailto:caflisch@math.ucla.edu)  
**URL:** <http://www.math.ucla.edu/~caflisch>

**Education**

Ph.D., Mathematics, Courant Institute of Math Sciences, NYU, June 1978  
M.S., Mathematics, Courant Institute of Math Sciences, NYU, February 1977  
B.S., Mathematics, Michigan State University, June 1975

**Awards & Honors**

Fellow, American Mathematical Society, 2013-present  
Fellow, American Academy of Arts & Sciences, 2012-present  
Fellow, Society for Industrial & Applied Mathematics (SIAM), 2009-present  
Invited Lecturer, SIAM National Meeting, Denver, 2009  
Invited Lecturer, International Congress of Mathematicians, Madrid 2006  
Alfred P. Sloan Research Fellow, 1984-1989  
Hertz Foundation Graduate Fellow, 1975-1978

**Professional Experience**

2008-present, Director, Institute for Pure and Applied Mathematics (IPAM)  
1989-present, Professor, Mathematics Department, UCLA  
2001-present, Founding Member, California NanoSystems Institute (CNSI), UCLA  
2002-present, Professor, Materials Science & Engineering Department, UCLA  
1988-1989, Professor, Courant Institute of Mathematical Sciences, NYU  
1984-1988, Associate Professor, Courant Institute of Mathematical Sciences, NYU  
1984-1984, Assistant Professor, Courant Institute of Mathematical Sciences, NYU  
1979-1982, Assistant Professor, Department of Mathematics, Stanford University  
1978-1979, Visiting Member, Courant Institute of Mathematical Sciences, NYU

**Editorial Board Member:**

Multiscale Modeling and Simulation  
Editor-in-Chief, Multiscale Modeling and Simulation 2008-2013  
SIAM News Editorial Board  
Mathematical Analysis and Applications  
European Journal of Applied Mathematics  
Mathematical Research Letters

**Synergistic Activities**

Co-Chair, Org. Comm., IPAM Prog. on Multiscale Methods (fall 2005)  
Board of Trustees, Institute for Pure and Applied Mathematics (IPAM) (2003-2006)  
Scientific Board, American Institute of Math. (AIM) Research Conf. Center (2002-2006)  
Information Technology Planning Board, UCLA (2004-present)  
Chair, IT Infrastructure Committee, California NanoSystems Institute (CNSI) (2000-2004)  
Org. Comm., SIAM Conference on Mathematical Aspects of Materials Science (2004)  
Chair, Org. Comm., IPAM Prog. on Math. and Nanoscale Science and Eng. (2002)  
PI, Virtual Integrated Prototyp. for Epitaxial Growth, UCLA/Hughes Res. Labs (1997-2000)  
Chair, Research Computing Committee, Div. Phys. Science, UCLA (1994-present)  
NATO Workshop on Singularities in Fluids, Plasmas and Optics, co-Director (1992)  
Future Carrier Technology Study, Naval Studies Board, National Acad. of Sciences (1990)  
PI, URI Center for Analysis of Heterogeneous and Nonlinear Media, NYU (1986-1989)  
NSF Postdoctoral Fellowship Selection Committee (1987-1989)

Defense Science Study Group, Institute for Defense Analyses (1985-1988)

### **Selected Relevant Publications**

1. R.E. Caflisch, "Monte Carlo and Quasi-Monte Carlo Methods" Acta Num. (1998) 1-49.
2. L. Pareschi and R.E. Caflisch, "An implicit Monte Carlo method for rarefied gas dynamics", J. Comput. Phys., 154 (1999). 90-116.
3. R.E. Caflisch, C. Wang, Giacomo Dimarco, B. Cohen and A. Dimits, "A Hybrid Method for Accelerated Simulation of Coulomb Collisions in a Plasma" Multiscale Model. Sim., 7 (2008) 865-887.
4. Y. Sun, R.E. Caflisch, and B. Engquist, "A Multiscale Method for Epitaxial Growth" Multiscale Model. Simul. 9 (2011) pp. 335-354
5. H. Schaeffer, S.J. Osher, R.E. Caflisch and C. Hauck "Sparse Dynamics for Partial Differential Equations" Proc. NAS (2012) submitted.

### **Other Selected Publications**

1. R.E. Caflisch, "The Fluid Dynamic Limit of the Nonlinear Boltzmann Equation," Comm. Pure Appl. Math., 33 (1980), pp. 651-666.
2. R.E. Caflisch and O. Orellana "Singularity Formation and Ill-Posedness for Vortex Sheets" SIAM J. Math. Anal. 20 (1989) 293-307.
3. R.E. Caflisch, W. Morkoff and A. Owen "Valuation of Mortgage Backed Securities Using Brownian bridges to reduce effective dimension" J. Computational Finance, 1 (1997) 27-46.
4. R.E. Caflisch, M. Gyure, B. Merriman, S.J. Osher, C. Ratsch, D. Vvedensky and J. Zinck, "Island dynamics and the level set method for epitaxial growth" Appl. Math. Lett. 12 (1999) 13-22.
5. A.C. Schindler, M. F. Gyure, D. D. Vvedensky, R.E. Caflisch, C. Connell and G. D. Simms. "Theory of Strain Relaxation in Heteroepitaxial Systems" Phys. Rev. B 67, 075316 (2003).

**Collaborators (over last 4 years):** Chris Anderson (UCLA), Jean-Luc Cambier (AFRL), Bruce Cohen (LLNL), Andrew Christlieb (Michigan State U), Giacomo Dimarco (U Ferrara), Andris Dimits (LLNL), Bjorn Engquist (U Texas), Cory Hauck (ORNL), M.C. Lombardo (U Palermo), John Luginsland (AFOSR), Dio Margetis (U Md), Stan Osher (UCLA), Paul Patrone (U Maryland), Lorenzo Pareschi (U Ferrara), Allon Percus (Claremont Grad School), Christian Ratsch (UCLA), M. Sammartino (U Palermo), Hayden Schaeffer (UCLA), Michael Siegel NJIT), Dimitri Vvedensky (Imperial College), Kang Wang (UCLA), Yang Wang (Brevan Howard Hong Kong).

**Postdoctoral Advisees (over last 5 years):** Young-Ju Lee (Rutgers), Mark Rosin (UCLA), Raffaele Vardavas (Rand), Richard Wang (UCLA), Bokai Yan (UCLA).

**Graduate Advisees (over last 5 years):** Farzin Barekat (UCLA), Xiaobin Niu (U Connecticut), Lee Ricketson (UCLA), Hem Wadhar (Intel), Yang Wang (Brevan Howard Hong Kong).

**Graduate Advisors:** George Papanicolaou (Stanford)

**Postdoctoral Advisors:** Joseph Keller (Stanford)