

## AARON L. FOGELSON

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### EDUCATION

Ph.D. (1982), M.Sc. (1979) Mathematics, Courant Institute, New York University  
B.A. (1977) Mathematics, Wesleyan University

### PROFESSIONAL EXPERIENCE

1994- Professor, Department of Mathematics, University of Utah  
2000- Adjunct Professor, Bioengineering, University of Utah  
1989-94 Associate Professor, Department of Mathematics, University of Utah  
1985-89 Assistant Professor, Department of Mathematics, University of Utah  
1992-93 Visiting Associate Professor, University of Washington  
1989 Visiting Member, Courant Institute, New York University  
1985-86 Associate Research Scientist, Courant Institute, New York University  
1982-84 NSF Postdoctoral Fellow, University of California, Berkeley  
1983-85 Lecturer, University of California, Berkeley

### ACADEMIC HONORS AND GRANTS (selected)

1976 Phi Beta Kappa  
1977 Summa Cum Laude  
1979-82 SIAM Institute of Mathematics for Society (SIMS) Fellowship  
1982-84 NSF Postdoctoral Fellowship  
1987-91 Alfred P. Sloan Research Fellowship  
1985-2001 NSF Research Grants  
1999 University of Utah Faculty Fellow Award  
1999-2000 John Simon Guggenheim Fellowship

### FIVE MOST RELATED PUBLICATIONS

Aaron Fogelson and Charles S. Peskin, 'A Fast Numerical Method for Solving the Three-dimensional Stokes' Equations in the Presence of Suspended Particles,' *J. Comput. Phys.*, 79(1988), 50-69.

Aaron Fogelson, 'Continuum Models of Platelet Aggregation: Formulation and Mechanical Properties', *SIAM Journal on Applied Mathematics*, 52(1992), 1089-1110.

Robert Dillon, Lisa Fauci, Aaron Fogelson, and Donald Gaver, 'Modeling Biofilm Processes Using the Immersed Boundary Method', *Journal of Computational Physics*, (129)(1996), 57-73.

Daniel Grunbaum, David Eyre, and Aaron Fogelson, 'Functional geometry of ciliated tentacular arrays in active suspension feeders', *Journal of Experimental Biology*, 201, (1998), 2575-2589.

Nien-Tzu Wang and Aaron Fogelson, 'Computational Methods for Continuum Models of Platelet Aggregation', *Journal on Computational Physics*, 151, (1999), 649-675.

### FIVE OTHER PUBLICATIONS

Aaron Fogelson 'A Mathematical Model and Numerical Method for Studying Platelet Adhesion and Aggregation During Blood Clotting,' *J. Comput. Phys.*, 56(1984), 111-134.

Lisa Fauci and Aaron Fogelson, 'Truncated Newton Methods and the Modeling of Complex Immersed Elastic Structures', *Communications on Pure and Applied Mathematics*, (46)(1993), 787-818.

Aaron Fogelson, 'Continuum Models of Platelet Aggregation: Mechanical Properties and Chemically-induced Phase Transitions,' *Fluid Dynamics in Biology*, (A.Y. Cheer and C.P. van Dam, Eds.), Contemporary Mathematics Series, American Mathematical Society, Providence, RI, 1993.

Aaron Fogelson and Andrew Kuharsky, 'Membrane Binding-site Density Can Modulate Activation Thresholds in Enzyme Systems', *Journal of Theoretical Biology*, 193, (1998), 1-18.

Aaron Fogelson and James Keener, 'Immersed Interface Methods for Neumann and Related Problems in Two and Three Dimensions', to appear *SIAM J. Sci. Comput.*.

#### **Software Developed:**

1. Tamar Schlick and Aaron Fogelson, 'TNPACK - A Truncated Newton Minimization Package for Large-Scale Problems: I. Algorithm and Usage'. *ACM Trans. on Math. Software*, 18(1992), 46-70.
2. Aaron Fogelson and David Eyre, 'IBIS: Immersed Boundary and Interface Software Package'  
<http://www.math.utah.edu/IBIS>

#### **Professional Activities (Selected):**

##### **Ph.D. Thesis Advisor for:**

- Nien-Tzu Wang, June 1997, Computational Methods for Continuum Models of Platelet Aggregation
- Andrew Kuharsky, September 1998, Mathematical Modeling of Blood Coagulation
- Haoyu Yu, December 1999, Three-dimensional Computational Modeling and Simulation of Platelet Aggregation on Parallel Computers
- Chung-Seon Yi, The Role of Interstitial Flow Disruptions and Heterogeneity in Cardiac Arrhythmogenesis.
- Robert Guy, Interplatelet Binding Dynamics.

##### **M.Sc. Thesis Advisor for:**

- Elijah Newren, September 1998, Multilevel Distributed-Memory Solutions of Poisson's Equation

##### **Post-Doctoral Advisor for:**

- David Eyre, Nien-Tzu Wang

##### **Organizer or co-organizer of:**

- Session on Biofluid Dynamics, Gordon Research Conference on Theoretical and Mathematical Biology, June 1996;
- Minisymposium on Biofluid Dynamics, Univ. Utah, May 1996;
- Session 'Mathematical Models in Biomedical Research', BMES Annual Meeting, Memphis State Univ., October 1993;
- Biological Fluid Dynamics Workshop, Pittsburgh Supercomputing Center, July 1991.

**Collaborators:** J. Keener, M. Lewis, D. Eyre, E. Cherkaeva (Utah,Math), D. Grunbaum (Washington,Zoology), L. Fauci (Tulane,Math), R. Dillon (Washington State,Math), V. Turitto (U. Memphis,Bioeng), J. Hubbell (ETH,Bioeng), A. Tsuda (Harvard,Physiology), M. Owen (Loughborough,Math), H. Bertete-Aguirre (LANL), D. Gaver (Tulane,Bioeng), M. Koehl (Berkeley, Integrative Biology).

**Advisers:** Charles Peskin (New York University) Ph.D. advisor, Alexandre Chorin (Berkeley) Postdoctoral advisor

#### **CURRENT SUPPORT**

NSF DMS-9805518: Computational Modeling of Platelet Aggregation and Coagulation, and Development of Software for Biofluid Dynamics Problems, \$363,000, September 1998-August, 2001.