Curriculum Vitae for Berton A. Earnshaw

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Research interests

Mathematical biology:molecular metabolism and transport during learning and memoryStochastic processes:behavior of solutions of nonautonomous master equations

Education

PhD Math	12/07	University of Utah (Paul C. Bressloff, advisor)
		Biophysical models of AMPA receptor trafficking in dendrites
MS Math	8/03	Brigham Young University (Rodney W. Forcade, advisor)
		Exterior blocks and reflexive noncrossing partitions
BS Math	12/01	Brigham Young University (minor in Philosophy)

Professional Experience

8/09-present	Michigan St. Univ.	Visiting assistant professor
		Instructor, Mathematical biology
		Mentor, UBM program
7/07-6/09	Univ. of Utah	Wylie assistant professor (lecturer)
		Instructor, Mathematical biology I & II
		Instructor, ODEs and linear algebra for engineers
		Supervisor, Mathematical biology journal clubs
9/04-5/07	Univ. of Utah	Graduate student
, ,		Assistant lecturer, Math Circle for high school students
		Assistant lecturer, REU on games of chance
		Teaching assistant, Mathematical biology I & II
		Research mentor, REU on receptor trafficking
5/03-6/04	LifeLink Corp.	Software developer/Client services representative
		External/internal application development in $C++/C\#$
		Managed client relations with US life insurance cos.
1/02-4/03	BYU	Graduate student
, ,		Instructor, College algebra & Calculus I
		Research assistant, Dept. of Engineering & Technology
		Parallel computing software development in C/MPI

Fellowships and Awards

7/07-6/09	NSF IGERT Postdoctoral Fellowship (Univ. Utah)
8/05-6/07	NSF RTG Research Fellowship (Univ. Utah)
8/04-7/05	NSF VIGRE Research Fellowship (Univ. Utah)

Publications and Preprints

- R.O.W. Franz and B.A. Earnshaw. A constructive enumeration of meanders. Ann. Combin. 6 7-17 (2002).
- 2. B.A. Earnshaw and P.C. Bressloff. Biophysical model of AMPA receptor trafficking and its regulation during long-term potentiation/long-term depression. J. Neurosci. 26 12362-12373 (2006).
- 3. P.C. Bressloff and B.A. Earnshaw. Diffusion-trapping model of receptor trafficking in dendrites. *Phys. Rev. E* **75** 041915 (2007).
- 4. P.C. Bressloff, B.A. Earnshaw and M.J. Ward. Diffusion of protein receptors on a cylindrical dendritic membrane with partially absorbing traps. *SIAM J. Appl. Math.* **68** 1223-1246 (2008).
- 5. B.A. Earnshaw and P.C. Bressloff. Modeling the role of lateral membrane diffusion in AMPA receptor trafficking along a spiny dendrite. *J. Comput. Neurosci.* **25** 366-289 (2008).
- P.C. Bressloff and B.A. Earnshaw. A dynamic corral model of receptor trafficking at a synapse. Biophys. J. 96 1786-1802 (2009).
- 7. B.A. Earnshaw and J.P. Keener. Global asymptotic stability of solutions of nonautonomous master equations. *SIAM J. Appl. Dynam. Sys.* **9** 220-237 (2010).
- B.A. Earnshaw and P.C. Bressloff. A diffusion-activation model of CaMKII translocation waves in dendrites. J. Comput. Neurosci. 28 77-89 (2010).
- 9. B.A. Earnshaw and J.P. Keener. Invariant manifolds of binomial-like nonautonomous master equations. *SIAM J. Appl. Dynam. Sys.* To appear (2010).

Recent Invited Talks

- 10/09 Global asymptotic stability of solutions of nonautonomous master equations 2009 Fall Central Section Meeting of the AMS, Waco, TX
- 10/09 Global asymptotic stability of solutions of nonautonomous master equations Mathematical Biology Seminar, Univ. of Michigan
- 8/09 A diffusion-activation model of CaMKII translocation waves in dendrites MBI Workshop for Young Researchers in Mathematical Biology, Columbus, OH
- 6/09 A diffusion-activation model of CaMKII translocation waves in dendrites NJIT Conference on Frontiers in Applied and Computational Mathematics, Newark, NJ
- 5/09 A diffusion-activation model of CaMKII translocation waves in dendrites SIAM Conference on Applications of Dynamical Systems, Snowbird, UT
- 3/09 Multiple spatial scales of AMPA receptor trafficking: from synapse to spiny dendrite Department of Mathematics, BYU
- 1/09 Global asymptotic stability of solutions of nonautonomous master equations Mathematical Biology Seminar, Univ. Utah

Professional Service

- 5/09 Minisymposium organizer: *Molecular diffusion and transport in cells* SIAM Conference on Applications of Dynamical Systems, Snowbird, UT
- 3/09 Research Talk Sessions cochair MAA Intermountain Section Meeting, BYU, Provo, UT

Professional Memberships

American Mathematical Society (AMS) Mathematical Association of America (MAA) Society for Industrial and Applied Mathematics (SIAM) Society for Mathematical Biology (SMB)

Computer Skills

Programming: C, C++, C#/.NET, Python, Perl, MATLAB, Maple, HTML, XML, LATEX Platforms: Unix/Linux, Mac OS X, Windows

Languages

Fluent in Portuguese, competent in Spanish, some competence in French.

References

Upon request.