
Gregory D. Smith

Curriculum Vitae in W&M Standard Format

Office contact information:

Department of Applied Science
The College of William & Mary
McGlothlin-Street Hall, Rm 305
Williamsburg, VA 23187

Phone: (757) 221-1989

Fax: (757) 221-2050

Email: greg@as.wm.edu

URL: <http://www.as.wm.edu/Faculty/Smith.html>

2. CURRENT POSITIONS

- **Associate Professor, Department of Applied Science, College of William & Mary Williamsburg, VA, 8/05–present.**
- **Visiting Associate Professor, Mathematical Biosciences Institute, Ohio State University Columbus, OH, 9/07–6/08.**

CELLULAR BIOPHYSICS AND MODELING, THEORETICAL BIOLOGY, AND BIOMATHEMATICS

- **COMPUTATIONAL CELL BIOLOGY:** The stochastic dynamics of Ca^{2+} release from clusters of Ca^{2+} -regulated intracellular channels coupled by elevated local Ca^{2+} .
- **COMPUTATIONAL NEUROSCIENCE:** The functional role of feedback inhibition on sensory relay by the visual thalamus (the dorsal lateral geniculate nucleus).

3. EDUCATION

- **University of California at Davis. Ph.D. in Biophysics, Dec. 1996.**
- **Massachusetts Institute of Technology. B.S. as recommended by the Dept. of Biology, Feb. 1986.**

4. PREVIOUS ACADEMIC POSITIONS

- **Assistant Professor, Department of Applied Science, College of William & Mary Williamsburg, VA, 8/01–7/05.**
- **Assistant Professor, Department of Mathematics, Arizona State University Tempe, AZ, 8/99–8/01.**
- **National Research Service Award (NEI) Individual Fellowship, Center for Neural Science New York University, New York, NY, 1/99–8/99.**
John Rinzel, post-doctoral advisor.
- **Intramural Research Training Assistantship, Mathematical Research Branch, NIDDK National Institutes of Health, Bethesda MD, 1/97–12/98.**
John Rinzel, post-doctoral advisor.
- **Research Assistant, Institute for Theoretical Dynamics & Biophysics Graduate Group University of California, Davis, 9/92–12/96.**
Joel E. Keizer, graduate advisor.

- **Laboratory Assistant, Department of Pediatrics**
University of California, San Francisco, CA, 6/90–6/92.
Barbara Moscicki, principal investigator.
- **Teacher/Counselor, Learning Experiences, Inc. Coatesville, PA, 7/87–6/90.**
Sandy Bennett, director.

5. HONORS, PRIZES AND AWARDS

- National Research Service Award Individual Fellowship from the National Eye Institute (see above).
- Early faculty development (CAREER) award from the National Science Foundation Division of Molecular and Cell Biology (see below).
- One of ten faculty identified by the College to potentially serve as mentors for Beckman Scholars. 06–09.

6. COURSES TAUGHT, JOURNAL CLUBS, AND WORKSHOPS¹

- Instructor, **Cellular Biophysics and Modeling** (APSC 651/451, BIO451), W&M, Fall 08. This course is one of four advanced Cell/Systems courses in the Neuroscience interdisciplinary studies concentration.
- Co-organizer and instructor, **Computational Cell Biology International Summer School**, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. June 27–July 17, 2008. (w/ Fall C, Tyson J, Loew L, Elston T).
- Co-instructor, **Introduction to Mathematical Modeling in Cellular Physiology and Neuroscience**, Mathematical Biosciences Institute, Ohio State University, October 1–4, 2007. (w/ David Terman)
- Instructor, **Computational Biology Journal Club**, (APSC 690) W&M, Spring 2003–present. This weekly journal club is associated with my research group meetings and is offered every semester. Students may audit or enroll Readings in Applied Science.
- Instructor, **Bioinformatics and Molecular Evolution** (APSC 654/454), W&M, Spring 07.
- Instructor, **Cellular Biophysics and Modeling** (APSC 651/451), W&M, Fall 06.
- Instructor, **Mathematical and Computational Biology Seminar** (MAT 490, APSC 690), W&M, Fall 06. (w/ Schrieber)
- Instructor, **Mathematical Physiology II** (APSC 752), W&M, Spring 06.
- Co-organizer, **Mathematical and Computational Biology Seminar**, W&M, Spring 06. (w/ Schrieber)
- Instructor, **Mathematical Physiology I** (APSC 751), W&M, Fall 05.
- Participant, **Mathematical and Computational Biology Seminar**, W&M, Fall 05. (organized by Schrieber)
- Instructor, **Introductory Bioinformatics** (APSC 654/454), W&M, Spring 05.
- Participant, **Matrix and Operator Theory Problems in Mathematical Biology Seminar**, W&M, Spring 05. (organized by Chi-Kwong Li)
- Instructor, **Cellular Biophysics and Modeling** (APSC 651/451), W&M, Fall 04.

¹For additional educational activities see GRADUATE AND POST-DOCTORAL TRAINING and UNDERGRADUATE RESEARCH EXPERIENCES below.

- Instructor, **Topics in Applied Science: Mathematical Physiology II** (APSC 791), W&M, Spring 04.
- Organizer, **Markov Chain Workshop** (w/ Li, Mathias, and Schrieber), W&M, Spring 04.
- Instructor, **Studies in Applied Science** (APSC 490), W&M, Spring 04. Christin Welle worked through material of *Cellular Biophysics and Modeling*.
- Instructor, **Topics in Applied Science: Mathematical Physiology I** (APSC 791), W&M, Fall 03.
- Organizer, **Markov Chain Workshop** (w/ Li, Mathias, and Schrieber), W&M, Fall 03.
- Instructor, **Cellular Biophysics and Modeling** (APSC 651/451), W&M, Spring 03. This course, previously taught as Topics in Applied Science, was approved by COGS and EPC this semester.
- Instructor, **Topics in Applied Science: Bioinformatics, Experiment and Theory** (APSC 691/490), W&M, Fall 02. I coordinated this team-taught survey course. Other instructors included Margaret Saha (Biology), Heather Sasinowska (INCOGEN), Maciek Sasinowski (INCOGEN), Michael Trosset (Math), and Kimberly Reece (VIMS).
- Instructor, **Ordinary Differential Equations** (MAT 302), W&M, Fall 02. Outreach to the Department of Mathematics upon arriving at William and Mary.
- Instructor, **Topics in Applied Science: Cellular Biophysics and Modeling** (APSC 691/490 & BIO 680), W&M, Spring 02.
- Instructor, **Math Methods for Genetic Analysis: Basic Algorithms of Computational Molecular Biology** (MAT 351), ASU, Spring 01.
- Instructor, **Mathematical Physiology: Dynamic Phenomena in Cell Biology** (MAT 598), ASU, Fall 00.
- Instructor, **Intro to Ordinary Differential Equations** (MAT 274), ASU, Fall 00.
- Instructor, **Brief Calculus** (MAT 210), ASU, Fall 99, Spring 00.
- Teaching Assistant, **Mathematical Physiology**, UC Davis, 96.
- Teaching Assistant, **Embryology Laboratory**, UC Davis, 92–93.
- Undergraduate tutor in physical chemistry and biology, UC Davis, 94–96.
- Math and science teacher at residential facility for delinquent and dependent teenagers, 87–90.

7. FELLOWSHIPS AND GRANTS

CURRENT RESEARCH FUNDING AS PRINCIPAL OR CO-PRINCIPLE INVESTIGATOR

- Joint DMS/NIGMS Initiative to Support Research in the Area of Mathematical Biology, **Ensemble density analysis of stochastic models of cardiac excitation-contraction coupling**. co-PIs: M. Saleet Jafri, Gregory D. Smith, and Eric Sobie. Grant #0443843. Total \$2,000,000. 2/1/05–1/31/10. Subcontract for \$660,524 to W&M from George Mason University.
- National Science Foundation, Division of Mathematical Sciences, **CSUMS: Theory, techniques, and research in computational mathematics**. PI: Chi-Kwong Li. Co-PIs: Andreas Stathopoulos, Junping Shi, Robert Lewis, Virginia Torczon, Sarah Day, David Lutzer, David Phillips, and Gregory Smith. Grant #DMS-0703532. Total \$299,257 (9/07–8/12).

CURRENT FUNDING AS PARTICIPANT OR CONSULTANT

- National Science Foundation, Computational Cell Biology International Summer School. PI: David Stewart. Organizers and lead instructors: Christopher Fall, Gregory Smith, John Tyson, Leslie Loew, Timothy Elston. \$270,000 (Summer 2008–2010).
- Howard Hughes Medical Institute, Undergraduate Biological Sciences Education Program. PI: Margaret Saha. I am one of many participants. \$2,000,000 (9/02–8/06). \$1,800,000 (9/06–8/10).

PRIOR RESEARCH FUNDING AS PRINCIPAL OR CO-PRINCIPLE INVESTIGATOR

- National Science Foundation, Division of Molecular and Cell Biology, **CAREER: The Dynamics of IP₃-Dependent Ca²⁺ Release Sites**. PI: Gregory D. Smith. Grant #0133132. Approx. \$500,000. 6/02–6/07. No cost extension to 6/08.
- National Science Foundation, Division of Integrative Biology and Neuroscience, **The effect of feedback inhibition on sensory relay by visual thalamus**. PI: Gregory D. Smith. Grant #00079931 (ASU) and #0228273 (W&M). \$261,728. 8/00–8/04.
- Virginia Department of Planning and Budget, Commonwealth Technology Research Fund, Industry Inducement Program, **Bringing the Future of Bioinformatics to Virginia**. co-PIs: Dennis M. Manos, Robert G. Voigt, Margaret S. Saha, Gregory D. Smith. \$3,251,901. 11/01–10/04. No cost extension ending 6/06. This economic development grant has attracted the Institute for Computational Genomics, Inc. to Williamsburg from Clemson, SC.
- The Thomas F. and Kate Miller Jeffress Memorial Trust, **The Dynamics of IP₃-Dependent Ca²⁺ Release Sites**. PI: Gregory D. Smith. \$27,000. 1/02–12/02. No cost extension approved for 1/03–12/03.
- University of New Mexico School of Medicine, Department of Pathology, Cancer Research Center, **Center for the Spatio-Temporal Modeling of Cell Signaling Networks**. PI: Gregory D. Smith. Primary UNM contact: Bridget Wilson. Subcontract for approx. \$5,500 Summers 02–04.
- ASU Faculty Grant-In-Aid program. **A mathematical model of Ca²⁺ responses in pulmonary artery smooth muscle cells**. PI: Gregory D. Smith. \$7,000. 1/00–12/00.

PRIOR RESEARCH FUNDING AS PARTICIPANT OR CONSULTANT

- National Science Foundation, Division of Applied Mathematics, **Matrix analysis in engineering and science**. PI: Roy Mathias. \$99,798. 8/03–8/04. Listed as participant w/ Chi-Kwong Li and Sebastian Schrieber in this research experiences for undergraduates grant.
- Defense Advanced Research Projects Agency. **Advanced neural implants and control**. PI: Daryl Kipke. As one of 13 co-PIs, I was responsible for biophysical modeling of electrode-tissue interactions and simulations related to electrode optimization. \$6,000,000. 7/00–6/03. My participation ended upon leaving ASU.
- Alfred P. Sloan Foundation, **Professional Masters Degree in Computational Biosciences**. PIs: Rosemary Renaut; co-PIs: J. Kenneth Hooper. \$161,920. I contributed extensively to this proposal and am listed as one of 15 participating faculty. 7/01–6/03. My participation ended upon leaving ASU.

FELLOWSHIP SUPPORT AS GRADUATE STUDENT

- Jastro-Shields Fellowship, *A cellular automata model for Ca²⁺ waves in the immature Xenopus oocyte*, UC Davis, 94–96.
- Graduate Studies Fellowship, UC Davis, 92–96.

8. RESEARCH AND SCHOLARLY ACTIVITY

8a. PUBLICATIONS: REFEREED RESEARCH ARTICLES

33. DeRemigio H, Kemper P, LaMar MD, and Smith GD. **Markov chain models of coupled intracellular calcium channels: Kronecker structured representations and benchmark stationary distribution calculations.** *Physical Biology* 5(3):36003, 2008. [doi:10.1088/1478-3975/5/3/036003]
32. Williams GSB, Huertas MA, Sobie EA, Jafri MS, and Smith GD. **Moment closure for local control models of Ca^{2+} -induced Ca^{2+} release in cardiac myocytes.** *Biophys. J.* 95(4):1689–703, 2008. [doi:10.1529/biophysj.107.125948]
31. Groff JR and Smith GD. **Ryanodine receptor allosteric coupling and the dynamics of Ca^{2+} sparks.** *Biophys. J.* 95:135–154, 2008. [doi:10.1529/biophysj.107.119982]
30. Groff JR and Smith GD. **Calcium-dependent inactivation and the dynamics of calcium puffs and sparks.** *J. Theor. Biol.* 253(3):483–99, 2008. [doi:10.1016/j.jtbi.2008.03.026]
29. Williams GSB, Molinelli EJ, and Smith GD. **Modeling local and global intracellular calcium responses mediated by diffusely distributed inositol 1,4,5-trisphosphate receptors.** *J. Theor. Biol.* 253:170–188, 2008. [doi:10.1016/j.jtbi.2008.02.040]
28. DeRemigio H, Groff JR, and Smith GD. **Calcium release site ultrastructure and the dynamics of puffs and sparks.** *Mathematical Medicine & Biology.* 25(1):65–85, 2008. [doi:10.1093/imammb/dqn004]
27. Thul R, Smith GD, Coombes S. **A bidomain fire-diffuse-fire model of propagating calcium waves.** *J. Mathematical Biology* 56(4):435–63, 2007. [doi:10.1007/s00285-007-0123-5]
26. Williams GSB, Huertas MA, Sobie EA, Jafri MS, and Smith GD. **A probability density approach to modeling local control of Ca^{2+} -induced Ca^{2+} release in cardiac myocytes.** *Biophys. J.* 92(7):2311–28, 2007. [doi:10.1529/biophysj.106.099861]
25. Huertas H and Smith GD. **The dynamics of luminal depletion and the stochastic gating of Ca^{2+} -activated Ca^{2+} channels and release sites.** *J. Theor. Biol.* 246(2):332–54, 2007. [doi:10.1016/j.jtbi.2007.01.003]
24. Means S, Smith AJ, Shepard J, Shadid J, Fowler J, Wojcikiewicz R, Mazel T, Smith GD, and Wilson BS. **Reaction diffusion modeling of calcium dynamics with realistic ER geometry.** *Biophys. J.* 91(2):537–57, 2006. [doi:10.1529/biophysj.105.075036]
23. Huertas MA and Smith GD. **A multivariate population density model of the dLGN/PGN relay.** *J. Comput. Neurosci.* 21(2):171–89, 2006. [doi:10.1007/s10827-006-7753-2]
22. Zhao X, Outlaw RA, Wang JJ, Zhu MY, Smith GD, and Holloway BC. **Thermal desorption of hydrogen from carbon nanosheets.** *J. Chem. Phys.* 124(19):194704, 2006. [doi:10.1063/1.2187969]
21. Huertas MA, Groff JR, and Smith GD. **Feedback inhibition and throughput properties of an integrate-and-fire-or-burst network model of retinogeniculate transmission.** *J. Comput. Neurosci.* 19(2):147–180, 2005. [doi:10.1007/s10827-005-1084-6]
20. DeRemigio H and Smith GD. **The dynamics of stochastic attrition viewed as an absorption time on a terminating Markov chain.** *Cell Calcium.* 38(2):73–86, 2005. [doi:10.1016/j.ceca.2005.06.007]
19. Mazzag B, Tiganelli C and Smith GD. **The effect of residual Ca^{2+} on the stochastic gating of Ca^{2+} -regulated Ca^{2+} channel models.** *J. Theor. Biol.* 235:121–150, 2005. [doi:10.1016/j.jtbi.2004.12.024]

18. Nguyen V, Mathias R, and Smith GD. **A stochastic automata network descriptor for Markov chain models of instantaneously-coupled intracellular Ca^{2+} channels.** *Bull. Math. Biol.* 67(3):393–432, 2005. [doi:10.1016/j.bulm.2004.08.010]
17. Smith GD and Sherman SM. **Detectability of excitatory vs. inhibitory drive in a thalamocortical relay neuron model.** *J. Neurosci.* 22(23):10242–10250, 2002.
16. Wilson SM, Mason HS, Smith GD, Nicholson N, Johnston L, Janiak R, and Hume JR. **Comparative capacitative Ca^{2+} entry mechanisms in canine pulmonary and renal arterial smooth muscle cells.** *J. Physiol. (London)* 543(Pt 3):917–31, 2002.
15. Coombes S, Owen MR, and Smith GD. **Mode-locking in a periodically forced integrate-and-fire-or-burst neuron model.** *Phys. Rev. E* 64(041914):1–12, 2001.
14. Smith GD, Dai L, Muira R, Sherman A. **Asymptotic analysis of equations for the buffered diffusion of intracellular Ca^{2+} .** *SIAM. J. Appl. Math.* 61(5):1816–1838, 2001.
13. Smith GD, Cox CL, Sherman SM, and Rinzel J. **A firing-rate model of spike-frequency adaptation in sinusoidally-driven thalamocortical relay neurons.** *Thalamus and Related Systems.* 1(2):135–156, 2001.
12. Smith GD, Cox CL, Sherman SM, and Rinzel J. **Fourier analysis of sinusoidally driven thalamocortical relay neurons and a minimal integrate-and-fire-or-burst model.** *J. Neurophys.* 83(1):588–610, 2000.
11. Bertram R, Smith GD, and Sherman A. **A Modeling study of the effects of overlapping Ca^{2+} microdomains on neurotransmitter release.** *Biophys. J.* 76(2):735–50, 1999.
10. Keizer J, Smith GD, Ponce-Dawson S, and Pearson J. **Saltatory propagation of Ca^{2+} waves by Ca^{2+} sparks.** *Biophys. J.* 75(8):595–600, 1998.
9. Smith GD, Keizer J, Stern M, Lederer WJ, and Cheng H. **A simple numerical model of Ca^{2+} spark formation and detection in cardiac myocytes.** *Biophys. J.* 75(7):15–32, 1998.
8. Keizer J and Smith GD. **Spark-to-wave transition: saltatory transmission of Ca^{2+} waves in cardiac myocytes.** *Biophys. Chem.* 72:87–100, 1998.
7. Smith GD. **Analytical steady-state solution to the rapid buffering approximation near an open Ca^{2+} channel.** *Biophys. J.* 71(6):3064–3072, 1996.
6. Smith GD, Wagner J, and Keizer J. **Validity of the rapid buffering approximation near a point source of Ca^{2+} ions.** *Biophys. J.* 70(6):2527–2539, 1996.
5. Smith GD, Lee RJ, Oliver JM, and Keizer J. **The effect of Ca^{2+} influx on intracellular free Ca^{2+} responses in antigen-stimulated RBL-2H3 cells.** *Am. J. Physiol.* 270(3 Pt 1):C939–952, 1996.
4. Keizer J, Maki L, Greathouse J, Smith GD, and Bruinsma P. **Bistability and fluctuations for an incandescent light bulb.** *J. Phys. Chem.* 99(2):844–852, 1995.
3. Moscicki AB, Broering J, Powell K, Klein J, Clayton L, Smith GD, Broero S, Darragh TM, Brescia RJ, and Palefsky J. **Comparison between colposcopic, cytologic, and histologic findings in women positive and negative for human papillomavirus DNA.** *J. Adolesc. Health* 14(2):74–79, 1993.
2. Moscicki AB, Palefsky J, Smith GD, Siboshski S, and Schoolnik G. **Variability of human papillomavirus DNA testing in a longitudinal cohort of young women.** *Obstet. Gynecol.* 82(4 Pt 1):578–85, 1993.

1. Moscicki AB, Palefsky JM, Gonzales J, Smith GD, and Schoolnik GK. **Colposcopic and histologic findings and human papillomavirus (HPV) DNA test variability in young women positive for HPV DNA.** *J. Infect. Dis.* 166(5):951–7, 1992.

8a (continued). PUBLICATIONS: INVITED BOOK CHAPTERS

6. Huertas MA and Smith GD. **Population density methods for networks with low-threshold Ca^{2+} currents.** In: *Stochastic Methods in Neuroscience*. Laing C and Gabriel L, eds. Pages xx–xx. Oxford University Press. 2008. In press.
5. Groff JR, DeRemigio H, and Smith GD. **Markov chain models of ion channels and the collective gating of Ca^{2+} release sites.** In: *Stochastic Methods in Neuroscience*. Laing C and Gabriel L, eds. Pages xx–xx. Oxford University Press. 2008. In press.
4. Smith GD. **Modeling intracellular calcium: diffusion, dynamics, and domains.** In: *Modeling in the Neurosciences: From Biological Systems to Cognitive Robotics (Foundations of Analytical Neuroscience)*, 2nd edition. Reeke GN, Poznanski RR, Lindsay KA, Rosenberg JR, and Sporns O, eds. Pages 339–374. Taylor & Francis. 2005.
3. Smith GD. **Modeling the stochastic gating of ion channels.** In *Computational Cell Biology*, Fall C, Marland E, Wagner J, Tyson J, editors. Pages 285–319. Springer-Verlag. 2002.
2. Smith GD, Pearson J, and Keizer J. **Modeling intracellular Ca^{2+} waves and sparks.** In *Computational Cell Biology*, Fall C, Marland E, Wagner J, Tyson J, editors. Pages 198–229. Springer-Verlag. 2002.
1. Smith GD. **Modeling local and global Ca^{2+} signals using reaction-diffusion equations.** In *Computational Neuroscience: Realistic Modeling for Experimentalists*, De Schutter E, editor. Pages 49–85. CRC Press. 2000.

8a (continued). PUBLICATIONS: REFEREED CONFERENCE PROCEEDINGS

4. Ruth Lamprecht R, Smith GD, and Kemper P. **Stochastic Petri net models of signaling complexes and their analysis.** *Natural Computing*, In press.
3. DeRemigio H, Kemper P, LaMar MD, and Smith GD. **Markov chain models of coupled intracellular calcium channels: Kronecker structured representations and benchmark stationary distribution calculations.** *Pacific Symposium on Biocomputing* 13:354–365, 2008.
2. Huertas MA and Smith GD. **A two-dimensional population density approach to modeling the dLGN/PGN network.** *Neurocomputing* 69:1286–1290, 2006. [doi:10.1016/j.neucom.2005.12.093]
1. Huertas MA, Groff JR, and Smith GD. **The effect of feedback inhibition on throughput properties of the dLGN/PGN.** *Neurocomputing* 65-66:499–505, 2005. [doi:10.1016/j.neucom.2004.11.007]

8j. PUBLICATIONS: UNREFEREED PUBLICATIONS

4. DeRemigio H, Kemper P, LaMar MD, and Smith GD. **Markov chain models of coupled intracellular calcium channels: Kronecker structured representations and benchmark stationary distribution calculations.** College of William and Mary, Department of Computer Science, *Technical Report WM-CS-2007-06*.
3. Smith GD. **An extended DeYoung-Keizer-like IP_3 receptor model that accounts for domain Ca^{2+} -mediated inactivation.** In *Recent Research Developments in Biophysical Chemistry, Vol. II*, Condat CA and Baruzzi A, editors. Pages 37–55. Research Signpost. 2002.

2. Sherman A and Smith GD. **Relationship between deterministic rate constants and probability of binding.** Appendix in: Kennedy KM, Piper ST, Atwood HL. Synaptic vesicle recruitment for release explored by Monte Carlo simulation at the crayfish neuromuscular junction. *Can. J. Physiol. Pharmacol.*, 77(9):634–650, 1999.
1. Smith GD. **Effect of Ca^{2+} influx on intracellular Ca^{2+} responses in antigen-stimulated RBL-2H3 cells and calculations of localized Ca^{2+} elevations and domain Ca^{2+} using the rapid buffering approximation.** *Dissertation*, University of California at Davis, 1996.

8n. MANUSCRIPTS UNDER REVIEW OR IN PREPARATION

2. Goyal R, Creel KD, Chavis E, Smith GD, Longo L, Wilson SM. **Maturation of intracellular calcium homeostasis in sheep pulmonary arterial smooth muscle cells.** *Am. J. Physiol. Lung Cell. Mol. Physiol.* Submitted.
1. Goyal R, Angermann JE, Ostrovskaya O, Buchholz JN, Smith GD, Wilson SM. **Enhanced capacitative calcium entry and sarcoplasmic-reticulum calcium storage capacity with advanced age in murine mesenteric arterial smooth muscle cells.** *Experimental Gerontology.* Submitted.

8o. OTHER SCHOLARLY ACTIVITY

CONFERENCES, ABSTRACTS, AND SEMINARS²

- **Conference on Mathematical Biology**, Department of Mathematics, National Taiwan Normal University, Taipei, Taiwan, 10/08. (*invited speaker*)
- **Annual Meeting of Taiwanese Mathematics Society**, National Tsing Hua University, Hsinchu City, Taiwan, 10/08. (*invited speaker*)
- **Computational Cell Biology International Summer School**, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. 6/27–7/17/08. (see above).
- **Gordon Conference on Theoretical Biology and Biomathematics**, Il Ciocco, Lucca (Barga), Italy, 6/08. (*co-vice chair and session chair*)
- **Frontiers in Applied and Computational Mathematics**, New Jersey Institute of Technology. 5/08. (*invited speaker*)
- **AMS Southeastern Sectional Meeting #1037**, Special Session on Mathematical Modeling in Biology, Baton Rouge, LA, 3/08. DeRemigio H, Kemper P, LaMar MD, and Smith GD. Markov chain models of calcium release sites: Kronecker representations with exact and approximate solution methods. (*speaker*)
- **Quantitative Biology Institute Seminar**, Ohio University, Athens, OH. 2/08. (*invited speaker*)
- **Biophysical Society Annual Meeting**, Long Beach, CA, 2/08. Huertas MA, Williams GSB, Sobie EA, Jafri MS, and Smith GD. A moment closure approach to modeling local control models of Ca^{2+} -induced Ca^{2+} release in cardiac myocytes. 494-Pos. (*poster*)
- **Pacific Symposium on Biocomputing**, The Big Island of Hawaii, 1/08. DeRemigio H, Kemper P, LaMar MD, and Smith GD. Markov chain models of coupled intracellular calcium channels: Kronecker structured representations and benchmark stationary distribution calculations. (*speaker*)

²When multiple authors are listed, the underline indicates the member of research group presenting. See RESEARCH ASSOCIATES AND GRADUATE STUDENTS SUPPORTED (above) for representative local presentations.

- **Mathematical Biology Institute Seminar**, Modeling local control of calcium-induced calcium release in cardiac myocytes, Ohio State University. 12/07. (*invited speaker*)
- Mathematical Biology Institute Workshop, **Information Processing in the Visual System**, organized by Paul Bressloff and Alessandra Angelucci, Ohio State University. 4/07. (*invited speaker*)
- DeRemigio H and Smith GD. The spatial organization of Ca^{2+} release sites and the dynamics of puffs and sparks. Mathematical Biology Institute Workshop, **Workshop for Young Researchers in Mathematical Biology**, Ohio State University. 3/07. (*poster*)
- Groff JR and Smith GD. A computational investigation of the effects of allosteric coupling between ryanodine receptors on the dynamics of calcium sparks. Mathematical Biology Institute Workshop, **Workshop for Young Researchers in Mathematical Biology**, Ohio State University. 3/07. (*poster*)
- **Computational Cell Biology**, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, 3/07. Smith GD. A probability density approach to modeling local control of calcium-induced calcium release in cardiac myocytes. (*speaker*)
- **Biophysical Society Annual Meeting**, Baltimore, MD, 3/07. Huertas MA and Smith GD. Moment closure approximations for a new class of whole cell models of Ca^{2+} handling representing heterogeneous domain Ca^{2+} concentrations. 1210-Pos. (*poster*)
- **Biophysical Society Annual Meeting**, Baltimore, MD, 3/07. DeRemigio H and Smith GD. The spatial organization of Ca^{2+} release sites and the dynamics of puffs and sparks. 1211-Pos. (*poster*)
- **Biophysical Society Annual Meeting**, Baltimore, MD, 3/07. Williams GSB, Huertas MA, Sobie EA, Jafri MS, and Smith GD. A probability density approach to modeling local control of calcium-induced calcium release in cardiac myocytes. 1212-Pos. (*poster*)
- **Biophysical Society Annual Meeting**, Baltimore, MD, 3/07. Groff JR and Smith GD. A computational investigation of the effects of allosteric coupling between ryanodine receptors on the dynamics of calcium sparks. 1219-Pos. (*poster*)
- **Society for Neuroscience Annual Meeting**, Atlanta, GA, 10/06. Huertas MA and Smith GD. A multivariate population density model of the dLGN/PGN relay. (*poster*)
- Mathematical Biology Institute Workshop, **Cardiac Electrophysiology and Arrhythmia**, organized by Jim Keener and Rai Winslow, Ohio State University. 9/06. (*invited speaker*)
- **Bioinformatics and Computational Biology Colloquium**, Department of Bioinformatics and Computational Biology, George Mason University, Manassas, VA, 9/06. (*invited speaker*)
- **Joint SIAM-SMB Conference on the Life Sciences**, Raleigh, NC, 7/06.
 Minisymposium: Stochastic aspects of Ca^{2+} signaling. (*invited organizer*)
 Stochastic gating of instantaneously coupled Ca^{2+} -regulated Ca^{2+} channels. (*speaker*)
Williams GSB, Huertas MA, and Smith GD. Probability Density Approaches to Modeling Local and Global Intracellular Calcium Dynamics. (*poster*)
Huertas H and Smith GD. The effect of luminal depletion on the dynamics of Ca^{2+} -regulated Ca^{2+} channels. (*speaker*)
Mazzag B, Tignanelli C, and Smith GD. Analysis of the effect of residual calcium on the gating of Ca^{2+} -regulated Ca^{2+} channels. (*speaker*)
- **Gordon Conference on Theoretical Biology and Biomathematics**, Tilton, NH, 6/06. (*invited speaker*)
- **Workshop on Molecular Evolution**, Marine Biological Laboratory, Woods Hole, MA, 6/06. (*participant*)

- **Mathematical Modeling of Cellular Calcium Signals Meeting**, School of Mathematical Sciences, University of Nottingham, UK, 4/06. (*invited speaker*)
- **Computational Biology Seminar**, Department of Applied Mathematics, Oxford University, UK, 4/06. (*invited speaker*)
- **Center for Cardiovascular Bioinformatics and Modeling Seminar**, Department of Biomedical Engineering and Institute for Computational Medicine, Johns Hopkins University, Baltimore, MD, 4/06. (*invited speaker*)
- **Biophysical Society Annual Meeting**, Salt Lake City, UT, 2/06. Williams GSB, Huertas MA, Sobie EA, Jafri MS, and Smith GD. A probability density model of stochastic functional unit activity in cardiac myocytes. 1079-Pos. (*poster*)
- **Biophysical Society Annual Meeting**, Salt Lake City, UT, 2/06. Williams GSB and Smith GD. A probability density approach to modeling local and global Ca^{2+} dynamics in cells with diffusely distributed intracellular Ca^{2+} channels. 1077-Pos. (*poster*)
- **Biophysical Society Annual Meeting**, Salt Lake City, UT, 2/06. DeRemigio H and Smith GD. The dynamics of stochastic attrition viewed as an absorption time on a terminating Markov chain. 1076-Pos. (*poster*)
- **Biophysical Society Annual Meeting**, Salt Lake City, UT, 2/06. Huertas MA and Smith GD. The effect of luminal depletion on the dynamics of Ca^{2+} -regulated Ca^{2+} channels. 1078-Pos. (*poster*)
- **Mathematics Department Seminar**, University of Pittsburgh, Department of Mathematics, Pittsburgh, PA, 12/05. (*invited speaker*)
- **Society for Neuroscience Annual Meeting**, Washington, DC, 11/05. Huertas MA and Smith GD. The response of a two-dimensional population density model of the lateral geniculate nucleus/perigeniculate nucleus network to optic tract stimulation. Program No. 688.15 (*poster*)
- **Society for Neuroscience Annual Meeting**, Washington, DC, 11/05. Groff JR and Smith GD. The effect of interneuron feed-forward inhibition on detectability and stimulus reconstruction using stochastic thalamocortical relay cell model responses. Program No. 506.12 (*poster*)
- **Fourteenth Annual Computational Neuroscience Meeting**, Madison, WI, 7/05. Huertas MA and Smith GD. A two-dimensional probability density approach to modeling the dLGN/PGN network. (*poster*).
- **Fourteenth Annual Computational Neuroscience Meeting**, Madison, WI, 7/05. Groff JR and Smith GD. Effect of interneuron feedforward inhibition via the F2 terminal on retinogeniculate transmission. (*poster*).
- **SIAM Conference on Applications of Dynamical Systems**, “New twists on solitary waves in excitable media” minisymposium, Snowbird UT, 5/05. Ca^{2+} diffusion, dynamics, and domains. (*speaker*)
- **SIAM Conference on Applications of Dynamical Systems**, Snowbird UT, 5/05. Mazzag B, Tiganelli C, and Smith GD. Analysis of the effect of residual Ca^{2+} on the gating of Ca^{2+} -regulated Ca^{2+} channels. (*poster*)
- **Third Symposium on Computational Cell Biology**, Lenox, MA. 3/05. Mazzag B, Tiganelli C, Smith GD. Analysis of the effect of residual Ca^{2+} on the gating of Ca^{2+} -regulated Ca^{2+} channels. (*poster*)
- **Third Symposium on Computational Cell Biology**, Lenox, MA. 3/05. Means SA, Mazel T, Smith AJ, Shadid J, Smith GD, and Wilson BS. Reaction-diffusion modeling of endoplasmic reticulum calcium dynamics with realistic geometry: effects of IP_3R Ca^{2+} channel clustering. (*poster*)

- **Mathematical Biology Seminar**, University of Utah, Department of Mathematics, Salt Lake City, UT, 9/04. Mazzag B, Tignanelli C, and Smith GD. The feedback of a localized calcium domain on calcium-gated channels. (*invited speaker*)
- **Cortical Function: A View from the Thalamus**, A discussion meeting to celebrate the career of RW Guillery organized by VA Cassagrande and SM Sherman. Madison, WI. 9/04. (*attendee*)
- **Mathematical Biology Seminar**, University of Utah, Department of Mathematics, Salt Lake City, UT, 9/04. A Stochastic Automaton Network Descriptor ... (*invited speaker*)
- International Conference for Mathematics in Biology and Medicine, **Annual Meeting for the Society for Mathematical Biology**, Ann Arbor, MI. 7/04. Mazzag B, Tignanelli C, Smith GD. Analysis of the effect of residual Ca^{2+} on the gating of Ca^{2+} -regulated Ca^{2+} channels. (*poster*).
- **Thirteenth Annual Computational Neuroscience Meeting**, Baltimore, MD, 8/04. Huertas MA, Groff JR, Smith GD. The effect of feedback inhibition in network simulations of retinogeniculate transmission. (*poster*).
- **CNS 04 Workshop: Cellular and sub-cellular models of excitable cells**, Baltimore, MD, 8/04. Stochastic automata network models of instantaneously-coupled intracellular Ca^{2+} channels. (*invited speaker*).
- **Laboratory of Biological Modeling, NIDDK, NIH**, Bethesda, MD, 6/04. Stochastic automata network models of instantaneously-coupled intracellular Ca^{2+} channels. (*invited speaker*)
- **Biophysical Society Annual Meeting**, Baltimore, MD, 2/04. Zhang J, Nguyen VD, Smith GD. Direct calculation of puff statistics from stochastic automata network models of instantaneously-coupled intracellular Ca^{2+} channels. Program No. 578 (*poster*)
- **Biophysical Society Annual Meeting**, Baltimore, MD, 2/04. Mazzag B, Tignanelli C, Smith GD. Analysis of the effect of residual Ca^{2+} on the gating of Ca^{2+} -regulated Ca^{2+} channels. Program No. 579 (*poster*)
- Mathematical Biology Institute Workshop, **Signal Transduction I: The many roles of Ca^{2+}** , Ohio State University. 1/04. (*invited speaker*)
- **The 11th Annual Dynamical Neuroscience Satellite Symposium**, Neuronal Variability and Noise, New Orleans, LA. 11/03. (*attendee*)
- **Society for Neuroscience Annual Meeting**, New Orleans, LA, 11/03. Huertas MA, Groff JR, Smith GD. The effect of feedback inhibition in network simulations of retinogeniculate transmission. Program No. 68.12 (*poster*)
- **SIAM Conference on Applied Linear Algebra**, College of William and Mary, 7/03. (*attendee*)
- Mathematical Biology Institute Workshop, **Nonlocal Integro-Differential Equations in Mathematics and Biology**, Ohio State University. 3/03. (*attendee*)
- **NSF-NIH Joint Math Symposium: Accelerating Mathematical-Biological Linkages**, National Institutes of Health, Bethesda, MD. 2/03. (*attendee*)
- **W&M/VBI/INCOGEN CTRF Bioinformatics Workshop II**, Virginia Bioinformatics Institute, 12/02. Bridging the divide between mathematical modelers and experimental biologists. (*panelist*)
- **Experimental Biology Conference**, New Orleans, LA, 4/02. Wilson SM, Mason HS, Smith GD, Nicholson N, Johnston L, Janiak R, and Hume JR. Activation of capacitative Ca^{2+} entry in canine pulmonary and renal arterial smooth muscle cells. *FASEB J.* 16:870.2, 2002. (*platform presentation*)

- **Biophysical Society Annual Meeting**, San Francisco, CA, 2/02. Wilson SM, Smith GD, Johnston L, and Hume JR. Activation of capacitative Ca^{2+} entry in pulmonary arterial smooth muscle cells. *Biophys. J.* 82(1):651A, 2002. (*poster*)
- **Biophysical Society Annual Meeting**, San Francisco, CA, 2/02. Smith GD, Dai L, Muira R, Sherman A. Asymptotic analysis of buffered Ca^{2+} diffusion near a point source. *Biophys. J.* 82(1):282A, 2002. (*poster*)
- **Society for Neuroscience Annual Meeting**, San Diego, CA, 11/01. Smith GD and Sherman SM. Detectability of excitatory versus inhibitory drive in a stochastic thalamocortical relay neuron model. *Soc. Neurosci. Abstr.*, Vol. 27, Program No. 723.21, 2001. (*poster*)
- **Society for Neuroscience Annual Meeting**, San Diego, CA, 11/01. Williams JC, Smith GD, Vetter RJ, and Kipke DR. Correlation analysis of electrical interface properties of chronic neural implants. *Soc. Neurosci. Abstr.*, Vol. 27, Program No. 166.1, 2001. (*poster*)
- **Fourth International Workshop on Signal Transduction in the Activation and Development of Mast Cells and Basophils**, Bethesda, MD. 11/01. (*attendee*)
- **VIMS/W&M/VCU Collaborative Research Meeting**, Virginia Biotech Research Park, Richmond, VA, 8/01. (*invited speaker*)
- **Seminar**, Catholic University of America, Department of Bioengineering, Washington, DC, 4/01. Fourier analysis... (*invited speaker*)
- **Seminar**, Georgetown University, Department of Mathematics, Washington, DC, 3/01. Asymptotic analysis... (*invited speaker*)
- **Neuroscience Seminar**, Georgetown University Medical Center, Department of Neuroscience Washington, DC, 3/01. Fourier analysis... (*invited speaker*)
- **Defense Advanced Research Projects Agency BioFutures Kickoff**, Washington, DC, 11/00. Mathematical models of cortical stimulation, recording, impedance spectra and a microcapillary bioreactor cell culture. (*poster*)
- **Gordon Research Conference on Theoretical Biology and Biomathematics**, Tilton, NH, 6/00. Asymptotic analysis... (*invited speaker*)
- **Special Seminar**, Institute for Theoretical Dynamics, Davis, CA, 5/00. Asymptotic analysis... (*invited speaker*)
- **Workshop On Nonlinear Dynamics of Calcium in Living Organisms**, Santa Fe, NM, 3/00. Asymptotic analysis... (*invited speaker*)
- **Society for Neuroscience Annual Meeting**, Miami Beach, FL, 10/99. Smith GD, Cox CL, Sherman SM, and Rinzel J. Spike-frequency adaptation... *Soc. Neurosci. Abstr.*, Vol. 25, Program No. 573.15, 1999. (*poster*)
- **Nonlinear Dynamics in Biology and Chemistry, A Symposium to Honor Joel E. Keizer and His Three Decades in Science**, Davis, CA, 9/99. Asymptotic analysis... (*speaker*)
- **Computational Cell Biology Workshop, Biophysical Society Annual Meeting**, Baltimore, MD, 2/99. A simple numerical model... (*invited speaker*)
- **Society for Neuroscience Annual Meeting**, Los Angeles, CA, 11/98. Fourier analysis... Smith GD, Cox CL, Sherman SM, and Rinzel J. (*poster*)
- **Interdisciplinary Conference on Waves and Continuation Methods in Biology**, Univ. of Pittsburgh, Pittsburgh PA, 9/98. Fourier analysis... (*poster*).

- **Seventh Annual Computational Neuroscience Meeting**, Santa Barbara, CA, 7/98. Fourier analysis... (*poster*).
- **Intro. to Computational Genomics**, SIAM Short Course, Toronto, Canada, 7/98. (*student*)
- **Mini-symposium on Mathematical Modeling in Physiology**, Society for Mathematical Biology, SIAM Annual Meeting, Toronto, Canada, 7/98. Fourier analysis... (*speaker*)
- **Workshop on Neural Modeling of Brain and Cognitive Disorders**, University of Maryland, 6/98.
- **Calcium Dynamics in Cells**, Workshop Six of the Institute for Mathematics and its Applications Annual Program in “Emerging Applications of Dynamic Systems,” University of Minnesota, 2/98. A simple numerical model... (*speaker*)
- **Computational Neuroscience**, Workshop Five of the Institute for Mathematics and its Applications Annual Program in “Emerging Applications of Dynamic Systems,” University of Minnesota, 1/98.
- **Society for Neuroscience Annual Meeting**, New Orleans, LA, 10/97.
- **Sixth Annual Computational Neuroscience Meeting**, Big Sky, MT, 7/97.
- **Ca²⁺ Fertilization Wave Workshop**, South Lake Tahoe, CA, 4/97. Calculations of local Ca²⁺ elevations and the spark-to-wave transition in cardiac myocytes. (*speaker*)
- **Methods in Computational Neuroscience Course**, Marine Biological Laboratory, Woods Hole, MA, 8/96. (*student*)
- **Minisymposium on Ca²⁺ Oscillations and Waves, Special Year in Mathematical Biology**, University of Utah, Salt Lake City, UT, 3/96. Calculations of puffs and sparks. (*speaker*)
- **Workshop on Nonlinear Dynamics of Networks of Neurons**, Scripps Institution of Oceanography, UCSD, San Diego, CA, 12/95.
- **International Conference on Receptor Regulated Ca²⁺ Influx**, Asilomar Conference Center, Pacific Grove, CA, 5/95. The effect of Ca²⁺ influx... Smith GD, Lee RJ, Oliver JM, and Keizer J. (*poster*)
- **Biophysical Society Annual Meeting**, San Francisco, CA, 2/95. Validity of the rapid buffering approximation... Smith GD, Wagner J, and Keizer J. (*poster*)
- **Mechanisms of Ca²⁺ Oscillations and Waves**, Marconi Conference Center, Marshall, CA, 12/93.
- **CRM-UBC Summer School on Mathematical Biology**, University of British Columbia, Vancouver, BC, Canada, 7/93. (*student*)

GRADUATE AND POST-DOCTORAL TRAINING

Research Associates Supported and Supervised

- **Drew LaMar**, Ph.D. Spring 07–present.
- **Marco Huertas**, Ph.D. Summer 03–present.
- **Bori Mazzag**, Ph.D. Summer 03–Summer 05. In Fall 05 Bori accepted a tenure-track assistant professor position in the Department of Mathematics at Humboldt State University.
- **Yinshui Fan**, Ph.D. Fall 01–Spring 02.

Applied Science Graduate Students Supported and Supervised

- **Ryan Carpenter** (Spring 07–present)
- **Yan (Amy) Hao** (Fall 06–present)
- **Hilary DeRemigio** (Fall 03–Spring 08). Hilary graduated with a Ph.D. in Applied Science.
Dissertation title: *Markov chain models of instantaneously coupled intracellular calcium channels*
Committee: Gregory Smith*, Leah Shaw, Peter Kemper, Eric Sobie
Hilary is now an assistant professor in the Department of Mathematical Sciences at the United States Military Academy at West Point.
- **George Stuart Blair Williams** (Fall 03–Spring 08). Blair graduated with a Ph.D. in Applied Science.
Dissertation title: *Probability density methods for modeling local and global aspects of intracellular calcium signaling*
Committee: Gregory Smith*, Carey Bagdassarian, Eric Bradley, Eric Sobie
- **Jeff Groff** (Spring 03–Fall 07). Jeff graduated with a Ph.D. in Applied Science.
Dissertation title: *Markov chain models of calcium puffs and sparks*
Committee: Gregory Smith*, Mark Hinders, Christopher Del Negro, Eric Sobie
- **Vivian Zhang** (Fall 02–Spring 04). Vivian graduated with an M.S. in Applied Science and entered the applied mathematics Ph.D. program at UC Davis.
- **John Hayes** (Fall 02–Spring 04). John received an M.S. in Applied Science under my direction and subsequently became a Ph.D. candidate in the Del Negro laboratory. John has graduated with a Ph.D. in Applied Science (see dissertation below) and is now a post-doctoral researcher in the Del Negro lab.
- **Chuan Wei** (Fall 02–Spring 03). Chuan graduated with an M.S. in Applied Science.

Dissertation Committee Service in the Department of Applied Science³

- John A. Hayes, *Phenotypic properties and intrinsic currents of neurons involved in the neuronal generation of mammalian breathing* (w/ Christopher Del Negro*, Margaret Saha, Patrice Guyenet). 6/07. (*reader*)
- Yuemei Zhang, *UV cure kinetics of dimethacrylate thin and thick samples* (w/ David Kranbuehl*, Christopher Del Negro, William Starnes, and Christopher Abelt). 10/06. (*reader*).
- Wen Gao. *Sonar sensor interpretation for ectogeneous robots* (w/ Mark Hinders*, Zia-ur Rahman, and Weizhen Mao). 5/05. (*reader*)
- Kevin Leonard. *Ultrasonic guided wave tomography of pipes* (w/ Mark Hinders*, Zia-ur Rahman, and Robert Welsh). 5/04. (*reader*)
- Jidong Hou. *Ultrasonic signal detection and recognition using dynamic wavelet fingerprint* (w/ Mark Hinders*, Gene Tracy, Zia-ur Rahman). 4/04. (*reader*)
- John Hayes. *A framework for implementing bioinformatics knowledge-exploration systems*. (w/ Krista Miller, Maciek Sasinowski, Michael Trosset, and Dennis Manos). 04/04. (*reader and advisor of record*)
- Thomas Milligan. *On certain sets of matrices: distance matrices, ray nonsingular matrices and matrices generated by reflections* (w/ Chi-Kwong Li*, Roy Mathias, Michael Tsatsomeros). 4/04. (*reader*)
- George A. Andrews, Jr. *Spontaneous pulse formation in bistable systems* (w/ Gene Tracy*, Dennis Manos, Bill Cooke, and Roy Champion). 12/03. (*reader*)

³In addition to those dissertations for which I was chair (see above).

- Brian Killough. *A semi-empirical cellular automata model for wildfire monitoring from a geosynchronous space platform* (w/ Mark Hinders*, Joel Levine, and Zai-ur Rahman). Fall 02–Spring 03. (*reader*)
- John E. Lynch. *Ultrasonographic measurement of periodontal attachment levels* (w/ Mark Hinders*, Erick Madaras, and Jeffrey Rogers). 6/01. (*reader*)

External Dissertation Committee Service

- Michael Sheller, Bioengineering, Arizona State University (advisors Jiping He and James Ryaby). 6/03–present. (*external reader*).
- Greg Lemon, School of Mathematics and Statistics, University of Sydney, *Mathematical Modeling of Some Aspects of Intracellular Second Messenger Signaling* (advisors: Bill Gibson and Max Bennett). 10/03. (*external reader*)
- Dritan Zela, Mathematics, Arizona State University, *A two-dimensional model for the horizontal-cell-to-cone feedback in the cat outer retina* (advisor: Steve Baer). 12/01. (*external reader*)

UNDERGRADUATE RESEARCH EXPERIENCES

- Jana Hartman (09, Physics): Summer 08 (undergraduate biomath REU), Fall 2008 & Spring 2009 (Physics Senior Thesis).
- Claire Zimmeck (09, Neuroscience): Summer 08 (informal), Fall 2008 (apsc REU)
- Puja Parekh (09, Neuroscience): Fall 06 (informal).
- Andrew McGowen (08, Physics & Religious Studies): Summer 06 (physics REU), Fall 06 (apsc REU).
- Adam Carpenter (08, Math): Summer 06 (informal).
- Evan Molinelli (07, Physics): Fall 05 & Spring 06 (physics senior thesis), Fall 06 & Spring 07 (apsc REU). Evan Molinelli is currently a PhD Student in the Tri-Institutional Training Program in Computational Biology and Medicine at Cornell University, Weill Cornell Medical College, and the Sloan-Kettering Institute.
- Greg Pelander (06, Neuroscience): Summer & Fall 05 (math REU).
- Jyotsna (Joey) Singh (07, Biology): Spring & Summer 05.
- Rita Schneider (Fairfield University, 05): Summer 04 (physics REU).
 - Pi Mu Epsilon National Meeting at MathFest, Providence, RI. “Monte Carlo Simulation of Instantaneously-Coupled Ryanodine Receptors.” 8/04. (*speaker*)
- Becky Ellison (03, Mathematics): Spring 03.
- Chris Tignanelli (05, Bioinformatics): Spring 03, Summer 03 (HHMI REU Fellowship), Fall 03, Summer 04 (Math REU), Fall 04, Spring 05.
 - Chris’ interdisciplinary concentration in bioinformatics was approved by Charles Center under my supervision in Spring 03.
 - Verizon Undergraduate Research Symposium. Fall 03 & 04 (*speaker*)
 - Biophysical Society Annual Meeting, Baltimore, MD. 2/04. (*poster co-author*)
 - Neuroscience Symposium. Fall 04. (*poster*)
 - Undergraduate honors thesis: *The effect of residual Ca^{2+} on the stochastic gating of Ca^{2+} -regulated Ca^{2+} channels*, Spring 05.

- Co-author of a manuscript that appeared in 05 (see above).
- Paul Brewer (03, Physics): Summer 02 (physics REU), Fall 02 & Spring 03 (physics senior thesis).
 - Mathematics of Biological Systems Summer School at University of Alberta. 3/02. (*student*)
 - Annual Computational Neuroscience Meeting in Chicago, IL. 7/02. (*attendee*)
 - W&M Verizon Undergraduate Research Symposium. Fall 02. (*poster*)

In Fall 2008 Paul Brewer entered the Colorado State University graduate program in Ecology (laboratory of Joe von Fischer).

- Coleen Loomis (02, Mathematics): Summer 02 (Verizon Fellowship), Fall 02.
 - Verizon Undergraduate Research Symposium. Fall 02. (*poster*)
- Vien Nguyen (05, Physics): Fall 01–Fall 05.
 - MATLAB Fundamentals and Programming Techniques Workshop in Atlanta, GA. 4/02. (*student*)
 - Verizon Undergraduate Research Symposium. Fall 02 & 04 (*poster*)
 - Freshman Monroe Scholarship Presentation Fair. Fall 02. (*speaker*)
 - Biophysical Society Annual Meeting, Baltimore, MD. 2/04. (*poster co-author*)
 - Vien is first author of a manuscript that appeared in 05.
 - Neuroscience Symposium. Fall 04. (*poster*)
 - Undergraduate honors thesis: *The dynamics Ca²⁺ puffs: a study of instantaneously-coupled intracellular Ca²⁺ channels*, Spring 05.
- Shannon McNulty, W&M, Fall 01.
- Danielle Thibodeau (ASU Bioengineering and Honors College), Spring 01.
- Injune Hansie Wang, (UC Berkeley, Mathematics), NIH Summer Research Experience for Undergraduates. Sponsor: Arthur Sherman. As a post-doc at MRB/NIDDK I was Hansie's unofficial mentor.

9. PROFESSIONAL SERVICE

- Elected co-chair (2010) and co-vice-chair (2008) of the **Gordon Conference on Theoretical Biology and Biomathematics** (w/ Peter Swain).
- **Representative Service as Referee for Scientific Journals⁴**
 - *American Journal of Physiology*, 97.
 - *Biophysical Journal*, 96, 97, 01, 02, 07 (2×), 08 (3×).
 - *Biophysical Chemistry*, 08.
 - *Bulletin of Mathematical Biology*, 00.
 - *European Journal of Neuroscience*, 03.
 - *Journal of Computational Neuroscience*, 97, 99, 04 (2×), 07 (2×).
 - *Journal of Neurophysiology*, 06.
 - *Journal of Neuroscience*, 02.
 - *Journal of Nonlinear Science*, 05.
 - *Journal of Theoretical Biology*, 00, 02 (2×), 06 (2×), 07 (2×).
 - *Mathematical Medicine and Biology*, 05, 06.

⁴Once per year listed.

- *New Journal of Physics*, 03.
- *Physica D Nonlinear Phenomena*, 03.

- **Representative Service Reviewing Grant Proposals**

- Panelist for Joint NSF Division of Mathematical Sciences and National Institute of General Medical Sciences competition to stimulate research in the area of mathematical biology (at request of Junping Wang). 9/05. 3/07.
- Reviewed NSF computational neuroscience proposal (at request of Paul B. Farel). 2/07.
- Reviewed Engineering and Physical Sciences Research Council Postdoctoral Fellowship at the Life Sciences Interface proposal (at request of Pat Patel). 12/06.
- Reviewed Wellcome Trust proposal (at request of James Harden). 12/05.
- Temporary member of the NIH Neurotransmitters, Receptors, and Calcium Signaling Study Section (at request of Peter Guthrie). 6/05.
- Reviewed NSF IBN Computational Neuroscience proposal (at request of Christopher Platt). 5/03.
- Review of six Joint NSF DMS/NIGMS mathematical biology proposals (at request of Keith N. Crank). 1/02.
- Reviewed a proposal submitted to the Cooperative Grants Program of the U.S. Civilian Research and Development Foundation. 00.

- **Other Service to Profession**

- Agreed to mentor Tiffany Fisher, a first year graduate student of Dwayne Godwin at Wake Forest University, as part of her SfN Minority Neuroscience Predoctoral Fellowship. 6/03–6/05.

- **Professional Memberships**

- Biophysical Society, 96–present.
- Society for Neuroscience, 96–present.
- Society for Mathematical Biology, 00–present.
- Society for Industrial and Applied Mathematics, 04–present.

- **Representative Service to Department of Applied Science**

- Joint Physics/Applied Science VMEC Search Committee (w/ Vold*, Luepke, Krakauer, Armstrong, Cooke). 06–07.
- Chair, Faculty Search Committee (w/ Hinders and Del Negro). 06–07.
- Activities related to the Southern Association of Colleges and Schools (SACS) accreditation review (w/ Davanay and Bradley). Fall 03–Spring 05.
- Chair, Computer Systems Committee (w/ Bradley). Fall 01–present.
- Chair, Faculty Search Committee (w/ Holloway and Del Negro). 05–06.
- Joint Physics/Applied Science VMEC Search Committee (w/ Holloway, Bradley, Luepke, Hoatson, Griffieon, Krakauer, Zhang). 05–06.
- Co-chair, Curriculum Committee (w/ Hinders). 04–05.
- Applied Science Representative to the Committee on Graduate Studies. Fall 02–Spring 05.
- Chair, Admissions/Recruiting Committee. Fall 03–Spring 04.
- Chair, Faculty Search Committee leading to hire of Christopher Del Negro. Fall 02–Spring 03.
- Admissions/Recruitment Committee (w/ Hinders*). Fall 01–Spring 03.
- Faculty Search Committee (w/ Hinders*, Vold). Fall 01–Spring 02.

- Oral Examinations: Shahla Nasserar (Smith*, Lutzer, Vinroot) 8/07, Jeff Mendenhall (Smith*, Hinders, Swaddle) 1/07, Ryland Pace (Kelley*, Griffin, Smith) 8/06, Erica Andriole (Smith*, Vold, Outlaw) 1/05, Kevin Rudd (Holloway, Smith, Rahman) 1/05; Elizabeth Slonaker (Manos*, Smith, Abelt) 1/03; Wen Gao (Vold*, Smith, Manos) 1/02; Eric Lowenstein (Holloway*, Smith, Manos) 1/02; Haibin Zhao (Kelly*, Smith, Leemis) 9/01; Shuyan Zhang (Smith*, Vold, Cooke) 9/01; Nimel Theodore (Smith*, Hinders, Tracy) 9/01.

• **Representative Service to College and Other Departments at W&M**

- Chair, Applied Science Committee on Retention, Promotion, and Tenure, reviewing Del Negro's promotion from Assistant Professor to Associate Professor with tenure. 08–09.
- Area III Representative to the Faculty Assembly (elected office). 06–07, 08–present.
- Faculty Research Committee. 05–06, 06–07, 08–present.
- Procedural Review Committee. 08–present.
- Courtesy faculty member in the Departments of Mathematics (9/02–present) and Physics (10/02–present).
- Neuroscience program faculty member. Fall 01–present.
- Advisor for Neuroscience majors. 04–07.
- Reader for Alicia Frame (07), Biology Honors Thesis, *Effects of Feather Pigmentation on Bacterial Degradation Rates* (w/ Swaddle*, Forsyth, and Cristol).
- Member of search committee for Computational Science Cluster Applications Analyst (John van Rosendale, chair). Spring 06.
- First Year Committee member for Caitlin Kight (w/ Swaddle, Biology). 05–06.
- Member of search committee for the Assistant to the Dean of Graduate Studies and Research (w/ Sanderson*, Lockeman, Miller, and Phillips). 6/05.
- Reader for Christen Raymond (03), Biology, *Individual neuroendocrine variation within a natural population of mice and among inbred laboratory rat strains*. (w/ Heideman* and Swaddle)
- Reader for Evan McCreedy (04), Computer Science, *A fault-tolerant and adaptive implementation of mpiBLAST for large-scale or distributed heterogeneous clusters*. (w/ Nikolopoulos* and Torzon)
- Served on HHMI Summer Grant Committee (w/ Saha, chair). 2/03 & 3/04.
- Ad hoc committee to determine appropriateness of an IGERT proposal in the area of computational biology and/or bioinformatics (w/ Finifter*, Kreps, Voigt, von Baeyer, and Bradley). Fall 02.
- Contributed to sub-proposal in support of a mathematical and computational biology component in a proposed Ph.D. degree program in Mathematics (w/ Shi*, Schreiber, and Trosset). 9/02.
- Consulted with Gene Roche and others in the Information Technology office regarding the upgrade of W&M's central UNIX statistical server.
- Co-organized the weekly Applied Mathematics Colloquia series sponsored by the Depts. of Mathematics and Applied Science and the Computational Science Cluster (w/ Trosset* and Lewis). Fall 02.
- Served on Interdisciplinary Science Concentrations Committee commissioned by Joel Schartz leading to a proposed interdisciplinary science concentration in bioinformatics (w/ Saha*, Trosset, and others). Spring 02.
- Assisted with biomathematics, biostatistics, and computational mathematics faculty searches (at request of Mike Trosset and Sebastian Schreiber). Spring 02, 03 & 04.

10. LETTER OF REFERENCE

Letters of reference can be obtain from the following six individuals:

- James P. Keener
Distinguished Professor of Mathematics and Adjunct Professor of Bioengineering
155 South 1400 East
Salt Lake City, UT 84112-0009
801-581-6089
keener@math.utah.edu
- John Rinzel
Center for Neural Science and Courant Institute
New York University
4 Washington Place, Rm 809
New York, NY 10003
212-998-2208
rinzel@cns.nyu.edu
- Arthur Sherman
Laboratory of Biological Modeling
National Institute of Diabetes, Digestive and Kidney Diseases
National Institutes of Health
Building 12A, Room 4007
12 South Dr. MSC 5621
Bethesda, MD 20892-5621
301-496-4325
sherman@helix.nih.gov
- S. Murray Sherman
Department of Neurobiology, Pharmacology & Physiology
The University of Chicago
947 E. 58th Street, MC 0926, 316 Abbott
Chicago, IL 60637
773-834-2900
msherman@bsd.uchicago.edu
- Dan Tranchina
Department of Biology, Courant Institute of Mathematical Sciences and Center for Neural Science
New York University
New York, NY 10003
212-998-3109
tranchina@cims.nyu.edu
- John Tyson
University Distinguished Professor
Department of Biology, M.C. 0406
Virginia Polytechnic Institute & State University
Blacksburg, VA 24061
540-231-4662
tyson@vt.edu