Dr. Richard Bertram
Professor
Department of Mathematics
Florida State University
Tallahassee, Florida 32306
E-mail: bertram@math.fsu.edu
phone: 850-644-7195

Education

Bachelor of Science in Applied Mathematics (Summa Cum Laude), December 1985, Florida State University, Tallahassee, FL.

Doctor of Philosophy in Applied Mathematics, April 1993
Florida State University, Tallahassee, FL.

Professional History

5/93–6/96: **Postdoctoral Research Fellow**, Mathematical Research Branch, National Institutes of Health, Bethesda, MD.

6/96–7/99: **Assistant Professor of Mathematics**, Pennsylvania State University, Erie, PA.

8/99–7/01: **Assistant Scientist**, Institute of Molecular Biophysics, Florida State University, Tallahassee, FL.

8/01–7/04: **Assistant Professor of Mathematics**, Florida State University, Tallahassee, FL.

8/04–6/09: **Associate Professor of Mathematics**, Florida State University, Tallahassee, FL.

8/01–present: **Member of the Molecular Biophysics Program**, Florida State University, Tallahassee, FL.

6/05–present: **Member of the Program in Neuroscience**, Florida State University, Tallahassee, FL.

8/09–present: **Professor of Mathematics**, Florida State University, Tallahassee, FL.

Articles Published in Refereed Journals

* denotes FSU student

1. **R. Bertram**, *A Computational Study of the Effects of Serotonin on a Molluscan Burster Neuron*, Biological Cybernetics, 69:257–267, 1993.

2. **R. Bertram**, *Reduced-System Analysis of the Effects of Serotonin on a Molluscan Burster Neuron*, Biological Cybernetics, 70:359–368, 1994.

3. **R. Bertram**, M. J. Butte, T. Kiemel, A. Sherman, *Topological and Phenomenological Classification of Bursting Oscillations*, Bulletin of Mathematical Biology, 57:413–440, 1995.

4. **R. Bertram**, P. Smolen, A. Sherman, D. Mears, I. Atwater, F. Martin, B. Soria, *A Role for Calcium Release Activated Current (CRAC) in Cholinergic Modulation of Electrical Activity in Pancreatic β-Cells*, Biophysical Journal, 68:2323–2332, 1995. (Selected for New and Notable, *Biophysical Journal* 68:2216–2217, 1995.)

5. Y.-X. Li, **R. Bertram**, J. Rinzel, *Modeling N-Methyl-D-Aspartate-Induced Bursting in Dopamine Neurons*, Neuroscience, 71:397–410, 1996.

6. **R. Bertram**, A. Sherman, E. F. Stanley, *The Single Domain/Bound Calcium Hypothesis of Transmitter Release and Facilitation*, Journal of Neurophysiology, 75:1919–1931, 1996.

7. D. Mears, N. F. Sheppard Jr., I. Atwater, E. Rojas, **R. Bertram**, A. Sherman, *Evidence That Calcium Release-Activated Current Mediates the Biphasic Electrical Activity of Mouse Pancreatic β-Cells*, Journal of Membrane Biology, 155:47–60, 1997.

8. **R. Bertram**, *A Simple Model of Transmitter Release and Facilitation*, Neural Computation, 9:515–523, 1997.

9. **R. Bertram** and A. Sherman, *Population Dynamics of Synaptic Release Sites*, SIAM Journal on Applied Mathematics, 58:142–169, 1998.

10. **R. Bertram**, M. Pernarowski, *Glucose Diffusion in Pancreatic Islets of Langerhans*, Biophysical Journal, 74:1722–1731, 1998.

11. **R. Bertram**, G. D. Smith, A. Sherman, *Modeling Study of the Effects of Overlapping Ca^{2+} Microdomains on Neurotransmitter Release*, Biophysical Journal, 76:735–750, 1999.

12. H. Tabakovic, J. Paullet, **R. Bertram**, *Measuring the Curl of Paper*, The College Mathematics Journal, 30:315-317, 1999.

13. **R. Bertram** and M. Behan, *Implications of G-Protein-Mediated Ca^{2+} Channel Inhibition for Neurotransmitter Release and Facilitation*, Journal of Computational Neuroscience, 7:197-211, 1999.

14. **R. Bertram**, J. R. Quine, M. S. Chapman, T. A. Cross, *Atomic Refinement Using Orientational Restraints from Solid-State NMR*, Journal of Magnetic Resonance, 147:9-16, 2000.

15. **R. Bertram**, J. Previte, A. Sherman, T. A. Kinard, L. S. Satin, *The Phantom Burster Model for Pancreatic β-Cells*, Biophysical Journal, 79:2880-2892, 2000.

16. **R. Bertram**, *Differential Filtering of Two Presynaptic Depression Mechanisms*, Neural Computation, 13:69-85, 2001.

17. A. Korostelev*, **R. Bertram**, M. S. Chapman, *Simulated Annealing Real-Space Refinement as a Tool in Model Building*, Acta Crystallographica, D58:761-767, 2002.

18. **R. Bertram**, M. I. Arnot, G. W. Zamponi, *A Role for G Protein $G\beta\gamma$ Isoform Specificity in Synaptic Signal Processing: A Computational Study*, Journal of Neurophysiology, 87:2612-2623, 2002.

19. F. Fabiola, **R. Bertram**, A. Korostelev*, M. S. Chapman, *An Improved Hydrogen Bond Potential for Crystallographic Refinement*, Protein Science, 11:1415–1423, 2002.

20. P. B. Goforth, **R. Bertram**, F. A. Khan, M. Zhang, A. Sherman, L. S. Satin, *Calcium-Activated K^+ Channels of Mouse β-Cells are Controlled by Both Store and Cytoplasmic Ca^{2+}: Experimental and Theoretical Studies*, Journal of General Physiology, 120:307–322, 2002.

21. M. Zhang, P. Goforth, **R. Bertram**, A. Sherman, L. Satin, *The Ca^{2+} Dynamics of Isolated Mouse β-Cells and Islets: Implications for Mathematical Models*, Biophysical Journal, 84:2852-2870, 2003.

22. **R. Bertram**, T. Asbury*, F. Fabiola, J. R. Quine, T. A. Cross, M. S. Chapman, *Atomic Refinement with Correlated Solid-State NMR Restraints*, Journal of Magnetic Resonance, 163:300-309, 2003.

23. **R. Bertram**, J. Swanson*, M. Yousef*, Z.-P. Feng, G. Zamponi, *A Minimal Model for G Protein-Mediated Synaptic Facilitation and Depression*, Journal of Neurophysiology, 90:1643-1653, 2003.

24. K. Wierschem* and **R. Bertram**, *Complex Bursting in Pancreatic Islets: A Potential Glycolytic Mechanism*, Journal of Theoretical Biology, 228:513-521, 2004.

25. M. Egli, **R. Bertram**, M. T. Sellix*, M. E. Freeman, *Rhythmic Secretion of Prolactin in Rats: Action of Oxytocin Coordinated by Vasoactive Intestinal Polypeptide of Suprachiasmatic Nucleus Origin*, Endocrinology, 145:3386–3394, 2004.

26. **R. Bertram** and A. Sherman, *A Calcium-Based Phantom Bursting Model for Pancreatic Islets*, Bulletin of Mathematical Biology, 66:1313–1344, 2004.

27. **R. Bertram**, L. Satin, M. Zhang, P. Smolen, A. Sherman, *Calcium and Glycolysis Mediate Multiple Bursting Modes in Pancreatic Islets*, Biophysical Journal, 87:3074–3087, 2004.

28. J. R. Quine, T. A. Cross, M. S. Chapman, and **R. Bertram**, *Mathematical Aspects of Protein Structure Determination with NMR Orientational Restraints*, Bulletin of Mathematical Biology, 66:1705–1730, 2004.

29. **R. Bertram** and A. Sherman, *Filtering of Calcium Transients by the Endoplasmic Reticulum in Pancreatic β-Cells*, Biophysical Journal, 87:3775–3785, 2004.

30. M. G. Pedersen, **R. Bertram**, and A. Sherman, *Intra- and Inter-Islet Synchronization of Metabolically Driven Insulin Secretion*, Biophysical Journal, 89:107–119, 2005.

31. C. S. Nunemaker, M. Zhang, D. H. Wasserman, O. P. McGuinness, A. C. Powers, **R. Bertram**, A. Sherman, and L. S. Satin, *Individual Mice can be Distinguished by the Period of Their Islet Calcium Oscillations: Is there an Intrinsic Islet Period That is Imprinted In Vivo?*, Diabetes, 54:3517–3522, 2005.

32. M. Egli, **R. Bertram**, N. Toporikova*, M. T. Sellix*, W. Blanco*, and M. E. Freeman, *Prolactin Secretory Rhythm of Mated Rats Induced by a Single Injection of Oxytocin*, American Journal of Physiology, 290:E566–E572, 2006.

33. **R. Bertram**, M. Egli, N. Toporikova*, and M. E. Freeman, *A Mathematical Model for the Mating-Induced Prolactin Rhythm of Female Rats*, American Journal of Physiology, 290:E573–E582, 2006.

34. K. Tsaneva-Atanasova, C. L. Zimliki, **R. Bertram**, A. Sherman, *Diffusion of Calcium and Metabolites in Pancreatic Islets: Killing Oscillations with a Pitchfork*, Biophysical Journal, 90:3434–3446, 2006.

35. J. R. Quine, S. Achuthan*, T. Asbury*, **R. Bertram**, M. S. Chapman, J. Hu*, and T. A. Cross, *Intensity and Mosaic Spread Analysis from PISEMA Tensors in Solid-State NMR*, Journal of Magnetic Resonance, 179:190–198, 2006.

36. C. S. Nunemaker, **R. Bertram**, A. Sherman, K. Tsaneva-Atanasova, C. R. Daniel, L. S. Satin, *Glucose Modulates $[Ca^{2+}]_i$ Oscillations in Pancreatic Islets via Ionic and Glycolytic Mechanisms*, Biophysical Journal, 91:2082–2096, 2006.

37. T. Asbury*, J.R. Quine, S. Achuthan*, J. Hu*, M. S. Chapman, T. A. Cross, **R. Bertram**, *PIPATH: An Optimized Algorithm for Generating α-Helical Structures from PISEMA data*, Journal of Magnetic Resonance, 183:87–95, 2006.

38. **R. Bertram**, M. G. Pedersen, D. S. Luciani, A. Sherman, *A Simplified Model for Mitochondrial ATP Production*, Journal of Theoretical Biology, 243:575–586, 2006.

39. V. Matveev, **R. Bertram**, A. Sherman, *Residual Bound Ca^{2+} Can Account for the Effects of Ca^{2+} Buffers on Synaptic Facilitation*, Journal of Neurophysiology, 96:3389–3397, 2006.

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41. J. Tabak, N. Toporikova*, M. E. Freeman, **R. Bertram**, *Low Dose of Dopamine may Stimulate Prolactin Secretion by Increasing Fast Potassium Currents*, Journal of Computational Neuroscience, 22:211–222, 2007.

42. J. Hu*, T. Asbury*, S. Achuthan*, C. Li*, **R. Bertram**, J. R. Quine, R. Fu*, T. A. Cross, *Backbone Structure of the Amantadine-Blocked Trans-Membrane Domain M2 Proton Channel from Influenza A Virus*, Biophysical Journal, 92:4335–4343, 2007.

43. D. T. McKee*, M. O. Poletini, **R. Bertram**, M. E. Freeman, *Oxytocin Action at the Lactotroph is Required for Prolactin Surges in Cervically Stimulated Ovariectomized Rats*, Endocrinology, 148:4649–4657, 2007.

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45. N. Toporikova*, J. Tabak, M. E. Freeman, **R. Bertram**, *A-type K^+ Current Can Act as a Trigger for Bursting in the Absence of a Slow Variable*, Neural Computation, 20:436–451, 2008.

46. S. Achuthan*, T. Asbury*, J. Hu*, **R. Bertram**, T. A. Cross, J. R. Quine, *Continuity Conditions and Torsion Angles from ssNMR Orientational Restraints*, Journal of Magnetic Resonance, 191:24–30, 2008.

47. **R. Bertram**, R. C. Arceo II*, *A Mathematical Study of the Differential Effects of Two SERCA Isoforms on Calcium Oscillations in Pancreatic Islets*, Bulletin of Mathematical Biology, 70:1251–1271, 2008.

48. W. Wu, J. A. Thompson*, **R. Bertram**, F. Johnson, *A Statistical Method for Quantifying Songbird Phonology and Syntax*, Journal of Neuroscience Methods, 174:147–154, 2008.

49. **R. Bertram**, J. Rhoads*, W. P. Cimbora*, *A Phantom Bursting Mechanism for Episodic Bursting*, Bulletin of Mathematical Biology, 70:1979–1993, 2008.

50. **R. Bertram**, Y.-X. Li, *A Mathematical Model for the Actions of Activin, Inhibin, and Follistatin on Pituitary Gonadotrophs*, Bulletin of Mathematical Biology, 70:2211–2228, 2008.

51. M. Zhang, B. Fendler*, B. Peercy, P. Goel, **R. Bertram**, A. Sherman, L. Satin, *Long Lasting Synchronization of Isolated Pancreatic Islet Calcium Oscillations by Cholinergic Stimulation*, Biophysical Journal, 95:4676–4688, 2008.

52. M. Tomaiuolo*, **R. Bertram**, D. Houle, *Enzyme Isoforms May Increase Phenotypic Robustness*, Evolution, 62:2884–2893, 2008.

53. C. V. Helena, D. T. McKee*, **R. Bertram**, A. M. Walker, M. E. Freeman, *The Rhythmic Secretion of Mating-Induced Prolactin Secretion is Controlled by Prolactin Acting Centrally*, Endocrinology, 150:3245–3251, 2009.

54. B. Fendler*, M. Zhang, L. S. Satin, **R. Bertram**, *Synchronization of Pancreatic Islet Oscillations by Intrapancreatic Ganglia: A Modeling Study*, Biophysical Journal, 97:722–729, 2009.

55. V. Matveev, **R. Bertram**, A. Sherman, *Ca^{2+} Current vs. Ca^{2+} Channel Cooperativity of Exocytosis*, Journal of Neuroscience, 29:12196–12209, 2009.

56. **R. Bertram**, P. Budu-Grajdeanu, M. S. Jafri, *Using Phase Relations to Identify Potential Mechanisms for Metabolic Oscillations in Isolated Beta-Cell Mitochondria*, Islets, 2:87–94, 2009.

Book Chapters and Reviews

* denotes FSU student

1. **R. Bertram** and A. Sherman, *Dynamical Complexity and Temporal Plasticity in Pancreatic β-Cells*, Journal of Biosciences, 25:197–209, 2000.

2. **R. Bertram**, K. Wierschem*, M. Zhang, P. Goforth, A. Sherman, L. S. Satin, *Phantom Bursting in Pancreatic Islets: A Potential Role for Insulin Feedback*, in Recent Research Developments in Biophysics, ed. S. G. Pandalai, Transworld Research Network Publishers, 1:31–51, 2002.

3. **R. Bertram**, *Mathematical Models of Synaptic Transmission and Short-Term Plasticity*, in Tutorials in Mathematical Biosciences II: Mathematical Modeling of Calcium Dynamics and Signal Transduction, ed. J. Sneyd, Springer, Lecture Notes in Mathematics, 1867:173–202, 2005.

4. A. Sherman and **R. Bertram**, *Integrative Modeling of the Pancreatic β-Cell*, in Encyclopedia of Genetics, Genomics, Proteomics and Bioinformatics, Part 3: Proteomics, (ed.) Raimond Winslow, Wiley Publishers, ISBN: 0-470-84974-6, (21 pages), 2005.

5. **R. Bertram** and A. Sherman, *Negative Calcium Feedback: The Road from Chay-Keizer*, in Bursting: The Genesis of Rhythm in the Nervous System, (ed.) S. Coombes and P. Bressloff, World Scientific Press, pp. 19-48, 2005.

6. **R. Bertram**, J. Tabak, N. Toporikova*, and M. E. Freeman, *Endothelin Action on Pituitary Lactotrophs: One Receptor, Many GTP-Binding Proteins*, Science STKE, 2006(319):pe4, (4 pages), 2006.

7. **R. Bertram**, J. Tabak, N. Toporikova*, *Models of Hypothalamus*, Scholarpedia, 1(12):1330, 2006.

8. **R. Bertram**, A. Sherman, L. S. Satin, *Metabolic and Electrical Oscillations: Partners in Controlling Pulsatile Insulin Secretion*, American Journal of Physiology, 293:E890-E900, 2007.

9. M. E. Freeman, D. T. McKee*, M. Egli, **R. Bertram**, *Biological and Mathematical Modeling Approaches to Defining the Role of Oxytocin and Dopamine in the Control of Mating-Induced PRL Secretion*, in Neurobiology of the Parental Brain, (ed.) R. Bridges, Elsevier, pp. 233–245, 2008.

10. **R. Bertram**, *Bursting in Pituitary Cells*, in Frontiers of Applied and Computational Mathematics, (ed.) D. Blackmore, A. Bose, P. Petropoulos, World Scientific, pp. 47–55, 2008.

11. M. Tomaiuolo, J. Tabak, **R. Bertram**, *Correlation Analysis: A Tool for Comparing Relaxation-Type Models to Experimental Data*, In Michael L. Johnson and Ludwig Brand, editors: Methods in Enzymology, vol. 467, Burlington: Academic Press, 2009, pp. 1–22.

Articles Accepted for Publication

* denotes FSU student

- **R. Bertram**, A. Sherman, L. S. Satin, *Electrical Bursting, Calcium Oscillations, and Synchronization of Pancreatic Islets*, in The Islets of Langerhans, (ed.) M. S. Islam, Springer, accepted.

Articles Submitted for Publication

- J. Tabak, M. Mascagni, **R. Bertram**, *Mechanism for the Universal Pattern of Activity in Developing Neuronal Networks*, submitted.

- J. Tabak, A. E. Gonzalez-Iglesias, N. Toporikova, **R. Bertram**, M. E. Freeman, *Variations in the Response of Pituitary Lactotrophs to Oxytocin During the Rat Estrous Cycle*, submitted.

- T. Vo, **R. Bertram**, J. Tabak, M. Wechselberger, *Mixed Mode Oscillations as a Mechanism for Pseudo-Plateau Bursting*, submitted.

Refereed Abstracts for International Meetings

- M. G. Pedersen, D. Luciani, **R. Bertram**, A. Sherman, *Experimental and Theoretical Study of Entrainment of Calcium and Metabolic Oscillations in Pancreatic Islets*, European Conference on Mathematical and Theoretical Biology, Germany, 2005.

Refereed Abstracts for National Meetings

1. L. S. Satin, T. A. Kinard, **R. Bertram**, A. Sherman, *Testing the Phantom Bursting Model for Pancreatic β-Cells using Dynamic Clamp*, American Diabetes Association Annual Meeting, 2000.

2. C. Zimliki Jr., D. Mears, **R. Bertram**, A. Sherman, *Establishing the Voltage Dependence of Pancreatic β-Cell Oscillation to Distinguish Alternate Theoretical Models*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 51:A374, 2002.

3. M. Zhang, **R. Bertram**, A. Sherman, L. S. Satin, *Contribution of Gap Junctional Currents to Islet Electrical Activity*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 51:A374, 2002.

4. M. Zhang, **R. Bertram**, A. Sherman, L. S. Satin, *Heterogeneous Electrical Activity Determines Free Calcium Dynamics in Isolated Pancreatic β-Cells*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 51:A374, 2002.

5. **R. Bertram**, K. Wierschem, A. Sherman, F. A. Khan, P. B. Goforth, M. Zhang, L. S. Satin, *Insulin Feedback onto β-Cells as a Mechanism for Islet Rhythmicity*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 51:A366, 2002.

6. **R. Bertram** and A. Sherman, *A Unified Model for Fast, Medium, and Slow Bursting in Pancreatic β-Cells*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 52:A368, 2003.

7. **R. Bertram**, A. Sherman, M. Zhang, L. S. Satin, *Calcium-Driven and Glycolytic Oscillations in Pancreatic Islets*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 53:A583, 2004.

8. D. Luciani, **R. Bertram**, M. Pedersen, A. Sherman, K. S. Polonsky, *Experimental and Mathematical Study of Calcium and NADH Oscillations in Pancreatic Islets*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 54:A654, 2005.

9. C. S. Nunemaker, M. Zhang, **R. Bertram**, A. Sherman, K. Tsaneva-Atanasova, L. S. Satin, *Mouse Beta-Cells and Islets Differ in Glucose Responsiveness*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 54:A407, 2005.

10. C. S. Nunemaker, M. Zhang, D. H. Wasserman, O. P. McGuiness, A. C. Powers, **R. Bertram**, A. Sherman, L. S. Satin, *Islet Calcium Oscillations Differ from Mouse to Mouse in vitro but Correlate with Insulin Secretion in vivo*, American Diabetes Association Annual Meeting, Diabetes Abstracts, 54:A412, 2005.

11. **R. Bertram**, A. Sherman, C. S. Nunemaker, D. S. Luciani, M. G. Pedersen, M. Zhang, K. Tsaneva-Atanasova, L. S. Satin, *Evidence that Calcium Feedback and Glycolytic Oscillations are Both Important in Pancreatic β-cells: A Computational and Experimental Study*, American Diabetes Association Annual Meeting, 2006.

12. M. Zhang, B. Fendler, B. Peercy, **R. Bertram**, A. Sherman, and L. Satin, *Synchronization of Islet Calcium Oscillations by Cholinergic Agonists*, American Diabetes Association Annual Meeting, 2007.

Non-Refereed Abstracts for International Meetings

1. A. Sherman, **R. Bertram**, *Testing the CRAC Hypothesis via Glucose Transients*, Pancreatic Islet Study Group of the E. A. S. D., Sweden, 1995.

2. S. Kim, **R. Bertram**, M. Chapman, J. R. Quine, T. A. Cross, *Molecular Refinement and Cross-Validation with Solid-State NMR Orientational Data*, Gordon Research Conference on Computational Aspects of Biomolecular NMR, Italy, 2001.

3. A. Sirzen-Zelenskaya, R. Bertram, M. E. Freeman, U. Gerber, H. Imboden, M. Egli, *Effect of prolactin on the regulation of oxytocin neuron activity*, Annual meeting of the Endocrine Society, Toronto, Canada, 2007.

4. J. A. Thompson, W. Wu, **R. Bertram**, F. Johnson, *Auditory-dependent song recovery in adult male zebra finches is facilitated by lesion of a forebrain pathway that includes the basal ganglia*, Annual meeting of the Society for Neuroethology, Vancouver, Canada, 2002.

Non-Refereed Abstracts for National Meetings

1. **R. Bertram**, M. Butte, T. Kiemel, A. Sherman, *Topological and Phenomenological Classification of Bursting Oscillations*, Gordon Research Conference on Theoretical Biology, 1994.

2. **R. Bertram**, P. Smolen, A. Sherman, *A Model for Muscarinic Modulation of Insulin Secretion via a Calcium Release Activated Current (CRAC)*, Society for Neuroscience Annual Meeting, Abstracts, 20:727, 1994.

3. **R. Bertram**, A. Sherman, E. Stanley, *The Single Domain/Bound Calcium Hypothesis of Transmitter Release and Facilitation*, Biophysical Society Annual Meeting, Biophysical Journal Abstracts, 68:396a, 1995.

4. E. F. Stanley, **R. Bertram**, A. Sherman, *The Single Domain/Bound Calcium Hypothesis of Transmitter Release and Facilitation*, Society for Neuroscience Annual Meeting, 1995.

5. **R. Bertram**, A. Sherman, *Modeling the Colocalization of Ca^{2+} Channels and Ca^{2+} Receptors: Correct Handling of Ca^{2+} Domains*, Society for Neuroscience Annual Meeting, Abstracts, 20:1090, 1995.

6. **R. Bertram**, A. Sherman, E. F. Stanley, *The Single Domain/Bound Ca^{2+} Hypothesis of Transmitter Release and Facilitation*, Gordon Research Conference on Theoretical Biology, 1996.

7. **R. Bertram**, A. Sherman, *Population Dynamics of Synaptic Release Sites*, Biophysical Society Annual Meeting, 1996.

8. D. Mears, N. F. Sheppard, E. Rojas, I. Atwater, **R. Bertram**, A. Sherman, *A Role for Calcium Release Activated Current in Pancreatic β-Cell Biphasic Electrical Activity*, Biophysical Society Annual Meeting, 1996.

9. **R. Bertram**, A. Sherman, *A Model of Transmitter Release that Accounts for Fast Facilitation and Augmentation*, Society for Neuroscience Annual Meeting, Abstracts, 22:783, 1996.

10. **R. Bertram**, *A Kinetic Model of Synaptic Transmitter Release and Facilitation*, American Mathematical Society Annual Meeting, 1997.

11. **R. Bertram**, A. Sherman, *A Model of Neurotransmitter Release with Overlapping Calcium Domains*, Society for Mathematical Biology Annual Meeting, 1997.

12. A. Korostelev, **R. Bertram**, Z. Chen, E. Blanc, M. S. Chapman, *Local Simulated Annealing Refinement with a Real Space Target*, American Crystallographical Association Annual Meeting, 2000.

13. **R. Bertram**, A. Sherman, P. B. Goforth, M. Zhang, L. S. Satin, *Unmasking Endoplasmic Reticulum Calcium Dynamics in Pancreatic β-Cell Biphasic Electrical Activity*, Biophysical Society Annual Meeting, 2000.

14. L. S. Satin, **R. Bertram**, T. A. Kinard, A. Sherman, *The Phantom Bursting Model for Pancreatic β-Cells*, Biophysical Society Annual Meeting, Biophysical Journal Abstracts, 78:218a, 2000.

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16. **R. Bertram**, J. R. Quine, S. Kim, M. S. Chapman, T. A. Cross, *Molecular Refinement and Cross-Validation with Solid-State NMR Orientational Data*, Experimental NMR Conference, 2001.

17. **R. Bertram**, *The Role of G-Proteins in Presynaptic Inhibition, Facilitation, and Synaptic Filtering*, SIAM Dynamical Systems Conference, 2001.

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19. **R. Bertram**, *A Biophysical Phantom Bursting Model for Pancreatic β-Cells*, SIAM Life Sciences Conference, 2002.

20. **R. Bertram**, *Global Optimization Methods for Solving Protein Structures*, SIAM Life Sciences Conference, 2002.

21. A. Korostelev, **R. Bertram**, M. S. Chapman, *Atomic Real-Space Refinement of Local Regions by Simulated Annealing*, Gordon Research Conference on Diffraction Methods in Structural Biology, 2002.

22. **R. Bertram**, A. Sherman, *β-Cell ER Calcium Dynamics*, Research Symposium on Islet Biology, 2002.

23. J. R. Quine, S. Achuthan, P. Srinivasan, **R. Bertram**, M. S. Chapman, T. A. Cross, *Analysis of Orientational Restraints in NMR*, Biophysical Society Annual Meeting, Biophysical Journal Abstracts, 84:278a, 2003.

24. **R. Bertram**, T. Asbury, F. Fabiola, J. R. Quine, M. S. Chapman, T. A. Cross, *Atomic Refinement Using Correlated Orientational Data from Solid-State NMR*, Biophysical Society Annual Meeting, Biophysical Journal Abstracts, 84:277a, 2003.

25. T. Asbury, F. Fabiola, **R. Bertram**, M. S. Chapman, J. R. Quine, T. A. Cross, *Atomic Refinement Using Correlated Orientational Data from Solid-State NMR*, Annual Experimental Nuclear Magnetic Resonance Conference, 2003.

26. S. Achuthan, J. R. Quine, **R. Bertram**, M. S. Chapman, T. A. Cross, *Protein Structure Using Orientational Constraints*, Annual Experimental Nuclear Magnetic Resonance Conference, 2003.

27. **R. Bertram**, *A Mechanism for High-Pass Filtering of Neuronal Signals*, SIAM Conference on Applications of Dynamical Systems, 2003.

28. M. Egli, **R. Bertram**, M. T. Sellix, M. E. Freeman, *Computational Model of the Hypothalamo-Hypophysial Neuronal Network Regulating the Release of Prolactin in Rats*, Society for Neuroscience Annual Meeting, 2003.

29. T. Asbury, **R. Bertram**, J. R. Quine, T. A. Cross, M. S. Chapman, *Comparison of Molecular Dynamics and Monte Carlo Refinement Techniques Using NMR Orientational Constraints*, Gordon Research Conference on Computational Methods in Nuclear Magnetic Resonance, 2004.

30. S. Achuthan, J. Hu, T. Asbury, **R. Bertram**, J. R. Quine, T. A. Cross, *Structure Determination of the Amantadine-blocked M2 Transmembrane Segment Using Orientational Restraints from Solid-State NMR*, Biophysical Society Annual Meeting, Biophysical Journal Abstracts, 86:256a, 2004.

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33. A. Sherman and **R. Bertram**, *Pulsatile Insulin Secretion: How and Why?*, Computational Neuroscience Annual Meeting, 2004.

34. S. Achuthan, J. Hu, T. Asbury, M. Chapman, **R. Bertram**, T. Cross, J. Quine, *Analysis of Orientational Restraints from PISEMA Spectra of Aligned Proteins*, 15th Annual Meeting of the International Society of Magnetic Resonance, 2004.

35. T. Asbury, S. Achuthan, J. Hu, **R. Bertram**, J. Quine, M. Chapman, T. Cross, *Pi-Path: An Assignment Algorithm for Solid-State NMR PISEMA Deta*, 15th Annual Meeting of the International Society of Magnetic Resonance, 2004.

36. M. Egli, **R. Bertram**, N. Toporikova, M. T. Sellix, W. Blanco, D. Banks, M. E. Freeman, *Oxytocin as a prolactin-releasing factor: Joint experimental and mathematical studies*, 34th Annual Meeting of the Society for Neuroscience, 2004.

37. C. S. Nunemaker, M. Zhang, **R. Bertram**, A. Sherman, K. Tsaneva-Atanasova, L. S. Satin, *Mouse β-cells and islets differ in glucose responsiveness*, Annual meeting of the Endocrine Society, 2005.

38. C. S. Nunemaker, M. Zhang, D. H. Wasserman, O. P. McGuinness, A. C. Powers, **R. Bertram**, A. Sherman, L. S. Satin, *Islet calcium oscillations differ from mouse to mouse in vitro but correlate with insulin secretion in vivo*, Annual meeting of the Endocrine Society, 2005.

39. **R. Bertram**, *Modeling network interactions between the hypothalamus and pituitary*, Frontiers in Applied and Computational Mathematics, Newark, NJ, 2005.

40. V. Matveev, **R. Bertram**, A. Sherman, *A bound-calcium mechanism of synaptic facilitation revisited*, Frontiers in Applied and Computational Mathematics, Newark, NJ, 2005.

41. N. Toporikova, M. Egli, M. Bosworth, **R. Bertram**, M. Freeman, *Mathematical model of neuronal network regulating prolactin release in rats*, Frontiers in Applied and Computational Mathematics, Newark, NJ, 2005.

42. C. S. Nunemaker, **R. Bertram**, A. Sherman, K. Tsanova-Atanasova, and L. S. Satin, *Glucose differentially modulates slow, fast, and complex intracellular calcium oscillations in pancreatic islets of Langerhans*, Biophysical Society Annual Meeting, 2006.

43. J. Tabak, N. Toporikova, M. E. Freeman, and **R. Bertram**, *Low dose of dopamine may stimulate prolactin secretion by increasing fast potassium currents*, Origin and Regulation of Bursting Activity in Neurons, Atlanta, GA, 2006.

44. N. Toporikova, J. Tabak, M. E. Freeman, and **R. Bertram**, *Bursting without a slow variable in a model of the pituitary lactotroph*, Origin and Regulation of Bursting Activity in Neurons, Atlanta, GA, 2006.

45. T. Asbury, J. Quine, M. S. Chapman, S. Achuthan, J. Hu, T. Cross, **R. Bertram**, *PIPATH: An algorithm for generating α-helical atomic structures from solid-state NMR*, Joint SIAM-SMB Conference on the Life Sciences, Raleigh, NC, 2006.

46. S. Achuthan, **R. Bertram**, J. Quine, T. Asbury, J. Hu, T. Cross, *Transmembrane protein structure determination using solid state NMR*, Joint SIAM-SMB Conference on the Life Sciences, Raleigh, NC, 2006.

47. J. A. Rhoads and **R. Bertram**, *A dynamic mechanism for episodic bursting*, Joint SIAM-SMB Conference on the Life Sciences, Raleigh, NC, 2006.

48. N. Toporikova, J. Tabak, M. E. Freeman, **R. Bertram**, *Bursting without a slow variable in a lactotroph model*, Joint SIAM-SMB Conference on the Life Sciences, Raleigh, NC, 2006.

49. A. Sherman, K. Tsaneva-Atanasova, **R. Bertram**, *Glucose sensing by combined metabolic and ionic oscillations in pancreatic islets*, Joint SIAM-SMB Conference on the Life Sciences, Raleigh, NC, 2006.

50. M. Zhang, C. S. Nunemaker, **R. Bertram**, A. Sherman, L. S. Satin, *Multiparameter fluorescence imaging from living pancreatic β cells: Experimental and modeling studies*, Imaging the Pancreatic β Cell in Health and Disease, 3rd NIDDK Workshop, Washington, D.C., 2006.

51. N. Toporikova, J. Tabak, M. E. Freeman, **R. Bertram**, *Low dose of dopamine may stimulate prolactin secretion by increasing fast potassium currents*, Society for Neuroscience Annual Meeting, Atlanta, GA, 2006.

52. **R. Bertram**, M. Zhang, A. Sherman, L. Satin, *Slow islet calcium oscillations induced by leucine or KIC: A joint experimental and computational study*, Research

Symposium on Translating Islet Biology into Diabetes Therapy, Stone Mountain, GA, 2007.

53. M. Tomaiuolo, **R. Bertram**, D. Houle, *Possible roles of enzyme isoforms as compensatory mechanisms to fluctuations*, Frontiers in Applied and Computational Mathematics, Newark, NJ, 2007.

54. W. Wu, **R. Bertram**, J. A. Thompson, F. Johnson, *A new method for quantifying vocal change in songbirds*, Annual meeting of the Society for Neuroscience, San Diego, CA, 2007.

55. J. Tabak, M. Mascagni, **R. Bertram**, *Spontaneous episodic activity in developing networks: Why episode duration is correlated with length of the preceding, not following, inter-episode interval*, Annual meeting of the Society for Neuroscience, San Diego, CA, 2007.

56. J. A. Thompson, W. Wu, **R. Bertram**, F. Johnson, *Auditory-dependent song recovery in adult male zebra finches is facilitated by lesion of a basal-ganglia forebrain vocal circuit*, Annual meeting of the Society for Neuroscience, San Diego, CA, 2007.

57. A. Gonzalez-Iglesias, J. Tabak, N. Toporikova, **R. Bertram**, M. E. Freeman, *Calcium and prolactin response to oxytocin in pituitary lactotrophs during the estrous cycle*, Annual meeting of the Society for Neuroscience, San Diego, CA, 2007.

58. D. T. McKee, M. O. Poletini, **R. Bertram**, M. E. Freeman, *The role of the locus coeruleus in the control of prolactin surges induced by cervical stimulation*, Annual meeting of the Society for Neuroscience, San Diego, CA, 2007.

59. **R. Bertram**, *Bursting in Pituitary Cells: A Totally Different Animal*, Invited Minisymposium talk at the Frontiers in Applied and Computational Mathematics conference, Newark, NJ, 2008.

60. J. Rhoads, **R. Bertram**, *Parallel Biological Simulations on the Graphics Processing Unit*, Society for Mathematical Biology Annual Meeting, Toronto, Canada, 2008.

61. M. Tomaiuolo, J. Tabak, **R. Bertram**, *Distinguishing the Types of Neuronal Bursting Using Voltage Traces Alone*, Annual meeting of the Society for Neuroscience, Washington, DC, 2008.

62. W. Wu, J. A. Thompson, **R. Bertram**, F. Johnson, *Detailed Phonological Analysis of Songbird Vocal Behavior Following Ablation of a Striatal/Pre-Motor Pathway*, Annual meeting of the Society for Neuroscience, Washington, DC, 2008.

63. C. V. Helena, D. T. McKee, M. O. Poletini, **R. Bertram**, M. E. Freeman, *Induction of the Cervical Stimulation Prolactin Secretory Rhythm by a Central but not Peripheral Injection of Ovine Prolactin in Ovariectomized Rats*, Annual meeting of the Society for Neuroscience, Washington, DC, 2008.

64. C. V. Helena, D. T. McKee, **R. Bertram**, M. E. Freeman, *Central Prolactin Antagonist Infusion Blocks the Expression of the Prolactin Secretory Rhythm in Ovariectomized Rats*, Annual meeting of the Endocrine Society, Washington, DC, 2009.

65. V. Matveev, **R. Bertram**, A. Sherman, *Ca^{2+} Current Cooperativity vs. Ca^{2+} Channel Cooperativity in Synaptic Vesicle Exocytosis*, Annual Meeting of the Biophysical Society, Boston, MA, 2009.

66. A. Sherman, V. Matveev, **R. Bertram**, *What Do We Talk About When We Talk About Cooperativity of Synaptic Release?*, Conference on Neural Dynamics and Computation in honor of John Rinzel, New York, NY, 2009.

67. J. Tabak, M. Tomaiuolo, L. Milescu, M.E. Freeman, **R. Bertram**, *BK Channels Promote Bursting in Pituitary Cells*, Annual Meeting of the Society for Neuroscience, Chicago, IL, 2009.

68. C.V. Helena, **R. Bertram**, M.E. Freeman, *Hypothalamic FRA Expression After a Central Ovine Prolactin Injection in Ovariectomized Rats*, Annual Meeting of the Society for Neuroscience, Chicago, IL, 2009.

69. V. Matveev, **R. Bertram**, A. Sherman, *Ca^{2+} Current Cooperativity vs. Ca^{2+} Channel Cooperativity of Exocytosis*, Annual Meeting of the Society for Neuroscience, Chicago, IL, 2009.

Non-Refereed Abstracts for Regional Meetings

1. **R. Bertram**, *An Application of Mathematics to the Study of Insulin-Secreting Cells*, Western Pennsylvania regional meeting of the Mathematical Association of America, 1997.

2. **R. Bertram**, *Differential Filtering of Two Presynaptic Depression Mechanisms*, Southeast Neural Net Meeting, Wakulla Springs, FL, 2001.

3. **R. Bertram**, *The Emergence of Phantom Bursting Through Diffusive Coupling in Pancreatic β-Cells*, Fall Southeastern Section Meeting of the American Mathematical Society, Special Session on Mathematical Neuroscience, 2002.

4. T. Asbury, **R. Bertram**, F. Fabiola, J. R. Quine, T. A. Cross, M. S. Chapman, *Atomic Refinement Using Correlated Orientational Data from Solid-State NMR*, Southeastern Magnetic Resonance Conference, 2003.

5. **R. Bertram**, *Modeling the Electrical Activity of Pancreatic Islets*, Southeast Section Meeting of the American Mathematical Society, Special Session on Applications of Mathematics to Problems in Biology, 2004.

6. M. Egli, **R. Bertram**, M. T. Sellix, M. E. Freeman, *Rhythmic Hormone Secretion in Rats: Computational Model of the Hypothalamic Mechanism Controlling Prolactin Secretion*, Southeast Sectional Meeting of the American Mathematical Society, Special Session on Applications of Mathematics to Problems in Biology, 2004.

7. J. Tabak, N. Toporikova, A. E. Iglesias-Gonzales, M. E. Freeman, **R. Bertram**, *The Role of Fast Potassium Currents in Shaping the Activity of Pituitary Cells*, Southeast Neural Net Meeting, Wakulla Springs, FL, 2007.

Invited Lectures

1. *Topological and Phenomenological Classification of Bursting Oscillations*, Nonlinear Dynamics Seminar Series, Naval Research Laboratory, Washington, DC, 1994.

2. *The Single-Domain/Bound Calcium Hypothesis of Transmitter Release and Facilitation*, Neuroscience Seminar Series, Brandeis University, Waltham, MA, 1996.

3. *Phantom Bursting in Pancreatic β-Cells*, Workshop on Hormone Secretion and Control, Institute for Mathematics and Its Applications, Minneapolis, MN, 1999.

4. *Physiology and Methods of Modeling in the Synapse*, PIMS Summer Workshop on Mathematical Physiology, University of British Columbia, Vancouver, Canada, 1999.

5. *Bursting Models in Biology*, Dynamical Systems Seminar Series, Georgia Tech University, Atlanta, GA, 2001.

6. *The Role of G-Proteins in Presynaptic Inhibition, Facilitation, and Synaptic Filtering: A Computational Study*, Applied Mathematics Seminar Series, Rice University, Houston, TX, 2002.

7. *The Role of G-Proteins in Synaptic Filtering*, Neural Dynamics Workshop, Mathematical Biosciences Institute, Columbus, OH, 2002.

8. *Complex Bursting in Pancreatic Islets*, Mathematical Biology Seminar Series, New Jersey Institute of Technology, Newark, NJ, 2003.

9. *A Biophysical Phantom Bursting Model*, Mathematics Colloquium Series, New Jersey Institute of Technology, Newark, NJ, 2003.

10. *Models of Calcium-Induced Neurotransmitter Release*, Tutorial on Synapses and Muscles, Mathematical Biosciences Institute, 2004.

11. *Mathematical Models of Presynaptic Plasticity*, Tutorial on Synapses and Muscles, Mathematical Biosciences Institute, 2004.

12. *Understanding Rhythmic Insulin Secretion: Help from Mathematical Modeling*, FSU Neuroscience Seminar Series, 2005.

13. *Mathematical Analysis of the Neural Control of Hormone Secretion*, Biomathematics Seminar Series, University of British Columbia, Vancouver, Canada, 2006.

14. *Metabolic and Electrical Oscillations: Partners in Controlling Rhythmic Islet Activity*, Mathematical Biosciences Institute, Ohio State University, Columbus, OH, 2007

15. *The Neural Control of Hormone Secretion*, Physics Colloquium, University of South Florida, 2007.

16. *Topics in Mathematical Neuroscience*, Graduate Student Workshop, Mathematical Biosciences Institute, Ohio State University, Columbus, Ohio, 2008.

17. *Mathematical Modeling of Pancreatic Islets*, Physical Chemistry Seminar, Florida State University, 2008.

18. *Mathematical Analysis of Bursting Electrical Activity in Nerve and Endocrine Cells*, Statistics Colloquium, Florida State University, 2008.

19. *A Combined Modeling/Experimental Study of Pulsatile Insulin Secretion*, Computational Biology Seminar, George Mason University, 2009.

20. *Using Mathematical Modeling and Experiments to Understand the Mechanism of Pulsatile Insulin Secretion*, Biomathematics Seminar, University of Utah, 2009.

21. *Mathematical Aspects of Bursting Oscillations in Nerve and Endocrine Cells*, Mathematics Colloquium, University of Louisville, 2009.

22. *A Mathematical Study of Electrical Bursting in Pituitary Cells*, Workshop on "Dynamical Systems and Neuroendocrinology", Paris, France, 2009.

Grants and Funding

1. **(current)** A Mathematical Study of the Biochemical and Electrical Dynamics of Pancreatic Islets (PI: R. Bertram), Division of Mathematical Sciences, NSF, DMS 0917664, $168,702 (direct), 9/09–8/12.

2. **(current)** Cell Survival in a Neural Circuit for Learning (PIs: R. Bertram, F. Johnson, W. Wu), National Institute of Child Health and Development, NIH, RO1 DC002035, $400,000 (direct), 7/09–6/11.

3. **(no-cost extension)** A Joint Computational/Experimental Study of Hypothalamic-Pituitary Interactions (PI: R. Bertram) National Institute of Drug Abuse, NIH, $1,754,832, 7/04–6/09.

4. **(no-cost extension)** Oscillation and Synchronization of Pancreatic Islets (PI: R. Bertram) Division of Mathematical Sciences, NSF, $190,524, 9/06–8/09.

5. **(completed)** Entrainment and Synchronization of the Pancreatic Islet (Sponsor: R. Bertram) Predoctoral fellowship awarded to Bernard Fendler by the Florida/Puerto Rico Affiliate of the American Heart Association, $43,540, 7/07–6/09.

6. **(completed)** Phantom Bursting Models and Complex Bursting Patterns in Pancreatic Islets (PI: R. Bertram) Division of Mathematical Sciences, NSF, $127,298, 9/03–8/07.

7. **(completed)** Computational Methods for the Determination of the Atomic Structure of Membrane Proteins (Sponsor: R. Bertram) Predoctoral fellowship awarded to Tom Asbury by the Florida/Puerto Rico Affiliate of the American Heart Association, $40,000, 7/04–6/06.

8. **(completed)** First-Year Assistant Professor Award (PI: R. Bertram), FSU Research Council, $6667, Summer 2002.

9. **(completed)** Membrane Protein Structural Genomics: Mycobacterium tuberculosis (PI: T. Cross), a Program Project Grant from the National Institute of General Medical Sciences, NIH, $8,100,000, 10/01–10/06.

10. **(completed)** Modeling and Analysis of Multimodal Bursting in Pancreatic β-Cells (PI: R. Bertram) Division of Mathematical Sciences, NSF, $78,202, 9/99–8/03.

11. **(completed)** Undergraduate Program in Mathematical Biology (PI: C. Panetta), a 1-year REU grant from the Division of Mathematical Sciences, NSF, $30,000, Summer 1999.

12. **(completed)** Undergraduate Program in Mathematical Biology (PI: C. Panetta), a 1-year REU grant from the Division of Mathematical Sciences, NSF, $30,000, Summer 1998.

Copyrighted Computer Software

1. **ssNMR**, a software package for protein structure determination using uncorrelated solid-state NMR data. Co-written with Jack Quine (FSU), 2000.

2. **ssNMR-02**, an unpdated and improved version of ssNMR, incorporating correlated solid-state NMR data. 2002.

3. **RSREF2000**, a software package for making local improvements to models of proteins using electron density maps. Co-written with Michael Chapman and Andrei Korostelev (FSU), 2000.

4. **HBOND2002**, a software package for determining hydrogen bonds in proteins, and constructing an appropriate double-well potential energy function. Co-written with Felcy Fabiola, Andrei Korostelev, and Michael Chapman (FSU), 2002.

5. **PIPATH**, a software package for automatically assigning solid state NMR data and building helical atomic structures. Co-written with Tom Asbury (FSU), 2006.

6. **K-L Distance**, a software package for comparing birdsong syllables and sequences. Co-written with Wei Wu (FSU), 2008.

Professional Service

1. Editorial Board member, *Mathematical Biosciences*, 2008.

2. Reviews Editor, *Mathematical Biosciences*, 2008.

3. Editorial Board member, *Islets*, 2008.

4. Served on the NICHD/NIH intramural site review team, 2008.

5. Co-organizer (with Artie Sherman, Yue-Xian Li, Mary Lou Zeeman, and David McCobb) of a week-long workshop *Rhythms in the Hypothalamus and Pituitary*, American Institute of Mathematics, Palo Alto, CA, 2008.

6. Chair of the Landahl Travel Grant committee, Society for Mathematical Biology, 2007–present.

7. Co-organizer (with Artie Sherman and Les Satin) of a week-long workshop *Insulin Secretion, Insulin Action, and Type 2 Diabetes*, Mathematical Biosciences Institute, Ohio State University, 2007.

8. Served on an NINDS/NIH Specialized Neuroscience Research Program site review team, 2007.

9. Co-organizer (with Jim Selgrade and Mary Lou Zeeman) of Mini-Simposium, *Modeling in Endocrinology*, Joint SIAM-SMB Conference on the Life Sciences, 2006.

10. Served as an ad hoc member on the MABS NIH study section, 2006 and 2008.

11. Served on a grant review panel for the Texas Higher Education Coordinating Board, 2006.

12. External Examiner for a PhD defense in the Physics Department at Simon Fraser University, Vancouver, Canada, 2006.

13. Served on the NSF-NIH Collaborative Research in Computational Neuroscience review panel, 2005, 2006, 2009.

14. Served on NSF grant review panels, 2005–2008.

15. Served on the NSF-NIH Initiative to Support Research in the Area of Mathematical Biology review panel, 2005.

16. Served on a NIDA panel for Training and Career Development awards, 2005.

17. Organizer of Mini-Symposium, *Mathematical Modeling in Endocrinology*, SIAM Conference on the Life Sciences, 2004.

18. Co-organizer (with Jack Quine, FSU) of *Special Session on Applications of Mathematics to Problems in Biology*, Southeastern Section Meeting of the American Mathematical Society, 2004.

19. Organizer of Symposium, *Mathematical Modeling of Endocrine Cells*, SIAM Life Sciences Conference, 2002.

20. Co-organizer (with Jack Quine, FSU) of Symposium, *Mathematical and Computational Methods in Structural Biology*, SIAM Conference on the Life Sciences, 2002.

21. Co-organizer (with Steve Cox, Rice University) of *Special Session on Mathematical Neuroscience*, Fall Southeastern Section Meeting of the American Mathematical Society, 2002.

22. Referee for papers submitted to:

Biophysical Journal	Journal of Neurophysiology
Journal of Computational Neuroscience	Cell Biochemistry and Biophysics
IEEE Transactions on Neural Networks	SIAM Journal on Applied Math
Bulletin of Mathematical Biology	Physica D
Journal of Computational Chemistry	Journal of Theoretical Biology
American Journal of Physiology	Diabetes
Biophysical Chemistry	Neurocomputing
Mathematical Methods in the Applied Sciences	Neural Computation
Mathematical Biosciences	Chaos
IEEE Transactions on Biomedical Engineering	Cell Calcium
Journal of Biological Physics	Brain Research
Physical Reviews E	Cognitive Neurodynamics
General and Comparative Endocrinology	J. Diabetes Science and Technology

23. Referee for research grant proposals submitted to:
    National Institutes of Health
    National Science Foundation
    Netherlands Foundation for Fundamental Research on Matter
    Thomas F. and Kate Miller Jeffress Memorial Trust
    French Ministry of Research
    Isreal Science Foundation

The United States Civilian Research and Development Foundation
Natural Sciences and Engineering Research Council (NSERC) of Canada
Wellcome Trust

Awards and Honors

- **Penn State Collaborative and Curricular Innovations Award** for "Seminar Course on Mathematical Biology", 1997.
- **Developing Scholar Award**, Florida State University, 2006.

Past High School Research Assistants

- Kelsey Mayo, Florida High School, 2000.

Past Undergraduate Research Assistants

1. Julie Cain (Honors thesis), Penn State University at Erie, 1998.
2. Bernadette Baumeister, Penn State University at Erie, 1999.
3. Matthew Behan (Honors thesis), Penn State University at Erie, 1999.
4. Jessie Swanson, Applied Mathematics, 2000.
5. Mandy Swann, Applied Mathematics, 2001.
6. Keola Wierschem, Physics, 2003.
7. Alicia Baptiste, Biomedical Mathematics, 2004.
8. Wendy Cimbora (Honors thesis), Applied Mathematics, 2004.
9. Rudy Arceo (Honors thesis), Biomedical Mathematics, 2007.
10. Michelle Outlaw (Hughes Fellow), Biomedical Mathematics, 2008.

Master's Degrees Supervised

- Jessie Swanson, *A Mathematical Model of the Presynaptic Terminal with G-Protein-Regulated Calcium Channels and Ancillary Ca^{2+} Channel β Subunits*, Mathematics Department, FSU, awarded 2002. Jessie is currently an Analyst at Raytheon Corporation.

Doctoral Degrees Supervised

- Thomas Asbury, *From Data to Structure: Using Orientational Information Within PISEMA Spectra to Build Atomic Models*, Molecular Biophysics Program, FSU, awarded 2006. Tom is currently a Scientist at Affymetrix Corp.
- Natalia Toporikova, *Regulation of Rhythmic Prolactin Secretion: Combined Mathematical and Experimental Study*, Biomedical Mathematics Program, FSU, awarded 2007. Natalia is currently a Postdoctoral Fellow with Rob Butera at Georgia Institute of Technology.

Current Graduate Students

1. Joe Rhoads (Doctoral candidate), Biomedical Mathematics Program.
2. Bernard Fendler (Doctoral candidate), Physics Program.
3. Margaret Watts (Doctoral candidate), Biomedical Mathematics Program.
4. Arij Daou, Biomedical Mathematics Program.
5. Wondimu Teka, Biomedical Mathematics Program.

Current Postdoctoral Fellows and Research Associates

1. Maurizio Tomaiuolo, Postdoctoral Fellow, FSU.
2. Dr. Joel Tabak, Assistant Scientist/Scholar, FSU.
3. Dr. Arturo Iglesias, Assistant Scientist/Scholar, FSU.

Undergraduate Courses Taught

Calculus I	Numerical Analysis I	Math Biology Seminar
Calculus II	Precalculus	Differential Equations
Calculus III	Real Analysis	Applied Dynamical Systems
Business Calculus	Mathematical Modeling in Biology	

Graduate Courses Taught

Methods in Applied Mathematics 1
Computational Methods in Biology
Biomedical Projects
Biomedical Laboratory Seminar
Advanced Biomedical Mathematics Seminar

Professional Affiliations

Society for Industrial and Applied Mathematics (SIAM)
Society for Mathematical Biology
Society for Neuroscience
Biophysical Society