

CURRICULUM VITAE

Martin Muschol

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Department of Neuroscience
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Education

- Ph.D. Physics*** 1992
City University of New York, New York
Physics Department/ City College of New York
advisor: Prof. Herman Z. Cummins, City University of New York, NY.
dissertation: *Surface tension anisotropy of succinonitrile and pivalic acid: new measurements and comparison with microscopic solvability theory.*
- MA. Physics*** 1989
City University of New York, New York
Physics Department/ City College of New York
- BA. Physics and Mathematics*** 1983
University of Regensburg, Regensburg, Germany
Physics Department

Employment (post graduate)

- Research Assistant Professor*** 2000 – present
University of Pennsylvania School of Medicine
Department of Neuroscience
- Postdoctoral Fellow*** 1996 – 2000
University of Pennsylvania School of Medicine
Department of Neuroscience
- Senior Research Associate*** 1995 – 1996
University of Alabama in Huntsville
Center for Microgravity and Materials Research
- Research Associate*** 1993 – 1995
University of Alabama in Huntsville
Center for Microgravity and Materials Research
- Postdoctoral Fellow*** 1992
City College of New York
Physics Department

Lecturer

1992

City College of New York
Physics Department

Awards

- K25 research training award from NIMDH, NIH. \$442,000 (total direct costs). *Optical Investigation of Excitation-Secretion Coupling*. Funding Period: Apr, 2001-- Mar, 2004. Only grant funded of the round.
- Fellowship for 53rd annual meeting of the Society of General Physiologists.
- NASA research grant (\$ 95K instrument cost). *Development of simultaneous multi-angle static and dynamic light scattering (SMALLS) unit*. 1995.

Service

- Member of Japanese-American exchange program on " Nucleation and Growth Kinetics in Protein Crystallization", 1995.
- Reviewer for Physical Review E, the Journal of the American Chemical Society, the Journal of Crystal Growth, Acta Crystallographica D, and Optical Communications.

Teaching Experience

- Mentoring of undergraduates, graduates and postdoctoral students (City College of New York, University of Alabama and University of Pennsylvania).
- Teaching of physics undergraduate courses, recitations, and lab exercises in wide variety of subjects to humanities, engineering and science majors (City College of New York).
- Participant in outreach program to New York area high schools.
- Practical and theoretical pedagogical training as math/physics teacher (University of Regensburg, Germany).

Membership in Scientific Societies

Society for Neuroscience (2003)
Society of General Physiologists (1999)
Biophysical Society (1997)
American Physical Society (1989)

Languages

German and English

PUBLICATION LIST

Peer Reviewed Publications

- **Muschol, M.,** P. Kosterin, M. Ichikawa, and B.M Salzberg (2003). *Activity-Dependent Depression of Excitability and Calcium Transients in the Neurohypophysis Suggests a Model of "Stuttering Conduction"*. J. Neurosci, in press.
- **Muschol, M.** and B.M Salzberg (2000). *Dependence of Transient and Residual Calcium Dynamics on Action-Potential Patterning during Neuropeptide Secretion*. J. Neurosci. **20**:6773-6780.
- **Muschol, M.** B.R. Dasgupta, and B.M Salzberg (1999). *Caffeine Interaction with Fluorescent Calcium Indicator Dyes*, Biophys. J. **77**: 577-586.
- **Muschol, M.** and F. Rosenberger (1997). *Liquid-liquid Phase Separation, Precipitate Formation and Crystallization in Supersaturated Lysozyme Solution.*, J. Chem. Phys. **107**:1953-1962.
- Rosenberger, F., P.G. Vekilov, **M. Muschol**, B.R. Thomas (1996). *Nucleation and Crystallization of Globular Proteins - What Do We Know and What is Missing?* J. Cryst. Growth **168**:1-27.
- **Muschol, M.** and F. Rosenberger (1996). *Lack of Evidence for Prenucleation Aggregate Formation in Lysozyme Crystal Growth Solutions*. J. Cryst. Growth **167**:738-747.
- **Muschol, M.** and F. Rosenberger (1995). *Interactions in Under- and Supersaturated Lysozyme Solutions: Static and Dynamic Light Scattering Results*. J. Chem. Phys. **103**:10424-10432.
- Williams, L. **M. Muschol**, X.W. Qian, W. Losert, H.Z. Cummins (1993). *Dendritic Side-branching with Periodic Localized Perturbations: Directional Solidification of Pivalic Acid/Coumarin 152*. Phys. Rev. E **48**: 489-499.
- **Muschol, M.** D. Liu, H.Z. Cummins (1992). *Surface Tension Anisotropy Measurements in Succinonitrile and Pivalic Acid: Comparison with Microscopic Solvability Theory*. Phys. Rev. A **46**:1038-1050.
- X.W. Qian, H. Chou, **M. Muschol**, H.Z. Cummins (1989). *Role of Noise in the Initial Stage of Solidification Instability*. Phys. Rev. B **39**:2529.

Proceedings and Reviews

- B.M. Salzberg, **M. Muschol** and A.L. Obaid, *Rapid Changes in Light Scattering Associated with Secretion from Peptidergic Nerve Terminals*, in: Imaging, A Laboratory

Manual ed. by A. Konnerth, R. Yuste, and F. Lanni (Cold Spring Harbor Press, Cold Spring Harbor, N.Y. 1999).

- **M. Muschol** and F. Rosenberger, *Crystallization in protein solutions - what can we learn from light scattering*, Proceedings of the AIAA Space Programs and Technologies Conference, Sept. 1995.
- H.Z. Cummins, H. Chou, G. Livescu, O. Mesquita, **M. Muschol**, M.R. Srinivasan, *Dynamic light scattering at the non-equilibrium crystal-melt interface*, in Laser Optics of Condensed Matter, ed. by J.L. Birman, H.Z. Cummins and A.A. Kaplyanskii, (Plenum, New York 1988).

Abstracts

- **Muschol, M.**, P. Kosterin and B.M. Salzberg (2003). *Dynamic Modulation of Action-Potential Invasion Contributes to Short-Term Plasticity of Peptidergic Nerve Terminals*. *Biophys. J.* **84**:133A.
- **Muschol, M.**, and B.M. Salzberg (2002). *Caffeine Inhibits Release of Arginine Vasopressin from Nerve Terminals of the Mammalian Neurohypophysis*. *Biophys. J.* **82**: 617A.
- **Muschol, M.**, and B.M. Salzberg (2000). *Frequency Dependence of Intraterminal Calcium Changes and Vasopressin Release in the Neurohypophysis*. *Biophys. J.* **78**: 260A.
- B.M. Salzberg, **M. Muschol**, S.D. Kraner, and A.L. Obaid (2000). *Localization of Calcium Release Channels to Secretory Granules in Terminals of the Mouse Neurohypophysis*. *Biophys. J.* **78**:68A.
- **Muschol, M.**, and B.M. Salzberg (1999). *Kinetics of Intracellular Calcium and Barium During Excitation-Secretion Coupling in Peptidergic Nerve Terminals*. *J. Gen. Physiol.* **114**:12A.
- B.M. Salzberg, **M. Muschol**, S.D. Kraner, and A.L. Obaid (1999). *Calcium Release Channels are Localized to Neurosecretory Granules in Terminals of the Mouse Neurohypophysis*. *J. Gen. Physiol.* **114**:9A-10A.
- **Muschol, M.**, B.R. Dasgupta, and B.M Salzberg (1999). *Calcium and Barium Kinetics in Mammalian Nerve Terminals During Exocytosis*. *Biophys. J.* **76**:A400.
- B.R. Dasgupta, **M. Muschol**, and B.M Salzberg (1999). *Direct Interaction of Caffeine with Fluorescent Calcium Indicator Dyes*. *Biophys. J.* **76**:A68.
- **Muschol, M.**, and B. Salzberg (1998). *Kinetics of $[Ca]_i$ during Trains of Action Potentials in Mammalian Neurohypophysis*. *Biophys. J.* **74**:A341.
- B.M. Salzberg, S.D. Kraner, **M. Muschol**, and A.L. Obaid (1997). *Calcium Release from Intraterminal Stores Plays a direct Role in Release from Peptidergic Nerve Terminals in Mammals: Evidence from Light Scattering in Mouse Neurohypophysis*. *J. Gen. Physiol* **110**:16A.

Presentations and Invited Seminars (1994-present)

- *The Hypothalamic-Neurohypophyseal Endocrine System.* Invited Lecture, Dutch Society for Endocrinology, Neurobiology and Psychology, Nijmegen, Holland, June 2004
- *"This is your Dye on Drugs". Optical Studies of Excitation-Secretion Coupling in Mammalian Nerve Terminals.* Dept. of Physiology, Univ. of Pennsylvania, Philadelphia, PA. May 1999.
- *Phase diagrams of aqueous protein solutions.* Physics Seminar, Stevens Institute of Technology, Hoboken, New Jersey, Oct. 1997.
- *Liquid-liquid phase separation in metastable protein solutions.* Biophysics Seminar, Rockefeller University, New York, Sept. 1996.
- *Metastable phase separation in supersaturated lysozyme solutions.* Solid State Seminar, City College of New York, New York, Sept. 1996.
- *Is the shape of phase diagrams for globular proteins universal?* Photon Correlation and Scattering Topical Meeting, Capri (Italy), Aug. 1996.
- *Phase Transitions in Protein Solutions.* Physics Seminar, Drexel University, Philadelphia, Aug. 1996.
- *Light scattering investigation of phase transitions in lysozyme solutions.* International Laser Light Scattering Symposium, Hong Kong, invited, July 1996.
- *Liquid Phase Separation in Lysozyme.* Workshop on Response Surface Methods in Protein Crystallization, Univ. of North Carolina, Chapel Hill, invited, June 1996.
- *Salt-induced changes in protein interactions - Static and dynamic light scattering results",* Institute for Materials Research, Tohoku Univ., Japan, Feb. 1996.
- *Absence of prenucleation aggregation in lysozyme solutions - Static and dynamic light scattering results.* 6th. International Conference on Crystallization of Biological Macromolecules (ICCBM6), Hiroshima, Japan, Nov. 1995.
- *Light scattering from lysozyme solutions - colloidal interaction model.* Materials and Crystal Growth Seminar, Marshal Space Flight Center, Huntsville, AL, Oct. 1995.
- *Interactions, aggregation and nucleation in protein crystal growth.* UAH Physics Colloquium, Huntsville, AL, Sept. 1995.
- *Interaction vs. aggregation models for supersaturated lysozyme solutions - A light scattering study.* NASA and NIH sponsored Protein Crystal Growth Conference, Panama City Beach, FL, Apr. 1995.
- *Light scattering from lysozyme solutions: monomeric interactions or aggregation?* ACS meeting - South-Eastern division, Birmingham AL, Oct. 1994.

LIST OF REFERENCES

The following colleagues have kindly offered to provide references on my behalf.

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