

Effrosyni Seitaridou

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Division of Engineering and Applied Science
California Institute of Technology
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Education

California Institute of Technology, Pasadena, CA
Ph.D. Applied Physics (expected June 2008)
M.S. Applied Physics, June 2004
Ph.D. Thesis Topic: **Non-equilibrium statistical dynamics**
Ph.D. Thesis Advisor: Professor **Rob Phillips**

Dartmouth College, Hanover, NH
B.E. Materials Science, January 2002

Smith College, Northampton, MA
B.A. Physics, January 2002

Technical Skills

Computer: Windows, Microsoft Office, C, IgorPro, IDL, LaTeX, HTML. Familiar with Matlab, Mathematica
Microscopy: Optical tweezers, FRET, FCS, Fluorescent microscopy, Microfluidics chip design/fabrication
Biology: Gene expression, PCR, Gel electrophoresis, Cell growth, Protein extraction/labeling/purification
Languages: Fluent in Greek. Conversational French

Research Experience

California Institute of Technology, Applied Physics Department, Research Assistant 2002-present
Non-equilibrium statistical dynamics (Collaboration with the K. Dill group at UCSF):

- Designed and fabricated a microfluidics chip to measure the flux fluctuations in the diffusion of a small number of colloidal particles using fluorescent microscopy
- Performed image acquisition and data analysis using Interactive Data Language (IDL)

Assembly of the 30S ribosomal subunit (Collaboration with the J. Williamson group at TSRI):

- Designed and fabricated a microfluidics chip to monitor the association of the 30S subunit
- Extracted, labeled and purified proteins and rRNA
- Detected the outcome using Fluorescent Resonance Energy Transfer (FRET) and two photon excitation combined with Fluctuation Correlation Spectroscopy (FCS)
- Performed data analysis using IgorPro

Diffusion in biofilms (Collaboration with the D. Newman group at MIT):

- Designed and fabricated a microfluidics chip to explore the communication mechanism of cells in biofilms using fluorescent microscopy
- Performed image acquisition and data analysis using Interactive Data Language (IDL)

University of Massachusetts, Amherst, Physics Department, Research Assistant 2002

- Studied the force fluctuations in the 3D granular flow of glass particles under gravity
- Constructed a hopper and monitored the forces induced on transducers
- Obtained and analyzed data using IgorPro

Dartmouth College, Thayer School of Engineering, Research Assistant 2001

- Worked in a group of three for the project initiation and completion of a mobile noise monitoring system for the Lebanon Municipal Airport
- Designed and implemented the analog front end

Teaching Experience

- California Institute of Technology** 2002-present
Teaching Assistant: Conducted help sessions and graded homework for the undergraduate and graduate level courses:
- States of Matter (Applied Physics Department)
 - Physical Biology of the Cell (Applied Physics Department and Bioengineering Department)
- Laboratory Assistant: Set up and taught the undergraduate and graduate laboratory courses:
- Mechanical Engineering Laboratory (Mechanical Engineering Department)
 - Physical Biology Laboratory (Applied Physics Department and Bioengineering Department)
- Dartmouth College, Thayer School of Engineering** 2000-2001
Teaching Assistant: Conducted help sessions and graded homework for the undergraduate courses:
- Introduction to Thermodynamics
 - Digital Electronics
- Smith College, Physics Department** 1999-2001
Teaching Assistant: Conducted help sessions and graded homework for the introductory and upper level undergraduate courses:
- General Physics I
 - Mathematical Methods of Physical Sciences and Engineering
 - Classical Mechanics
- Laboratory Assistant: Set up and maintained the lab, assisted in re-editing the lab manual, and taught the undergraduate laboratory course "Electronics"
- Tutor (Jacobson Center for Writing, Teaching and Learning): Worked with students on an individual basis to clarify concepts, organize time and prepare for exams for the course "General Physics I"

Publications/Patents

- E. Seitaridou, M. Inamdar, R. Phillips, K. Ghosh, K. Dill. "Measuring Flux Distributions for Diffusion in the Small-Numbers Limit", The Journal of Physical Chemistry B, Vol. 111, No. 9, pp. 2288-2292, February 2007, DOI: 10.1021/jp067036j
- K. Ghosh, K. Dill, M. Inamdar, E. Seitaridou, R. Phillips. "Teaching the Principles of Statistical Dynamics", American Journal of Physics, Vol. 74, No. 2, pp. 123-133, February 2006
- K. Kaliski, A. Mills-Tetty, E. Seitaridou, R. Collier, D. Fraser. "Low complexity, continuous, noise monitoring system for communities, small airports and remote areas", Noise-Con (2001), Best student paper award, U.S. Patent No. 7,092,853 B2, August 2006

Academic Honors

- California Institute of Technology** 2002-present
 Moore Fellowship, 2002-2006
- Dartmouth College** 2000-2002
 Dartmouth Engineering Honor Society
- Smith College** 1998-2002
 Dean's List (1998-2000), First Group Scholar (1998-2000), Latin Honors, Sigma Xi, Phi Beta Kappa, Magna Cum Laude