

XinXin Du

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Education **Princeton University** Princeton, NJ *September 2006 – June 2012 (expected graduation)*
PhD student in Physics, working on biophysical modeling of cell motility and morphogenesis.
PhD advisor: Stanislav Shvartsman

Wellesley College Wellesley, MA *September 2003 – June 2006*
Bachelor's degree in Physics and Mathematics.

Research Experience **Biophysics** Princeton University (Princeton, NJ) *April 2010 – present*
I have developed mesoscopic models for cell motility, based on actin filament and myosin motor dynamics coupled to a cell membrane. These models are examples of self-organized systems, in which polarity arises spontaneously due to dynamical instabilities. I am also working on mechanical models of epithelial morphogenesis in tissues. Cell shape change and rearrangement are critical during development; models are essential for understanding how physical properties and processes relate to these biological changes.

Monte Carlo programming and data analysis Princeton University (Princeton, NJ) *January 2011 – June 2011*
Wrote Monte Carlo annealing software for fitting temperature edge sensor (TES) data.

Condensed matter physics Princeton University (Princeton, NJ) *April 2009 – April 2010*
Worked on showing robustness of Luttinger's Theorem for Fermi liquids and quantum phase transitions.

Atomic physics Princeton University (Princeton, NJ) *June 2006 – September 2006*
Constructed cesium vapor cells using new electrolysis methods .

Computational condensed matter physics Wellesley College (Wellesley, MA) *September 2005 – June 2006*
Senior Thesis: wrote and analyzed Monte Carlo code for variational wavefunction calculations applied to the Extended Heisenberg model of ferromagnets on a square lattice. Thesis advisor: Courtney Lannert.

Calorimetry physics University of Washington (Seattle, WA) *June 2005 – August 2005*
Built calorimeter for examining critical phenomena at mixing-demixing phase transition.

Particle physics data analysis University of California (Los Angeles, CA) *June 2004 – August 2004*
Performed data analysis and mass reconstruction on Au-Au collisions at RHIC.

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Teaching Experience **Princeton University** Princeton, NJ *September 2007 – present*
Assistant in Instruction for junior Thermo- and Statistical Mechanics, senior Condensed Matter Physics, graduate Biophysics, Introductory Mechanics Laboratory, and Introductory Electrodynamics Laboratory.

Wellesley College Wellesley, MA *September 2003 – June 2006*
Department tutor for Abstract Algebra, Real Analysis, General Physics, and Mathematical Methods for the Sciences.

Publications XinXin Du, Konstantin Dubrovinski, Miriam Osterfield. *Self-organized cell motility from motor-filament interactions.* Biophysical Journal, Vol 102, Issue 8, p1738-1745.

Miriam Osterfield, XinXin Du, Trudi Schüpbach, Eric Wieschaus, Stanislav Shvartsman. *Epithelial folding during Drosophila eggshell morphogenesis.* Under revision at Developmental Cell.

Awards **Teaching Award** Princeton University (Princeton, NJ) *June 2008*
Physics Department teaching award.

Goldwater Scholarship Wellesley College (Wellesley, MA) *January 2006*
Award for excellence in research.

Computer Skills **Programming**
C/C++ Mathematica
Python LabVIEW
MatLab

Citizenship United States

Languages **English** Primary, fluent
Chinese Native, bilingual proficiency
French Basic

References Professor Stanislav Shvartsman
Department of Chemical and Biological Engineering and the Lewis-Sigler Institute for Integrative Genomics.

Professor Eric Wieschaus
Department of Molecular Biology and the Lewis-Sigler Institute for Integrative Genomics.

Professor Trudi Schüpbach
Department of Molecular Biology.