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## EDUCATION

*University of California, Berkeley, CA*

**Ph.D. in Physics** **Dec 2005**

Dissertation: "Single-molecule studies of DNA twist mechanics and gyrase mechanochemistry"

*Massachusetts Institute of Technology, Cambridge, MA*

**B.S. Physics, B.S. Mathematics, B.S. Economics, & B.S. Electrical Engineering** **1999**

Minor: Chemistry

Thesis: "Electronic control of a new apparatus for studying Bose-Einstein condensation", Ketterle lab

## AWARDS

- NIH K99 Pathways to Independence Award Recipient **Sept 2008 -**
- Pappalardo Fellow, Department of Physics, MIT **Sept 2007 -**
- Fannie and John Hertz Fellow **1999 – 2004**
- Orloff Award Winner (Scholarship)—MIT physics department **1999**
- Phi Beta Kappa **1998**
- National Merit Scholar **1995**

## TEACHING EXPERIENCE

*Massachusetts Institute of Technology, Cambridge, MA*

**Co-Instructor** – Systems Biology (7.342), Advanced Undergraduate Seminar **Fall 2008**

*National Academy of Sciences, Washington, DC*

**Mirzayan Science Policy Fellow** – Board on Science Education **Spring 2006**

*University of California, Berkeley, CA*

**Graduate Student Instructor** – Honors Introductory Mechanics (H7A) **Fall 2004**

Teaching evaluation: (6.6/7.0)

## RESEARCH EXPERIENCE

*Massachusetts Institute of Technology, Cambridge, MA*

**Postdoctoral Fellow, van Oudenaarden Laboratory** **2006 – present**

Currently studying the evolution of cooperation using sucrose metabolism in yeast as a model system.

*University of California, Berkeley, CA*

**Graduate Student Researcher, Bustamante Laboratory** **2001 – 2005**

Studied DNA and DNA-based enzymes using magnetic and laser tweezers. My experimental work focused on studies of DNA twist and torque induced by thermal fluctuations, tension, or the molecular motor DNA gyrase.

*University of California, Berkeley, CA*

**Graduate Student Researcher, McEuen Laboratory** **1999 – 2000**

Demonstrated electrolyte gating of single-walled carbon nanotube transistors.

## MEMBERSHIPS

- Biophysical Society, American Physical Society, Society for the Study of Evolution

## PUBLIC SERVICE

- Referee: Physical Review Letters, Physical Review E
- Interviewer for the Hertz Graduate Fellowship, judge for the Research Science Institute Program

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PUBLICATIONS AND PAPERS

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- Spatial structure aids the evolution of cooperation in an experimental snowdrift game  
Gore, J. and van Oudenaarden, A.  
*manuscript in preparation (2009)*
  - Snowdrift game dynamics and facultative cheating in yeast  
Gore, J., Youk, H., and van Oudenaarden, A.  
*Nature, accepted (2009)*
  - The yin and yang of nature (News & Views)  
Gore, J. and van Oudenaarden, A.  
*Nature* **457**, 271 – 272 (2009)
  - The invariant torsional rigidity of DNA  
Bryant, Z., Gore, J., Cozzarelli, N.R., and Bustamante, C.  
*manuscript in preparation (2009)*
  - Dual modes of gyrase activity revealed by force and torque  
Nollmann, M., Stone, M.D., Bryant, Z., Gore, J., Crisona, N., Bustamante, C., and Cozzarelli, N.R.  
*Nature Structural and Molecular Biology* **14**, 264 – 271 (April, 2007)
  - DNA overwinds when stretched  
Gore, J., Bryant, Z., Nollmann, M., Le, M.U., Cozzarelli, N.R., and Bustamante, C.  
*Nature* **442**, 836 – 839 (2006)
  - Mechanochemical analysis of DNA gyrase using rotor bead tracking  
Gore, J., Bryant, Z., Stone, M.D., Nollmann, M., Cozzarelli, N.R., and Bustamante, C.  
*Nature* **439**, 100 – 104 (2006)
  - Identification of oligonucleotide sequences that direct the movement of the *Escherichia coli* FtsK translocase  
Levy, O., Ptacin, J.L., Pease, P.J., Gore, J., Eisen, M.B., Bustamante, C., and Cozzarelli, N.R.  
*Proceedings of the National Academy of Sciences* **102**, 17618 – 17623 (2005)
  - Sequence-Directed Translocation by Purified FtsK  
Pease, P.J., Levy, O., Cost, G.J., Gore, J., Ptacin, J.L., Sherratt, D., Bustamante, C., and Cozzarelli, N.R.  
*Science* **307**, 586 – 590 (2005)
  - Bias and error in estimates of equilibrium free-energy differences from nonequilibrium measurements  
Gore, J., Ritort, F., and Bustamante, C.  
*Proceedings of the National Academy of Sciences* **100**, 12564 – 12569 (2003)
  - Structural transitions and elasticity from torque measurements on DNA  
Bryant, Z., Stone, M.D., Gore, J., Smith, S., Cozzarelli, N.R., and Bustamante, C.  
*Nature* **424**, 338 – 341 (2003)
  - High Performance Electrolyte Gated Carbon Nanotube Transistors  
Rosenblatt, S., Yaish, Y., Park, J., Gore, J., Sazonova, V., and McEuen, P.  
*Nanoletters* **2**, 869 – 872 (2002)
  - Construction and implementation of quantum logic gates from two spin systems  
Price, M.D., Somaroo, S.S., Tseng, C.H., Gore, J.C., Fahmy, A.F., Havel, T.R., and Cory, D.G.  
*Journal of Magnetic Resonance* **140**, 371 – 378 (1999)
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