

Curriculum Vitae
Douglas E. Smith

ADDRESS

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EDUCATION

B.A., Physics, University of Chicago, 1993

Ph.D., Applied Physics, Stanford University, 1999

Thesis research: Manipulation and imaging of single DNA molecules, Single polymer dynamics
Advisor: Prof. Steven Chu

PROFESSIONAL APPOINTMENTS

Postdoctoral Fellow, Department of Physics, University of California, Berkeley, 1999-2001

Research: Single-molecule studies of viral DNA packaging

Advisor: Prof. Carlos Bustamante

Associate Professor (with tenure), Dept. of Physics, University of California, San Diego (2001-present)

RESEARCH AREAS

- Mechanical manipulation and imaging of single DNA molecules
- Viral DNA packaging
- ATP-driven molecular motors
- Polymer dynamics
- Protein-DNA interactions
- Enzyme-mediated DNA looping
- Restriction endonuclease function
- Chromatin assembly and structure
- Mechanisms of entanglement and knot formation

AWARDS

- Sloan Foundation Fellowship, 2003
- Beckman Young Investigator Award, 2003
- Searle Scholars Award, 2002
- Burroughs Wellcome Fund Career Award in Biomedical Science, 2001
- Research Corporation Research Innovation Award, 2001
- Graduate Fellowship, NSF Program in Mathematics and Molecular Biology, 1996-1998
- Sigma Xi Science Prize and Phi Beta Kappa (University of Chicago)

TECHNIQUES

- Optical tweezers force transducer for single DNA molecule manipulation
(nanometer-level displacement measurement and piconewton-level force measurements)
- Fluorescence imaging of single DNA molecules; tracking of Brownian motion and molecular

- conformational changes
- Microfluidic systems integrated with optical tweezers
- Molecular Biology and Biochemistry

FUNDING

- National Institutes of Health
- Burroughs Wellcome Fund
- Beckman Foundation
- Kinship Foundation
- Sloan Foundation
- Research Corporation
- Petroleum Research Fund

PUBLICATIONS

- PDF files available at: <http://physics.ucsd.edu/~des/DESPublications.htm>

RECENT PRESENTATIONS AT CONFERENCES

- Gordon Research Conference on Single Molecule Approaches to Biology, Jun. 2006
- SPIE Conference, Symposium on Optical Trapping and Optical Micromanipulation, Aug. 2006
- Protein Society Meeting, Symposium on Single Molecule Studies, Aug. 2006
(*Symposium organizer and Session chair*)
- Biophysical Society Annual Meeting, Mar. 2007 (*Session chair, Viral Assembly*)
- American Physical Society March Meeting, Symposium on Molecular Motors, Mar. 2007
- International Phage/Virus Assembly Conference, May 2007
- SPIE Conference, Symposium on Optical Trapping and Optical Micromanipulation, Aug. 2007