

Bryan D. Huey

Institute of Materials Science and Chemical, Materials, and BioMolecular Engineering Department
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Professional Preparation:

Undergraduate

Stanford University Materials Science and Engineering B.S., 1993

Graduate

University of Pennsylvania Materials Science with D. Bonnell & W. Pompe M.S., 1996

University of Pennsylvania Materials Science with D. Bonnell Ph. D., 1999

Postdoctoral

Oxford University Dept. of Materials with G.A.D. Briggs Apr. 1999-Apr. 2002

EPFL Dept. of Physics with A. Kulik and L. Forro May. 2002-Dec. 2002

NIST Ceramics Division with J. Blendell Jan. 2003-Jun. 2004

Appointments and Fellowships

- Assistant Professor, University of Connecticut, IMS and MS&E Department (Jul. 2004-present)
- NRC Fellowship, NIST, Ceramics Division (Jan. 2003-Jun. 2004)
- Visiting Post-Doctoral scholar, EPFL, Dept. of Physics (May 2002-Dec. 2002)
- Marshall-Sherfield Fellowship, Oxford University, Dept. of Materials (May 2001-Apr. 2002)
- NSF International Post-Doc, Oxford University, Dept. of Materials (May 2000-Apr. 2001)
- Post-doctoral researcher, Oxford University, Dept. of Materials (May 1999-Apr. 2000)
- Max Planck Society Visiting Scientist, Dresden Technical University (Jun.-Aug. 1995)

Selected Publications

- R. Nath, Y.H. Chiu, N. Polomoff, R. Ramesh, B. D. Huey, "High Speed Piezoresponse Force Microscopy: <1 Frame per Second Nanoscale Imaging," *Applied Physics Letters*, 93, 2008, 072905.
- M. Zhao, V. Sharma, H. Wei, R. R. Birge, J. A. Stuart, F. Papadimitrakopoulos, B. D. Huey, "Ultra sharp and high aspect ratio carbon nanotube AFM probes for enhanced surface potential imaging," *Nanotechnology*, 19 (23), 2008, p. 235704-10.
- R. Nath, S. Zhong, S. P. Alpay, B. D. Huey, M. W. Cole, "Enhanced piezoelectric response from barium strontium titanate multilayer films," *Applied Physics Letters*, 92, 2008, p. 012916.
- B. D. Huey, "AFM and Acoustics: Fast, Quantitative, Nanomechanical Mapping," *Annual Reviews of Materials Research*, Vol. 37, pp. 351-85, 2007.
- R. Nath, R. E. García, J. E. Blendell, B. D. Huey, "Influence of Grain Boundaries and Texture on Ferroelectric Domain Hysteresis," *Journal of the Minerals, Metals & Materials Society*, Vol. 59 (1), pp. 17-21, 2007.
- M. Zhao, B. D. Huey, "Rate and Depth Dependent Nanomechanical Behavior of Individual Living Chinese Hamster Ovary Cells Probed by AFM," *Journal Materials Research*, 21(8), p.1906, 2006.
- R. E. Garcia, J. E. Blendell, B. D. Huey, "Virtual Piezo-Force Microscopy of Polycrystalline Ferroelectric PZT Films," *J. Appl. Phys.*, 100 (6), p. 064105-15, 2006.
- B. D. Huey, C. Ramanujan, M. Bobji, J. Blendell, G. White, R. Szożkiewicz, A. Kulik, "The importance of considering cantilever angle in piezo force microscopy", *Journal of Electroceramics*, 13, p. 287-91, 2004.
- B. D. Huey, "Nanometer Scale Measurement and Control of Ferroelectric Polarization at MHz Frequencies," in *Nanoscale Phenomena in Ferroelectric Thin Films*, ed. S. Hong, Kluwer, 2004.
- D. Bonnell, B. D. Huey, "Basic Principles of Scanning Probe Microscopy," in *Scanning Probe Microscopy & Spectroscopy: Theory, Techniques, and Applications*, 2nd edition, D. Bonnell, 2001.

Teaching and Education

- New Courses developed at UConn: ‘Nanomaterials’ (Winter 07, 08, undergraduate); ‘Processing and properties of thin films & coatings’ (Fall 06, Winter 07, graduate).
- Continuing Courses taught at UConn: ‘Ceramic material properties & processing’ (Winter 05, 06, 08, undergraduate); ‘Materials characterization’ (Fall 05, 07, graduate).
- Instructor: Lehigh Microscopy School, Advanced SPM characterization, (summers, began 2005).
- Lecturer: “Scientific and Engineering Ethics: the Shuttle Challenger disaster,” given to every UConn undergraduate engineer (Fall 05, 06, 07); and “Environmental Stewardship-Responsible Materials Design and Recycling,” given to all undergraduate materials engineers (Spring 06, 07).
- Member (1 of 10): Connecticut Dept. of Higher Education committee to create a state-wide minor in nanotechnology, including planning, curriculum, and content development (2007).
- Instructor (1 of 3): 10-day summer institute for 18 high school science teachers to introduce nanotechnology into grade 6-12 curricula through hands on content (2007).
- Organizer: Materials program for ‘UConn Engineering 2000’, exposing 90+ high school juniors (55% women) to the materials science discipline during a 1 week summer residential program of hands on experiments and lectures (summers, 06, 07).
- Organizer: ‘Outreach & Education’ seminar (‘08), encouraging/improving MS&E student outreach.

Other Professional Activities

- Guest editor: Journal of Materials, January 2007, Scanning Probe Microscopy for Ceramics.
- Director: NanoMeasurement Laboratory, UConn IMS, with >60 trained users from 12 departments.
- Symposium co-organizer: MS&T ‘07, ‘06, MRS Fall ‘04, NNI grand challenge workshop ‘04.
- Member: NSF review panels (NIRT, IMR, MNW, NBM).
- Member: ACerS Basic Science Division Nominating (2003-2004), ACerS, MRS, APS, ASEE.
- Seminar Organizer, UConn Materials (Fall 05-Spring 07); NIST Ceramics (Fall 04-Spring 05).
- MRS student chapter faculty advisor (2007-present).

Awards and Honors

- Outstanding faculty member (teaching, research, service), UConn MS&E (2007).
- S. J. Stein Prize, outstanding Engineering Thesis, University of Pennsylvania (1999).
- Materials Research Society graduate student Gold Medal (Fall, 1998).
- William S. Yerger Memorial Prize, outstanding grad student, University of Pennsylvania (1996).

Advising

- Undergraduate: currently 17 students, including 3 honors scholars & 1 university scholar (top 0.1%)
- PhD: Nicholas Polomoff, Arron Lucas, Vincent Palumbo
- Previous: R. Szoszkiewicz, EPFL Physics; A. McGuigan, Oxford Materials; R. Nath, UConn Ph.D.; K. Bagnoli, UConn M.S.; M. Zhao, UConn PostDoc.

Postgraduate Advisors:

- D. A. Bonnell, University of Pennsylvania, PhD thesis advisor.
- G. A. D. Briggs, Oxford University, postdoctoral advisor.
- A. Kulik, EPFL, postdoctoral advisor.
- J. Blendell, NIST, NRC sponsor (now at Purdue).

Collaborators, Co-Authors, Co-Organizers, and Other Affiliations (beyond UConn)

W. Sigmund, U. Florida; B. Bhushan, N. Padture, Ohio State; R. Garcia, Purdue; R. Ramesh, UC Berkeley; M. Castell, Oxford, UK; L. Eng, Dresden TU, Germany; L. Forró, EPFL, Switzerland; S. Kalinin, ORNL; D. Kaiser, D. Smith, D. Hurley, S. Semancik, NIST; S. Hong, O. Auciello, ANL.