Ania Claire Bleszynski Jayich

Physics Department, University of California Santa Barbara • Santa Barbara, CA 93106 • ania@physics.ucsb.edu

Education:

Harvard University, Cambridge, MA
- **Physics, Ph.D.,** June 2006
- **Thesis Topic:** Imaging Electrons in Nanoscale Structures (supervisor: Professor Robert Westervelt)

Stanford University, Palo Alto, CA
- **Physics, B.S. with honors,** June 2000
- **Mathematical and Computational Science, B.S.**, June 2000
- **Honors Thesis:** The Coil-Stretch Transition of Polymers in Near Shear Flows (supervisor: Professor Steve Chu)

Research Interests:

Experimental Condensed Matter Physics: Quantum mechanical effects in mesoscopic systems. Electron transport and magnetization studies of semiconducting and metallic nanostructures. Techniques used: Low temperature scanning probe microscopy (SPM) and cantilever torque magnetometry.

Research Experience:

Assistant Professor, University of California Santa Barbara — Summer 2010 – present

Visiting Scholar, Harvard University — Fall 2009 – Summer 2010
Physics Department, Advisor: Misha Lukin
- Coupled an artificial atoms in diamond (a nitrogen-vacancy center) to a nanomechanical resonator with the goal of imprinting the quantum state of the atom onto the macroscopic mechanical object

Postdoctoral Researcher, Yale University — Fall 2006 – Fall 2009
Physics Department, Advisor: Jack Harris
- Measured persistent currents in normal metal rings using cantilevers as sensitive torsional magnetometers
- Designed and fabricated ultra-sensitive silicon cantilevers with integrated metal rings

Graduate Research Assistant, Harvard University — Winter 2001 – Summer 2006
Physics Department, Advisor: Robert Westervelt
- Used a home-built liquid Helium cooled SPM to image coherent electron flow in a two-dimensional electron gas
- Imaged electrons in semiconducting nanowires
- Imaged one-electron quantum dots in the Coulomb blockade regime

Undergraduate Research Assistant, Stanford University — Winter 1997 – Spring 2000
Physics Department, Advisor: Steve Chu
University Undergraduate Research Fellowship
- Used total internal reflection (TIR) microscopy to investigate protein folding
- Observed the effects of mixed flow on DNA as a model polymer

Teaching and Academic Service:

Co-organizer of ITAMP workshop on Artifical Atoms in Diamond at Harvard University, November 2010

Supervisor of graduate and undergraduate physics students
As a postdoctoral researcher, supervised graduate and undergraduate students in their research projects
As a graduate student, conceived of and supervised an REU student project

Resident Tutor in Kirkland House at Harvard University
Advised students in the house on academic matters pertaining to the sciences. Promoted interest in the sciences.
Held weekly physics and math office hours 2002-2006

Teaching Fellow at Harvard

Applied Physics 285 – Physics of Semiconductors and Semiconducting Devices, Spring 2003
Physics 1a- Introductory physics for pre-med majors, Fall 2000

Teaching Assistant and Resident Assistant at The Stanford Summer Science and Math Institute
Was a Resident Assistant and taught calculus to incoming Stanford freshman, Summer 1996

High School Teacher at Pinewood High School
Taught AP Computer Science to high school seniors, Fall 1999

Awards and Accomplishments

- Veeco Endowed Chair in Engineering and Science at UC Santa Barbara
- L'Oreal For Women in Science postdoctoral fellowship 2008
- Aspen Center for Physics Frontiers in Condensed Matter Systems Conference (Feb 2008): Martin and Beate Block Winter Fund Award for outstanding young scientist
- Intl Conference on the Physics of Semiconductors (ICPS2006) Young Scientist Award
- Best Undergraduate Physics Thesis, 2000
- NCAA All-American in tennis, 1995-1998
- Stanford Block "S" Award (Most Outstanding Sophomore Female Athlete), 1996
- Ranked #1 junior tennis player in the US, 1994
- Languages (Polish, Latin, French)

Invited Talks:

- Cornell Nanoscale Facility Annual Meeting, September 2010
- Gordon Conference on Correlated Electron Systems, June 2010
- NNIN annual meeting, Seattle, May 2010
- CUNY-wide colloquium, May 2010
- Univeristy of Pennsylvania Condensed Matter Seminar, March 2010
- Michigan State University colloquium, Feb 2010
- Frontiers in Nanoscience and Technology, Cambridge, MA May 2009
- American Physical Society March Meeting, Pittsburgh, March 2009
- UC Los Angeles Condensed Matter Seminar, February 2009
- UC San Diego NanoEngineering Seminar, February 2009
- University of Minnesota Condensed Matter Seminar, February 2009
- Stanford University Materials Science Seminar, February 2009
- Princeton Electrical Engineering Seminar, February 2009
- International Symposium on Nanoscale Transport and Technology, January 2009
- UC Santa Barbara Condensed Matter Seminar, November 2008
- Pomona College Colloquium, November 2008
- City College of New York Condensed Matter Seminar, November 2008
- Yale Solid State and Optics Seminar, October 2008
- Columbia University Physics Seminar, New York, NY, August 2007
- University of Washington Condensed Matter Seminar, Seattle, WA, October 2007
- Frontiers in Nanoscience and Technology, Tokyo, March 2007
- American Physical Society March Meeting, Baltimore, March 2007
- Harvard University Condensed Matter and Applied Physics Colloquium, April 2006
- Cornell University Solid State Seminar, January 2006
- UC Santa Barbara California Nanosystems Institute Seminar, Nov 1005
- Ohio State University Condensed Matter Colloquium, May 2005
- UC Santa Barbara Applied Physics Seminar, January 2003

Contributed Talks:

- Meeting of the American Vacuum Society, Seattle, WA October 2007
- International Conference on the Physics of Semiconductors, Vienna, July 2006
- International Conference of Nanoscience and Technology, Basel, July 2006
- Physics and Applications of Spin Related Phenomena in Semiconductors III Conference, Santa Barbara, July 2004
- American Physical Society March Meeting, 2002- 2008

Coverage in the Press:

• Yale Daily News, “Postdoc wins Women in Science fellowship”, Dec 2008
• Yale Bulletin, “Researcher wins a prestigious fellowship for women scientists”, Nov 2008

Publications:

E. Ginossar, L. I. Glazman, T. Ojanen, F. von Oppen, W. E. Shanks, A. C. Bleszynski-Jayich, and J. G. E. Harris "Mesoscopic persistent currents in a strong magnetic field", *Physical Review B* **81**, 155448 (2010).

A.C. Bleszynski-Jayich, W. E. Shanks, B. Peaudecerf, E. Ginossar, F. von Oppen, L. Glazman, and J.G.E. Harris "Persistent currents in normal metal rings", *Science* **326**, 272 (2009).

A.C. Bleszynski-Jayich, W. E. Shanks, B. Ilic, and J.G.E. Harris "High sensitivity cantilevers for measuring persistent currents in normal metal rings", *Journal of Vacuum Science and Technology B* **26**, 1412 (2008).

Selected for the *Virtual Journal of Nanoscale Science and Technology*, August 26, 2008

A.C. Bleszynski-Jayich, L.E. Froberg, M.T. Bjork, L. Samuelson, and R.M. Westervelt "Imaging a one-Electron InAs Quantum Dot in an InAs/InP Nanowire", *Physical Review B* **77**, 245327 (2008).

Selected for the *Virtual Journal of Nanoscale Science and Technology*, July 14, 2008

Selected for the *Virtual Journal of Quantum Information*, July 2008

A.C. Bleszynski-Jayich, W. E. Shanks, and J.G.E. Harris "Noise thermometry and electron thermometry of a sample-on-cantilever system below 1 Kelvin", *Applied Physics Letters* **92**, 013123 (2008).

Selected for the Virtual *Journal of Nanoscale Science and Technology*, January 21, 2008

B.M. Zwickl, W.E. Shanks, A.M. Jayich, C. Yang, A.C. Bleszynski-Jayich, J.D. Thompson and J.G.E. Harris "High quality mechanical and optical properties of commercial silicon nitride membranes" *Applied Physics Letters* **92**, 103125 (2008) .

A.C. Bleszynski, F.A. Zwanenburg, R.M. Westervelt, L.P. Kouwenhoven, A. Roest, E.P.A.M. Bakkers "Scanned Probe Imaging of Quantum Dots inside InAs Nanowires", *Nano Letters* **7**, 2559 (2007).

This work was highlighted in:

"Probe microscopy: Finding quantum dots inside nanowires", *Nature Nanotechnology* **2**, 600 (01 Oct 2007) News and Views.

"Nanowires: Joining the dots", *Nature Nanotechnology* (24 Aug 2007) Research Highlights.

B. J. LeRoy, A. C. Bleszynski, K. E. Aidala, R. M. Westervelt, A. Kalben, E. J. Heller, S. E. J. Shaw, K. D. Maranowski, and A. C. Gossard "Imaging Electron Interferometer", *Physical Review Letters* **94**, 126801 (2005).

P. Fallahi*, A.C. Bleszynski*, R.M. Westervelt, J. Huang, J.D. Walls, E.J. Heller, M. Hanson, and A.C. Gossard, "Imaging a Single Electron Quantum Dot", *Nano Letters* 5, **223** (2005). *co-authors

E.J. Heller, K.E. Aidala, B.J. LeRoy, A.C. Bleszynski, A. Kalben, R.M. Westervelt, K.D. Maranowski, and A.C. Gossard, "Thermal Averages in a Quantum Point Contact with a Single Coherent Wave Packet," *Nano Letters* 5, **1285** (2005).

R.M. Westervelt, M.A. Topinka, B.J. LeRoy, A.C. Bleszynski, "Imaging Electron Waves", *Physica E* **24**, 63 (2004).

B.J. LeRoy, A.C. Bleszynski, M.A. Topinka, R.M. Westervelt, "Imaging Coherent Electron Wave Flow in a Two-dimensional Electron Gas", *Physica E* **18**, 163 (2003).

B.J. LeRoy, M.A. Topinka, A.C. Bleszynski, R.M. Westervelt, S.E.J. Shaw, E.J. Heller, K.D. Maranowski, A.C. Gossard, "Imaging coherent electron flow in a two-dimensional electron gas", *Applied Surface Science* **210**, 134 (2003).

References:

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