Curriculum Vitae- Jay Anil Gupta

Ohio State University
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Education

2002 PhD, Physics, University of California, Santa Barbara
1999 M.A., Physics, University of California, Santa Barbara
1996 B.S. cum laude, with highest distinction, Physics, University of Illinois at Urbana-Champaign
B.S. cum laude, Chemistry, University of Illinois at Urbana-Champaign

Professional Employment

Assistant Professor (September 04 – present).
IBM Postdoctoral researcher (February 02-July 04). Manager: Dr. Don Eigler
Graduate Student Researcher (July 96-January 02). Thesis advisor: Professor David Awschalom
Teaching Assistant (Fall 96) at University of California, Santa Barbara

Awards

2007 National Science Foundation: CAREER award ($100k/yr from 2007-2012)
2007 Beckman Foundation Young Investigator Award ($100k/yr from 2007-2010)

2007 American Chapter of Indian Physics Association: Outstanding Young Investigator
2007 IBM Research Division Award: "Single atom spin flip spectroscopy"
2003 IBM Research Division Award: "Molecular cascades"

Publications

15. "Atomic contrast inversion in CuN islands" T. Choi, C.D. Ruggiero and J.A. Gupta, *submitted*

14. "Tunneling spectroscopy of ultrathin insulating films: CuN on Cu(100)" C.D. Ruggiero, T. Choi and J.A. Gupta, Appl. Phys. Lett. **91**, 253106 (2007).

13. "Strongly coverage-dependent excitations of adsorbed molecular hydrogen" J.A. Gupta, C.P. Lutz, A.J. Heinrich and D.M. Eigler, Phys. Rev. B **71**, 115416 (2005).

12. "Single atom spin-flip spectroscopy", A.J. Heinrich, J.A. Gupta, C.P. Lutz and D.M. Eigler, Science **306**, 466 (2004).

11. "Molecule cascades", A.J. Heinrich, C.P. Lutz, J.A. Gupta and D.M. Eigler, Science **298**, 1381 (2002).

10. “Spin dynamics in semiconductor nanocrystals”, J.A. Gupta, D.D. Awschalom, Al. L. Efros and A.V. Rodina, Phys. Rev. B **66**, 125307 (2002).

9. “Ultrafast manipulation of electron spin coherence in quantum wells” J.A. Gupta, D.D. Awschalom, R. Knobel and N. Samarth, International Journal of Modern Physics B **20-22**, 2930 (2002).

8. “Optical, electrical and magnetic manipulation of spins in semiconductors” D.K. Young, J.A. Gupta, E. Johnston-Halperin, R. Epstein, Y. Kato and D.D. Awschalom, Semiconductor Science & Technology **17**, 275 (2002).

7. “Ultrafast manipulation of electron spin coherence”, J.A. Gupta, R. Knobel, N. Samarth, and D.D. Awschalom, Science *(cover article)* **292**, 2458 (2001).

6. “Spin precession and the optical Stark effect in a semiconductor-doped glass”, J.A. Gupta and D.D. Awschalom, Phys. Rev. B **63**, 085303, (2001).

5. “Spin coherence in semiconductors: storage, transport, and reduced dimensionality”, J.M. Kikkawa, J.A. Gupta, I. Malajovich, and D.D. Awschalom, Physica E **9**, 194 (2001).

4. “Exciton spin polarization in magnetic semiconductor quantum wires”, O. Ray, A.A. Sirenko, J.J. Berry, N. Samarth, J.A. Gupta, I. Malajovich, and D.D. Awschalom, Appl. Phys. Lett. **76**, 1167 (2000).

3. “Spin coherence in semiconductor quantum dots”, J.A. Gupta, X. Peng, A.P. Alivisatos, and D.D. Awschalom, Phys. Rev. B Rapid Comm. **59**, 10421 (1999).

2. “Optical Spectroscopy of II-VI (magnetic) semiconductor quantum dots”, P.A. Crowell, V. Nikitin, J.A. Gupta, D.D. Awschalom, F. Flack, and N. Samarth, Physica E **2**, 854 (1998).

1. “Zero-Dimensional Excitonic Confinement in Locally Strained Zn1-xCdxSe Quantum Wells”, V.Nikitin, P.A. Crowell, J. A. Gupta, D. D. Awschalom, F. Flack, N. Samarth, Appl. Phys. Lett., **71**, 1213 (1997).

Invited Presentations

December 2005, *Latin American conference on surface science and its applications*; Angra dos Reis, BRAZIL. Title: “Frontiers in spectroscopy with the scanning tunneling microscope”

July 2004, *8th European conference on surface crystallography and dynamics*; Segovia, SPAIN. Title: “Studies of molecular motion with the STM”

May 2004, *BayCon 2004* (a wacky sci-fi conference); San Jose, USA; Title: “Atomic scale construction”

August 2002, *7th International conference on near-field optics*; Rochester, USA. Title: “Coherence and manipulation of spin states in semiconductor nanostructures”

October 2001, *Physical phenomena in high magnetic fields IV*; Santa Fe, USA. Title: "Ultrafast manipulation of electron spin coherence"

August 2001, *Exploring Quantum Physics*; Venice, ITALY. Title: "Ultrafast manipulation of electron spin coherence in semiconductor quantum structures"

March 2001, *Annual meeting of the American physical society*; Seattle, USA. Title: "Storage and manipulation of spin coherence in semiconductor quantum structures"

February 2000, *Winter school on new developments in solid state physics;* Mauterndorf, AUSTRIA. Title: "Spin Coherence in semiconductors: storage, nuclear interactions, and transport across interfaces"

May 1999, *Annual meeting of the Southwest Quantum Information Network*; Albuquerque, USA. Title: "Injection, transport, and storage of spin coherence in semiconductor structures"

February 1999, *Advanced Physical Fields-4*; Tsukuba, JAPAN. Title: "Spin Coherence and Memory in Semiconductor Nanostructures"

Contributed Presentations

March 2004, *Annual meeting of the American physical society*; Montreal, CANADA. Title: "Nonlinear conductance from switching of H_2 on Cu(111)"

March 2002, *Annual meeting of the American physical society*; Indianapolis, USA. Title: "Ultrafast manipulation of electron spin coherence"

March 2000, *Annual meeting of the American physical society*; Minneapolis, USA. Title: "Ultrafast manipulation of spin coherence in semiconductor nanostructures"

April 1999, *Annual meeting of the materials research society*; San Francisco, USA. Title: "Spin coherence in semiconductor quantum dots"

March 1999, *Annual meeting of the American physical society*, Atlanta, USA. Title: "Spin coherence in semiconductor quantum dots"

March 1998, *Annual meeting of the American physical society*, Los Angeles, USA. Title: "Confinement effects in II-VI magnetic semiconductor quantum dots"

Research Group

Current:
Graduate students: Charles Ruggiero, Donghun Lee, David Daughton, Taeyoung Choi, David Gohlke
Undergraduate students: Jason Lawhead, Michael Roe, Kathryn Weaver
Postdoc: none

Alumni:
Graduate students: none
Postdoc: Xiaohui Qiu (Research Professor at National Center for Nanoscience and Technology, Beijing, CHINA)
Undergraduates: A. Corwin, J. Davia, N. Ezeh

Current Collaborations & Other Affiliations

Art Epstein – Ohio State University: Organic magnets and conductors
N. Trivedi – Ohio State University: Nanoscale superconductivity
G. Newkome – University of Akron: Fractal molecules
D. Awschalom – University of California Santa Barbara: Semiconductor magnetism
D. Look – Wright Patterson Air Force Base: ZnO surfaces
R. Hennig – Cornell: Single molecule transport

Memberships:
American Physical Society
American Chapter of Indian Physics Association