

Xu Du

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STATUS: Permanent resident (green card)

EDUCATION

University of Florida, Gainesville, FL
Degree Received: Doctor of Philosophy, Physics, December 2004
Graduate Research Advisor: Dr. Arthur.F.Hebard

Beijing University, Beijing, P.R.China
Degree Received: Master of Science in Physics, August 1999
Graduate Research Advisor: Dr. Han Zhang

Beijing Univ. of Aero. & Astr., Beijing, P.R.China
Degree Received: Bachelor of Engineering, August 1996
Undergraduate Research Advisor: Dr. Dafang Wu

RESEARCH EXPERIENCE

- Sept.2009 --- Assistant Professor, Stony Brook University
- Graphene-superconductor junctions and bolometers
 - Quantum transport in ballistic graphene devices
 - CVD graphene
- Mar.2005 --- PostDoc Fellow, Rutgers University, Piscataway, NJ
Jul. 2009 Supervisor: Dr. Eva Y. Andrei
- Time-resolved transport and Hall probe array microscopy study of glassy dynamics of superconducting vortices in NbSe₂
 - Superconducting proximity effect in graphene-superconductor hybrid devices
 - Transport properties of suspended graphene devices
- Dec. 2000 --- Research Assistant, University of Florida, Gainesville, FL
Dec. 2004 Supervisor: Dr. Arthur.F.Hebard
- Fabrication of large magnetoresistance Bi/Au thin films
 - Magneto-transport properties of HOPG
 - Magneto-transport and tunneling properties of bulk bismuth
 - Transport and tunneling properties of ultra thin bismuth films
 - Fabrication and transport study of bismuth nano structures
- July. 1996 --- Graduate Research, Beijing University, Beijing, China
July 1999 Supervisor: Dr. Han Zhang
- Structural influence on transport properties in GaN thin films
 - Study of cohesive energy in high T_c superconductors
- July. 1995 --- Undergraduate Research, Beijing Univ. of Aero. & Astr.
July. 1996 Supervisor: Dr. Dafang Wu
- Computer controlled nonlinear system.

HONORS/AWARDS

AFSOR Young Investigator Research Program Award, 2010~2012
ICAM Fellowship, 2006~2007
Alumni Fellowship, University of Florida, 1999~2003
People's scholarship, Beijing University, 1999
People's scholarship, Beijing Univ. of Aero. & Astr., 1994
First prize winner in National mathematical modeling competition, 1994

PUBLICATIONS

Ballistic-like supercurrent in suspended graphene Josephson weak links
Naomi Mizuno, Bent Nielsen and Xu Du, *Nature Communications* 4, 2716 (2013)
doi:10.1038/ncomms3716

Bolometric response in graphene based superconducting tunnel junctions
Heli Vora, Piranavan Kumaravadeivel, Bent Nielsen, and Xu Du, *Appl. Phys. Lett.* 100, 153507 (2012)

Electronic properties of graphene: a perspective from scanning tunneling microscopy and magnetotransport
Eva Y Andrei, Guohong Li and Xu Du, *Rep. Prog. Phys* 75, 056501 (2012)

Mobility-dependent low frequency noise in Graphene field effect transistors
Yan Zhang, E. E. Mendez, and Xu Du, *ACS Nano*, 5 (10), pp 8124–8130 (2011)

Fractional quantum Hall effect in suspended graphene probed with two-terminal measurements
Skachko¹, X. Du, F. Duerr, A. Luican, D. A. Abanin, L. S. Levitov and E.Y. Andrei, *Philosophical Transactions of Royal Society. A* **368**, 5403-5416, (2010)

Fractional quantum Hall effect in suspended graphene: Transport coefficients and electron interaction strength
D. A. Abanin, I. Skachko, X. Du, E. Y. Andrei, L. S. Levitov, *Physical Review B* 81, 115410 (2010)

Fractional quantum Hall effect and insulating phase of Dirac electrons in graphene
Xu Du, Ivan Skachko, Fabian Duerr, Adina Luican and Eva Y. Andrei, *Nature*, 462, 192-195 (2009)

Towards ballistic transport in Graphene
Xu Du, Ivan Skachko, and Eva Y. Andrei, *International Journal of Modern Physics B (IJMPB)* Vol. 22, No: 25/26, 4579 (2008)

Approaching ballistic transport in suspended graphene
Xu Du, Anthony Barker, Ivan Skachko, and Eva Y. Andrei, *Nature Nanotechnology*, Vol.3, 491, 2008

Josephson Current and Multiple Andreev Reflections in Graphene SNS Junctions

Xu Du, Ivan Skachko, and Eva Y. Andrei, *Physical Review B* 77, 184507 (2008) (selected as PRB Editors' Suggestions; selected for Virtual Journal of Applications of Superconductivity, May 15, 2008)

Aging memory and glassiness of a driven vortex system

Xu Du, Guohong Li, Eva Y. Andrei, M. Greenblatt, P. Shuk, *Nature Physics*, Vol.3, 111, 2007

Transparent, conductive carbon nanotube films

Z. Wu, Z. Chen, X. Du, J. Logan, J. Sippel, M. Nikolou, K. Kamaras, J. R. Reynolds, D. B. Tanner, A. F. Hebard, A. G. Rinzler, *Science*, Vol.305, 1273, 2004

Metal-insulator-like behavior in semimetallic bismuth and graphite

Xu Du, Shan-wen Tsai, Dmitrii Maslov and Arthur. F. Hebard, *Physical Review Letters*, Vol.94, 166601, 2005

Bulk separative enrichment in metallic or semiconducting single-walled carbon nanotubes

Z. Chen, X. Du, M. Du, D. Rancken, H. Cheng, A.G. Rinzler, *Nano Letters*, Vol.3, 1245, 2003

Contribution of interface capacitance to the electric-field breakdown in thin-film Al-AIO_x-Al capacitors

Singh-Bhalla, G., Xu Du; Hebard, A.F., *Applied Physics Letters*, Vol. 83, 2417, 2003

Large magnetoresistance of bismuth/gold films thermally deposited onto glass substrates

Xu Du and A. F. Hebard, *Applied Physics Letters* 82, 2293 (2003)

Mosaic structure and its influence on carrier mobility in undoped hexagonal GaN thin film

Du, X., Wang, Y.Z.; Cheng, L.L., Zhang, G.Y., Zhang, H., *Materials Science & Engineering B (Solid-State Materials for Advanced Technology)*, Vol. B75, 228, 2000

Relationship between superconducting transition temperature and combinative energy in YBa₂Cu₃O₇-

Cheng Li-Li, Du Xu, Qin Xiao-Chuan, Zhang Han, *Chinese Physics Letters*, Vol. 16, 446, 1999

Relationship between cohesive energy and superconductivity in Hg-system superconductors

Qin Xiao-Chuan, Du Xu, Zhang Han, *Chinese Physics Letters*, Vol. 15, 745, 1998

PRESENTATIONS

"Graphene hybrid devices", Invited, *Center for Quantum Materials, Department of Physics and Astronomy, Stony Brook University, Oct. 2013*

"Building graphene-superconductor junction bolometers", Invited, *Dept. of Physics and Astronomy, Rutgers University, May, 2013*

"Building graphene-superconductor junction bolometers", Invited, *Dept. of Applied Physics, Yale University, Apr., 2012*

"Bolometric response in graphene-superconductor junctions" *Invited, IOP Workshop on Frontiers of Dirac Electron Systems, Chinese Academy of Sciences, Jan. 2012*

"Study intrinsic graphene in suspended devices" *Invited, Institute of Physics, Chinese Academy of Sciences, 2011*

"Study intrinsic graphene in suspended devices" *Invited, Peking University, 2011*

"Bolometric response in graphene –superconductor junctions" *Invited, Dept. of Applied Physics, Yale University 2011*

"Study of intrinsic graphene in suspended devices" *Invited, NY APS meeting, Albany NY. 2011*

"Probing intrinsic graphene in suspended devices" *Invited, Boston Area Carbon Nanoscience meetings, 06/25/2010*

"Magnetically induced correlated states in suspended graphene" *Invited, International work shop on Interactions, Disorder, and Topology in Quantum Hall Systems, Max Plank Institute, 06/10/2010*

"Observation of Fractional quantum Hall effect and insulating phase of Dirac electrons in suspended graphene" *Invited, Boston College, 05/18/2010*

"Magnetically induced correlated states in suspended graphene" *Invited, 2010 APS March meeting*

"Magnetically induced low density phases near the Dirac point" *2009 APS March meeting*

"Probing intrinsic Dirac Fermion physics in graphene" *Invited, SUNY@Stony Brook, 2009*

"Studies of limitations on the mobility and mean free path in graphene devices" *2008 APS March meeting*

"Glassy vortex dynamics 2H-NbSe₂ and Superconducting proximity effect in graphene" *Invited, 2008 ICAM conference*

"Observation of Proximity Effect and Multiple Andreev Reflections in Graphene/Superconductor Junctions" *2007 APS March meeting*

"Superconducting proximity effect in graphene SNS junctions" *Invited, Los Alamos National labs, 2007*

"Superconducting proximity effect in graphene" *2006 AVS meeting*

"Observation of the Signatures of Glassy Vortex Dynamics in 2H-NbSe₂" *2006 APS March meeting*

"Unconventional magnetotransport in graphite" *2004 APS March meeting*

"Non-trivial temperature dependence of resistivity for oriented graphite in high magnetic fields" *2003 APS March meeting*

"Graphite tunnel junctions for high magnetic field studies" *2002 APS March meeting*