Xu Du

Department of Physics and Astronomy
SUNY Stony Brook
Stony Brook, NY 11794-3800
Email: xudu@notes.cc.sunysb.edu

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 --- Jul. 2009 PostDoc Fellow, Rutgers University, Piscataway, NJ
Supervisor: Dr. Eva Y. Andrei
- Time-resolved transport and Hall probe array microscopy study of glassy dynamics of superconducting vortices in $NbSe_2$
- Superconducting proximity effect in graphene-superconductor hybrid devices
- Transport properties of suspended graphene devices

Dec. 2000 --- Dec. 2004 Research Assistant, University of Florida, Gainesville, FL
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 --- July 1999 Graduate Research, Beijing University, Beijing, China
Supervisor: Dr. Han Zhang
- Structural influence on transport properties in GaN thin films
- Study of cohesive energy in high Tc superconductors

July. 1995 --- July. 1996 Undergraduate Research, Beijing Univ. of Aero. & Astr.
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

Bolometric response in graphene based superconducting tunnel junctions

Heli Vora, Piranavan Kumaravadivel, 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-AlO_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 $YBa_2Cu_3O_{7-\delta}$
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

"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-$NbSe_2$ 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-$NbSe_2$ " *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*