Erik A. Henriksen

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Education

2001 - 2008	M.A. and Ph.D. in Physics with advisor Prof. Horst Stormer, Columbia University Dept. of Physics. Thesis title, "Cyclotron resonance in graphene."
1993 - 1997	Bachelor of Arts in Physics and Asian Studies, Swarthmore College. Thesis title, "*Niō-zō*: a study of Japanese gate guardians."

Research Experience

2009 - present	Postdoctoral scholar. Electronic transport studies of suspended graphene membranes; electronic transport and thermodynamic studies of bilayer and trilayer graphenes. Laboratory of Prof. J. P. Eisenstein & the Institute for Quantum Information and Matter, Caltech.
2003 - 2008	Graduate research assistant. Electronic transport and high-field magneto-optical absorption of mono- and bilayer graphene devices; and also in GaN and GaAs two-dimensional heterostructures. Laboratory of Prof. Horst Stormer, Columbia University Dept. of Physics, and the National High Magnetic Field Laboratory, Tallahassee, FL.
1997 - 1999	Research technician. Fabrication of nanoscale bolometers with quasi-1D constrictions. Laboratory of Prof. Michael Roukes, Caltech Condensed Matter Physics.
1996 - 1997	Research assistant. Magnetic reconnection studies for the Swarthmore Spheromak Experiment with Prof. Michael Brown, Swarthmore College.

Teaching Experience

2012 - present	Visiting Assistant Professor of Physics, Harvey Mudd College.
2006	Designed and taught introductory physics course emphasizing methods to understand human motion. Summer Medical and Dental Education Program, Columbia University Medical School.
2002 - 2004	Designed and taught a semester long course covering experiments from early quantum physics, entitled "Experiments in Atomic and Nuclear Physics." Science Honors Program at Columbia University.
2001 - 2003	Graduate teaching assistant for Postbac Premed physics laboratory course, Columbia University.

Employment & Technical Experience

1999 - 2001 Built and managed a cleanroom semiconductor micro-/nano-fabrication facility for the Physics, Applied Physics, and Engineering departments at Columbia University. This included: installation of wetbenches & acid hoods, with associated plumbing and air-handling lines; purchase, installation & upkeep of thin-film deposition equipment (thermal and electron beam evaporator) and contact mask aligner for photolithography; rebuilt a reactive ion etcher; oversaw installation of keycard security access system.

1997 - 1999 Research technician at Caltech. Designed and built a custom dual-chamber electron cyclotron resonance etching / thin-film sputter coating system. Maintained cleanroom semiconductor fabrication facility. Gained proficiency in micro- and nano-fabrication techniques: UV photolithography and ebeam lithography, thin film deposition via sputtering and evaporation, chemically-assisted ion beam etching, basic wetbench chemistry.

Peer-Reviewed Publications

14. "Quantum Hall effect and semimetallic behavior in dual-gated ABA trilayer graphene," E. A. Henriksen, D. Nandi and J. P. Eisenstein, *Phys. Rev. X* **2**, 011004 (2012). PRX arXiv

13. "Measurement of the electronic compressibility of bilayer graphene," E. A. Henriksen and J. P. Eisenstein, *Phys. Rev. B* **82**, 041412(R) (2010). PRB Rapid arXiv

12. "Interaction-induced shift of the cyclotron resonance of graphene using infrared spectroscopy," E. A. Henriksen, P. Cadden-Zimansky, Z. Jiang, Z. Q. Li, L.-C. Tung, M. E. Schwartz, M. Takita, Y.-J. Wang, P. Kim and H. L. Stormer, *Phys. Rev. Lett.* **104**, 067404 (2010). PRL arXiv

11. "Optical phonon mixing in bilayer graphene with a broken inversion symmetry," J. Yan, T. Villarson, E. A. Henriksen, P. Kim and A. Pinczuk, *Phys. Rev. B* **80**, 241417(R) (2009). PRB

10. "Band structure asymmetry of bilayer graphene revealed by infrared spectroscopy," Z. Q. Li, E. A. Henriksen, Z. Jiang, Z. Hao, M. C. Martin, P. Kim, H. L. Stormer and D. N. Basov, *Phys. Rev. Lett.* **102**, 037403 (2009). PRL arXiv

9. "Observation of anomalous phonon softening in bilayer graphene," J. Yan, E. A. Henriksen, P. Kim and A. Pinczuk, *Phys. Rev. Lett.* **101**, 136804 (2008). PRL arXiv

8. "Dirac charge dynamics in graphene by infrared spectroscopy," Z. Q. Li, E. A. Henriksen, Z. Jiang, Z. Hao, M. C. Martin, P. Kim, H. L. Stormer and D. N. Basov, *Nature Phys.* **4**, 532 (2008). Nature Phys. arXiv

7. "Cyclotron resonance in bilayer graphene," E. A. Henriksen, Z. Jiang, L. C. Tung, M. E. Schwartz, M. Takita, Y.-J. Wang, P. Kim and H. L. Stormer, *Phys. Rev. Lett.* **100**, 087403 (2007). PRL arXiv

6. "Infrared spectroscopy of Landau levels in graphene," Z. Jiang, E. A. Henriksen, L. C. Tung, Y.-J. Wang, M. E. Schwartz, M. Y. Han, P. Kim and H. L. Stormer, *Phys. Rev. Lett.* **98**, 197403 (2007). PRL arXiv

5. "Disorder-mediated splitting of the cyclotron resonance line of two-dimensional electron systems," E. A. Henriksen, S. Syed, Y.-J. Wang, H. L. Stormer, L. N. Pfeiffer and K. W. West, *Phys. Rev. B* **73**, 241309(R) (2006). PRB arXiv

4. "Splitting of the cyclotron resonance in two-dimensional electron systems," E. A. Henriksen, S. Syed, Y.-J. Wang, M. J. Manfra, L. N. Pfeiffer, K. W. West and H. L. Stormer, *Physica E* **34**, 318 (2006).

3. "Acoustic phonon scattering in a low density, high mobility AlGaN/GaN field effect transistor," E. A. Henriksen, S. Syed, Y. Ahmadian, M. J. Manfra, K. W. Baldwin, A. M. Sergent, R. J. Molnar and H. L. Stormer, *Appl. Phys. Lett.* **86**, 252108 (2005). APL arXiv

2. "Quantized thermal conductance: measurements in nanostructures," K. C. Schwab, W. Fon, E. A. Henriksen, J. M. Worlock and M. L. Roukes, *Physica B* **280**, 458 (2000).

1. "Measurement of the quantum of thermal conductance," K. C. Schwab, E. A. Henriksen, J. M. Worlock and M. L. Roukes, *Nature* **404**, 974-977 (2000). Nature

Fellowships & Honors

2007	Charles H. Townes Fellow, Columbia University.
1996 - present	Sigma Xi Scientific Research Society.

Invited Talks, Colloquia & Seminars

13. "Electronic transport in ABA trilayer graphene," CSU Long Beach, 2012.

12. "Electronic transport in ABA trilayer graphene," UC Irvine, 2012.

11. "Thick graphene/thin graphite: electronic transport in ABA trilayer graphene," CEQS/IQIM research colloquium, Caltech, Pasadena, CA, 2011.

10. "Electronic compressibility of bilayer graphene (plus ABA trilayers)," APS March Meeting, Dallas, TX, 2011.

9. "Electronic compressibility of bilayer graphene," High Magnetic Fields 19, Fukuoka, Japan, 2010.

8. "Electronic compressibility of bilayer graphene," UCSD, San Diego, CA, 2010.

7. "Cyclotron resonance in graphene," UCLA, Los Angeles, CA, 2009.

6. "Cyclotron resonance in graphene," Caltech, Pasadena, CA, 2009.

5. "Cyclotron resonance in graphene," CIFAR Nanoelectronics, Halifax, Nova Scotia, Canada, 2008.

4. "Cyclotron resonance in graphene," MIT, Cambridge, MA, 2008.

3. "Cyclotron resonance in graphene," Penn State University, State College, PA, 2008.

2. "Infrared absorption in graphene," Tokyo University, Tokyo, Japan, 2008.

1. "Nanofabrication and the quantum of thermal conductance," Swarthmore College, Swarthmore, PA, 2000.

Contributed Talks & Posters

11. "Quantum Hall effect and semimetallic behavior in ABA trilayer graphene," KITP Graphene, Santa Barbara, CA, 2012.
10. "Quantum Hall effect and semimetallic behavior in ABA trilayer graphene," NSPM 2011, Erice, Italy, 2011.
9. "Interaction effects in the cyclotron resonance of graphene," High Magnetic Fields-19, Fukuoka, Japan, 2010.
8. "Electronic compressibility of bilayer graphene," Graphene Week 2010, U Maryland, MD, 2010.
7. "Measurement of the electronic compressibility of bilayer graphene," APS March Meeting, Portland, OR, 2010.
6. "Cyclotron resonance in bilayer graphene," APS March Meeting, New Orleans, LA, 2008.
5. "Infrared absorption in graphene," APS March Meeting, Denver, CO, 2007.
4. "Disorder-mediated splitting in the cyclotron resonance of two-dimensional electron systems," EP2DS-16, Albuquerque, NM, 2005.
3. "Acoustic phonon scattering in a gated two-dimensional electron system of an AlGaN/GaN heterostructure," APS March Meeting, Montreal, Quebec, Canada, 2004.
2. "Nanocalorimeter for explorations of mesoscopic heat flow," APS March Meeting, Los Angeles, CA, 1998.
1. "Two-dimensional computer simulations of magnetic reconnection in the Swarthmore spheromak experiment," APS November Meeting, Denver, CO, 1996.

References

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