

# Adina Luican-Mayer, PhD

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## WORK EXPERIENCE AND EDUCATION

### University of Ottawa, Department of Physics, Ottawa, Canada

Assistant Professor

January 2016 – to date

### Argonne National Laboratory, Center for Nanoscale Materials, Argonne, IL, USA

Alexei Abrikosov Postdoctoral Fellowship

October 2012 – December 2015

### Rutgers – The State University of New Jersey, New Brunswick, NJ, USA

PhD degree in Physics

August 2006 – October 2012

Thesis “Scanning tunneling microscopy and spectroscopy studies of graphene”

Adviser: Prof. Eva Andrei

### Jacobs University Bremen, Bremen, Germany

2003 – 2006

Bachelor of Science – major in Physics

## HONORS AND AWARDS

- Richard J. Plano Dissertation Prize 2013
- Alexei Abrikosov Postdoctoral Fellowship at Argonne National Lab 2012 – 2015
- Alcatel-Lucent fellowship for PhD studies in Condensed Matter Physics 2007 – 2012
- APS Division of Materials Physics Iris Ovshinsky Student Travel Award 2010
- Scholarship from Hamburg University for attending the Summer School "Physics of Functional Micro- and Nanostructures" 2009
- President list for academic achievements at Jacobs University Bremen 2005 – 2006
- Prizes at National Romanian Physics Olympiads 1999 – 2003

## PUBLICATIONS

### Book Chapter:

- Adina Luican-Mayer and Eva Y. Andrei, **Scanning Tunneling Microscopy and Spectroscopy studies of graphene**, in “Physics of Graphene”, editors H. Aoki and M. S. Dresselhaus, Nanoscience and Technology series Springer p28 (2014)

### Journal Articles:

- Luican-Mayer A., Jose E Barrios-Vargas, Jesper Toft Falkenberg, Gabriel Autès, Aron W Cummings, David Soriano, Guohong Li, Mads Brandbyge, Oleg V Yazyev, Stephan Roche and Eva Y Andrei, *Localized electronic states at grain boundaries on the surface of graphene and graphite*, **2D Mater.** **3**, 031005 (2016)
- Lu C.-P., Rodriguez-Vega M., Li G., Luican-Mayer A., Watanabe K., Taniguchi T., Rossi E., Andrei E. *Local and Global Screening Properties of Graphene Revealed through Landau Level Spectroscopy*, **PNAS** **113**, 25 (2016)
- L. R. Thoutam, Y. L. Wang, Z. L. Xiao, S. Das, A. Luican-Mayer, R. Divan, G. W. Crabtree, W. K. Kwok, *Temperature dependent three-dimensional anisotropy of the magnetoresistance in  $WTe_2$* , **Phys. Rev. Lett.** (2015)
- Luican-Mayer A., J. Guest Wai-Hla S., *Charge density wave suppression in ultrathin  $TaS_2$  crystals*. **arXiv:1506.04102 (2015)**
- Luican-Mayer A., M. Kharitonov, G. Li. C-P Lu, I. Skatcho, AM Goncalves, K. Watanabe, T. Taniguchi, E. Y. Andrei, *Visualizing the influence of an isolated Coulomb impurity on the Landau level spectrum in graphene*, **Phys. Rev. Lett.** **112**, 036804 (2014)
  - Editor's suggestion
- Li G., Luican-Mayer A., Abanin D., Levitov L., Andrei E. Y. *Evolution of Landau levels into edge states in graphene*. **Nature Communications** **4**, 1744 (2013)
- Luican A., Li G., Andrei E. Y., Reina A., Kong J., Nair R., Novoselov K.S., Geim A.K., Andrei E.Y. *Single-Layer Behavior and Its Breakdown in Twisted Graphene Layers*, **Phys. Rev. Lett.** **106**, 126802 (2011),
  - Highlighted in: *APS Physics Synopses*,
  - *Nature news and views* 474,453–454(23 June 2011)
  - *Materials Today* 14, (5, May 2011)
  - *Physics World.com* (31 May 2011)
  - *Nanotechweb.com* (May 2011)
- Luican A., Li G., Andrei E.Y. *Quantized Landau level spectrum and its density dependence in graphene*, **Phys. Rev. B** **83**, 041405(R) (2011)
  - Editor's suggestion
- Li G., Luican A., Andrei E.Y. *Self-navigation of a Scanning Tunneling Microscope tip towards micron size samples*, **Rev. Sci. Instruments.** **82**, 073701 (2011)
- Luican A., Li G., Andrei E. Y. *Scanning Tunneling Microscopy and spectroscopy of graphene on layers on graphite*. **Solid State Communications**, **149**, 27–28, (2009)
- Li G., Luican A., dos Santos J.M.B.L, Castro Neto A.H., Reina A., Kong J., Andrei E.Y. *Observation of Van Hove singularities in twisted graphene layers*, **Nature Physics** **6**, 109 (2009)
  - Highlighted in: *Nanotechweb.com*(Dec 10, 2009)

- Li G., Luican A., Andrei E. Y. *Scanning tunneling microscopy and spectroscopy of graphene on graphite*, **Phys. Rev. Lett** **102**, 176804 (2009)
- Li G., Luican A., Andrei E. Y. *Electronic states on the surface of graphite*, **Physica B** (2009)
- I. Skachko, X. Du, F. Duerr, A. Luican, D. A. Abanin, L. S. Levitov, E.Y. Andrei, *Integer and Fractional Quantum Hall Effect in Two-Terminal Measurements on Suspended Graphene*, **Phil. Trans. R. Soc. A** **2010** 368 (2009)
- Du X., Skachko I., Duerr F., Luican A., Andrei E.Y, *Fractional quantum Hall effect and insulating phase of Dirac electrons in graphene*, **Nature** **462**, 192, (2009)
- Temirov R., Soubatch S., Luican A., Tautz F.S. *Free-electron like dispersion in an organic monolayer film on a metal substrate*. **Nature** **444**, 350-353 (2006)

## PRESENTATIONS:

### Invited:

- |  |                    |                |
|--|--------------------|----------------|
| • American Vacuum Society 63rd Symposium & Exhibition                    | Nashville, USA     | November 2016  |
| • Concordia University   | Montreal, Canada   | October 2016   |
| • Centre for Nanoscale Materials, Argonne, DOE Review                    | Argonne, USA       | June 2016      |
| • Canadian Association of Physicists                                     | Ottawa, Canada     | June 2016      |
| • National Research Council, Steacie <i>Colloquium</i>                   | Ottawa, Canada     | May 2016       |
| • SUNY Binghamton University, <i>Colloquium</i>                          | Binghamton, USA    | April 2016     |
| • Drexel University, <i>Colloquium</i>                                   | Philadelphia, USA  | November 2015  |
| • University of Notre Dame, Seminar                                      | Notre Dame, USA    | September 2015 |
| • Northwestern University, <i>Colloquium</i>                             | Chicago, USA       | March 2015     |
| • UC Riverside, <i>Seminar</i>   | Riverside, USA     | March 2015     |
| • Queens College CUNY, <i>Colloquium</i>                                 | NYC, USA           | February 2015  |
| • U Wisconsin-Madison, <i>Colloquium</i>                                 | Madison, USA       | February 2015  |
| • IUPUI, <i>Colloquium</i>   | Indianapolis, USA  | February 2015  |
| • Iowa State U, <i>Colloquium</i>  | Ames, USA          | February 2015  |
| • CUNY, <i>Colloquium</i>  | NYC, USA           | February 2015  |
| • UC Merced, <i>Colloquium</i>   | Merced, USA        | February 2015  |
| • U New Hampshire, <i>Colloquium</i>                                     | Durham, USA        | January 2015   |
| • U Ottawa, <i>Colloquium</i>  | Ottawa, Canada     | January 2015   |
| • U Washington, <i>Colloquium</i>  | Seattle, USA       | November 2014  |
| • Rutgers University, <i>Colloquium</i>                                  | Piscataway, USA    | November 2014  |
| • Berkeley University, <i>Seminar</i>                                    | Berkeley, USA      | August 2014    |
| • Experimental techniques and Physics in graphene research               | Bogota, Columbia   | August 2014    |
| • NSS8 Workshop on Nanoscale Spectroscopy and Nanotechnology             | Chicago, USA       | July 2014      |
| • Northern Illinois University, <i>Colloquium</i>                        | DeKalb, USA        | April 2014     |
| • University of Central Florida, <i>Seminar</i>                          | Orlando, USA       | February 2014  |
| • University of California San Diego, <i>Seminar</i>                     | San Diego, USA     | November 2013  |
| • International Winterschool on Electronic Properties of Novel Materials | Kirchberg, Austria | March, 2013    |
| • APS March Meeting  | Baltimore, USA     | March, 2013    |
| • Instituto de Ciencia de Materiales, <i>Seminar</i>                     | Madrid, Spain      | September 2012 |
| • European Material Research Society Fall Meeting                        | Warsaw, Poland     | September 2012 |
| • Center for Nanoscale Materials, <i>Colloquium</i>                      | Argonne, USA       | January 2012   |
| • University of Aachen, <i>Seminar</i>                                   | Aachen, Germany    | January 2012   |
| • University of Delft, <i>Seminar</i>                                    | Delft, Netherlands | January 2012   |
| • Gotham-Metro Condensed Matter Meeting                                  | New York, USA      | April 2010     |

### Contributed:

- |  |  |                |
|--|--|----------------|
| • European Material Research Society Spring Meeting  |  |                |
| • Suppression of charge density wave phase in ultrathin 1T-TaS <sub>2</sub>                          |  | May 2015       |
| • APS March Meeting  |  | March 2015     |
| • STM/STS of the commensurate charge density wave phase of 1T-TaS <sub>2</sub>                       |  |                |
| • AVS Prairie Chapter Symposium  |  | September 2014 |
| • APS March Meeting  |  | March 2014     |
| • Characterization of atomically thin layers of 1T-TaS <sub>2</sub>                                  |  |                |
| • MRS Spring Meeting   |  | April 2013     |
| • Visualizing the influence of an isolated Coulomb impurity on the Landau level spectrum in graphene |  |                |
| • APS March Meeting  |  | March 2013     |
| • Visualizing the influence of an isolated Coulomb impurity on the Landau level spectrum in graphene |  |                |
| • APS March Meeting  |  | March 2012     |
| • Localized states at Grain Boundaries on the surface of graphite                                    |  |                |
| • APS March Meeting  |  | March, 2011    |
| • <i>Quantized Landau levels and their density dependence in graphene on SiO<sub>2</sub></i>         |  |                |
| • Symposium Laboratory of Surface Modification   |  | March, 2011    |
| • <i>Quantized Landau levels and their density dependence in graphene on SiO<sub>2</sub></i>         |  |                |
| • APS March Meeting  |  | March, 2010    |
| • <i>Fermi velocity renormalization in twisted graphene layers</i>                                   |  |                |
| • APS March Meeting  |  | March, 2009    |

- *Moiré pattern for graphene on a graphite surface and its scanning tunneling spectroscopy* March, 2008
- APS March Meeting  
*Graphene on a graphite surface: effect of interlayer coupling*

### Posters

- Poster presented at Gordon Conference- Correlated Electron Systems June, 2012
- Poster presented at Metro-Gotham Conference November, 2010
- Poster presented at the 23rd Annual Symposium Laboratory of Surface Modification Rutgers March, 2009
- **Best Student Poster Presentation Award**
- Poster presented at the 3rd International Summer School "Physics of Functional Micro- and Nanostructures" September, 2009

### TEACHING

- **PHY 1122 Fundamentals of Physics II** Winter 2017
- **PHY 4006/4906 Research Project** Fall 2016
- **PHY 8191, Low dimensional material systems and their characterization by imaging techniques** Winter 2016
- **PHY 5130, Guest lecture – Imaging techniques** Winter 2016
- **Teaching assistant Rutgers University** 2006-2007
  - Lab instructor “General Physics”; Recitation for “Physics for Engineering”;
  - Grader for “The greenhouse effect”; ”Energy and climate change”
- **Teaching assistant Jacobs University Bremen** 2005-2006
  - Lab instructor for General Physics

### STUDENTS

**Undergraduate students:** Anastasia Paroshina (2016- ), Rouzbeh Majidi (May 2016- ), Florence Grenapin (summer 2016)

**Graduate students:** Ryan Plumadore (2016- ), Justin Boddison-Chouinard (2016- )

### FUNDING

- uOttawa Start-up fund
- NSERC Discovery Grant (April 2016- April 2021)

### OUTREACH/SERVICE

- **Colloquium and Eureka Lecture coordinator, Department of Physics, uOttawa** 2016
- **Local Organizing Committee, Canadian Association of Physicists Congress** 2016
- **Experimental demos at “Nanodays” at Longfellow Elementary School, Wheaton, IL** 2015
- **Speaker at “ Careers in STEM fields “ at University of Chicago** 2014
- **Experimental demos at “Nanodays” at Longfellow Elementary School, Wheaton, IL** 2014
- **Keynote speaker at Naperville Central High School workshop for girls in STEM-related fields** 2013
- **Poster at Chicago Council on Science and Technology event “Nature of Nano”** 2013
- **Member of student organizing committee for Gotham-Metro Condensed Matter Meeting** 2011- 2012