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Ph.D., Physics, Rutgers University (2012)

B.S., Physics, Jacobs University Bremen (2006)

Research Summary:

Seeking to understand the unique nature of the charge carriers in the two-dimensional lattice of graphene, the experiments that I performed during my PhD are scanning tunneling microscopy and spectroscopy at low temperatures and in magnetic field. Those experiments led to the observation of magnetic field induced quantized energy levels in graphene, Landau levels and of novel properties that arise when graphene layers are twisted forming Moiré patterns.

My general research interests include studying low dimensional systems such as graphene or graphene-based materials using combined local probe techniques and electrical transport.

Selected Recent Publications:

Luican, A., Kharitonov M, Li, G., Lu CP, Skachko I., Gocalves AM, Watanabe Taniguchi, T., Andrei E.Y. Observation of localized impurity states and their screening in the quantum Hall regime in graphene, *Submitted (2012)*

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),

Luican, A., Li G., Andrei, E.Y. Quantized Landau level spectrum and its density dependence in graphene *Phys. Rev. B* **83**, 041405(R) (2011)

Luican, A., Li.G., Andrei, E. Y. Scanning Tunneling Microscopy and spectroscopy of graphene on layers on graphite. *Solid State Communications* (2008)

Li G., **Luican A.**, E. Y. Andrei Self navigation of a Scanning Tunneling Microscope tip towards micron size samples, *Rev Sci. Instruments* (2011)

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)

Li, G., **Luican, A.**, Andrei, E. Y. Scanning tunneling microscopy and spectroscopy of graphene on graphite. *Phys. Rev. Lett* **102**, 176804 (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)