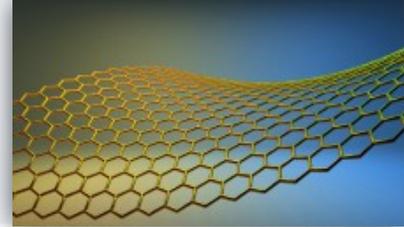




Lakehead
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Physics



Proudly Presents The



Canadian Association of Physicists (CAP) Lecture Series

Speaker:

Dr. Adina Luican-Mayer

Assistant Professor, Department of Physics



uOttawa



“Exploring flatland – designer 2D materials”

Innovative technologies have a history of capitalizing on the discovery of new physical phenomena, often at the confluence of advances in material characterization techniques and innovations in design and controlled synthesis of high-quality materials. Pioneered by the discovery of graphene, a new platform of constructing custom-made materials holds the promise for the development of next generation electronic devices for applications in the areas of energy, photonics, sensing and beyond. These materials are made by stacking atomically thin layers of different van der Waals bonded crystals, much like we build Legos, and their unique properties are a consequence of confining electrons in two dimensions. In this talk I will describe experiments that seek to uncover the novel physical phenomena in these materials by using scanning tunneling microscopy (STM). STM allows us to spatially resolve both the local electronic and structural properties of materials down to atomic scale. In particular, I will discuss consequences of twisting graphene layers away from the equilibrium Bernal stacking. This leads to the formation of Moiré patterns and results in a system with novel electronic properties tuned by the twist angle. We also demonstrate the discrete quantum mechanical electronic spectrum when graphene is placed in a magnetic field.

Short bio:

Adina Luican-Mayer started as an assistant professor in the Physics Department at the University of Ottawa. She received her undergraduate degree from Jacobs University Bremen in Germany (2006) and her PhD in Physics from Rutgers University in the United States (2012). Previously to joining uOttawa, she was the Alexei Abrikosov postdoctoral fellow at the Center for Nanoscale Materials at Argonne National Laboratory. Her research group focuses on uncovering the novel electronic properties of low-dimensional systems custom made by stacking atomically thin sheets of van der Waals materials using scanning probe microscopy and supporting spectroscopic techniques.

DATE:

MARCH 29, 2017

TIME:

2:30 pm

Room:

RC 1002

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