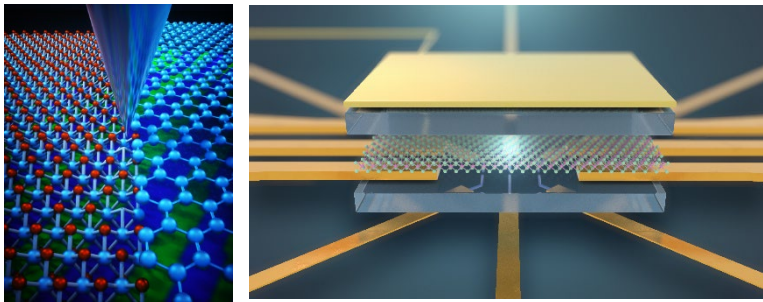


Dr. Adina Luican-Mayer
Associate Professor, University of Ottawa
Wednesday, February 1, 2023
11:00 a.m. to 11:50 a.m. in ENW 115

2D Quantum materials and devices at the atomic scale

Material systems, devices, and circuits, based on the manipulation of individual charges, spins, and photons in solid-state platforms are key for quantum technologies. The burgeoning field of quantum two-dimensional (2D) materials presents an emerging opportunity for the development of next-generation quantum technologies, while also pushing the boundaries of fundamental understanding in condensed matter. Our laboratory aims to create quantum functionality in 2D systems by combining fabrication and assembly techniques of 2D layers with atomically precise scanning probe microscopy.

In this talk, I will focus on scanning tunnelling microscopy and spectroscopy experiments aimed at creating novel moiré structures by twisting 2D layers, including the demonstration of reversible local response of domain wall networks in ferroelectric interfaces of marginally twisted WS_2 bilayers. I will also discuss our progress in realizing quantum-confined devices in 2D semiconductors.



Bio: Adina Luican-Mayer is an associate professor in the Physics Department at the University of Ottawa. She received her PhD in Physics from Rutgers University (2012). Prior to joining uOttawa, she was the Alexei Abrikosov distinguished postdoctoral fellow at the Center for Nanoscale Materials at Argonne National Laboratory. She is the recipient of uOttawa Faculty of Science Early Career Researcher of the year (2020) and Ontario Early Researcher Award (2021). Her research group focuses on uncovering the novel electronic properties of low-dimensional quantum systems using scanning probe microscopy and supporting spectroscopic techniques.