Quantum transport in rhombohedral graphite films enabled by van der Waals technology

Abstract: The advent of Van der Waals technology has allowed the development of many materials that did not exist before and has led to the observation of many exciting new physical phenomena in these materials due to the unique electronic, optical, and mechanical properties of 2D atomic crystals. For instance, tuning twist angle allows altering electronic bands of 2D materials by a moiré pattern induced between 2D layers. Control of the stacking order, on the other hand, provides an alternative approach to program quantum properties, and without the need for a moiré superlattice. In this talk, I will discuss how interlayer stacking order can be used for deterministic control of the properties of van der Waals materials. In particular, controlling stacking order in multilayer graphite films allowed us to find strong electronic correlations in rhombohedral graphite films.