The graphene and other one atomic layer thick crystals reveal unusual quantum physics. By combining material science, nano-fabrication, and low temperature (10 mK) measurement, we explore the science and the engineering of graphene and two-dimensional crystals.

**Graphene**
One atomic layer thick Dirac material

**h-BN**
2D insulator

**MoS$_2$**
Monolayer semiconductor

**NbSe$_2$**
Superconductivity in one monolayer