

# MACHIDA LAB.

## [2D material: physics in one atomic layer]

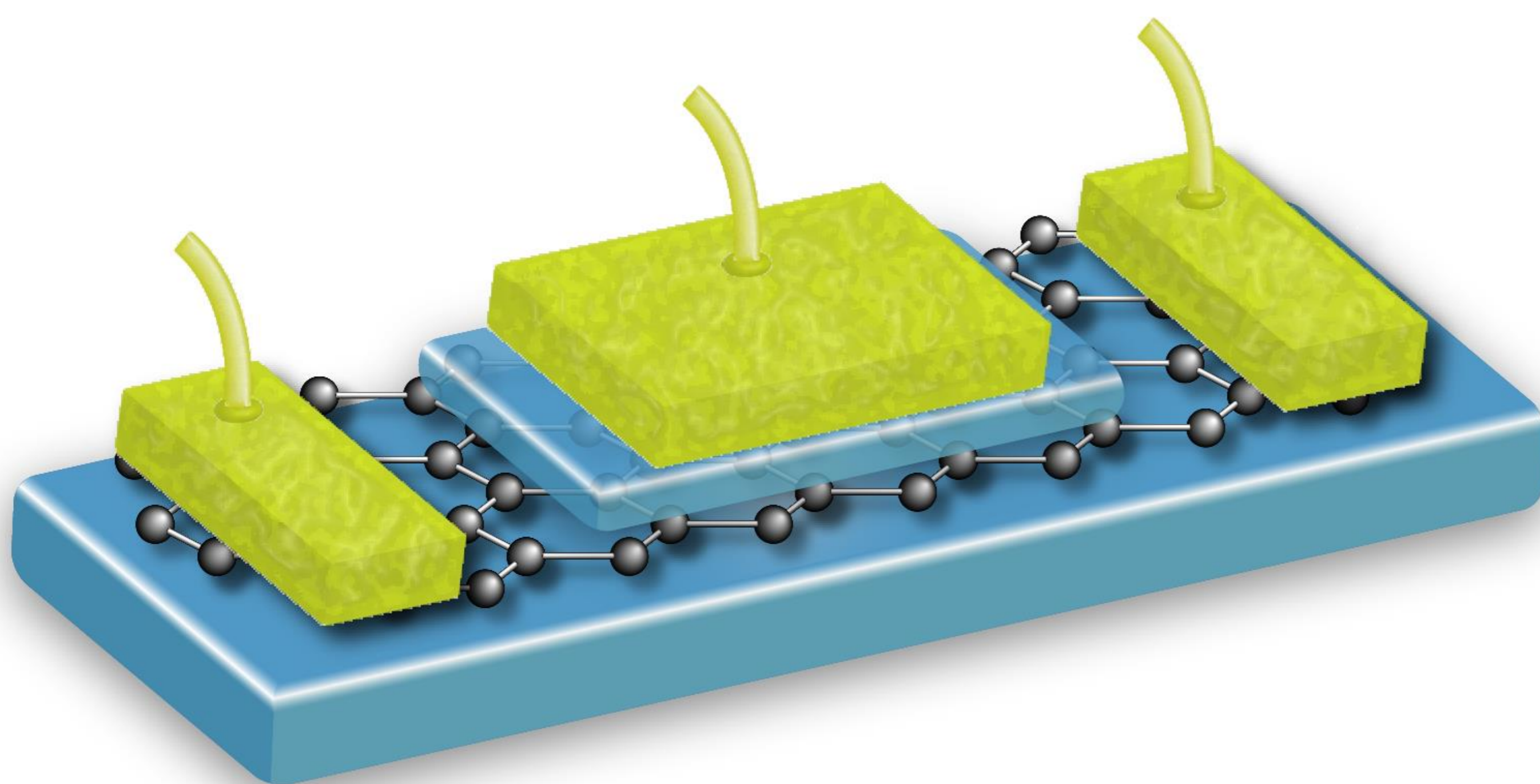
Center for Photonics Electronics Convergence

<http://qhe.iis.u-tokyo.ac.jp>

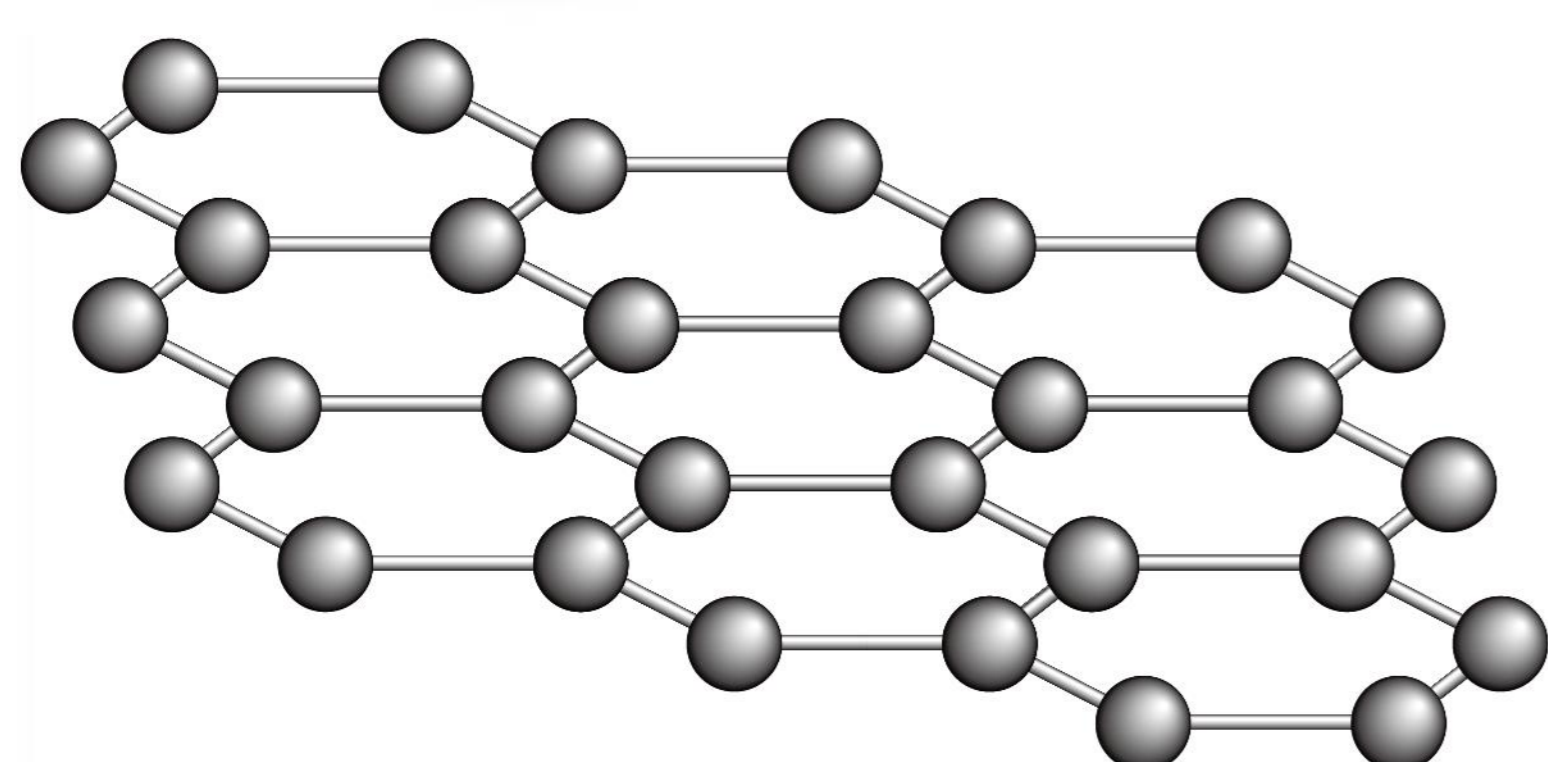
Quantum semiconductor spintronics

Department of Materials Engineering/Department of Applied Physics, Graduate School of Engineering

## Quantum phenomena in 2D materials

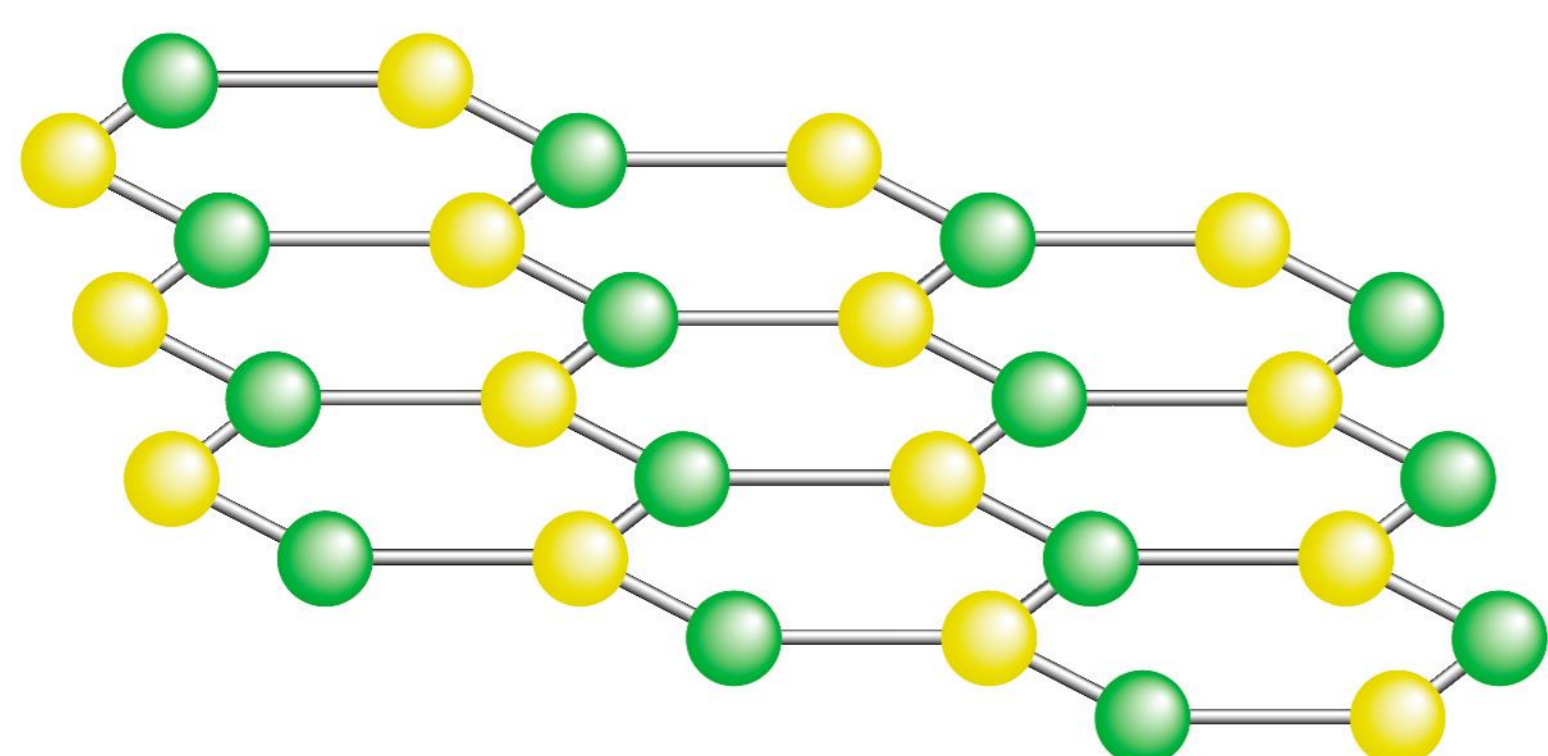


The graphene and other one atomic layer thick crystals reveal unusual quantum physics. By combining material science, nano-fabrication, and low temperature ( $\sim 10$  mK) measurement, we explore the science and the engineering of graphene and two-dimensional crystals.



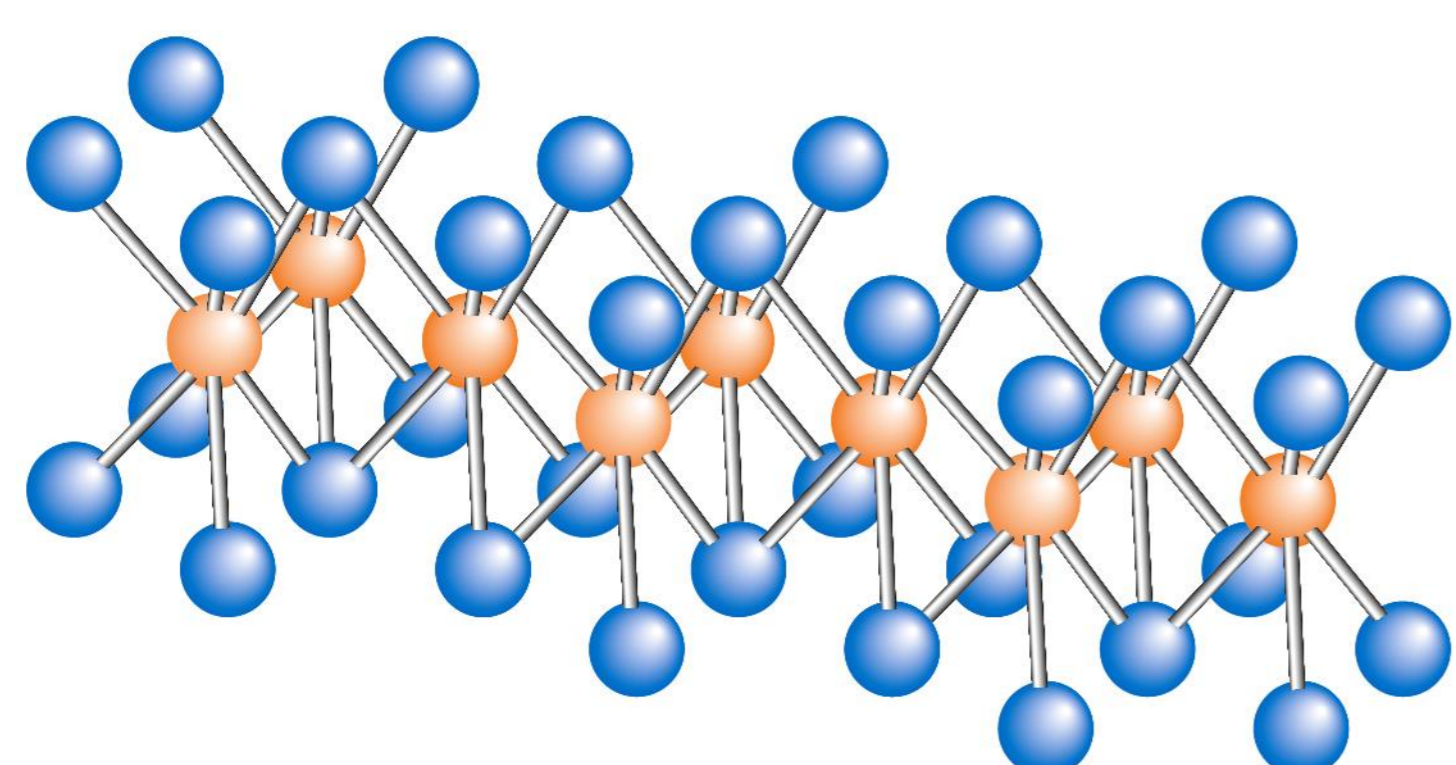
### Graphene

One atomic layer thick Dirac material



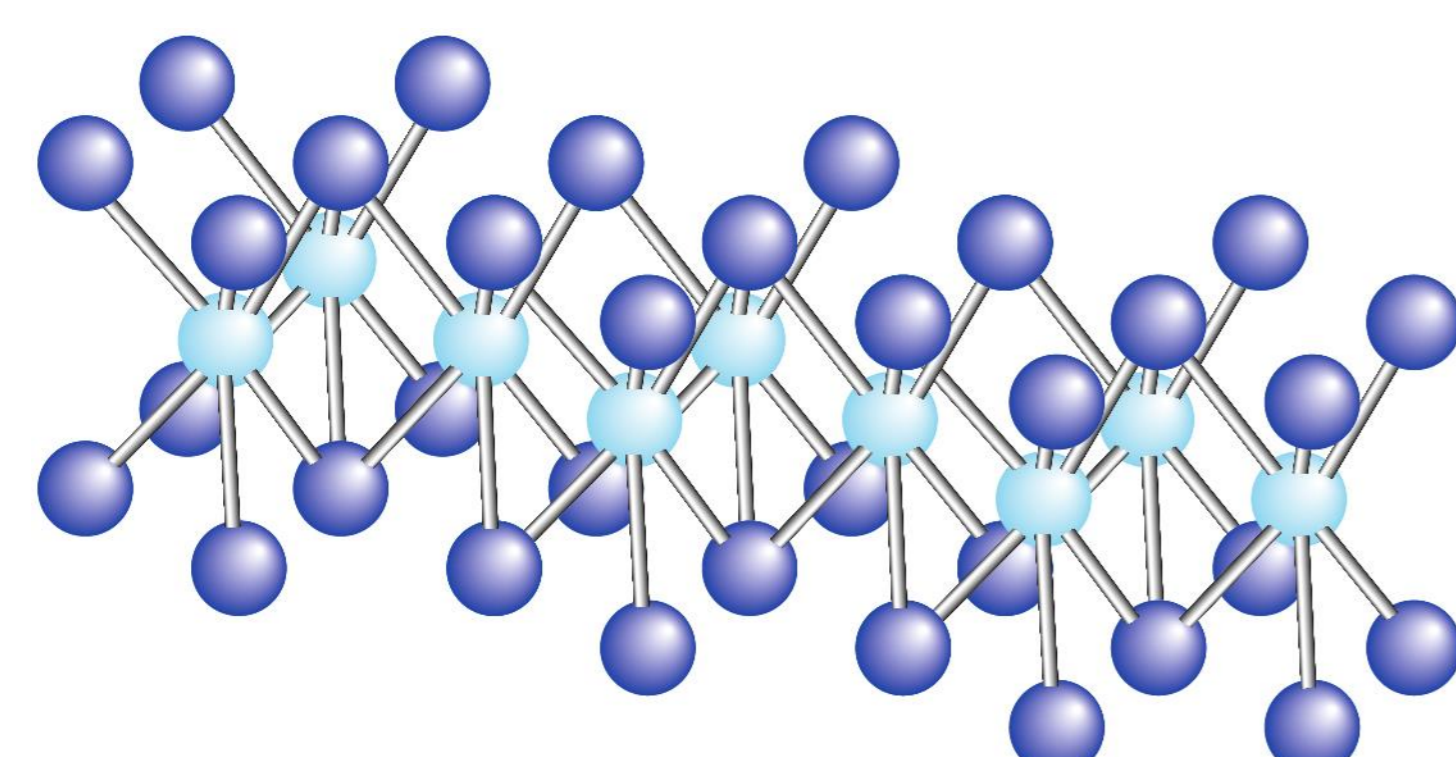
### h-BN

2D insulator



### MoS<sub>2</sub>

Monolayer semiconductor



### NbSe<sub>2</sub>

Superconductivity in one monolayer

