

# 화학고 세미나

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## Tunneling Probe of 2D and Moiré Magnetism

The discoveries of ferromagnetism in single atomic layers have opened a new avenue for two-dimensional (2D) materials research. Not only do they raise fundamental questions regarding the requirements for long-range magnetic order in low-dimensional systems, but they also provide a new platform for the development of spintronic devices. In this talk, I will present a series of studies on the layered ferromagnetic insulator, CrI<sub>3</sub>, both in the atomically thin limit and in twisted homostructures. By incorporating natural 2D CrI<sub>3</sub> as tunnel barriers between graphene electrodes, we are able to achieve extremely large tunnel magnetoresistance and directly observe its spin wave, or magnon, excitation spectrum, from which we can then obtain a simple microscopic Hamiltonian for the monolayer spin system.

For twisted CrI<sub>3</sub>, we observe evidence for two types of moiré magnetic textures that give rise to nonvolatile tunneling magnetoresistance states switchable by magnetic field.

Date : 2024년 10월 10일 (목) 오후 4시

Venue : 과학관 B130호

Host : 연세대학교 화학과

