



Seminar/Talk

Polarized Systems: From 3D Goes Down to Atomically-Thin 2D

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Polarized systems including ferroelectricity and ferromagnetism play essential roles in both condensed matter physics and nanoelectronics. Especially, the low-dimensional ferroelectric domain walls and magnetoelectric coupling effect provide broad application prospects in high-density and low-power consumption nanoelectronics. In this seminar, I will first talk about what we have done in traditional oxide thin films and heterostructure. This will include the ferroelectric domain structures in BiFeO₃ nanostructure, and how the scanning probe could manipulate the conductivity of domain walls. Besides, I will also talk about how the interfacial coupling in BiFeO₃/(LaSr)MnO₃ multiferroic heterostructure would influence the magnon transmission in the system, and how the coupling would produce ultra-long distance magnon transport. When dimension goes down to 2D, van der Waals crystals are ideal systems to enlarge the landscape of ferroelectric materials due to their high versatility. So, at last, I will present our studies on α -In₂Se₃, including the ferroelectric semiconductor FET (FeSFET) device with excellent non-volatility of the synapse state, and in-situ device characterization by scanning micro impedance microscopy.

Friday, October 6, 2023 02:00pm - 03:00pm

Foyer seminar room Ground floor / Office Bldg West



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