

Internal Webinar

Proximity Induced Interfacial Spin Texture in Topological Insulator/ Magnetic Insulator Bilayer

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Topological insulators are a class of materials where an insulating bulk is bridged by conducting surface states. Applying an external magnetic field perpendicular to the surface breaks time reversal symmetry (TRS) and opens up a band gap in the bulk. Extensive research has been carried out in the past decade in this regard. However, understanding the effects of an in-plane magnetic field by varying the angle between current and field directions is a recent perspective which has gained wide attention, popularly known as the planar Hall effect. Furthermore, TRS can be broken locally by proximity coupling with ferromagnetic insulators such as EuS. The result of such proximity induced exchange coupling can be highly unconventional novel ground states at the interface. In this talk I will present our efforts in this direction and present our results on understanding proximity effects in Bi_2Te_3 which is a three dimensional topological insulator.

I will discuss our study of topological Hall effects in $\text{Bi}_2\text{Te}_3/\text{EuS}$ bilayers and also briefly discuss our experiment on the conventional skyrmionic system: Cr_2Te_3 .

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11:30 AM