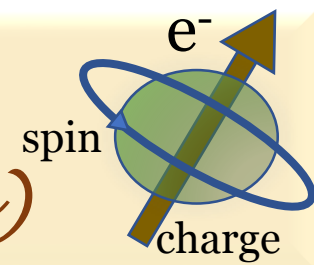




W2S Seminar

(Webinar series on Spintronics)



Spin to charge conversion efficiency: role of topological insulator and antiferromagnets

Speaker:

Dr. Braj Bhusan Singh
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Date and time:

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6.30 pm

Via

Google meet

Abstract

Requirement of high spin to charge conversion in a ferromagnetic (FM)/nonmagnetic (NM) heterostructures is the heart of future power efficient and fast data processing spintronics devices. Efficient conversion from charge to spin current or vice versa majorly depends on the strength of spin orbit coupling (SOC) of NM layer. In this context, topological insulator materials have drawn attention due to the presence of spin momentum locked surface states which give high SOC. In addition to this, antiferromagnetic materials have also shown potential due to high SOC, zero net magnetization, absence of stray field, and faster switching speed. Here, I will discuss the role of topological insulator (Bi_2Se_3), collinear antiferromagnet (Mn_2Au), and noncollinear antiferromagnet (Mn_3Ga) on the key aspects of the spin to charge conversion such as spin mixing conductance, spin Hall angle, spin interface transparency, and spin Hall conductivity.

1. Braj et al. PR applied, 13, 044020 (2020), 2. Phys. Status Solidi RRL 13, 1800492 (2019)