

The rise of intrinsic magnetic topological insulators



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Speaker introduction

Graduated from the Tomsk State University in 2007, received PhD at the same University in 2011. Continued the career in San Sebastian (Spain), where is presently an Ikerbasque Research Fellow.

Research interests:

Computational materials science using density functional theory: prediction/characterization of crystal, magnetic and electronic structures of a variety of materials such as dilute magnetic semiconductors, giant-Rashba materials, rare-earth intermetallics, metal-organic systems, graphene, and (magnetic) topological insulators in their bulk, surface and thin film limits.

Seminar abstract

In this talk, I will overview the developments in the field of magnetic topological insulators (MTIs) that led to the discovery of the intrinsic MTIs of the MnBi_2Te_4 family that attracts a great deal of attention nowadays. First, to describe the context in which materials such as MnBi_2Te_4 appeared in the research arena, I will discuss the magnetic doping and magnetic proximity effect approaches of introducing magnetism into a TI. Then, the two types of novel and promising interfaces involving MnBi_2Te_4 compounds will be discussed, as they are expected to show certain advantages over the latter two approaches. Next, the discovery of intrinsic MTIs of the MnBi_2Te_4 family will be overviewed. Finally, concerning current challenges of this field, we will consider in detail the issue of the Dirac point gap in the MnBi_2Te_4 topological surface state that has caused a lot of controversy recently.

Seminar



Broadcast (BBB)

