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[608] Do topology and ferromagnetism cooperate at the EuS/Bi₂Se₃ interface?

Tuesday 27 August 2019 16:00 (15 minutes)

We present our recent results on the local magnetic and electronic properties at the topological insulator/ferromagnetic insulator interface EuS/Bi₂Se₃, which was previously reported to exhibit magnetic proximity persisting up to room temperature [1]. We use antiresonant ARPES at the Eu M_5 pre-edge to access the interface electronic band structure. Low energy muon spin rotation reveals strong local magnetic fields extending several nm into Bi₂Se₃, below the magnetic transition of EuS. However, we find a very similar result upon replacing Bi₂Se₃ with titanium, implying that its origin is mostly independent of the topology of the involved layers [2].

[1] F. Katmis, et al., Nature **533**, 513 (2016).

[2] J. A. Krieger, et al., Phys. Rev. B **99**, 064423 (2019)

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