

Abstract Submitted
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Observation of ferromagnetic domains in magnetic topological insulator¹ WENBO WANG, Department of Physics and Astronomy, Rutgers University, Piscataway, NJ, 08854 USA, FANG YANG, CHUNLEI GAO, JINFENG JIA, Department of Physics and Astronomy, Shanghai Jiao Tong University, 800 Dongchuan Road, Shanghai 200240, China, WEIDA WU, Department of Physics and Astronomy, Rutgers University, Piscataway, NJ, 08854 USA — The breaking of time reversal symmetries in a topological insulator can lead to exotic quantum effects, such as magnetic monopoles, quantum anomalous hall effect(QAHE), and so on. Recently QAHE has been experimentally observed in a ferromagnetic topological insulator Cr doped $\text{Bi}_x\text{Sb}_{2-x}\text{Te}_3$ [1]. Although a lot of studies have conducted on characterizing the ferromagnetic properties in these fascinating materials, direct observation of ferromagnetic domains is still lacking. Here we report variable temperature magnetic force microscopy (VT-MFM) studies on thin film of Cr doped $\text{Bi}_x\text{Sb}_{2-x}\text{Te}_3$ synthesized by molecular beam epitaxy (MBE). Small bubble-like ferromagnetic domains were observed below $T_C \approx 30$ K. The evolution of these domains at various temperatures and magnetic fields will be presented.

[1] C.-Z. Chang et al., Science 340, 167 (2013).

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