

Understanding atomic structure of TI films grown on different substrates through analytical STEM

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Atomic-scale understanding of the growth of the topological insulators (TIs) and defects in these films is necessary to improve their physical properties and performance as an intricate structural part of the device. Several topological insulators that have been grown by molecular beam epitaxy (MBE) and sputtering on variety of substrates and examined by aberration-corrected analytical scanning transmission electron microscopy (STEM). To understand the role of the TI/substrate interface, grain structures and grain boundaries in the application of TI layer in the device, structural and compositional characterizations have been performed using atomic-resolution imaging, energy dispersive X-ray and electron energy-loss spectroscopy.



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