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Metal-Supported High Crystalline Bi_2Se_3 Quintuple Layers JEONG HEUM JEON, WON JUN JANG, JONG KEON YOON, SANG-YOUN WEON, SE-JONG KAHNG, Dept. of Physics, Korea University — Atomically flat thin films of Bi_2Se_3 were grown on Au(111) metal substrate using molecular beam epitaxy. Hexagonal atomic structures and quintuple-layer steps were observed at the surfaces of grown films using scanning tunneling microscopy. Multiple sharp peaks from (003) family layers were characterized by X-ray diffraction measurements. The atomic stoichiometry of Bi and Se was considered using X-ray photoemission spectroscopy. Moiré patterns were obtained at the surfaces of one quintuple layer films due to lattice mismatch between Bi_2Se_3 and Au. Our experiments suggest that Au is a reasonable material for electrodes in Bi_2Se_3 devices.

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