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Study of the interface of superconductor and topological insulator

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Shanghai Jiao Tong University — State-of-art Molecular beam epitaxy (MBE) has been carried out to grow high quality topological insulator (TI) films on some BCS s-wave superconductor (SC) substrates. The growth dynamics and the electronics structures of the SC/TI interface were studied using high energy reflected electron diffraction and ultralow-temperature scanning tunneling microscopy (STM). Electronic structure, superconducting gap, vortex dynamics would be reported in this presentation. The superconducting state of the topological insulator due to approximate effect and the formation of Majorana Fermion would be discussed.

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