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Scotch Tape and Spectroscopy, Probing and Manipulating the surface of a Topological Insulator[1]

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Recently there has been a great deal of interest in studying the surfaces of materials with topologically non-trivial electronic states. In addition to probing the surfaces of topological insulators it is highly desirable to put them in proximity with other materials (ferromagnets and superconductors) to induce new particles such as Majoranna Fermions. I will discuss our groups efforts to study these materials using mechanical exfoliation and a variety of spectroscopic techniques (Raman, IR and tunneling). In addition I will detail a new method we have devised that enables us to produce high temperature superconductivity in a topological insulator via the proximity effect.

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