Fractional topological insulators ADIEL (ADY) STERN, Weizmann Institute of Science, MICHAEL LEVIN, Harvard — We analyze generalizations of two dimensional topological insulators which can be realized in interacting, time reversal invariant, electron systems. These states, which we call fractional topological insulators, contain excitations with fractional charge and statistics in addition to protected edge modes. In the case of s^z conserving toy models, we show that a system is a fractional topological insulator if and only if σ_{sH}/e^* is odd, where σ_{sH} is the spin-Hall conductance in units of $e/2\pi$, and e^* is the elementary charge in units of e.

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