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Magnetic Instability on the Surface of Topological Insulators ADY STERN, YUVAL BAUM, Weizmann Institute of Science — Gapless surface states that are protected by time reversal symmetry and charge conservation are among the manifestations of 3D topological insulators. In this work we study how electron-electron interaction may lead to spontaneous breaking of time reversal symmetry on surfaces of such insulators. We find that a critical interaction strength exists, above which the surface is unstable to spontaneous formation of magnetization, and study the dependence of this critical interaction strength on temperature and chemical potential.

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