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Photoemission studies of topological crystalline insulator $\mathbf{Pb_{1-x}Sn_xSe}$ IVO PLETIKOSIC, Princeton University, GENDA GU, TONICA VALLA, Brookhaven National Laboratory — Topological crystalline insulators is a class of narrow-gap semiconductors with spin-orbit induced gap inversion and surface states whose topological protection arises from the crystal symmetry. We present a photoemission study of the electronic structure of a rock-salt alloy $Pb_{1-x}Sn_xSe$ that forms for $0 < x < 0.45$. We show that topologically nontrivial states are present on (100) surfaces in a wide range of compositions, and that they can be easily driven through the Lifschitz transition by extrinsic chemical doping.

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