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Scanning Tunneling Microscopy and Spectroscopy of Kondo Insulator SmB6 DI CHEN, YUNTAO LI, XUNCHI CHEN, Georgia Institute of Technology, ZHILING DUN, University of Tennessee, Knoxville, GEOFFREY ROJAS, CNMS, Oak Ridge National Lab, HAIDONG ZHOU, University of Tennessee, Knoxville, PETRO MAKSYMOVYCH, CNMS, Oak Ridge National Lab, PHILLIP FIRST, ZHIGANG JIANG, Georgia Institute of Technology — Kondo insulator SmB6 has recently been predicted to be a candidate three-dimensional topological insulator with truly insulating bulk. Here we report on a pilot scanning tunneling microscopy and spectroscopy (STS) study of the surface properties of single crystal SmB6. We find that a room-temperature cleaved SmB6 (001)-surface is mostly disordered, while large 3x1 reconstructed areas can be obtained by annealing the samples at 1450^{o}C. Without cleaving, the as-grown (001)-surface also exhibits a 3x1 reconstruction after room-temperature sputtering, and annealing at 1450 ^{o}C. At low temperatures, a gap-like feature appears in the measured STS spectra, and finite density of states is observed at the Fermi energy.

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