

Abstract Submitted
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Directly observing edge electronic states of 1D and 2D topological insulators HAN WOONG YEOM, SUNG-HWAN KIM, TAE-HWAN KIM, Institute for Basic Science and POSTECH — We observed directly the edge states of 1D and 2D topological insulators formed on solid surfaces with scanning tunneling microscopy and spectroscopy. The charge density wave (CDW) state of In atomic wires self-assembled on Si(111) was used to observe solitons, the edge state of 1D topological insulator, in real space. The unusual four-fold degeneracy of the In/Si(111) CDW state introduces two distinct kinds of solitons, related to the physics of coupled CDW wires. The edge electronic states were also clearly resolved for the Bi single bilayer film grown on Bi₂Te₂Se. The strong interaction between the Bi bilayer and the 3D topological insulator substrate is discussed in detail, which is important to understand the complex topological nature of the supported Bi bilayer and the Bi-terminated Bi₂Te₂Se.

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