

Abstract Submitted  
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**Topological States of Heterostructures** DEMET USANMAZ, PINKU NATH, JOSE J. PLATA, Department of Mechanical Engineering and Materials Science, Duke University, MARCO BUONGIORNO NARDELLI, Department of Physics and Department of Chemistry, University of North Texas, MARCO FORNARI, Department of Physics, Central Michigan University, STEFANO CURTAROLO, Materials Science, Electrical Engineering, Physics and Chemistry, Duke University — Topological insulators (TIs) have exotic properties, such as having insulating behavior in the bulk and metallic states at the surface <sup>[1]</sup>. Observations of metallic states rely on the spin-orbit induced band inversion in bulk materials and are protected by time-reversal symmetry or crystal symmetry <sup>[2]</sup>. These remarkable characteristics of TIs give rise to various applications from spintronics to quantum computers. In order to broaden the range of applications of TIs and make it more effective, an exploration of high quality heterostructures are required. Creating heterostructures of TIs has recently demonstrated to be advantageous for controlling electronic properties <sup>[3]</sup>. Inspired by these interesting properties, we have investigated the topological interface states of heterostructures. References [1] B. Yan, S-C. Zhang, *Rep. Prog. Phys.*, **75**, 096501 (2012). [2] Y. Ando, *J. Phys. Soc. Jpn.*, **82**, 102001 (2013). [3]K. Nakayama, K. Eto, Y. Tanaka, T. Sato, S. Souma, T. Takahashi, K. Segawa, Y. Ando, *Phys. Rev. Lett.*, **109**, 236804 (2012)

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