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Topological States in Ferromagnetic CdO/EuO Quantum Well[1]
HAIJUN ZHANG, JING WANG, GANG XU, YONG XU, SHOU-CHENG ZHANG, Department of Physics, Stanford University — The quantum anomalous Hall (QAH) effect exhibits a quantized hall conductance without the external magnetic field and the associated landau levels. The topologically protected chiral edge states in a QAH state conducts electric current without dissipation and could be used for interconnects of semiconductor devices. In this talk, based on *ab-initio* calculations, we demonstrate that the ferromagnetic CdO/EuO superlattice is a simple Weyl semimetal with two linear Weyl nodes in the Brillouin zone. The corresponding CdO/EuO quantum well realizes the stichometric quantum anomalous Hall (QAH) state without random magnetic doping, and its working temperature is expected to be close to bulk EuO's Curie temperature (around 70K). In addition, a simple effective model is presented to describe the basic mechanism of spin polarized band inversion in this system.

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