Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Four-dimensional semimetal in optical lattice SEN NIU, SONGBO WANG, XIONG-JUN LIU, Peking Univ, COLD ATOM TEAM — We propose a realization of (3+1)-dimension semimetal using ultracold atoms in optical lattice. Based on a three dimensional (x, y, z) AIII class topological insulator with a bulk gap realized in three dimensional real space, we add one synthetic dimension (w direction) that consists of atomic internal states to close the gap and obtain a (3+1)D semimetal. The new type of unconventional Landau levels and novel quantum Hall effects in the present (3+1)D systems will be discussed.

Sen Niu
Peking Univ

Date submitted: 11 Nov 2016 Electronic form version 1.4