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Coupled Wire Model Construction of a Weyl Semimetal[1] MOON JIP PARK, Univ of Illinois - Urbana, JEFFREY TEO, Univ of Virginia, MATTHEW GILBERT, Univ of Illinois - Urbana — Weyl semimetals (WSM) realize robust gapless Weyl fermions in the low energy spectrum of the Hamiltonian. In this talk, we construct a WSM phase using coupled wire model in which each of the wire is realized from the edge of the integer quantum hall effect. On the top of the wire model, by inserting chiral bosonic topological insulator slabs, we examine the stability of the WSM phase under many-body interaction, and we find that 16 copies of the coupled wire model can trivially gap out the WSM. Additionally, we construct a 4D quantum anomalous Hall (QAH) phase from stacks of the 3D WSM to discuss about the relation between the 16-fold periodic classification of the WSM and chiral anomaly of the 4D QAH phase.

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