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**Ferromagnetism and quantum anomalous Hall effect in half-saturated germanene** SHIN-MING HUANG, CHUNG-YU MOU, SHI-TING LEE, Natl Tsing Hua Univ — Owing to the buckled structure of germanene, saturating one sublattice of atoms is workable. After studying cases of different percentages of saturation, we confirm that a narrow band always exist at the chemical potential which makes flat-band ferromagnetism possible. As the vacancy density increases, ferromagnetism becomes weaker. The magnetization of the ferromagnetism is directly relates to the saturation percentage, which makes ferromagnetic gap controllable. Importantly, we observe quantum anomalous Hall (QAH) states with Chern number one or two depending on the magnetization in the 1/4-saturation system. Our finding provides a potent method in the pursuit of room-temperature QAH effect.

Shin-Ming Huang
Natl Tsing Hua Univ

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