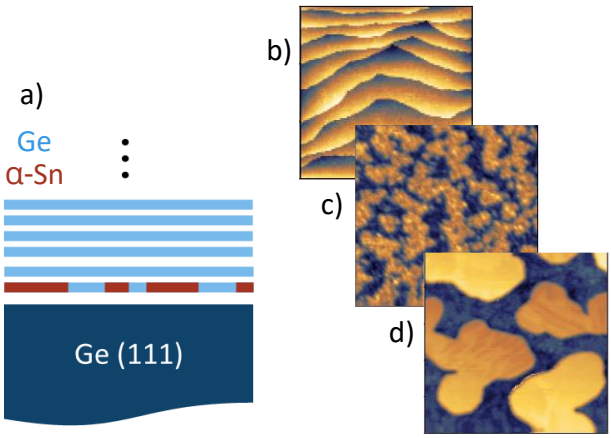
Growth of Ge-Sn digital alloys towards Group-IV topological materials

Adelaide Bradicich, Ram Joshi, Yunfan Liang, Fisher Yu, Jifeng Liu, Damien West, Shengbai Zhang, Hiro Nakamura, Ezra Bussmann



a) Atomically-controlled, monolayer-digitized Ge-Sn structures grown on Ge (111) are predicted to have topologically nontrivial properties. In this work, we discuss our layer-by-layer investigation into the growth of Ge-Sn digital alloys. b) The clean and atomically resolved Ge (111) surface. c) Depositing 1 ML of Sn is found to form an inhomogeneous wetting layer. d) Multiple ML of Sn form quasi-2D islands.