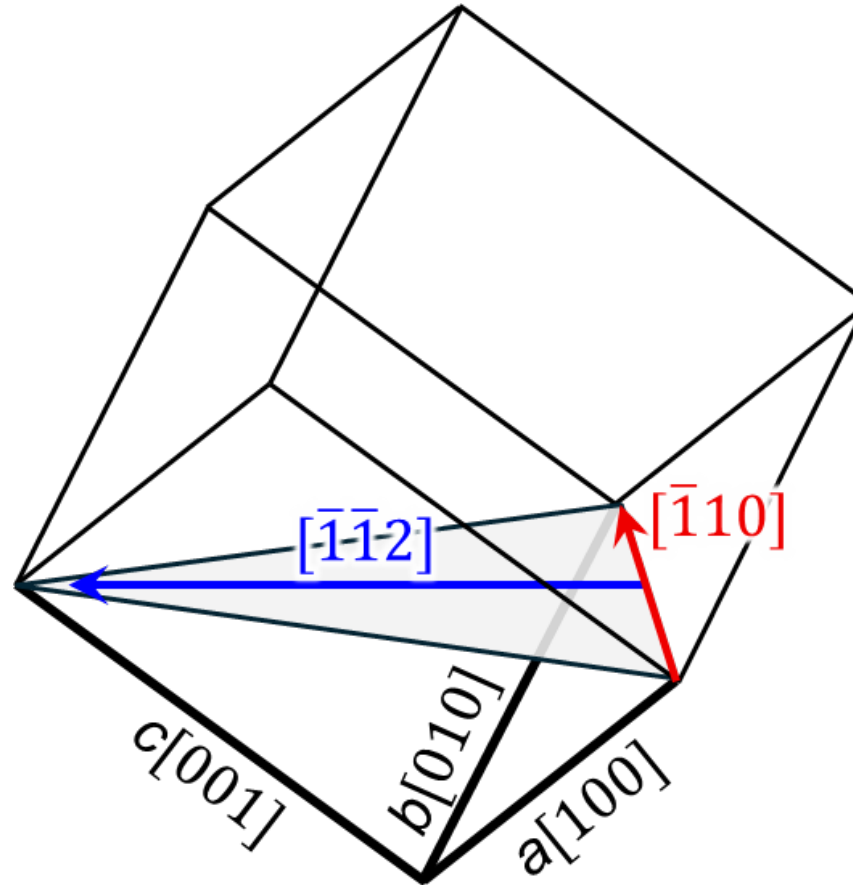
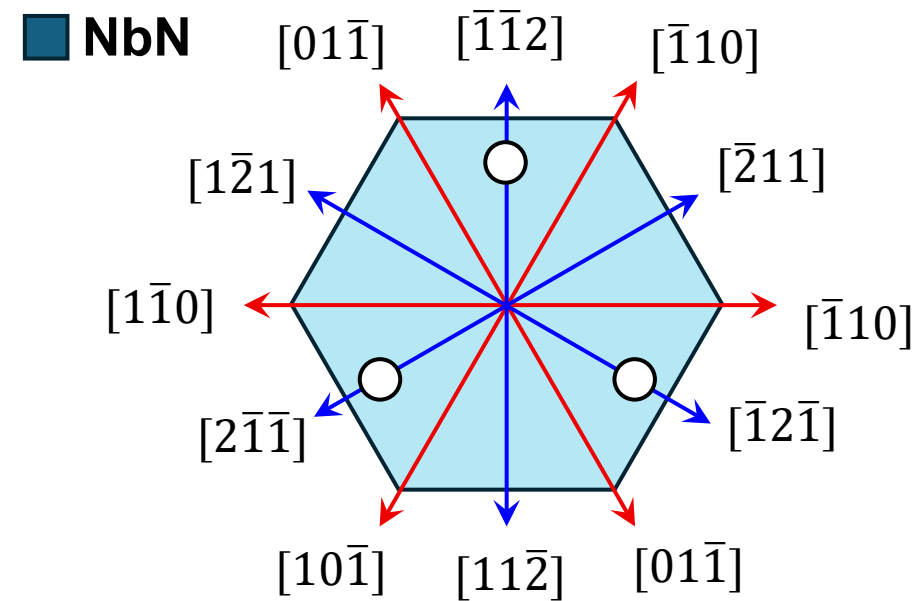
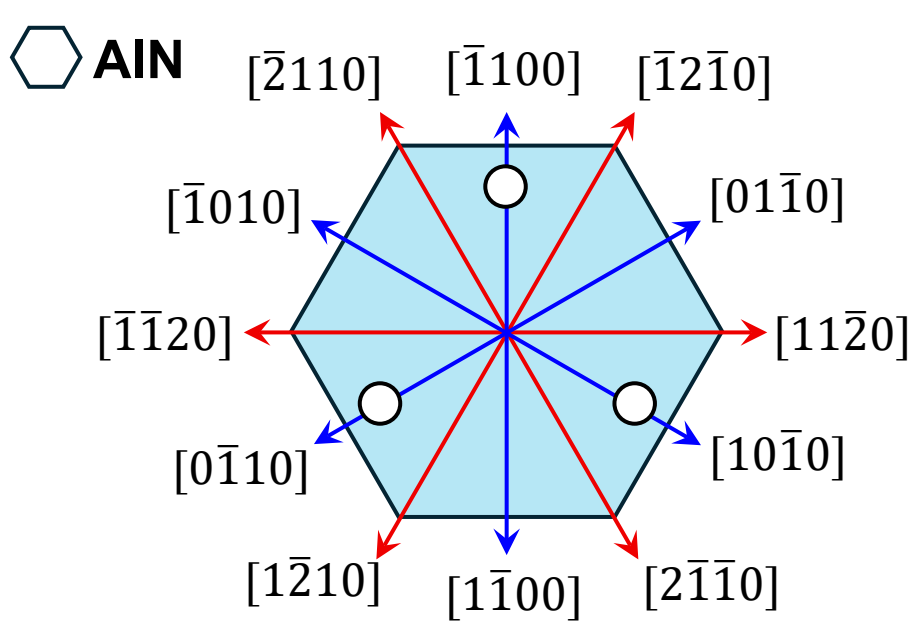


In-plane Crystallographic Orientations and Unit Lattice Vectors of NbN(111)



Unit lattice vectors for cubic and hexagonal crystals are defined following the reference below.

A. Kobayashi, K. Ueno, and H. Fujioka, "Autonomous growth of NbN nanostructures on atomically flat AlN surfaces," *Applied Physics Letters* **117**(23), 231601 (2020).



Note that in a reciprocal space map where the AIN m -axis $\langle 1\bar{1}00 \rangle$ is aligned in-plane (along the q_x direction), the reciprocal lattice points (RLPs) of AIN appear symmetric with respect to the q_z axis, whereas those of NbN do not.

For example, AIN($\bar{1}\bar{1}03$) and NbN(113) can be observed simultaneously, but no NbN diffraction peak appears around AIN($1\bar{1}03$).

Remark: When NbN(111) grows on AIN(0001) in a twinned configuration, the NbN RLPs become symmetric with respect to q_z , and the AIN and NbN peaks appear as paired features.

