

Intriguing Electronic Insensitivity and High Carrier Mobility in Monolayer Hexagonal YN

Kai Zheng,^{a,#} Xibin Yang,^{b,#} Heping Cui,^{a,#} Qun Yang,^a Huaiyu Ye,^a Daxi Xiong,^b
Sven Ingebrandt,^c Xianping Chen,^{*a}

^{a)} Key Laboratory of Optoelectronic Technology & Systems, Education Ministry of China, Chongqing University and College of Optoelectronic Engineering, Chongqing University, Chongqing 400044, China

^{b)} Suzhou institute of Biomedical Engineering, Chinese Academy of Sciences, Suzhou 215163, China

^{c)} Department of Informatics and Microsystem Technology, University of Applied Sciences, Kaiserslautern Zweibruecken 66482, Germany

#These authors contributed equally to this work.

Correspondence authors: Xianping Chen (xianpingchen@cqu.edu.cn)

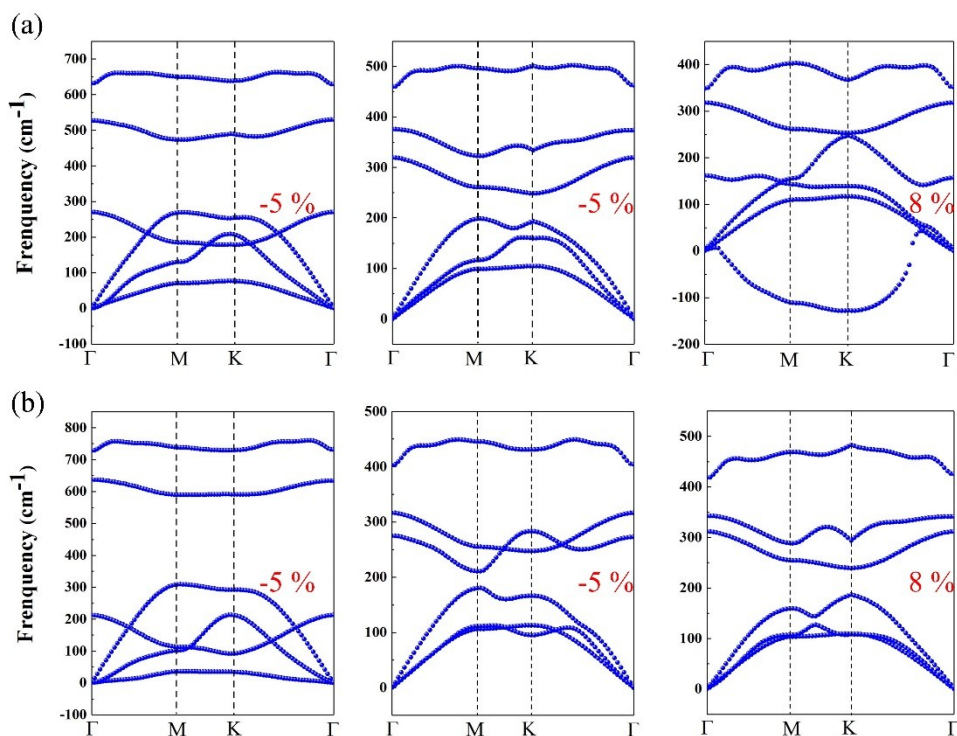


Fig S1 Phonon spectrums of monolayer *h*-YN under (a) biaxial and (b) uniaxial strain.

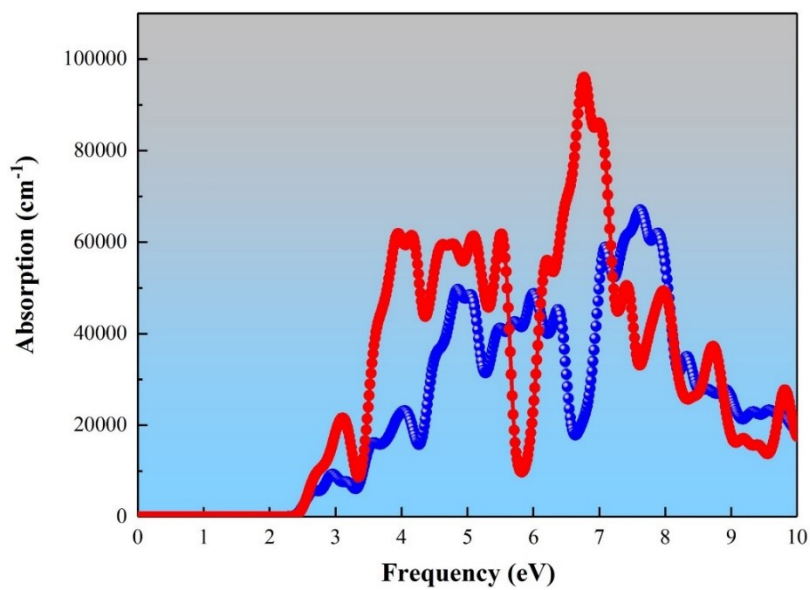


Fig S2 Calculated absorption spectra for monolayer *h*-YN from the parallel (in blue) and perpendicular (in red) directions at the HSE06 level.

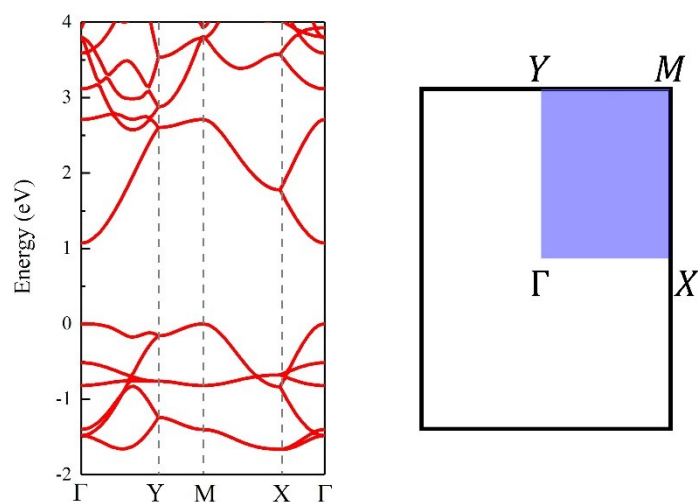


Fig S3 Electronic band structure and corresponding Brillouin zone path of *h*-YN in an orthorhombic lattice. Γ (0, 0, 0), Y (0, 0.5, 0), S (0.5, 0.5, 0), X (0.5, 0, 0) are the high symmetric points in Brillouin zone.

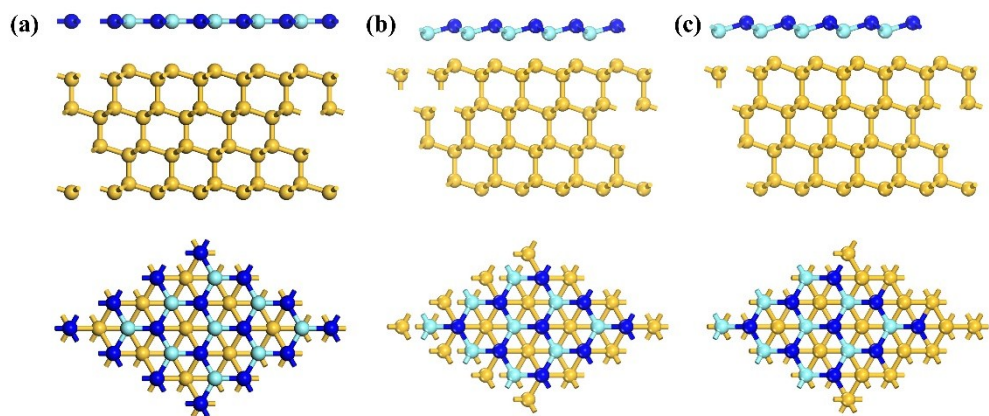


Fig S4 Top and side views of atomic structures of *h*-YN on Si (111) surfaces with I, II, III stacking patterns.