

Electronic supplementary information:

Computational prediction of a novel 1D InSeI nanochain with high stability and promising wide-bandgap properties

Shujuan Jiang,^a Huabing Yin,^{*a} Guang-Ping Zheng,^{*b} Bing Wang,^a Shan Guan,^c and
Bing-Jian Yao^d

*^aInstitute for Computational Materials Science, School of Physics and Electronics, International Joint
Research Laboratory of New Energy Materials and Devices of Henan Province, Henan University,
Kaifeng 475004, China.*

*^bDepartment of Mechanical Engineering, The Hong Kong Polytechnic University,
Hung Hom, Kowloon, Hong Kong 999077, China.*

*^cState Key Laboratory of Superlattices and Microstructures, Institute of Semiconductors, Chinese
Academy of Sciences, Beijing 100083, China.*

*^dCollege of Chemistry, Chemical Engineering and Materials Science, Collaborative Innovation Center
of Functionalized Probes for Chemical Imaging in Universities of Shandong, Key Laboratory of
Molecular and Nano Probes, Ministry of Education, Shandong Normal University, Jinan 250014,
China.*

*E-mails: yhb@henu.edu.cn and mmzheng@polyu.edu.hk

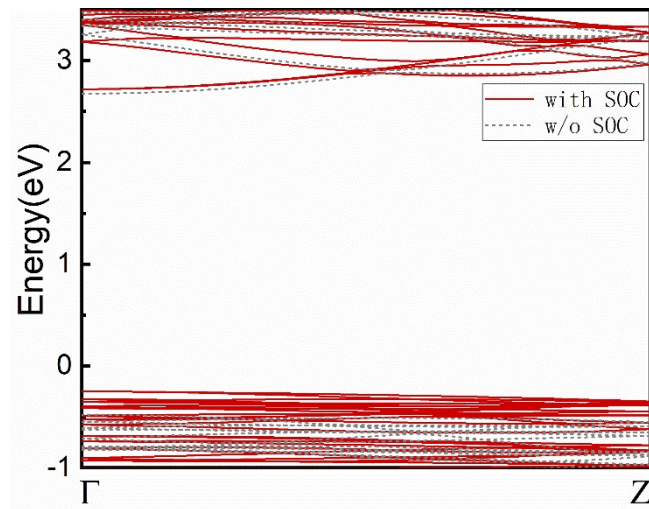


Figure S1. Band structures of InSeI single nanochain calculated by HSE06 with SOC (in red) and without SOC (in grey), respectively.

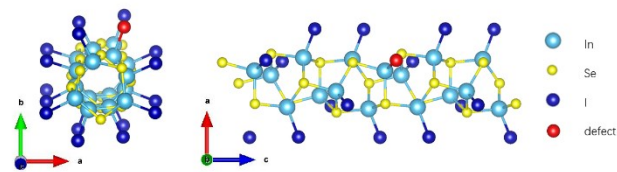


Figure S2. Structural configuration of 1D single nanochain of InSeI with a surface defect of I vacancy (in red).

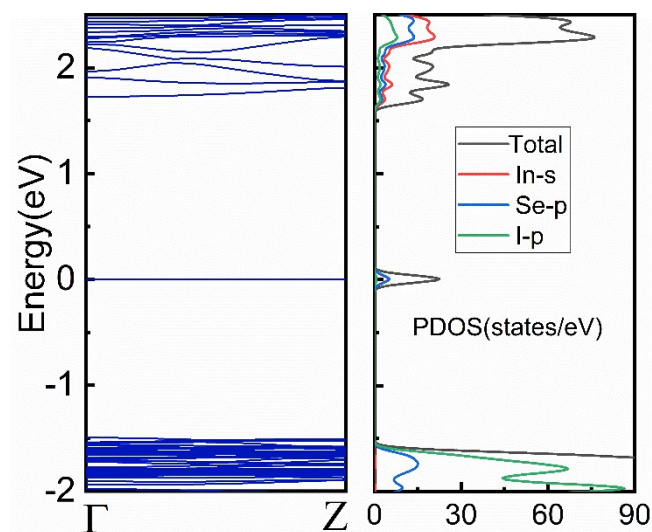


Figure S3. Band structure and the partial density of states (PDOS) calculated by HSE06 of InSeI single nanochain with a surface defect of I vacancy.