

# **Supporting Information**

**for**

## **Helium separation via uniform pores of stanene-based membranes**

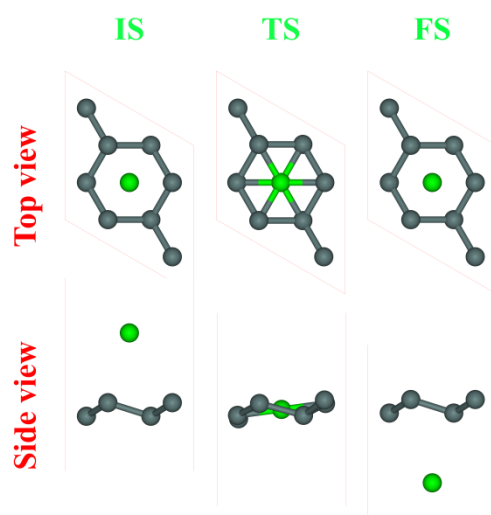
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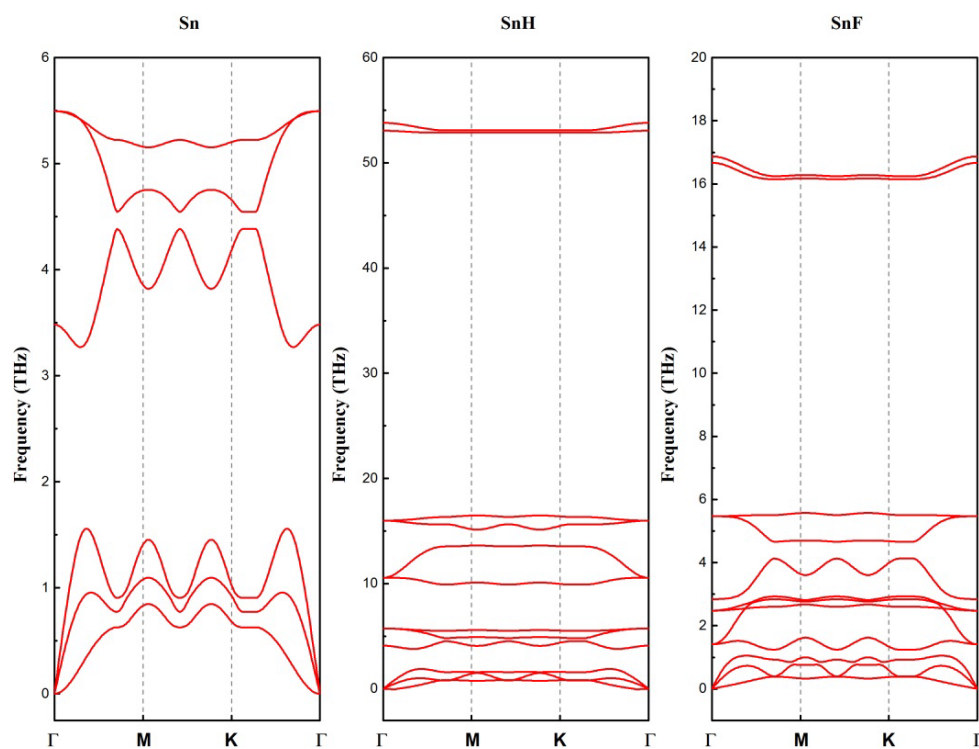
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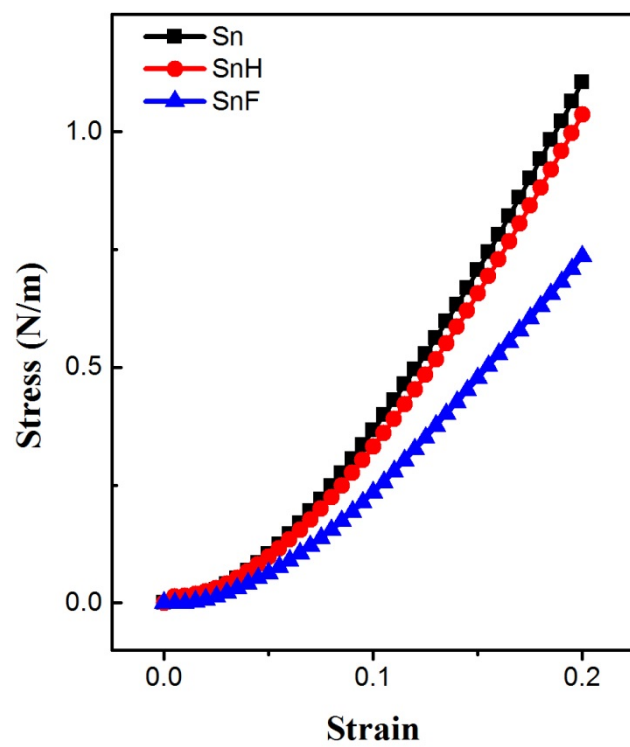
# The phonon dispersion spectrum and stress–strain curves of Sn, SnH and SnF lattices



**Figure S1:** The initial, transition, and final geometries of He penetrating through 2D Sn. Color code: grey, Sn; green, He.



**Figure S2:** The phonon dispersion spectrum of Sn, SnH and SnF.



**Figure S3:** The stress–strain curves for Sn, SnH and SnF membranes.