

## Supplemental Material: Charge density fluctuation determined

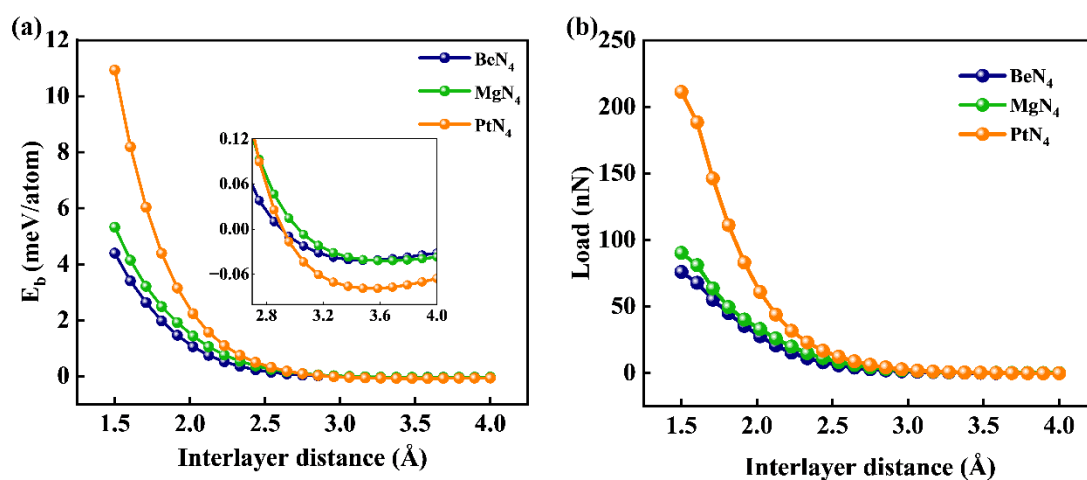
### interlayer friction in bilayer $MN_4$ ( $M = \text{Be}, \text{Mg}, \text{and Pt}$ )

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**Figure S1:** (a) The interlayer bonding energy of BeN<sub>4</sub>, MgN<sub>4</sub> and PtN<sub>4</sub> under different interlayer distance. (b) The normal load on the layer of BeN<sub>4</sub>, MgN<sub>4</sub> and PtN<sub>4</sub> under different interlayer distance.