

Fig. S1. The real part $\epsilon_1(\omega)$ and the imaginary part $\epsilon_2(\omega)$ of the dielectric constants for MoS₂, GaTe, and GaTe/MoS₂ vdWH, respectively. In the visible light region, the imaginary part of the dielectric constant of MoS₂ is larger than that of the GaTe. Also, the value of $\epsilon_1(\omega)$ in the GaTe/MoS₂ vdWH is the largest one in these three cases. The analysis of $\epsilon_2(\omega)$ is similar to that of $\epsilon_1(\omega)$.

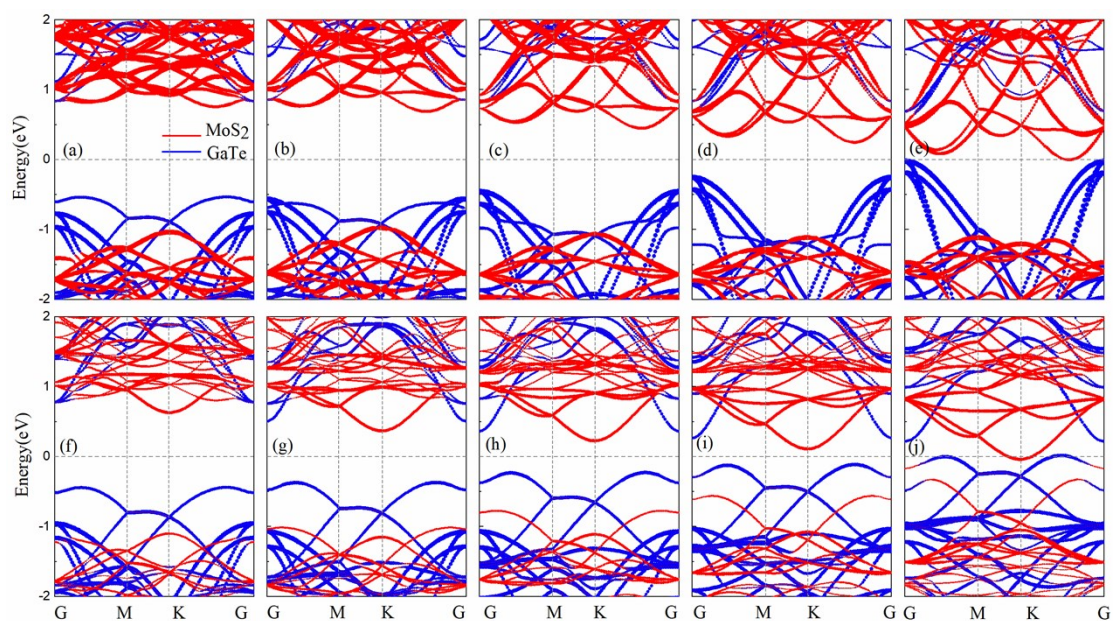


Fig. S2. Band structures of the GaTe/MoS₂ vdWH under compressive biaxial strains (a) -1%, (b) -3%, (c) -5%, (d) -7%, (e) -9% and tensile biaxial strains (f) 1%, (g) 3%, (h) 5%, (i) 7%, (j) 9%.