Electronic Supplementary Material

Thermally tunable anti-ambipolar heterojunction devices

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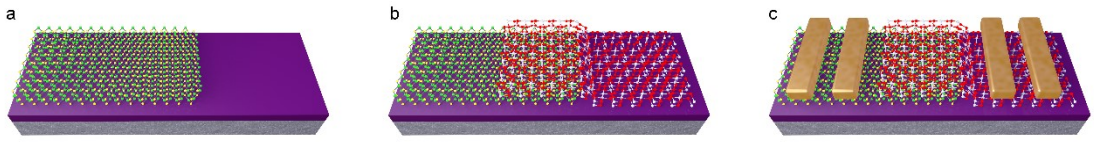

Fig.S1 Preparation process diagram of anti-ambipolar heterojunction devices (a) Transfer few-layers $As_{0.4}P_{0.6}$ onto SiO_2 (285 nm)-Si substrate. (b) Transfer few-layers $PdSe_2$ onto $As_{0.4}P_{0.6}$。(c) fabricate Cr/Au electrodes onto the heterojunction.

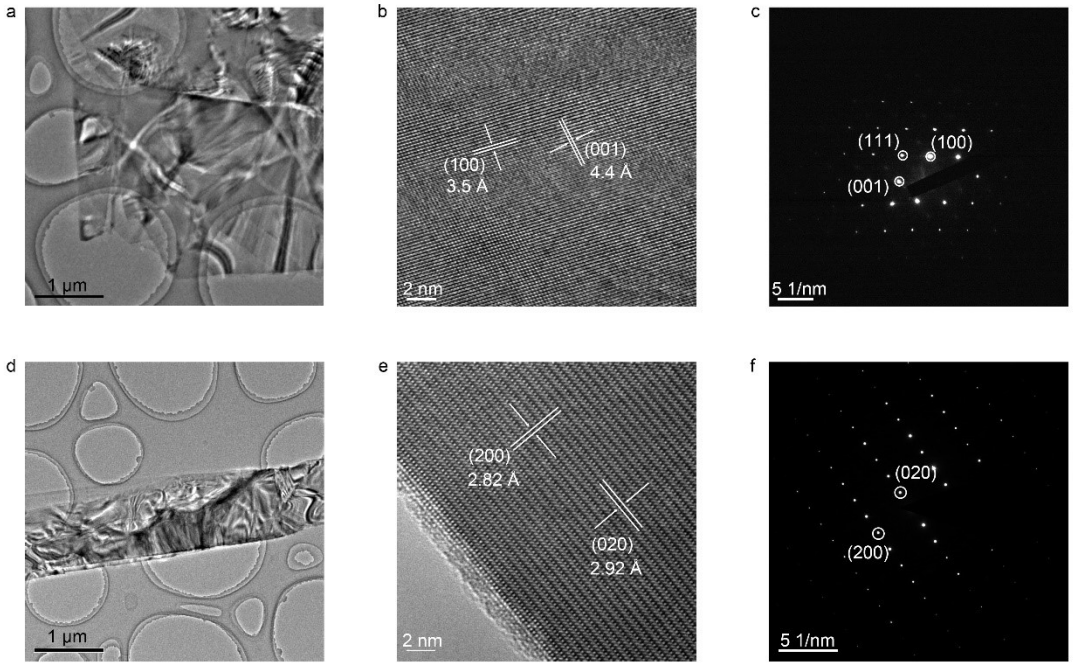

Fig.S2 (a-c) The transmission electron microscopy image of few-layers $As_{0.4}P_{0.6}$. (d-f) the transmission electron microscopy image of few-layers $PdSe_2$

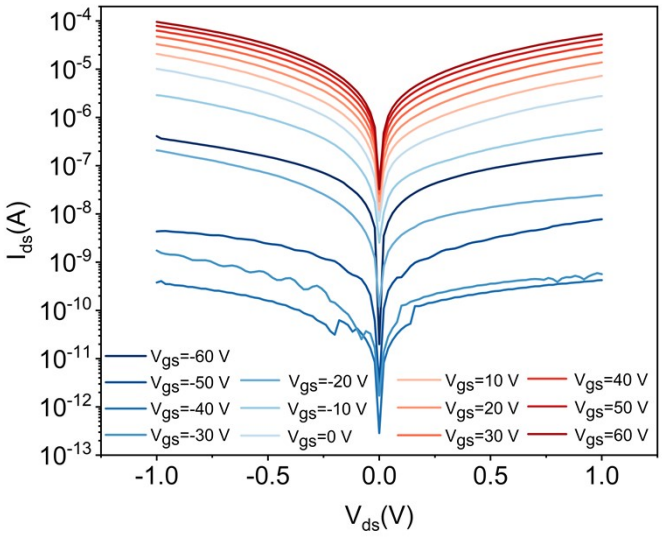

Fig.S3 The output characteristic curve of $PdSe_2$ at room temperature under different gate voltage (from -60 V- 60 V)

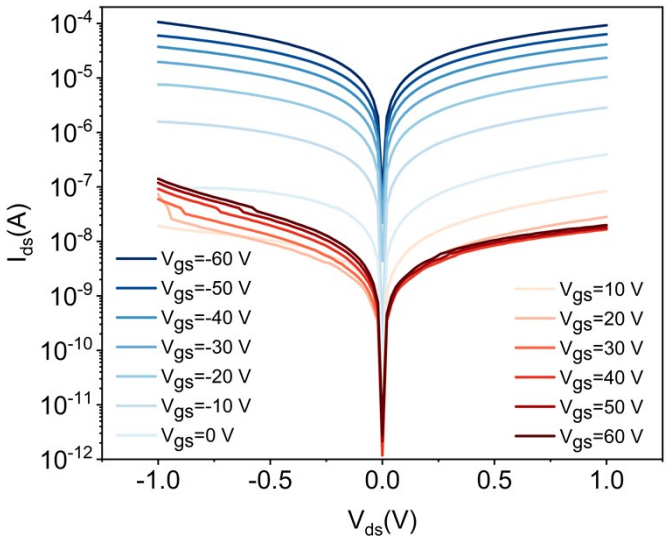

Fig.S4 The output characteristic curve of $As_{0.4}P_{0.6}$ at room temperature under different gate voltage (from -60 V- 60 V)

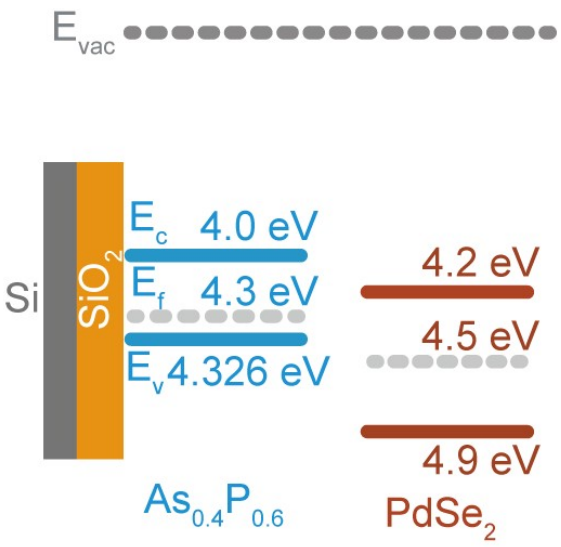

Fig.S5 Band diagram of the $As_{0.4}P_{0.6}/PdSe_2$ heterojunction before contact.