

## Supplementary Information for

### **The rectifying and negative differential resistance effects in heterojunctions of graphene/*h*-BN nanoribbons**

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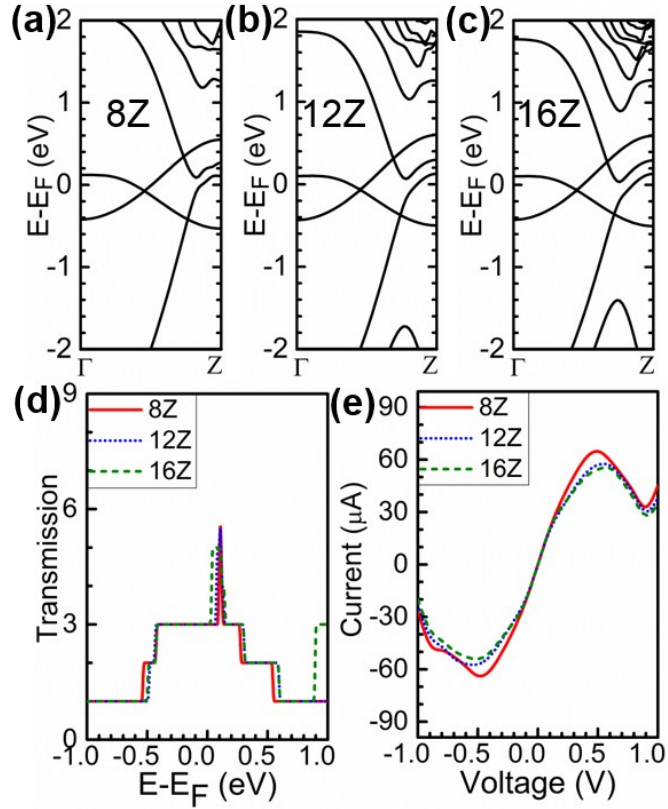
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**Fig. S1** Band structures of Gra-BNud heterojunctions with 8 (a), 12 (b), and 16 (c) zigzag chains. (d) and (e) refer to the transmission spectra and  $I$ - $V$  curves of Gra-BNud heterojunctions with different widths.

The Gra-BNud heterojunctions with larger widths have the very similar band structures, transmission spectra, and  $I$ - $V$  curves.