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## NDR and spin-polarized transport properties of magnetic Fe sandwiched $C_{60}$ -GNR single molecule devices: theoretical insight

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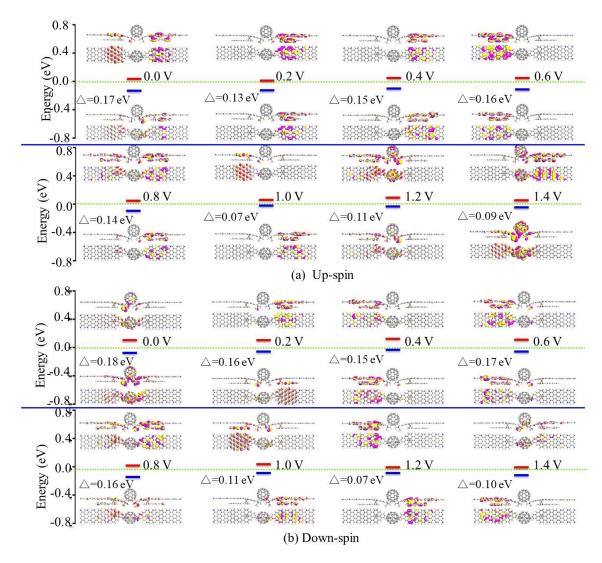


Figure S1 Spin-resolved MPSH HOMO and LUMO of the AIA' device under various bias. (a) and (b) are for up-spin and down spin channels, respectively.

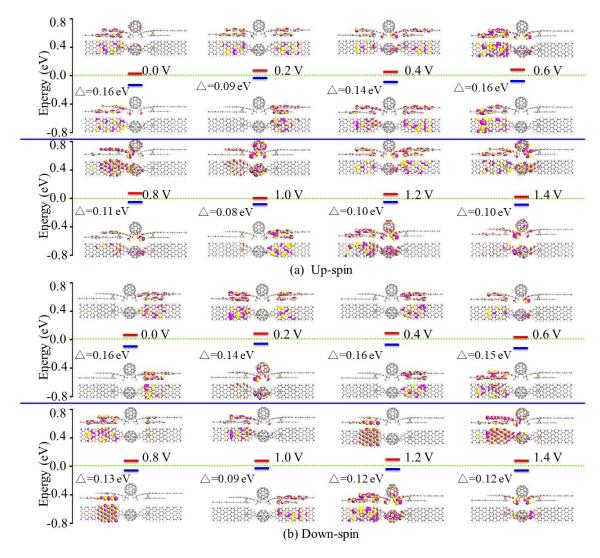


Figure S2 Spin-resolved MPSH HOMO and LUMO of the **BIA'**device under various bias. (a) and (b) are for up-spin and down spin channels, respectively.

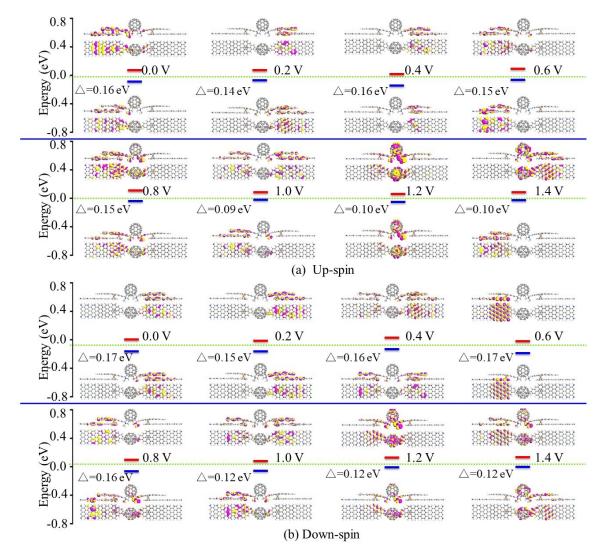


Figure S3 Spin-resolved MPSH HOMO and LUMO of the **BIB'** device under various bias. (a) and (b) are for up-spin and down spin channels, respectively.

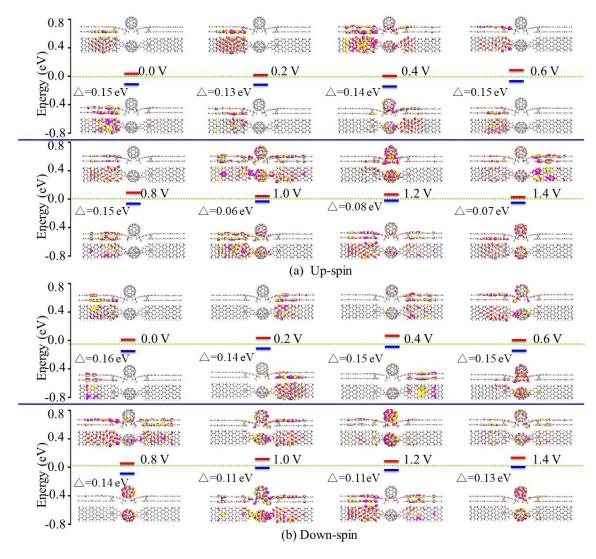


Figure S4 Spin-resolved MPSH HOMO and LUMO of the **ABIA'B'** device under various bias. (a) and (b) are for up-spin and down spin channels, respectively.

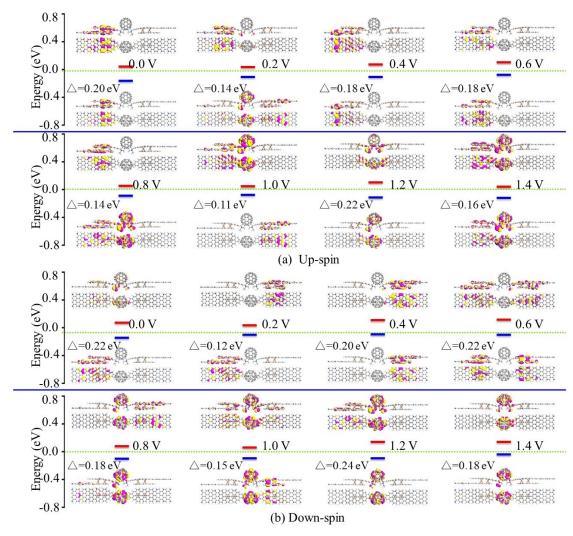


Figure S5 Spin-resolved MPSH HOMO and LUMO of the **BHA'** device under various bias. (a) and (b) are for up-spin and down spin channels, respectively.

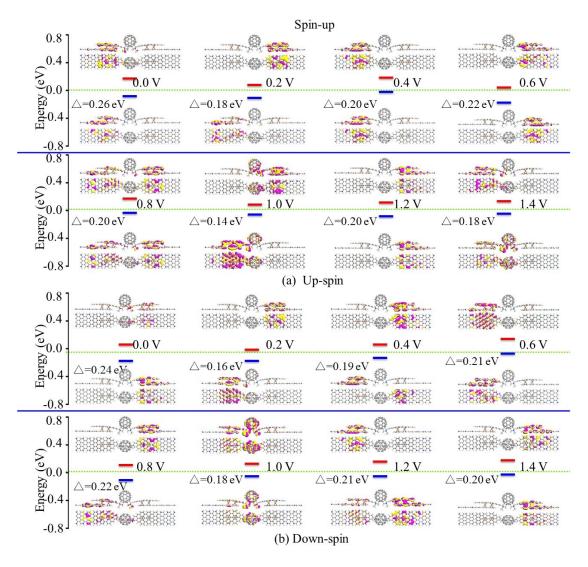


Figure S6 Spin-resolved MPSH HOMO and LUMO of the **BIIB'** device under various bias. (a) and (b) are for up-spin and down spin channels, respectively.

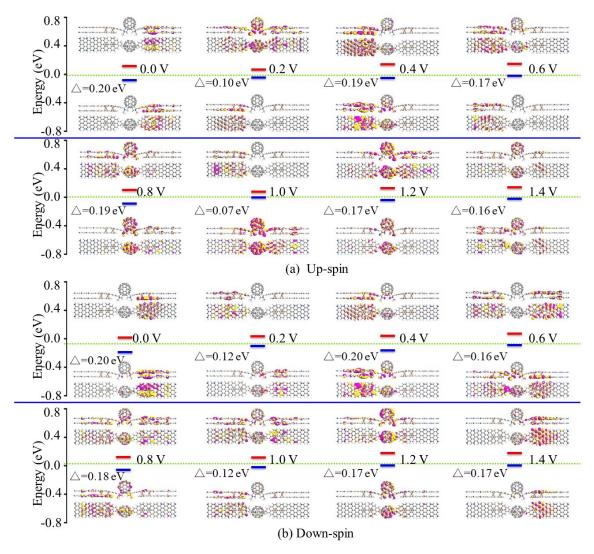


Figure S7 Spin-resolved MPSH HOMO and LUMO of the **ABIIA'B'** device under various bias. (a) and (b) are for up-spin and down spin channels, respectively.

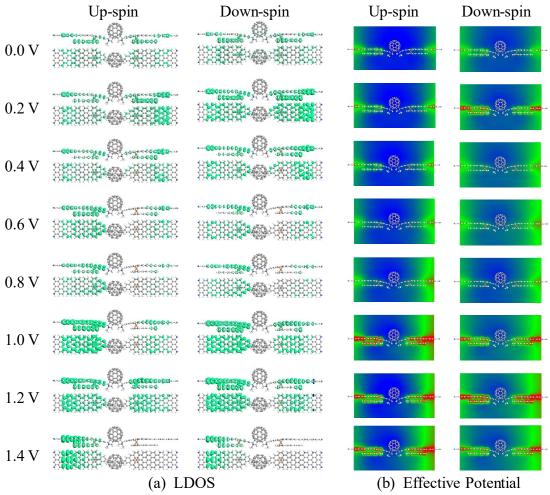


Figure S8 Spin-resolved (a) LDOS and (b) effective potentials of the AIA' device under various biases.

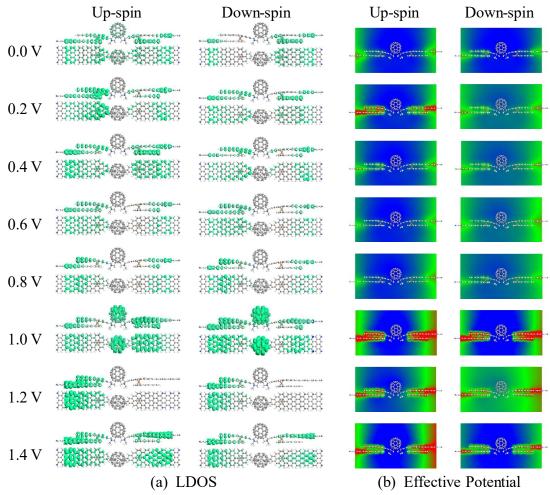


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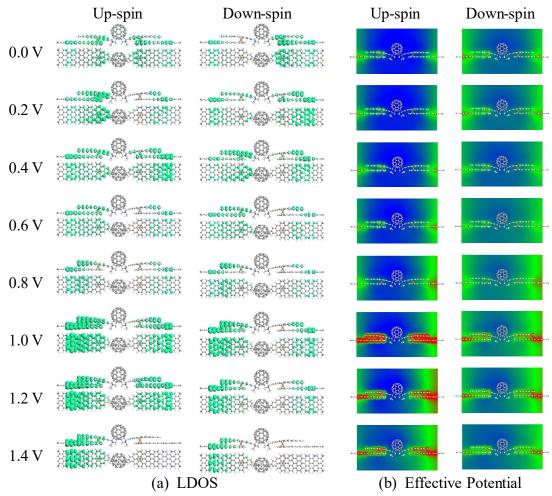


Figure S10 Spin-resolved(a) LDOS and (b) effective potentials of the BIB' device under various biases.

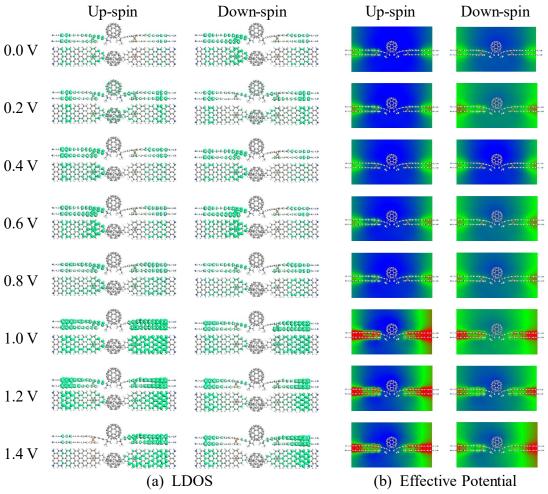


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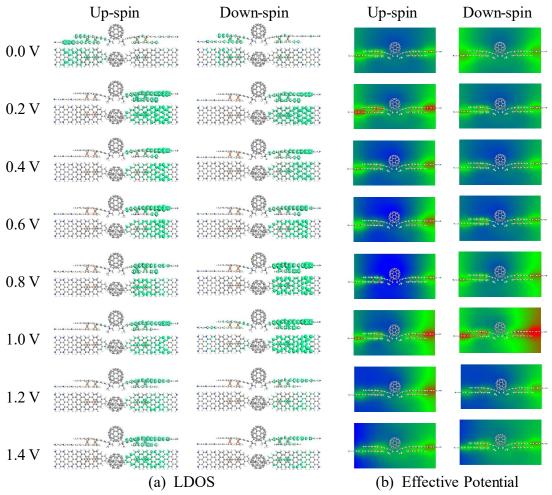


Figure S12 Spin-resolved (a) LDOS and (b) effective potentials of the **BIIA'** device under various biases.

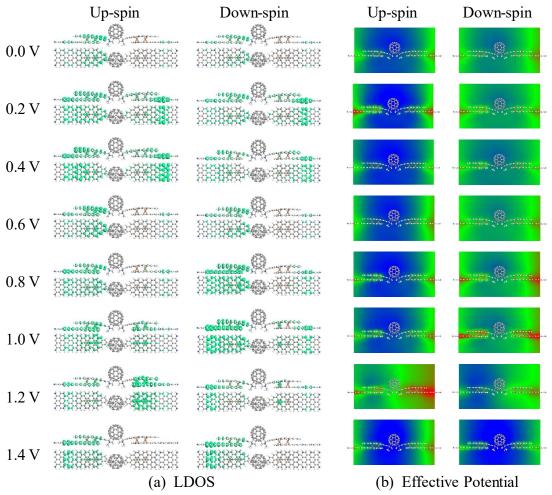


Figure S13 Spin-resolved (a) LDOS and (b) effective potentials of the **BIIB'** device under various biases.

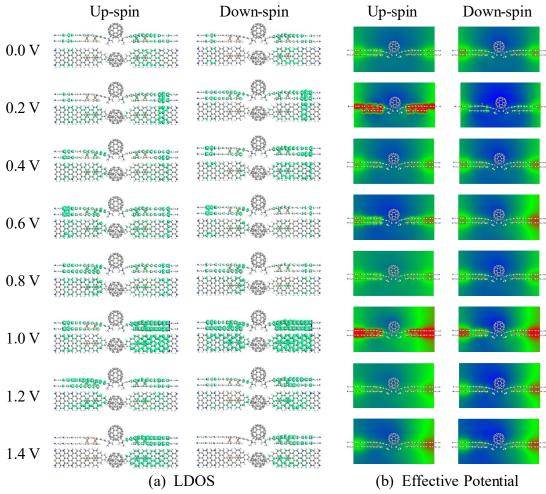


Figure S14 Spin-resolved (a) LDOS and (b) effective potentials of the **ABIIA'B'** device under various biases.