## **Supporting Information**

# Magnetoresistance in Co/2D MoS<sub>2</sub>/Co and Ni/2D MoS<sub>2</sub>/Ni junctions

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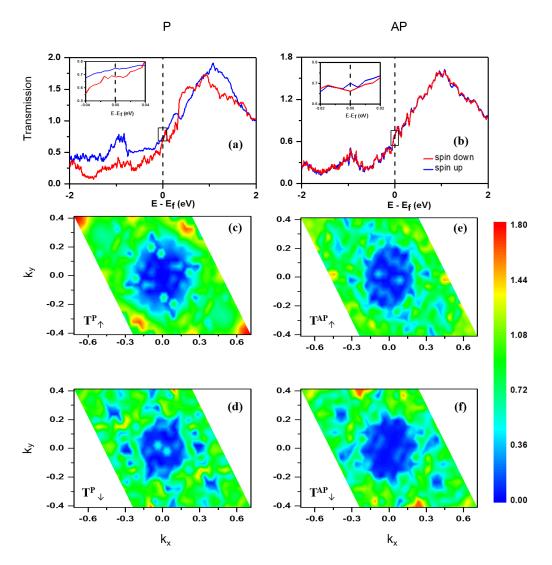
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### Ni(fcc)/SL-MoS<sub>2</sub>/Ni(fcc)

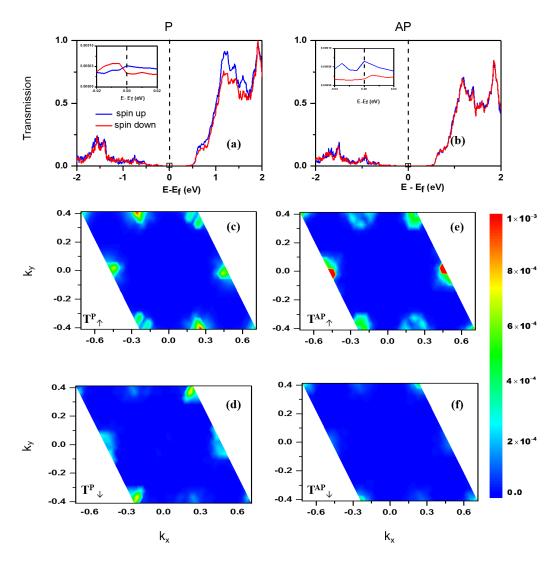


**Figure S1.** (a,b) Spin-resolved transmission spectra of the Ni(fcc)/SL-MoS<sub>2</sub>/Ni(fcc) junction in the P (a) and AP (b) configurations. Inset: Zoom-in of a region near  $E_f$ . (c,d) k-resolved and spin-resolved transmission coefficients at the Fermi level for the spin-up channel in the P (c) and AP (d) configurations. (e,f) Same as (c,d) but for the spin-down channel.

#### Co(hcp)/3-L-MoS<sub>2</sub>/Co(hcp) Р ΑP spin up spin down 1.0 Transmission 0.5 0.5 **(b)** 0.0 0.0 0 E-E<sub>f</sub> (eV) 0.4 0.4 0.10 (c) (e) 0.2 0.2 0.08 0.0 0.0 ❖ -0.2 -0.2 0.06 -0.4 -0.4 -0 -0.6 -0.3 0.3 0.0 0.6 0.04 (d) **(f)** 0.2 0.2 ॐ 0.0 0.0 0.02 -0.2 -0.2 0.00 -0.6 -0.3 0.3 0.6 -0.6 -0.3 0.0 0.3 0.6 o'.o $k_x$ $k_{\mathsf{x}}$

**Figure S2.** (a,b) Spin-resolved transmission spectra of the Co(hcp)/3-L-MoS<sub>2</sub>/Co(hcp) junction in the P (a) and AP (b) configurations. Inset: Zoom-in of a region near  $E_f$ . (c,d) k-resolved and spin-resolved transmission coefficients at the Fermi level for the spin-up channel in the P (c) and AP (d) configurations. (e,f) Same as (c,d) but for the spin-down channel.

### Ni(fcc)/5-L-MoS<sub>2</sub>/Ni(fcc)



**Figure S3.** (a,b) Spin-resolved transmission spectra of the Ni(fcc)/5-L-MoS<sub>2</sub>/Ni(fcc) junction in the P (a) and AP (b) configurations. Inset: Zoom-in of a region near  $E_f$ . (c,d) k-resolved and spin-resolved transmission coefficients at the Fermi level for the spin-up channel in the P (c) and AP (d) configurations. (e,f) Same as (c,d) but for the spin-down channel.