Supporting Information for

Giant tunneling magnetoresistance in two-dimensional magnetic tunnel junctions based on double transition metal MXene $ScCr_2C_2F_2$

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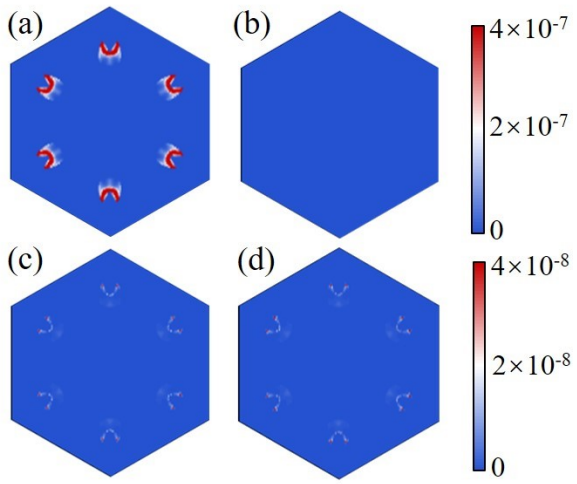

Fig. S1 The spin-dependent $k_{\parallel}$-resolved transmission spectrums of MTJ-HM at the Fermi level for (a) spin-up and (b) spin-down channel in PC state, (c) spin-up and (d) spin-down channel in APC state.

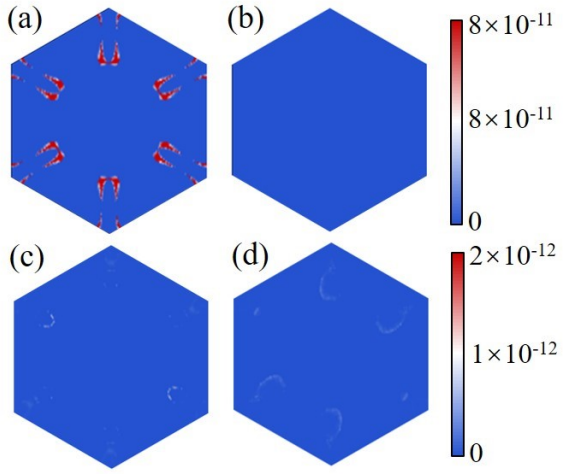

Fig. S2 The spin-dependent $k_{\parallel}$-resolved transmission spectrums of MTJ-5HM at the Fermi level for (a) spin-up and (b) spin-down channel in PC state, (c) spin-up and (d) spin-down channel in APC state.

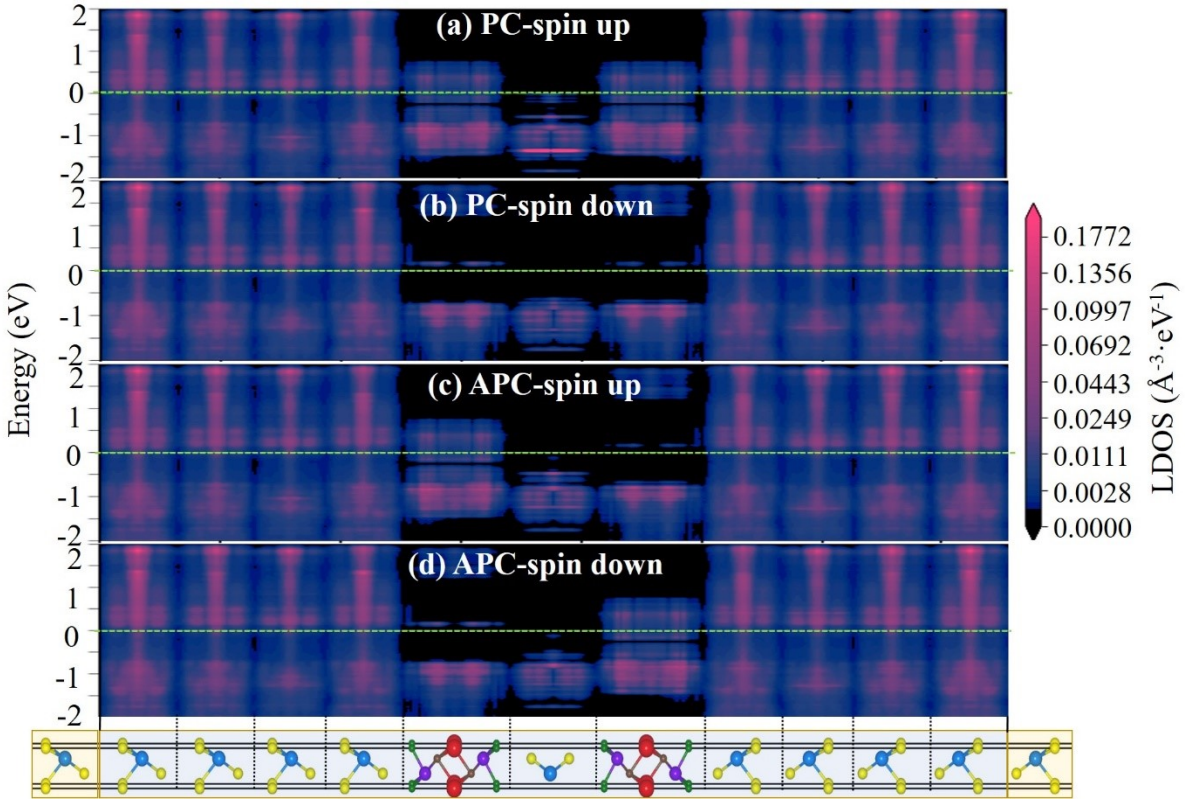

Fig. S3 The spin-dependent projected local density of states of MTJ-HM for (a) spin-up and (b) spin-down channel in PC state, (c) spin-up and (d) spin-down channel in APC state.

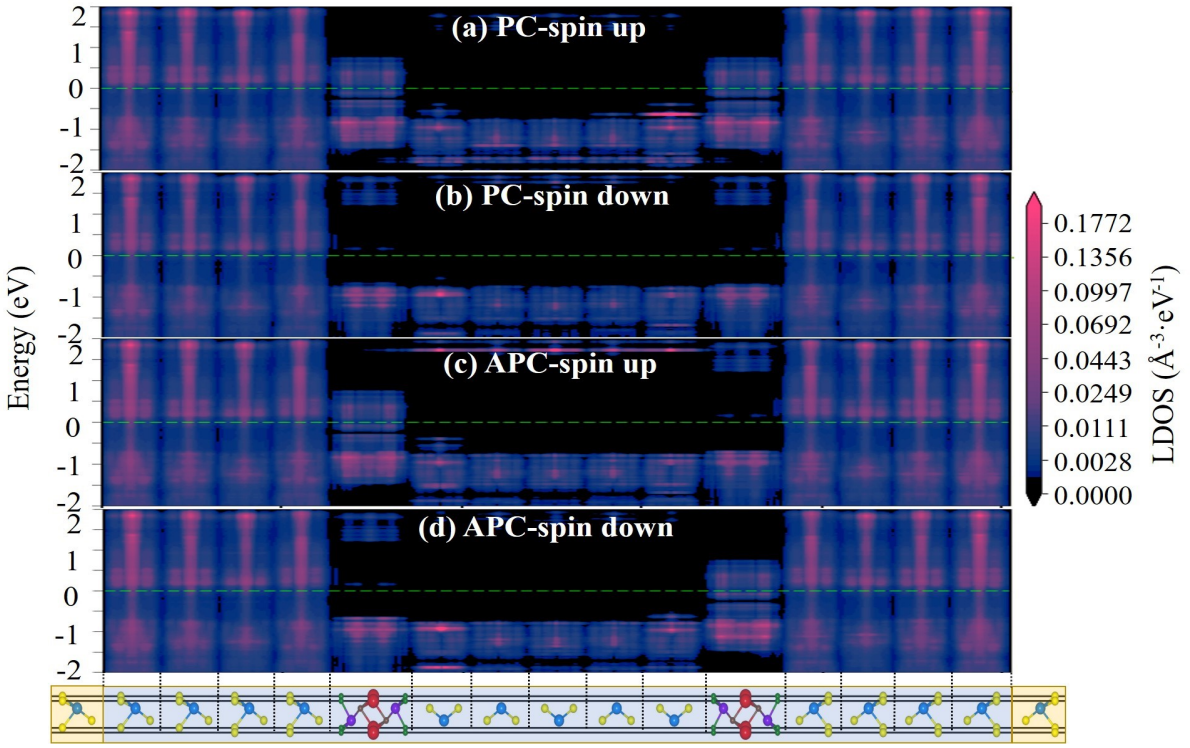

Fig. S4 The spin-dependent projected local density of states of MTJ-5HM for (a) spin-up and (b) spin-down channel in PC state, (c) spin-up and (d) spin-down channel in APC state.

Table S1 The calculated total spin-dependent conductances (e^2/h) in PC state G_{PC} and APC state G_{APC}, and TMR ratios with and without spin-orbit coupling (SOC) for MTJ-HM, MTJ-3HM and MTJ-5HM devices.

MTJs	G_{PC}	G_{APC}	TMR (%)	G_{PC}^{SOC}	G_{PC}^{SOC}	TMR^{SOC}(%)
MTJ-HM	1.19×10^{-5}	4.05×10^{-10}	2.95×10^{6}	5.93×10^{-4}	2.06×10^{-6}	2.87×10^{4}
MTJ-3HM	1.30×10^{-8}	1.86×10^{-13}	6.95×10^{6}	2.15×10^{-7}	5.45×10^{-10}	3.94×10^{4}
MTJ-5HM	5.51×10^{-11}	5.96×10^{-15}	9.24×10^{5}	3.68×10^{-11}	1.13×10^{-13}	3.26×10^{4}