

Supplementary Information

Magnetic molecules as local sensors of topological hysteresis of superconductors

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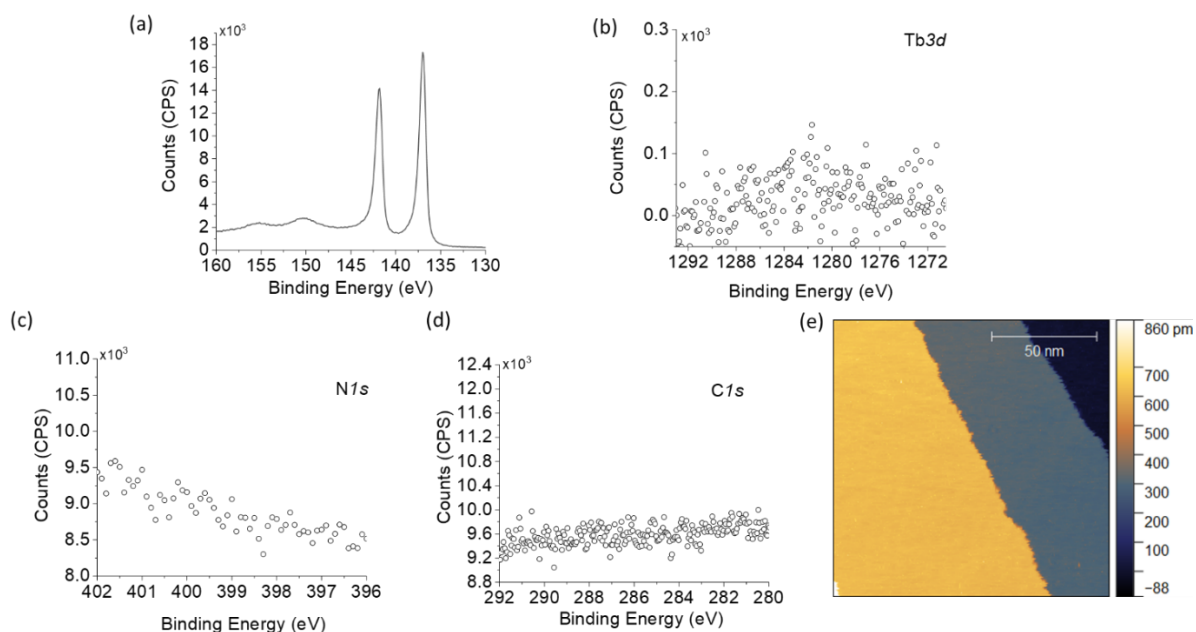


Figure S1. $Pb4f$ (a), $Tb3d$ (b), $N1s$ (c) and $C1s$ (d) core-level XPS spectra recorded on the $Pb(111)$ single crystal before the $TbPc_2$ sub-monolayer deposition. (e) STM image of Pb steps recorded at 35K ($V_{bias} = 2.0$ V, $I_{tunnel} = 100$ pA).

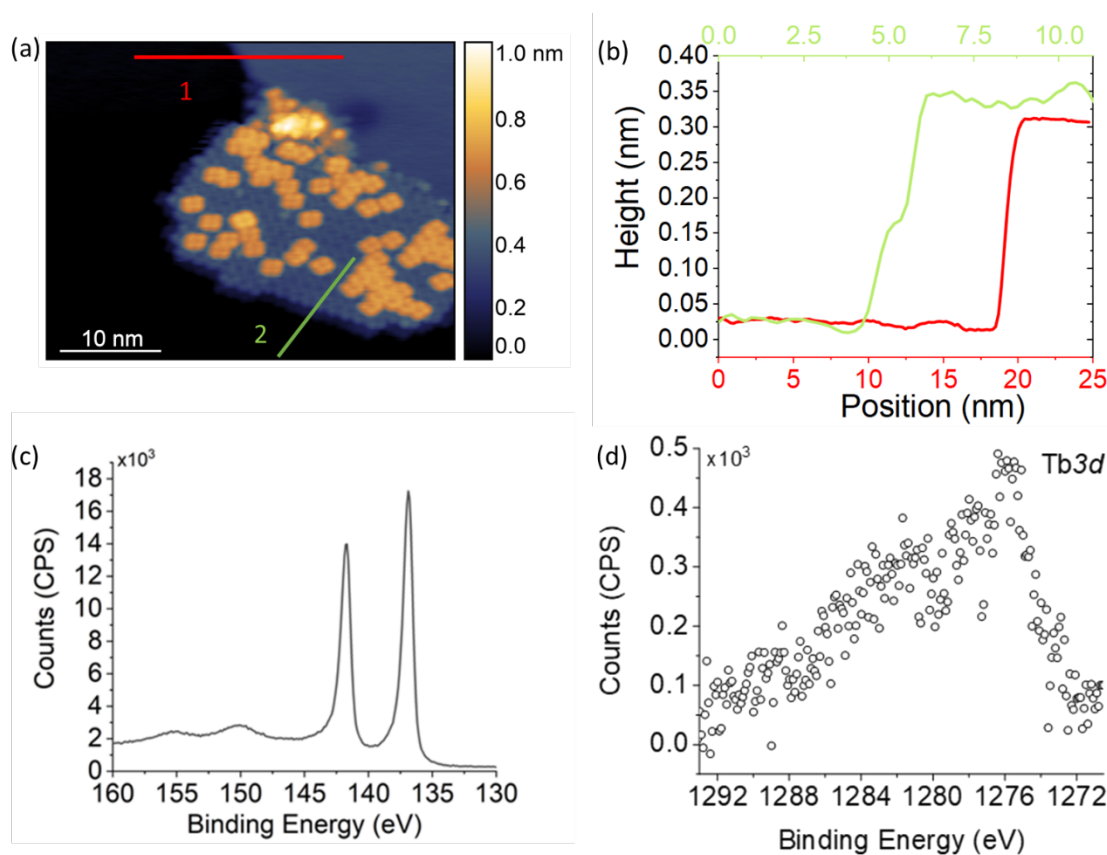


Figure S2. (a) STM image ($I = 5$ pA, $V = 2$ V) at high magnification with profile (b); $Pb4f$ (c) and $Tb3d_{3/2}$ (d) core-level XPS spectra recorded after $TbPc_2$ sub-monolayer deposition on $Pb(111)$.

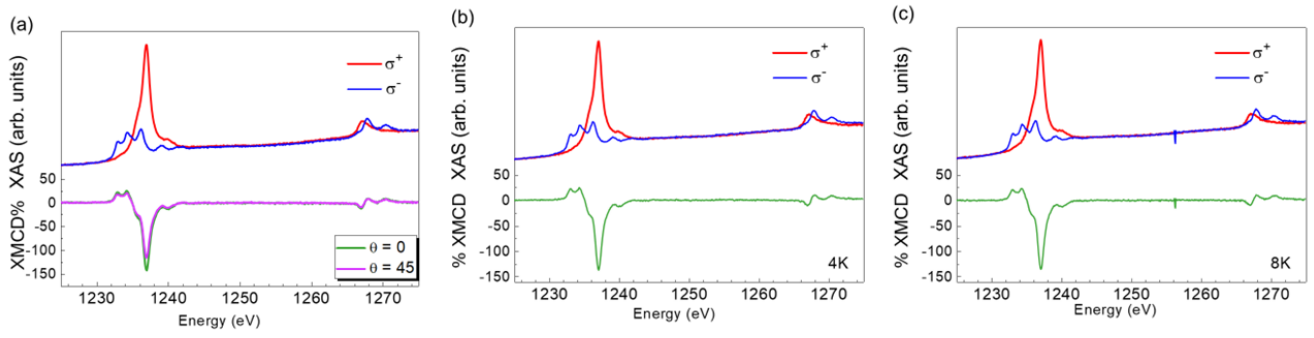


Figure S3. (a) Comparison of the XMCD spectra of the TbPc₂ sub-monolayer on Pb(111) at $\theta = 0^\circ$ and $\theta = 45^\circ$ (see main text), (b) XMCD spectrum at 4 K and (c) at 8 K. All spectra were recorded at 3T.