

# **Magneto-conductance and spin related shot noise properties of half-metallic molecular junctions**

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When the size of magnetic conductors is confined to several angstroms, novel magneto-transport properties can emerge. Here, we take advantage of the structural flexibility of magnetically active molecules to show that half-metallicity can be achieved at the level of a single molecule. Specifically, we use the break junction technique to demonstrate the effect in molecular junctions based on a single magnetic molecule embedded between two non-magnetic electrodes. The studied junction reveals surprising magneto-conductance and shot noise properties that will be discussed.