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Resistively detected electron spin resonance and g factor in few-layer exfoliated MoS2 devices

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MoS_2 has recently emerged as a promising material for enabling quantum devices and spintronic applications. In this context, the demonstration of resistively detected electron spin resonance (RD-ESR) and the determination and improved physical understanding of the g factor are of great importance. However, its application and RD-ESR studies have been limited so far by Schotttky or high-resistance contacts to MoS_2. Here, we exploit naturally n-doped few-layer MoS_2 devices with ohmic tin (Sn) contacts that allow the electrical study of spin phenomena. Resonant excitation of electron spins and resistive detection is a possible path to exploit the spin effects in MoS_2 devices. Using RD-ESR, we determine the g factor of few-layer MoS_2 to be $\approx$1.92 and observe that the g factor value is independent of the charge carrier density within the limits of our measurements.

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