

## Searching for Exotic Spin-Dependent Interactions by Spin Quantum Sensors

Searching for new particles beyond the standard model is crucial for understanding several fundamental conundrums in physics and astrophysics. Several hypothetical particles can mediate exotic spin-dependent interactions between ordinary fermions, which enable laboratory searches via the detection of the interactions. We present a platform based on diamond quantum sensors for investigating exotic spin-dependent interactions at micrometer scales. Recently, we conducted experimental searches for exotic spin-dependent interactions with an ensemble-NV-diamond magnetometer. Our work shows that NV ensembles are highly capable of probing exotic spin-spin interactions beyond the Standard Model.

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