

SPATIAL COHERENCE MAP OF SPINS USING NV CENTERS IN DIAMONDS

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The nitrogen-vacancy (NV) center in diamond is an excellent solid state spin system for quantum sensors due to its electronic spin properties. Its triplet ground state is easy to manipulate (using lasers and microwaves) and to optically initialize/readout at room temperature. Several works reported its use as a sensor for temperature, strain, electric fields, and mainly a sensor of magnetic fields. This brings another use of the NV centers, using an engineered sample of ultra pure diamond and a home-built imaging protocol, with a simple CCD camera, to reconstruct the spin coherence map a 2D quantum sensor, using a quantum measurement protocol.