

SPEAKER

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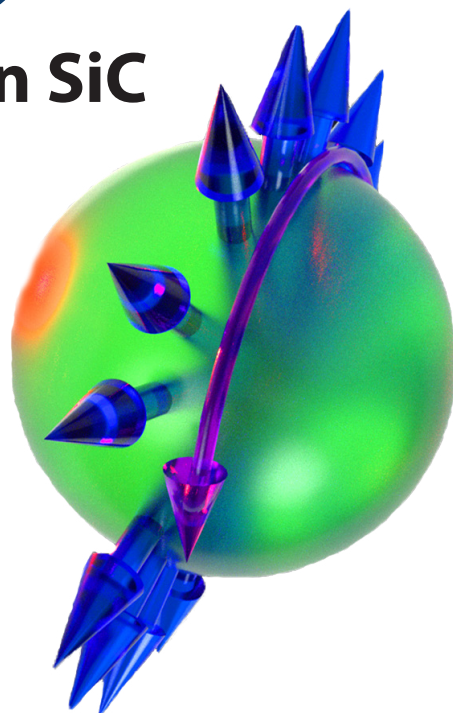
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Intrinsic Defects in SiC for Spin-based Quantum Applications

Here, we discuss a family of
silicon vacancy-related defects

in SiC exhibiting attractive spin properties. In particular, the defect spins can be initialized and readout even at room temperature by means of optically-detected magnetic resonance (ODMR), suggesting appealing quantum applications. Further, we fabricated light-emitting diodes (LEDs) based on intrinsic defects in SiC using a standard manufacturing technology in combination with high-energy electron irradiation. Comparing the electroluminescence and photoluminescence properties of 6H-SiC LEDs we could assign the electroluminescence at 850-1050 nm to silicon-vacancy related (VSi) defects. Finally, we show that these atomic-scale defects can be also attractive for local sensing of magnetic fields, as well as, temperature.



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