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Diamond quantum sensors

Diamond is not only the king gemstone, but also a promising material in quantum technologies. Optically active impurities (colour centers) in diamond show unique coherence properties under ambient conditions.

Their quantum state can be readout and manipulated using a combination of single molecule spectroscopy and magnetic resonance techniques. I will demonstrate the potential of atomic magnetometers based on single color centers for nanoscale sensing and imaging. New photoelectric detection technique allowing efficient readout of single color centers will be discussed.