

Abstract Submitted
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Progress Towards Room-Temperature Electron Spin Detection in Biological Systems NICHOLAS CHISHOLM, IGOR LOVCHINSKY, ALEX SUSHKOV, Harvard University, DAVID HUNGER, Ludwig-Maximilians-Universitat (LMU) Munich, ALEXEY AKIMOV, Lebedev Physics Institute, PEGGY LO, AMY SUTTON, JACOB ROBINSON, NORMAN YAO, STEVEN BENNETT, HONGKUN PARK, MIKHAIL LUKIN, Harvard University — We report on recent progress of room-temperature electron spin sensing for biological applications using nitrogen-vacancy (NV) centers in diamond. Our approach involves room-temperature detection of a small number of electron spins, situated outside the measurement substrate. Potential applications will be discussed, including detection of magnetic resonance signals from individual electron or nuclear spins of complex biological molecules, measurement of concentrations of radicals in living cells, and monitoring the ion channel function across cell membranes (important for exploring drug delivery mechanisms).

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