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Towards Probing Living Cell Function with NV Centers in Nanodiamonds IGOR LOVCHINSKY, NICHOLAS CHISHOLM, ALEX SUSHKOV, PEGGY LO, AMY SUTTON, JACOB ROBINSON, NORMAN YAO, STEVEN BENNETT, HONGKUN PARK, MIKHAIL LUKIN, Harvard University — We report on recent progress in using nitrogen-vacancy (NV) centers in nanodiamonds as local probes of radical concentrations in living cells. Nanodiamonds are biologically inert, and NV centers within them are robust and can sense local magnetic fields with nanoscale resolution. The ability to monitor the local magnetic environment within the cell would provide a new tool to study organelle function during normal operation or in response to applied stimuli. In addition, radical concentrations have been linked to cancer, aging, and signaling between cells, thus proving to be of significant importance to the biological and medical sciences.

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