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Color centers in diamond for neuronal signaling studies - 2 years in

Friday 11 October 2024 15:30 (20 minutes)

This presentation summarizes the advances made in the first two years of my PhD fellowship program. Significant progress has been achieved in the area of laser-writing of nitrogen-vacancy (NV) centers, characterization of fluorescence microscopy and developing of ODMR systems and protocols for optimized sensitivity. Advancements were made in the laser writing of NV center ensembles in diamond, utilizing a Satsuma HP laser for the writing process. Fluorescence intensity and spectroscopic data confirmed the fabrication of NV centers. However, Hanbury-Brown-Twiss (HBT) interferometry experiments were not able to prove single nitrogen centers. Furthermore, an ODMR system was integrated in a widefield-TIRF microscope. An advanced ODMR method was successfully implemented with improved sensitivity. Additionally, 5V, 1ms biomimicking pulses magnetic field was measured by continuous-wave ODMR, serving as a proof of concept for neuronal action potential sensing.

Which topic best fits your talk?

Optics and Photonics

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