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Fluorescence model for Nitrogen Vacancy Centers

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In this presentation I will show the actual state-of-the-art of our Nitrogen Vacancy center in diamond (NV) platform and develop a theoretical and phenomenological model to evaluate the expressions for the probability $p(n,t)$ that n photons are spontaneously emitted in a given time t by a NV under non-resonant excitation from a 532nm laser and resonant MW radiation. This allows for a better understanding and characterization of this important quantum system and can be extended to other quantum defects, such as SiC. These results pave the way for optimized protocols to enhance the sensitivity and coherence of these quantum platforms for quantum sensing and quantum computing.

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