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Single photon emission from NV defects in diamond

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Solid-state based single photon systems are at the heart of the second quantum revolution. Particularly NV^- defects in diamond, due to their emission properties and that they can easily be integrated to current and scalable optical networks. The fluorescence from the excitation of NV defects in diamond has been studied extensively. It has been shown that the excitation of these quantum systems generates non-classical states applicable in a variety of fields. This has enhanced the ambition of building quantum-based technological devices. In this study, we engineer NV defects in well-defined isolated regions within a pure type IIa diamond sample via ion implantation. We then characterize the fluorescence and photon distribution from the NV defects. Ultimately, this will allow us to fabricate isolated NV defects at desired regions for easy access for applications.

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