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Nonblinking green emission from single H3 color centers in nanodiamonds JUI-HUNG HSU, National Sun Yat-sen University, WEI-DE SU, KAI-LIN YANG, Kao-Yuan University, YAN-KAI TZENG, HUAN-CHENG CHANG, Academia Sinica — We present a work that investigates the emission properties of single color centers in natural diamond nanoparticles for potential use as single photon sources and photostable biomarkers. Two emitters, H3 and H4, were identified by their sharp zero-phonon lines at 503 nm and 496 nm, respectively, in the photoluminescence spectra. Using a modified Hanbury Brown and Twiss setup, we observed complete photon antibunching for the H3 center. No fluorescence blinking was detected for a single H3 emitter on the ms timescale, indicating weak coupling between the electronic transition 1A1$\leftrightarrow$1B1 and adjacent metastable states of this nitrogen-vacancy-nitrogen point defect.

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