

Abstract Submitted  
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**Loading an Optical Trap with Diamond Nanocrystals Containing Nitrogen-Vacancy Centers from a Surface** JEN-FENG HSU, PENG JI, M. V. GURUDEV DUTT, BRIAN R. D'URSO, Univ of Pittsburgh — We present a simple and effective method of loading particles into an optical trap. Our primary application of this method is loading photoluminescent material, such as diamond nanocrystals containing nitrogen-vacancy (NV) centers, for coupling the mechanical motion of the trapped crystal with the spin of the NV centers. Highly absorptive material at the trapping laser frequency, such as tartrazine dye, is used as media to attach nanodiamonds and burn into a cloud of air-borne particles as the material is swept near the trapping laser focus on a glass slide. Particles are then trapped with the laser used for burning or transferred to a second laser trap at a different wavelength. Evidence of successful loading diamond nanocrystals into the trap presented includes high sensitivity of the photoluminescence (PL) to the excitation laser and the PL spectra of the optically trapped particles

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