

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**A Light-Matter Interface with NV Centers** BRENDAN SHIELDS, NATHALIE DE LEON, Harvard University Department of Physics, BIRGIT HAUSMANN, Harvard University School of Engineering and Applied Sciences, YIWEN CHU, Harvard University Department of Physics, MICHAEL BUREK, Harvard University School of Engineering and Applied Sciences, PATRICK MALETINSKY, Institute of Quantum Electronics, ETH Zurich, QIMIN QUAN, Harvard University School of Engineering and Applied Sciences, ALEXANDER ZIBROV, Harvard University Department of Physics, HONGKUN PARK, Harvard University Department of Chemistry, MARKO LONCAR, Harvard University School of Engineering and Applied Sciences, MIKHAIL LUKIN, Harvard University Department of Physics — NV centers in diamond offer much promise as solid state qubits for scalable quantum communication and information processing. However, for bulk diamond systems the low collection efficiency and large phonon sideband emission represent substantial limitations for applications in quantum information science. In this talk we will describe the realization of nanoscale photonic cavities containing NV centers with desired optical properties. The experimental realization of spontaneous emission control and strong coupling regime of cavity QED will be discussed.

Brendan Shields  
Harvard University Department of Physics

Date submitted: 10 Nov 2011

Electronic form version 1.4