

**Enhanced non-classical light generation
by a photonic-crystal one-atom laser**

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Non-classical light generation by a single-atom laser in a photonic crystal is investigated. It is shown that the ability to engineer the quantum optical characteristics in coherent light-matter interactions through suitable photonic crystal architectures facilitates light generation characterized by pronounced photon anti-bunching and sub-Poissonian photon statistics, and strongly enhanced relative to that from a one-atom laser in a conventional optical cavity. These results suggest the possibility to employ a photonic-crystal one-atom laser as a highly-efficient single-photon source, and the potential of photonic crystals for applications in quantum information technology.