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And this abstract can also go in the sorting categories 6.9 and 6.11.

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Nonlinear optical effects and Hong-Ou-Mandel interference in cavity quantum electrodynamics IMRAN M. MIRZA, Department of Physics, University of Michigan, Ann Arbor USA, STEVEN J. VAN ENK, Oregon Center for Optics, Department of Physics, University of Oregon, USA — Pure quantum interference among single photons is one of the key ingredients to perform linear optics quantum computation (LOQC). The Hong-Ou-Mandel interference (HOMI) [C. K. Hong, Z. Y. Ou and L. Mandel, Phys. Rev. Lett. 59, (18), 2044-2046 (1987)] i.e. complete destructive interference between two identical and indistinguishable photons simultaneously entering input ports of a 50/50 beam splitter, is a well-known example in this context. In this talk, I'll present our theoretical study of HOMI in a coupled Jaynes-Cummings array. In particular and by applying quantum jump/trajectory formalism, I'll focus on how partial quantum interference between two photons survive both non-linearities produced by two-level emitter and spectral filtering due to optical cavities in our coupled cavity array setup [Imran M. Mirza and Steven J. van Enk, Opt. Comm. 343, 172-177 (2015)]. Along with LOQC, this work is crucial from the perspective of exploiting coupled cavity arrays to store single photons reliably (without altering their temporal and spectral traits) [Imran M. Mirza, Steven J. van Enk and Jeff Kimble, JOSA B, 10, 2640-2649, (2013)].

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