

## Generation of narrow-band correlated photon pairs by spontaneous down conversion in a cavity

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### Abstract

The problem of generating a narrow-band biphoton field during spontaneous parametric down conversion of light in a quadratic nonlinear medium in a cavity is discussed. It is shown that, in the case of double resonance (for signal and idle fields), the form of the single-photon wave packet is biexponential and has a half-width determined by the photon life time in the cavity. An experiment is carried out on the generation of narrow-band biphotons in a crystal of lithium iodine with I-type matching in a frequency degenerate collinear regime. The second-order correlation function of the cavity-enhanced biphotons is measured using the electric nanosecond time delay line. © 2009 Allerton Press, Inc.

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