

## Study of Nonpolaritons in a Kerr Nonlinear Optical Resonator

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Abstract: We find that in a Kerr nonlinear optical resonator, the photon system possesses a new kind of quasiparticle, the nonpolariton. The existence of nonpolaritons should be testified by observing the energy density dependence of the velocity and squeezing of nonpolaritons. As we have investigated, the transition energy density of a Kerr nonlinear optical resonator is larger than that of a normal state.

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Key words: Kerr nonlinear resonator, nonpolariton, average energy density

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