

Abstract Submitted
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Spontaneously generated coherence effects in an inverted Y-type system JIANBING QI, Penn State University — We investigate the spontaneous emission from the upper excited state of an inverted Y-type atomic system coupled by three coherent fields. We use the Schrödinger equation to calculate the probability amplitudes of the wave function of the system and derive an analytical expression of the spontaneous emission spectrum to trace the origin of the spectral features. Spectral features of the spontaneous emission depend on the amplitude of the coupling fields and the preparation of the initial quantum state of the atom. The number of spectral components, the spectral linewidth, and the relative height of each spectral component depend on the physical parameters of the system and the external fields. A variety of quantum interference effects, such as spectral line narrowing, spectrum splitting, and dark resonance, can be observed.

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