

ONE-PHOTON SCATTERING BY AN ATOMIC CHAIN IN ONE- AND TWO-MODE RESONATORS

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S u m m a r y

A chain of N identical two-level atoms coupled with the electromagnetic field, prepared via a single-photon Fock state, is investigated. It is found that, if the interaction between atoms is negligible, than the obtained dynamic equations for the probability amplitudes allow, in a certain sense, an interpretation of the dynamics of states in the classical fashion in terms of a superposition of oscillatory modes of the system under study. The derived equations reveal how a space configuration of the system of atoms affects the dynamics of the atomic states, particularly the “decay” rates of separate atoms and the system as the whole.