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Coherent control of elastic and Raman fluorescence channels in 3-level system SHAOYAN GAO, OLGA KOCHAROVSKAYA, Department of Physics, Texas A&M University, College Station, Texas 77843, USA — We consider a 3-level atomic system interacting with two coherent fields in the ladder configuration. Namely, the probe field couples the ground and first excited state while the driving field interacts with two excited states. In the case of sufficiently strong driving field the fluorescence intensity at the Raman transition may greatly exceed the intensity in the elastic channel even when the decay rates for both channels are equal. The effect is due to quantum interference in fluorescence. In the dressed state basis, quantum interference is constructive in the Raman transition and destructive in the elastic channel.

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