

Abstract Submitted
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Non-adiabatic effects induced by the coupling between Raman modes VISHESHA PATEL, SVETLANA MALINOVSKAYA, Stevens Institute of Technology — We study the effects of coupling between the vibrational modes on population dynamics upon application of femtosecond chirped laser pulses. In our model, the ground states of the two coupled TLSs are nondegenerate and the relative phase between them is zero. Chirp of the pump and Stokes pulse is same in the magnitude and opposite in the sign for the whole pulse duration. Under these conditions, the exact solution obtained in the Schrödinger representation gives a mixed population distribution in the TLSs at the end of pulse resulted from non-adiabatic dynamics. However, the population for the uncoupled TLSs shows population inversion under the same conditions. Dressed state analysis is performed to help in understanding and interpretation of the results.

Vishesha Patel
Stevens Institute of Technology

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