

# Collapse and revival in inter-band oscillations of a two-band Bose-Hubbard model

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We study the effect of a many-body interaction on inter-band oscillations in a two-band Bose-Hubbard model with external Stark force. Weak and strong inter-band oscillations are observed, where the latter arise from a resonant coupling of the bands. These oscillations collapse and revive due to a weak two-body interaction between the atoms. Effective models for oscillations in and out of resonance are introduced that provide predictions for the system's behaviour, particularly for the time-scales for the collapse and revival of the resonant inter-band oscillations.

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