

World Congress on **QUANTUM PHYSICS**

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Subharmonics and superharmonics of the weak field in a driven two-level quantum system:**Vibrational resonance enhancement****Prasun Sarkar***Indian Association for the Cultivation of Science (IACS), India*

We consider a quantum two-level system in bichromatic classical time-periodic fields, the frequency of one of which far exceeds that of the other. Based on systematic separation of timescales and averaging over the fast motion a reduced quantum dynamics in the form of a nonlinear forced Mathieu equation is derived to identify the stable oscillatory resonance zones intercepted by unstable zones in the frequency-amplitude plot. We show how this forcing of the dressed two-level system may generate the subharmonics and superharmonics of the weak field in the stable region, which can be amplified by optimization of the strength of the high frequency field. We have carried out detailed numerical simulations of the driven quantum dynamics to corroborate the theoretical analysis.

Biography

Prasun Sarkar have been working in Indian Association for the Cultivation of Science (IACS) Kolkata, India, as a post doc fellow. But, the tenure is over and I am looking for a job or research position, elsewhere.