Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Quantum Accelerator Modes at higher order resonances VIJAYASHANKAR RAMAREDDY, Oklahoma State University, GHAZAL BEHINAEIN, ISHAN TALUKDAR, PEYMAN AHMADI, GIL SUMMY — Quantum Accelerator Modes (QAM) are produced by subjecting cold atoms to standing wave pulses, when these pulses are applied in the direction of gravity. A group of atoms get accelerated. Normally, QAMs are seen whenever pulse period is choosen close to an integer multiple of a time called the half Talbot time. These times are referred to as primary resonance times [1]. We, using BEC, show for the first time that QAMs can be observed at rational fractions of Talbot time, called higher order resonance times. The details and the latest experimental data will be presented. [1] G. Behin-Aein, V. Ramareddy, P. Ahmadi, G. S. Summy, Phys. Rev. Lett. (accepted for publication), arXiv physics/0609203.

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Date submitted: 20 Nov 2006 Electronic form version 1.4