Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Controlling the Ratchet Effect for Cold Atoms ARJENDU PATTANAYAK, Carleton College, ANATOLE KENFACK, MPIPKS Dresden, JIANG BIN GONG, National University of Singapore — Low-order quantum resonances manifested by directed currents have been realized with cold atoms. Here we show that by increasing the strength of an experimentally achievable delta-kicking ratchet potential, quantum resonances of a very high order may naturally emerge and can induce larger ratchet currents than low-order resonances, with the underlying classical limit being fully chaotic. The results offer a means of controlling quantum transport of cold atoms

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Date submitted: 22 Jan 2009 Electronic form version 1.4