

Abstract Submitted  
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**Quantum chaos experiments using interacting atoms in a BEC**

RAJENDRA SHRESTHA, GIL SUMMY, Oklahoma State University — The delta-kicked rotor has been one of the workhorses of both theoretical and experimental studies of quantum chaos. Most experimental work has been accomplished using cold atoms exposed to pulses from standing wave optical potentials. Atoms in these systems are assumed to be independent particles even in experiments done with dilute gasses of Bose-Einstein condensates where atomic collisional interactions can be ignored. Nevertheless, theoretical work has suggested that interactions can play a significant role in modifying the behavior of this system. The presence of atomic collisions adds non-linearity to the Schrodinger equation, making it more reminiscent of classical chaos. We will present results from experiments carried out using Rb87 BECs which have had the atomic interactions manipulated using a Feshbach resonance.

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