

Abstract Submitted
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Experimental Studies of a Kicked BEC BRIAN TIMMONS, PEYMAN AHMADI, GIL SUMMY, Oklahoma State University — In this poster we will present results of an experiment in which a pulsed off resonant standing light wave is incident upon an all optical BEC of Rb-87 atoms. This is related to experiments on the quantum delta kicked rotor (QDKR) that have been performed with cold atoms. These experiments have observed dynamical localization [1] and quantum accelerator modes [2]. In our experiments we use an all optical BEC which is exposed to a standing wave generated by a YAG laser. Importantly, because we can control the motion of the standing wave, it is possible to create a variety of different atomic dynamics. By using BEC instead of cold atoms we take advantage of an initial well defined state and the inter-atomic interactions. [1] F. L. Moore, J. C. Robinson, C. Bharucha, P. E. Williams, and M. G. Raizen, *Phys. Rev. Lett.* **73**, 2974 (1994) [2] M. K. Oberthaler, R. M. Godun, M. B. d’Arcy, G. S. Summy, and K. Burnett *Phys. Rev. Lett.* **83**, 4447 (1999).

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