Abstract Submitted
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Loschmidt's Cooling VIJAYASHANKAR RAMAREDDY, ISHAN TALUKDAR, GIL SUMMY, Physics Department, Oklahoma State University, Stillwater, OK — A quantum δ-kicked rotor can be understood theoretically using a kick to kick Floquet operator which has both kicking and free evolution terms. If time reversal is performed after t kicks, (by changing the pulse period and phase of the potential) the evolution of the system returns to the initial distribution in the next t kicks and results in a narrowing of the distribution which is equivalent to cooling [1]. The temperature has been predicted to go down by several orders of magnitude. We explore the experimental implementation of this cooling with a Bose-Einstein condensate kicked by a standing light wave. [1] J. Martin et. al. arXiv:0710.4860 (2007).

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