

“The versatile atom optical delta-kicked rotor”

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The delta-kicked rotor (DKR) has been studied for many years through experiment and theory, providing numerous insights into the subject of chaos. Much of this interest was motivated by the development of a readily realizable model of the delta-kicked rotor: laser cooled atoms or BECs exposed to a spatially and temporally periodic potential generated by a standing light wave. Such a system has the advantage that it can be tuned between classical and quantum regimes, making it an ideal tool for studying the quantum-classical transition. In this talk I will give an overview of this field as well as describing in detail some of the recent experimental developments such as quantum ratchets and the use of "fidelity" to observe quantum resonances. I will discuss how the latter in particular may have applications in metrology.