SFB/TRR 21 - Seminar

13. Oktober 2014, Stuttgart

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A Single Ion Heat Engine

Despite thermodynamics being a theory of collective properties of large particle ensembles we study the thermodynamic behaviour of single particles and their interactions. Therefore we use a nano heat engine consisting of one single ion. A new designed ion trap allows the conversion of thermal energy into a directed coherent motion in an Otto cycle. This system is well-suited for studying quantum thermodynamics and enables to raise the efficiency of the cycle by special engineered heat bathes taking adventage of quantum effects.

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