

Einladung
zum
Physikalischen Kolloquium
Montag, 27.06.2016
16:15 Uhr in N24/H13



Professor Dr. Kilian Singer

Experimentalphysik I
Universität Kassel

Experimental realization of a single-ion heat engine

Thermodynamic machines can be reduced to the ultimate atomic limit [1], using a single ion as a working agent. The confinement in a linear Paul trap with tapered geometry allows for coupling axial and radial modes of oscillation.

The heat-engine is driven thermally by coupling it alternately to hot and cold reservoirs, using the output power of the engine to drive a harmonic oscillation [2].

From direct measurements of the ion dynamics, the thermodynamic cycles for various temperature differences of the reservoirs can be determined [3] and the efficiency compared with analytical estimates.

[1] J. Rossnagel et al., "A single-atom heat engine", Science 352, 325 (2016).

[2] O. Abah et al., Phys. Rev. Lett. 109, 203006 (2012).

[3] J. Rossnagel et al., New J. Phys. 17, 045004 (2015)

Ab 16.00 Kaffee, Tee und Kekse vor dem Hörsaal H13

Organisation: Prof. Dr. F. Jelezko, Tel. 23750

Host: Prof. Dr. J. Hecker-Denschlag, Tel. 26100, off.: 26101