

# Resonances in dissipative optomechanics with nanoparticles: Sorting, speed rectification and transverse cooling

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**Reference:**

arXiv:1303.2522v1 [cond-mat.mes-hall]

**URL:**

<http://arxiv.org/abs/1303.2522> [2]

The interaction between dielectric particles and a laser-driven optical cavity gives rise to both conservative and dissipative dynamics, which can be used to levitate, trap and cool nanoparticles. We analytically and numerically study a two-mode setup in which the optical potentials along the cavity axis cancel, so that the resulting dynamics is almost purely dissipative. For appropriate detunings of the laser-drives, this dissipative optomechanical dynamics can be used to sort particles according to their size, to rectify their velocities and to enhance transverse cooling.

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