# From strongly coupled dusty plasma to active Brownian motors: State of the art and future prospects

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When laser radiation effects on charged (Coulomb) Brownian particles of micron size levitating in plasma, viscous liquid or superfluid helium, complex particle motion can be observed if they absorb radiation energy. Such particles can be considered as active Brownian motors, the movement of which is controlled by radiation.

The changes in entropy and entropy fluxes in systems of active Brownian motors in a high-frequency discharge plasma were experimentally studied when exposed to laser radiation of varying intensity, under conditions when the number of particles in the structure depended on the effect of laser radiation.

An experimental study of the energy storage mechanism has been carried out for a drop of an emulsion of complex composition (active Brownian motor) containing absorbing inclusions (active Brownian particles) inside.

The effect of intra-droplet motion of light-absorbing particles upon changes in entropy and entropy fluxes for an active Brownian motor (drops of an emulsion of complex composition) during its movement under the influence of laser radiation of varying intensity has been experimentally studied. Estimates of the entropy outflow for different laser radiation intensities are carried out.

The formation and dynamics of active Brownian motors in superfluid helium levitating in an inhomogeneous magnetic field under the influence of laser radiation of varying intensity has been experimentally studied.

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