Efficiency considerations for colloidal active matter

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Our research is grouped around microscopic colloidal active matter, or tiny artificial agents capable of moving around and performing simple tasks. The active agents are colloidal particles that frequently have some catalytic ability, so they asymmetrically enhance a chemical reaction in their surrounding and thereby create fluid flows that result in propulsion.

It is very relevant to understand how energy conversion on the microscale affects the motion of our particles and both thermodynamic and kinetic influences become important. In order to evaluate efficiencies, we generally look at an energy balance, how much work per time was consumed to get a certain output? Here, we want to discuss if this is actually the right parameter to evaluate flow generation on the microscale.

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