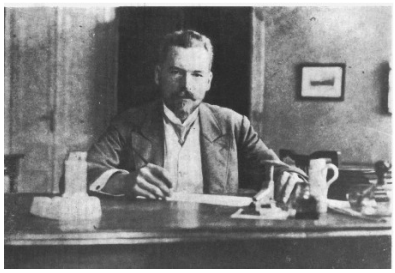

Contribution ID: **17** Type: **Poster**

# Microscopically reversible active dynamics at the nanoscale

*Sunday, 18 September 2022 17:00 (3 minutes)*

Catalytically active nanoparticles are envisioned as principal components for artificial nanomotors. However, theory and experiments report conflicting findings regarding their dynamics. The lack of consensus is mostly caused by a limited understanding of self-propulsion mechanisms at the nanoscale. Here, we focus on a fundamental symmetry of kinetics of catalytic reactions powering the self-propelled motion: we shall assume the microscopic reversibility of this kinetics and demonstrate significant and qualitative effects stemming from this assumption that arise if nanoparticles are subjected to an action of external forces. Since microscopic reversibility is a generic property of several chemical reactions, the results can provide new insights into the dynamics of a broad class of nanoparticles.

[1] A. Ryabov and M. Tasinkevych, Soft Matter 18, 3234-3240 (2022), DOI: 10.1039/D2SM00054G

[2] A. Ryabov and M. Tasinkevych, arXiv:2206.00616 (2022), DOI: 10.48550/arXiv.2206.00616

**Primary authors:** RYABOV, Artem (Charles University); TASINKEVYCH, Mykola (Nottingham Trent University)

**Presenter:** RYABOV, Artem (Charles University)

**Session Classification:** Poster session party