Colloquium

MAX PLANCK INSTITUTE
FOR DYNAMICS AND
SELF-ORGANIZATION

Active matter: from a stochastic single particle engine to emergent correlations in many-particle systems

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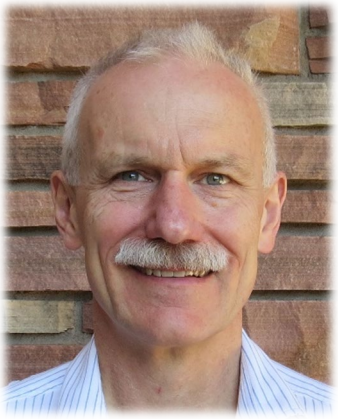

I will present two results from the opposite ends of the spectrum of active matter systems. First, I will show how a nonreciprocal coupling between active particle's self-propulsion and position can be used to extract useful work from a single active particle maintained at constant temperature [1]. Second, I will review recent results on long-ranged velocity correlations in dense athermal active matter systems without explicit velocity aligning interactions [2]. I will show that the range of velocity correlations in fluid-like active systems is determined by the combination of the self-propulsion and the virial bulk modulus that originates from repulsive interparticle interactions.

[1] G. Szamel, Phys. Rev. E 102, 042605 (2020)

[2] G. Szamel and E. Flenner, EPL 133, 60002 (2021)

Wednesday, June 14th, 2023 at 2:15 pm

MPI-DS Prandtl lecture hall and Zoom
Meeting ID: 959 2774 3389
Passcode: 651129, direct link

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