The world surrounding us, including all living and various artificial systems, mostly operates far from thermal equilibrium. Not being constrained by the narrow confines of equilibrium, allows for richer and more complex fluctuations and dynamics. A particularly intriguing phenomenon is the emergence of non-conservative interactions, such as nonreciprocal or time-delayed interactions, which are common in fish swarms, flocks of birds, but also in biological and chemical processes at the microscale. We analyse from the perspective of statistical physics the implications of such interactions on phase transitions and collective behaviour [1-3]. We further discuss the motion of particles in correlated media [4], and consider control schemes that optimize energy efficiency of microscale processes [5].


Thursday, July 11th, 2024 at 11:00 am
Prandtl lecture hall
and Zoom Meeting ID: 959 2774 3389
Passcode: 651129, direct link