

Speaker: Jörn Dunkel

Affiliation: Massachusetts Institute of Technology (MIT)

Time: 3:00 pm – 4:00 pm

Title: Towards programmable living materials and quantitative models of active matter

Abstract: Over the last two decades, major progress has been made in understanding the self-organization principles of active matter. A wide variety of experimental model systems, from self-driven colloids to active elastic materials, has been established, and an extensive theoretical framework has been developed to explain many of the experimentally observed non-equilibrium pattern formation phenomena. Two key challenges for the coming years will be to translate this foundational knowledge into functional active materials, and to identify sparse quantitative models that can inform and guide the design and production of such materials. Here, I will describe joint efforts with our experimental collaborators to realize self-growing bacterial materials, and to implement computational model inference schemes for active and living systems dynamics.