



Seminar/Talk

The physics of cooperative transport in groups of ants

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Anyone who has moved furniture together with friends will appreciate that cooperative transport requires some non-trivial communication. Yet ants are adept at collectively moving objects several times their size. How they do so has long been a subject of research, but recent advances have suggested that this communication occurs through the forces the ants exert on the load. This implies that the collective transport problem can be mapped to an Ising model, in which decisions by individual ants are described by spin flips. Within this framework, the group is poised in the vicinity of the transition between uncoordinated and coordinated motion. It thus profits from both internal coordination and maximal responsiveness to external information, mediated by temporarily informed leader ants. Here, we review the implications of these findings for cooperative transport, and discuss the way in which a more complete multiscale understanding of such systems would require the development of a new formalism that combines statistical physics of interacting particles with the cognitive capabilities of individuals.

Tuesday, August 6, 2019 11:00am - 12:00pm

Mondi Seminar Room 3, Central Building



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