Eugene Wigner Colloquium

joint event of GRK 1558 and SFB 910

SFB 910

Prof. Ben Fabry

Friedrich-Alexander-Universität Erlangen-Nürnberg

"Forces and movements in crowded environments: from penguin huddles to tumor cells"

For Emperor penguins (*Aptenodytes forsteri*), huddling is the key to survival during the Antarctic winter. Penguins in a huddle are packed so tightly that individual movements become impossible, reminiscent of a jamming transition in compacted colloids. It is crucial, however, that the huddle structure is continuously reorganized to give each penguin a chance to spend sufficient time inside the huddle, compared with time spent on the periphery. To solve this problem, Emperor penguins move collectively in a highly coordinated manner to ensure mobility while at the same time keeping the huddle packed. Over time, these small movements lead to large-scale reorganization of the huddle. Our data show that the dynamics of penguin huddling is governed by intermittency and approach to kinetic arrest in striking analogy with other non-equilibrium systems, including the cytoskeleton of living cells, and multicellular tissue.

GRK1558 research training group

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