**Biological synchronization and aggregation emerging from random processes**

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We present two individual based models where social phenomena emerge from purely random behaviour of the agents, without introducing any deterministic "social force" that would push the system towards its organized phase. Instead, organization on the global level results merely from reducing the individual noise level in response to local organization, which is induced by stochastic fluctuations. The first model describes the experimentally observed collective motion of locust nymphs marching in a ring-shaped arena and is written in terms of coupled velocity jump processes. The second model was inspired by observations of aggregative behaviour of cockroach nymphs in homogeneous environments and is based on randomly moving particles with individual diffusivities depending on the perceived average population density in their neighbourhood. We show that both models have regimes leading to global self-organization of the group (synchronization and aggregation). Moreover, we study the mean-field limits for both models, leading to PDEs with nonlocal nonlinearities, and, in the second model, with possibly discontinuous coefficients.