

Collective properties of active polar and nematic particles

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Abstract

Active or self-propelled particles are in fashion today in models for the collective motion of animals, bacteria, cells, molecular motors, as well as driven granular matter or even for the swarming behavior of robots. I will review recent results obtained on minimal microscopic models of interacting polar and apolar (nematic) active particles, stressing the (probably) universal properties of the emerging collective dynamics. If time allows, recent proposals for mesoscopic descriptions of these systems will be discussed.