

Locomotion and self-propulsion in biological and bio-inspired systems: recent results from the mechanics of active matter

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Active matter is a broad field with many potential applications. A common thread underlying many of the current research lines is the study of systems powered by some internal energy source, as in the case of organisms moving thanks to food metabolism. In fact, self-propelling systems need to overcome the resistance of the surrounding medium, drawing the required energy from internal sources. The study of locomotion and self-propulsion in biological and bio-inspired artificial system appears, therefore, as an ideal testing ground to put the concepts and tools of active matter at work.

We will report on recent progress coming from case-studies on the motility of unicellular organisms and bio-inspired micro-robots, studied from the point of view of the mechanics of active matter.