

Active matter physics

Michiko Shimokawa [Physics and Mathematics Course]

Motion of cells, schools of fish, flocks of birds or animals, human crowds and traffic jams. Living things show various collective motion on a wide range of scales. They can be treated as many-body problem of interacting self-propelling elements from a physics or mathematics point of view. Active matter physics, the field of physics treating such collective motions, is not only an interesting field of fundamental nonlinear science but also an important field connected to accident and disaster prevention, fisheries and environmental protection. I study various collective motions through experiments using camphor boats which move spontaneously on a water surface.

keyword: active matter, surface tension, self-propelled particle