

2012 Special Program in Applied Mathematics and Applied Mechanics

Active colloids under external fields

2012 - 05 - 23 (Wed.)

15:00 - 17:00

308, Mathematics Research Center Building (ori. New Math. Bldg.)

Self-propulsion arouses interests among scientists because of its interesting dynamics, physical mechanism, and possible applications, such as nano-machine and drug delivery. In this presentation, I will report the phenomena about how passive colloids can be turned into active colloids under different external fields. Active colloids driven by self-thermophoresis under laser irradiation and driven by induced charge electrophoresis (ICEP) under AC fields will be covered. Active colloids under external fields show unusual properties, such as multiple time scales of motion and modes of motion naturally occurring in constrained conditions. Some interesting collective motion of active colloids due to different driven methods will also be discussed. This new active colloidal system may help to bridge physical colloids to active biomolecules such as biomotors.



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