

Seminar

Self-assembly of Anisotropic Colloids

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“Colloid” is a general term that is used to describe particles whose sizes vary typically from 1-1000nm. Poised between the microscopic and the atomic world they are ideally suited to mimic the general phenomenon that occur at the atomic and molecular scales and render them visible at microscopic scales. For example, hard colloidal spheres are known to self-assemble into periodic close-packed crystalline structures such as face-centred cubic or hexagonal close-packed. It is interesting to find ways to manipulate the crystal symmetry and to generate a library of colloidal self-assemblies with different architectures. This can be done by introducing anisotropy either in the interaction potential or in the shape of the particle itself.

I will discuss some interesting cases where by applying external magnetic field, we have been able to tune the dipolar interactions as well as the self-assembled structures formed by magnetic spherical particles. Further I will also discuss the situation where a change in the shape of the colloids from isotropic (sphere) to anisotropic (like cubes and ellipsoids) leads to rich diversity in their self-assembly behaviour.

Wednesday, Jan 10th 2024

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Auditorium, TIFR-H