

Laboratoire PECSA - Physicochimie des Electrolytes, Colloïdes, et Sciences Analytiques - UMR 7195 UPMC/CNRS/ESPCI

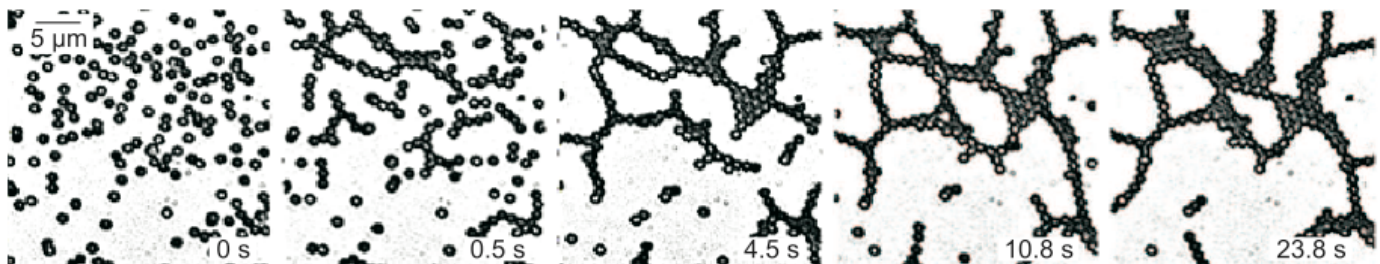
SEMINAIRE

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Field-induced self-assembly of suspended colloidal membranes

We report experiments that probe self-assembly of micrometer-size colloids into one-particle-thick, robust, and self-healing membranes. In a magic-angle precessing magnetic field, superparamagnetic spheres experience isotropic pair attraction similar to the van der Waals force between atoms. But the many-body polarization interactions among them steer an ordered aggregation pathway consisting of growth of short chains, cross-linking and network formation, network coarsening, and consolidation of membrane patches. We theoretically explain membrane stability, their elastic and self-healing properties and the observed aggregation pathway. This generic scenario can be induced in any particles of large enough susceptibility



Mercredi 2 décembre 2009 à 11 heures

A la bibliothèque du laboratoire PECSA

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