Self-assembly of isotropic and anisotropic colloidal particles trapped at fluid interfaces

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Colloids at fluid interfaces attract particular attention because of a wide range of applications, such as stabilization of emulsions and foams or creation of particular 3D structures using layer-by-layer deposition. Nevertheless, from the fundamental point of view, the discription of colloid self-assembly at interfaces represents a challenge, since the forces governing their phase behavior are more complex than in bulk suspensions. For example, additional interactions such as dipole-dipole repulsion or capillary attraction should be taken into account when describing the organization of particles at interfaces. The description becomes even more complex when the particles have some kind of anisotropy, such as non-spherical shape or distinct local chemical modification. Experimentally observed organization of isotropic and anisotropic particles at fluid interfaces will be discussed in the present contribution.