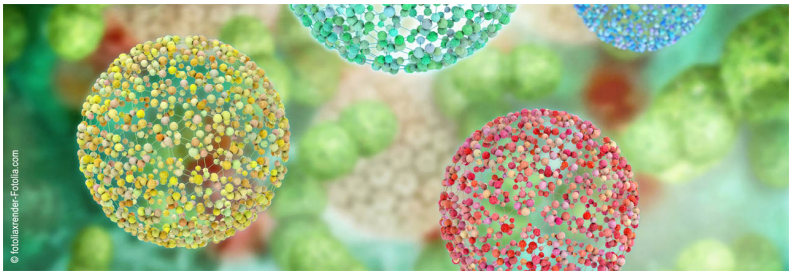

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Self-assembly of paramagnetic particles under time-varying magnetic field

In this work, we investigate experimentally the self-assembly of paramagnetic particles under time-varying magnetic field. More precisely, we study the dynamics of 2D aggregates formed from magnetic colloidal beads, with the aim of understanding the processes underlying their formation and evolution. This work has highlighted various aspects of the dynamics of the aggregates, in particular the dependence of their rotation speed to their size, the characteristics of the colloids used and the magnetic field applied[1, 2]. On the theoretical level, a model proposed in this work allows to describe and predict the observed rotational dynamics of these aggregates. Furthermore, we extend our study to the case of anisotropic magnetic particles obtained by cross-linking magnetic beads. Our simple system presents some analogy with living systems and could thus offer new perspectives for the understanding of mechanisms at play in biological systems, where similar dynamics are observed.

References
1 Mohammed Elismaili, Lydiane Bécu, Hong Xu et David Gonzalez-Rodriguez : Dissipative non-equilibriumdynamics of self-assembled paramagnetic colloidal
clusters. Here

2 Mohammed Elismaili, Lydiane Bécu, Hong Xu et David Gonzalez-Rodriguez : Rotation dynamics and internal structure of self-assembled binary paramagnetic colloidal clusters. Here

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