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Colloquium of the Physics Department of ENS

Lundi 23 Juin 2025, 13 :30
DPT-PHYS-ENS, salle ConfIV (Département de Physique de l'ENS - 24 rue Lhomond 75005 PARIS)
Domaines : physics

Titre : *Programmable Emulsions by Design*

Orateur : **Jasna Brujic (New York University)**

Résumé : *It has been a longstanding question how life has evolved to perform all the functions we know and love. Here we design and build an experimental toy model of droplets coated with DNA that are capable of exhibiting some life-like properties. Colloidal droplets are uniquely suited for the study of living processes because they are readily synthesized and can be observed in real space and real time - key attributes for unraveling the fundamental principles of self-organization and function. In conjunction with biological enzymes, our droplets execute logic operations needed to direct particle assembly into specific target constructs. More specifically, we investigate three exciting frontiers in materials research : folding of droplet chains (i.e. colloidomers), their assembly into hierarchical structures, and their active dynamics (e.g. opening and closing). We will demonstrate nonequilibrium mechanisms that can optimize their structure/function. This work plants the seed to create programmable microscopic machines that can walk, encapsulate, and eventually.*
