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DNA Origami Functionalized Colloids MATAN YAH BEN ZION, CORINNA MAASS, KUNTA WU, Center of Soft Matter Research, New York University, New York 10003, USA, RUOJIE SHA, NED SEEMAN, Department of Chemistry, New York University, New York 10003, USA, PAUL CHAIKIN, Center of Soft Matter Research, New York University, New York 10003, USA, SOFT MATTER PHYSICS TEAM, DNA NANOTECHNOLOGY, CHEMISTRY TEAM
— The design of self assembled colloids is limited by their spherical symmetry which gives rise to a spectrum of rotomers instead of a unique structure. We propose functionalizing colloids with DNA Origami which can speci cally bind to one another at a nanometric resolution in a prede ned angle using DNA sticky ends hybridization. As DNA Origami is a mesoscopic entity in its nature, with a typical size of ∼100nm, it is a natural candidate for mediating interactions between microscopic particles such as colloids. Using an elongated belt-like design we show for the first time specific binding between colloids by the Origami. It is also possible to control the binding orientation by aligning the sticky ends on the origami in a prochiral pattern creating new opportunities in colloidal self assembly.

Matan Yah Ben Zion
New York University

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