

Abstract Submitted
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Controlling assembly of micro- and nano-particle systems with DNA. DMYTRO NYKYPANCHUK, MATHEW MAYE, DANIEL VAN DER LELIE, OLEG GANG, Brookhaven National Laboratory — Addressable biological interactions provide attractive platform for rational self-assembly, however the strength of such interactions are often difficult to control. Here we present an approach where DNA molecules are used to balance attractive and repulsive interactions during particles assembly while preserving the interaction addressability. We show, that by changing the composition and structure of DNA shall of micro- (2 μm) or nanoparticles (10 nm), assembly kinetics, aggregate sizes, and the systems melting properties can be tuned. At constant environmental conditions, this strategy allows for rational control of interaction energy landscape for nano- and micro-systems in a wide dynamic range.

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