



Colloquium

Designing and Building Programmable Functional Matter

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Host: Carl Goodrich

How collections of building blocks efficiently organize into structures with high fidelity is a central question in both biology and materials science. Here we show that linear chains of DNA-functionalized colloidal droplets (ABAB...) successfully fold into unique 2d foldamer geometries [1], which in turn bind to form nets that can efficiently wrap into icosahedral shells in 3d using optimized temperature protocols. These colloidal capsids can then be opened and closed using enzymatic dynamics that write, cut, and modify the DNA interactions to assemble, disassemble, and reconfigure these structures. Finding such designable self-assembling systems presents a promising route to functional materials that serve a purpose, such as targeted drug delivery and reactive surfaces. Jasna is an experimental physicist and professor at New York University. Her work lies at the intersection of soft matter, biophysics, and materials, and she has recently developed a platform for model colloidal proteins through DNA-functionalized emulsions.

Monday, February 9, 2026 11:30am - 12:30pm

Raiffeisen Lecture Hall



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