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Modeling Lattice Structures of DNA-Coated Nanoparticles with Tetrahedral Linkers JOSHUA NEITZEL, Wesleyan University, Middletown, CT, OLEG GANG, Brookhaven National Laboratory, FRANCIS STARR, Wesleyan University — Much attention has recently focused on using DNA as a linking agent to engineer nanoparticle (NP) lattices with specific geometries. There has been success generating a broad range of crystal symmetries, but the formation of a tetrahedral or diamond lattice has been particularly challenging. We use molecular simulations to examine a combination of NP uniformly coated with DNA that connect via linking units that incorporate tetrahedral structure. We test the stability of spherical NP-DNA complexes with tetrahedral linkers in a 1:1 ratio, which allow for a variety of lattices, including a diamond structure. Previously postulated interpenetrating diamond lattices are also possible.

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