Abstract Submitted
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Design of Mao Tensegrity Triangles – Successful Prediction of Stable DNA Nanostructures.[1] WILLIAM B. SHERMAN[2], Department of Chemistry, New York University, JENS KOPATSCH, Department of Chemistry, New York University, PAMELA E. CONSTANTINOU, Department of Chemistry, New York University, NADRIAN C. SEEMAN, Department of Chemistry, New York University — One of the most promising motifs for crystal formation is the tensegrity triangle first developed by Mao and co-workers. This structure consists of three duplex domains "woven" across each other. Because the three edges of the triangle are not coplanar, it can serve as a fundamentally three-dimensional motif. This nonplanarity, however, makes the design of tensegrity triangles more complicated than most of the other DNA motifs built to date. We present a geometry-based method for estimating the strain associated with various tensegrity triangle edge lengths. Experiments confirm that the predicted low-strain structures form stably, while structures with strain larger than about 5% tend to form multimers easily.

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