

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Replication of nanoscale DNA patterns¹ CORINNA MAASS, TONG WANG, RUOJIE SHA, MIRJAM LEUNISSEN, REMI DREYFUS, NADRIAN SEEMAN, PAUL CHAIKIN — We present an artificial supramolecular system mimicking self-replication and information transmission strategies in nature, but without the aid of enzymes or equivalent biological mechanisms. Using DNA nanotechnology techniques, we can make DNA tiles with selective interactions based on complementary single-strand connections. A linear tile pattern distinguished by their connector sequences is transmitted to a subsequent generation of copies by connector hybridization. Longitudinal pattern formation and transverse copy attachment are well separated by different melting temperatures. We have achieved a faithful transmission of the pattern information to the second replication generation. We use AFM imaging to test for pattern fidelity and gel electrophoresis for quantitative yield analysis.

¹supported by a DAAD postdoc grant

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Date submitted: 19 Nov 2010

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