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NANOPARTICLE STRUCTURES UTILIZING DNA LATTICES

ABSTRACT OF THE DISCLOSURE

A laminar structure upon a substrate (1) is formed from a) a lattice layer (2) comprising DNA (deoxyribonucleic acid) segments arranged to form cells of the lattice layer (2), and b), at least one nanoparticle (3) being disposed within each cell of the lattice layer (2). The nanoparticles (3) are preferably of substantially uniform diameter not exceeding 50 nanometers A coating (6) may be applied to adhere the the particles (3) to the substrate (1) and to maintain their substantially uniform spaced-apart relationship. The DNA lattice layer (2) is fabricated using known automated synthesis methods, and is designed to contain specific nucleotide base sequences which cause the DNA to form an ordered array of openings. or lattice cells, by self-assembly. Self-assembly of the DNA lattice (2) may be at an air-liquid interface, or in solution.

FIG 3



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