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Formation of super arrays of periodic nanoparticles and aligned ZnO nanorods - simulation and experiments JAKUB RYBCZYNSKI, DEBASISH BANERJEE, Boston College, Dept. of Physics, MA, ADAM KOSIOREK, MICHAEL GIERSIG, CAESAR Institute, Bonn, Germany, ZHIFENG REN, Boston College, Dept. of Physics, MA — It had been demonstrated that large-scale honeycomb-like nanoparticle arrays could be fabricated inexpensively by the process of monolayer nanosphere self-assembly. Here we report that a double-layer masking procedure can be effectively used to overcome the restriction of honeycomb order in an array resulted from a monolayer mask. By varying the relative angle between the two layers, different arrangement of nanoparticles could be obtained. The relative angle can be directly controlled with the aid of diffraction patterns from illuminating the layers by a laser beam. Experimental results were fully confirmed by computer simulations. Using these nanoparticles as catalysts, we have grown arrays of aligned ZnO nanorods with various orders.

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