

Large-scale, 2D arrays of magnetic nanoparticles
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Large-scale, 2D arrays of perfectly ordered magnetic nanoparticles were prepared using nanosphere lithography. We modified the preparation method based on a self-assembly of latex particles on water surface. Using such particles, with a diameter from 100nm to 1 μ m, it was possible to prepare arrays over one square cm, with areas of over 50 μ m² without any structural defects. By the evaporation of nickel or cobalt periodic magnetic particle arrays were produced (see Figure 1). To change particle morphology, annealing was done at 900°C for 50 min. Modification of the distance between particles was also practicable by using double-layered masks.

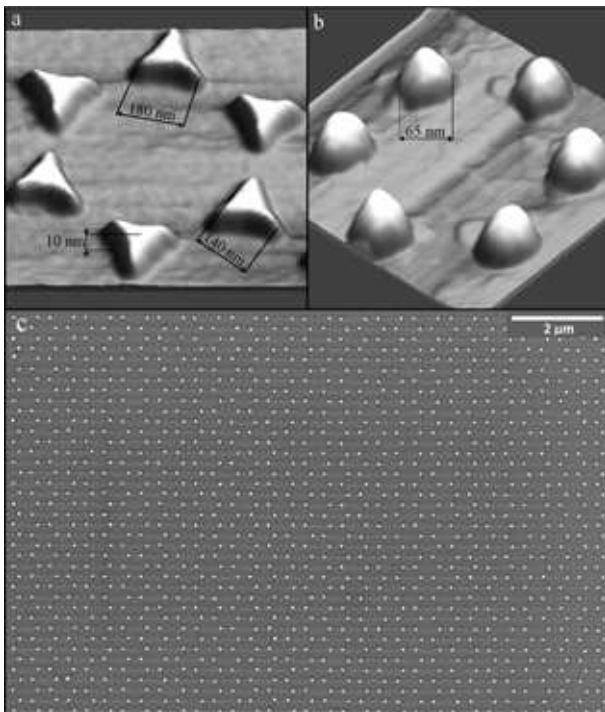


Fig. 1. The 10 nm high Ni quasi-triangular particles (a) exhibit, after annealing at 900°C for 40 min., high structure homogeneity (b, c).