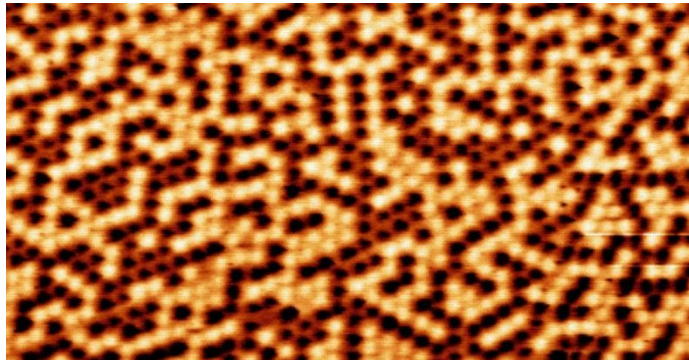


Modern Concepts and materials for magnetic data storage

Abstract

Magnetic nanostructures are of considerable interest both from the point of view of fundamental science as well as industrial applications. This is because of the novel magnetic properties that such nanostructures can exhibit and the possibility to engineer structures with specific properties. As a consequence, potential uses have arisen in a range of technological applications such as information storage called patterned media. Several ways to create regular nanostructure arrays do exist and combining patterned structures with the deposition of magnetic film systems with high anisotropy seems to be a promising way to achieve such media. In this presentation I will focus on FePt-based exchange couple composite (ECC) thin films and nanostructures. Films were transformed to the L_{10} ordered phase by rapid thermal annealing. Alternatively, the concept of percolated perpendicular media in which densely distributed pinning sites lead to smooth transition boundaries might be realized by the deposition of a magnetic film with perpendicular easy axis of magnetization onto self-assembled nanoporous membranes. In this case, each nanopore acts as a defect structure providing a site for nucleation and domain wall pinning.

If needed:



MFM image of a 270 nm particle monolayer covered by a perpendicular magnetic film.