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Preparation of monodisperse FCT FePt nanoparticles K.E. ELKINS, DAREN LI, J.P. LIU, Department of Physics, University of Texas at Arlington — Chemically synthesized FePt nanoparticles have drawn great attention for their potential applications in magnetic recording, nanocomposite magnetic materials and biomedical technology. However, the as-synthesized particles have FCC structure and therefore have low magnetic anisotropy. To obtain FCT structured FePt phase with high magnetocrystalline anisotropy, heat treatment is necessary for the FCC-FCT phase transition. The heat treatments, however, usually cause particle agglomeration and sintering. We use a controlled heat treatment with stable media in which the particles are isolated during the heat treatments. With this technique, complete FCC-FCT transition was realized and no considerable particle growth and agglomeration were observed. Magnetic hardening is obtained in the FCT structured nanoparticles.

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