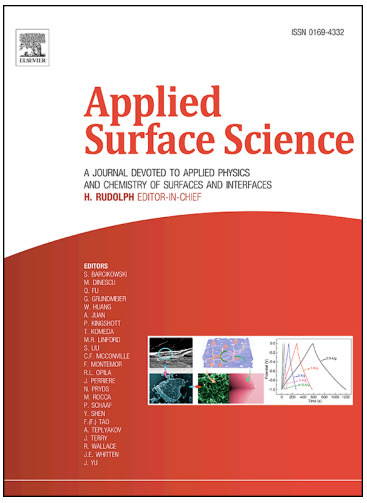

Full Length Article

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Abstract

The present work reports a novel strategy of assembling maghemite (γ-Fe_2O_3) nanoparticles (NPs) in mesoporous silica host for developing a highly efficient MRI contrast probe. Shrinkage of hydrophobic environment due to the continuous evaporation of chloroform from Chloroform-in-Water emulsions pushes the hydrophobic γ-Fe_2O_3 NPs towards the hydrophobic pores of silica spheres resulting in a water soluble dense assembly structure. Mesoporous silica only with straight pores is found to be suitable for this particular entrapment process, while with curved and twisted pores, NPs are found to be seated on the surface only. So-developed assembly system has retained the superparamagnetic behaviour of