ID de Contribution: **60** Type: **Non spécifié**

Monte Carlo Study of Collective Behavior of Magnetic Nanoparticle Systems

The collective behavior of magnetic nanoparticle systems at the low temperature is investigated very long, and it is promised potential in spintronic applications. In addition, some recent results found that the collective beahvior at the high temperature can open a new applied way in the biomedicine. However, our understanding about the origin as well as the difference of above behaviors is quite limitted. In this paper, we use the Monte Carlo simulation to show collective behavior at the low and high temperature of colloidal magnetic nanoparticle systems possessing the size distribution and the random anisotropy. The barrier distribution is extracted to consider effect of interparticle interaction and polydispersity on magnetic properties of the sample. Therefore, the role of the interaction and the polydispersity are showed clearly. At the low temperature, the dipolar interaction makes a decrease of the corecive field. While the blocking temperature increases along with the increase of the concentration. Beside, the dipolar interaction remains the blocking temperature even the applied field exceeds the anisotropy field. A comparison is also disscussed to show the applied potential of magnetic nanoparticle systems.

Auteur principal: Dr TRAN, Nguyen Lan (Ho Chi Minh City Institute of Physics)

Co-auteur: Prof. TRAN, Hoang Hai (Ho Chi Minh City Institute of Physics)

Orateur: Dr TRAN, Nguyen Lan (Ho Chi Minh City Institute of Physics)