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Research on nano-particle film preparation having a flexible magnetothermal response and good biocompatibility

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Flexibility magnetic is a topic of rapidly growing interest in both the scientific and engineering research due to its numerous potential in a broad range of applications. Previous assembly approaches for 2 dimensional magnetic iron oxide at the nanoscale are used by the layer by layer technology. Here, a strategy is introduced that exploits flexibility material for self-assembly of 2D thin film, and this material can be bent at different angels from 0 to 360. In alternating magnetic field with different elastic deformation of the film, there are obvious differences magnetothermal effects. Vibrating sample magnetometer shows that the material has good anisotropy. Low frequency impedance analyzer test results further demonstrate that it has a good magnetic response. Deformation of the nanoparticle film changed its impedance due to its nanoparticles arrangement. This film has a good hydrophilicity can be used for skin adhesion. Scanning electron micrograph shows that for different nanoparticle film deformation the nanoparticles space from each other has changed. Analysts believe that such particles pitch density that can have a very important effect on the magnetic coupling between the particles, resulting in different deformation having different magnetic response effects. In conclusion, we prepared a flexible nanoparticle film having a magnetic effect and good bio-compatibility. In future it may be used for skin adhesion of administration and control magnetic stimulation.

Biography

Fengguo Fan Southeast University is a PHD student at State Key Laboratory of Bioelectronics, Southeast University, School of Biological Science and Medical Engineering, China. His research field is Nano thin film assembly and electromagnetic effect.

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