

论文

利用LB技术采用循环压缩方法在不同基底表面制备FePt纳米粒子单层膜

徐斌, 王英, 张亚非

微米/纳米加工技术国家重点实验室, 薄膜与微细技术教育部重点实验室, 上海交通大学微纳米科学技术研究院, 上海 200030

摘要:

利用LB(Langmuir-Blodgett)技术, 采用循环压缩的方法在不同基底表面上制备FePt纳米粒子单层膜, 采用TEM和AFM等技术手段对其表面形貌进行表征. 研究表明, 采用循环压缩的方法可以大大提高单层膜的均匀性和致密性, 并且在不同的基底表面其成膜性能具有较大的差异.

关键词: LB技术 FePt纳米粒子 基底

Preparation of Langmuir-Blodgett Monolayer Film of FePt Nanoparticles on Different Substrates Using Cycling Compression Method

XU Bin, WANG Ying\*, ZHANG Ya-Fei

National Key Laboratory of Nano/Micro Fabrication Technology, Key Laboratory for Thin Film and Microfabrication of Ministry of Education, Institute of Micro and Nano Science and Technology, Shanghai Jiaotong University, Shanghai 200030, China

Abstract:

Recently, a lot of methods were devised to prepare an ordered arrangement of nanomaterials, such as self-organization, electrophoretic deposition, and Langmuir-Blodgett(LB), etc. The LB technique was proven a powerful and simple method to prepare the high-density nanoparticle monolayer and multiplayer film with controllable layer numbers and thickness. In this article, we introduced an improved LB method to fabricate the FePt nanoparticle monolayer film. The LB monolayer of FePt nanoparticles was fabricated on different substrates using a cycling compression method. The monolayers have a smooth surface and a high-density structure on hydrophobic surface as shown by the TEM and AFM image. The results show that the uniformity and stability of the monolayer can largely improve by this method, and the surface morphology of monolayers was varied between the substrates.

Keywords: LB technique FePt nanoparticle Substrate

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作者简介:

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