

Notes

溶液浇铸SEBS薄膜的相翻转

韩霞, 徐建, 刘洪来*, 胡英

(华东理工大学化学系国家重点化学工程联合实验室 上海 200237)

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摘要 本文利用敲击模式原子力显微镜对柔软的三嵌段共聚物聚苯乙烯-*co*-聚乙烯/丁烯-*co*-聚苯乙烯(SEBS)膜的成像进行了细致研究,发现该共聚物可发生微相分离形成约几十纳米的相畴,当用不同敲击力进行成像时,则很容易看到AFM图像由原图经中间过渡图到与原图完全相反的图像的转变过程。强力敲击不仅能够导致图像翻转的产生,而且可导致相畴尺寸和图像粗糙度的差别。我们认为针尖和样品间的吸引排斥作用以及针尖对柔软样品的压痕是这一现象产生的两种主要原因。

关键词 [嵌段共聚物膜](#), [相翻转](#), [原子力显微镜](#)

分类号

Image Contrast Inversion of a Solvent Cast SEBS Film

HAN Xia, XU Jian, LIU Hong-Lai*, HU Ying

Department of Chemistry and State Key Laboratory of Chemical Engineering, East China University of Science and Technology, Shanghai 200237, China

Abstract The image contrast inversion was investigated in detail when soft polymeric materials were imaged with tapping mode atomic force microscopy (TM-AFM). Solvent cast film of polystyrene-*block*-poly(ethylene/butylene)-*block*-polystyrene (SEBS) triblock copolymers was used as a model system in this study, which showed phase separation domains with a size of several tens of nanometers. AFM contrast reversal process, through positive image, to an intermediary and till negative image, could be clearly seen in height images of the soft block copolymer using different tapping force. The higher tapping force would lead to not only contrast inversion, but also the different size of the microdomains and different roughness of the images. Moreover, contrast inversion was explained on the basis of attractive and repulsive contributions to the tip-sample interaction and indentation of the soft domains.

Key words [copolymer thin film](#) [image contrast inversion](#) [atomic force microscopy](#)

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通讯作者 刘洪来 hliu@ecust.edu.cn

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