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应用色散力原理研究高分子薄膜的去湿润现象

(吉首大学物理科学与信息工程学院，湖南 吉首 416000)

Application of the Theory of Dispersion Forces to the Dewetting of Polymer Films

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- 摘要
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全文: PDF (758 KB) HTML (1 KB) **输出:** BibTeX | EndNote (RIS) **背景资料**

摘要 应用Dzyaloshinskii,Lifshitz,和Pitaevskii(DLP)理论研究了“空气/高分子薄膜/SiO2/Si”体系中色散力对薄膜表面去湿润的影响，计算了自由能的二阶导数、波长和生长率.研究结果表明：覆盖层可以改变基底的湿润性，延迟效应在某些情况下起着很重要的作用，在研究去湿润引起的高分子薄膜不稳定时必须考虑延迟效应.

关键词： 色散力 去湿润 延迟效应 波长 生长率

Abstract: The theory of Dzyaloshinskii,Lifshitz,and Pitaevskii (DLP) is applied to investigate the effects of dispersion forces in the dewetting of polymer films in the system of air,polymer,silicon oxide and silicon.The second derivate of the free energy,wavelength and growth rate are calculated.The results show that the coating can modulate the wettability of its substrate and the retarded effects can be significant sometimes.They should be taken into account to deal with the dewetting instability of the polymer films.

Key words: dispersion forces dewetting retarded effects wavelength growth rate

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