

论文

三波长宽角度消偏振平板分光膜的设计

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摘要:

分光膜都是倾斜使用的,不可避免地存在S和P 2个偏振分量的分离。在许多实际应用中,这是一个迫切需要解决的棘手难题。基于Thelen和Costich理论,选择初始膜系材料和结构,并在Needle合成法与Conjugate graduate精炼法的帮助下,采用全介质材料设计了532nm, 633nm和1315nm三波长宽角度消偏振平板型分光膜,空气中入射角的变化范围为45°±5°。结果表明:在宽角度范围内,此膜系在(532±10)nm, (633±10)nm和(1315±10)nm范围的偏振分离都能比较好地满足消偏振要求。

关键词: 全介质材料 宽角度 消偏振 平板型分光膜

Design of wide-angle depolarization flat-plate light-splitting film for three wavelengths

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Abstract:

Since the light-splitting film is always tilted, the separation between s- and p-component is inevitable. The separation has become a difficult problem to be solved in many applications. The material and structure of original film system were selected according to Costich and Thelen theories. A wide-angle depolarization flat-plate light-splitting film for three wavelengths (532nm, 633nm and 1315nm) was designed with all-dielectric materials by Needle synthesis method and Conjugate graduate refine method. The variation range of the incident angle in the air is 45°±5°. The design and analysis results show that the polarization separation of the film system in the spectral range of (532±10)nm, (633±10)nm and (1315±10)nm can meet the requirement of the depolarization in the wide-angle range.

Keywords: all-dielectric material wide angle depolarization flat-plate light splitting film

收稿日期 1900-01-01 修回日期 1900-01-01 网络版发布日期

DOI:

基金项目:

通讯作者: 王文梁

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