

论文

以UV胶为纤芯本底的CdSe/ZnS量子点光纤光致荧光光谱的传光特性

程成,林彦国,严金华

(浙江工业大学 激光与光电子技术研究所,杭州 310023)

摘要:

制备了一种以紫外(UV)固化胶为纤芯本底的CdSe/ZnS量子点掺杂光纤.通过测量不同掺杂浓度和光纤长度下的量子点光致荧光光谱,得到了荧光峰值强度与量子点掺杂光纤浓度和长度的关系,确定了UV胶纤芯本底下的量子点的吸收系数、合适的掺杂浓度和光纤长度.结果表明|UV胶在光纤中具有吸收小、收缩率低、与石英光纤包层折射率匹配、性能稳定等特点,是一种比较理想的实验室制备量子点光纤纤芯本底的材料.

关键词: CdSe/ZnS量子点 UV胶 量子点掺杂光纤 光致荧光光谱

Propagation Characteristic of Photoluminescence Spectra of CdSe/ZnS-quantum-dot Doped Fiber in an Ultraviolet Curable Adhesive Background

CHENG Cheng,LI N Yan-guo,YAN Jin-hua

(Institute of Laser and Optoelectronic Technology,Zhejiang University of Technology,Hangzhou 310023,China)

Abstract:

The CdSe/ZnS-quantum-dot doped fiber (QDF) in an ultraviolet (UV) curable adhesive background is manufactured in this study.The photoluminescence spectra are measured in different fiber lengths and with different doping concentrations,and absorption coefficient of the QD in such a background is also determined.There is evidence to show that the PL-peak intensity depends on both the doping concentration and the fiber length.The UV curable adhesive can be a desirable choice for preparing the QDF in laboratories due to small absorption,low shrinkage factor,matching fiber-cladding refractive index,and steady optical property.

Keywords: CdSe/ZnS quantum dot UV curable adhesive Quantum-dot doped fiber Photoluminescence spectrum

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通讯作者: 林彦国(1987-),男,硕士,主要研究方向为量子点光纤器件.Email:rqsmf@163.com

作者简介:

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