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## 论文

### 含复介电常量一维光子晶体量子阱结构研究

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摘要:

利用传输矩阵法研究了实介电常量和含复介电常量时一维光子晶体的透射谱.结果表明:两种情况下均构成光子量子阱结构,并且光子量子阱结构的透射能带谱位置和结构相同,但在含复介电常量负虚部情况下共振透射峰出现很强的增益现象,而在含复介电常量正虚部情况下共振透射峰则呈现明显的衰减现象.

关键词: 光子晶体 量子阱 复介电常量 共振透射

### One-dimensional Photonic Crystal Quantum-well Structure Containing Complex Dielectric Constant

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Abstract:

The transfer matrix method is used to research the transmission spectra for one-dimensional photonic crystal of the solid dielectric constant and when containing the complex dielectric constant.The results show that the photonic quantum-well

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苏安

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structure can be made up in both circumstances, and the position and structure of the transmission band spectra of the photonic quantum-well structure are the same. But the resonance transmission peak arises strong gain phenomenon in the circumstance that contains the negative imaginary part of the complex dielectric constant, and evident attenuating phenomenon in the circumstance that contains the positive imaginary part of the complex dielectric constant.

Keywords: Photonic crystal Quantum-well  
Complex dielectric constant Resonance  
transmission

收稿日期 2009-05-11 修回日期 2009-07-04 网络版  
发布日期 2010-05-25

DOI: 10.3788/gzxb20103905.0842

基金项目:

国家自然科学基金 (50661001、50061001) 和广西科学基金 (0832029、0991026、0639004) 资助

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