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器件物理及器件制备技术

偏振式3D显示原理及优化

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摘要： 介绍了偏振式3D显示,用琼斯矩阵推导偏振式3D显示形成视差的原理,得出最准确补偿值。并提出一种负色散特性的补偿膜用于偏振式3D显示。文中用两张补偿膜和两张偏光片组成光学系统,模拟偏振式3D显示产生视差的部分,用紫外可见分光光度计(UV-2450)测试系统的透过率,用位相差值测试仪(RETS-100)测试补偿膜的补偿值和色散特性。应用负色散特性的补偿膜,偏振式3D显示具有更好的视差,可以降低甚至消除使用中对观看姿势的要求,从而实现更加优质的3D显示效果。

关键词： 偏光片　补偿膜　色散特性　补偿值

Theory and Optimization of Polarized Glasses Type 3D Display

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Abstract: The principle of polarized 3D display is introduced.To deduce the principle of the parallax resulted from polarized 3D display by using Jones matrix, the most accurate retardation value is obtained finally. A kind of compensation film with the negative wavelength dispersion property is applied to the polarized 3D display. In this paper, there are two polarizers and two compensation films composited in the optical system to imitate the parallax pheno-menon made by polarized 3D display. The transmission of the test system can be measured by UV-2450, and the retardation value and the wavelength dispersion property of the compensation film can be measured by the RETS-100. With applying the compensation film with negative wavelength dispersion, the polarized 3D display will produce a better parallax so that there will be less or no demands on the watching pose, which makes more convenient for users as well as the good 3D display performance.

Keywords: polarizer　compensation film　wavelength dispersion　retardation

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