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光学设计

LCD投影系统光学引擎的计算机仿真分析

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摘要 光学引擎是决定LCD投影系统色度、光度品质的核心部件之一。根据投影系统光学引擎的结构特点，结合色度学原理，利用光路追踪法编制了光学引擎的色度、
光度仿真分析软件。仿真分析软件具有双向功能：对引擎的光学系统可进行色度光度计算，并可根据色度、光度指标优化光学引擎结构。将仿真与实际的光学引擎进行了对比实验，得到多组投影视场的色坐标对比数据，最后用软件优化了一个光学引擎，
得到该引擎结构的优化数据。实验结果表明：该软件可提高光学引擎的设计效率。

关键词 LCD投影系统 光学引擎 计算机仿真 色度光度

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Computer simulation of optical engine for LCD projector

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Abstract Optical engine is one of the key components to affect the qualities of the chroma and luminosity in LCD projectors. Based on the structure characteristics of the optical engine and the principle of chromatometry, the chroma and luminosity simulation analysis software for optical engine design is developed by tracing the light beam. The software can be used to analyze and count the chroma and luminosity qualities of the optical engine. It also can be used to optimize the structure of the optical engine based on the chroma and luminosity index. Some experiments were carried out to compare the simulative engines and actual optical engines, and results were provided. An optical engine was optimized with the software, and the optimal data for the engine structure were acquired. The experiment result shows that the software can improve the design efficiency of optical engines.

Key words LCD projector optical engine computer simulation chroma and luminosity

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