Theoretical and Experimental Studies of Color Correction in Laser Digital Photofinishing

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Abstract A theoretical model used for color reproduction in laser digital photofinishing is built up. Through an integrated scanning densimeter, which used to scan density values of a test picture, the in and out transform model for laser digital photofinishing can be determined. Then, on the basis of gamut mapping, a theoretical model for color reproduction through density values was set up. The whole system completely realized color reproduction of laser digital photofinishing.

Keywords Laser digital photofinishing; Color correction; Device characterization; Gamut mapping; Density; Chroma

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15 W 光子晶体光纤激光器的研究

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利用光子晶体光纤在原来输出功率 3.4 W 的基础上, 研制成功了激光输出 15 W 的光子晶体光纤激光器, 实验装置为典型的 F-P 腔结构, 分别采用二色镜和光纤端面作为高反射腔镜和激光输出腔镜. 一端二色镜紧贴光纤的入射端面, 它对 1.05 μm~ 1.1 μm 波段信号光的反射率大于 99%, 对 976 nm 泵浦光透射率为 93%; 另一端利用光纤端面 4% Fresnel 反射作为输出端反馈与二相色镜构成了线形谐振腔. 实验采用掺 Yb^{3+} 双包层光子晶体光纤, 长度为 20 m. 内包层为 200 μm, 外包层为 380 μm, Yb_2O_3 浓度为 1.5 mol%. 当泵浦功率为 60 W 时, 获得了 15 W 1.1 μm 的激光输出.

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