Optimal illumination for the direct visualization of oral cavity

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Abstract

Oral diseases are significant worldwide health problems, and the way to diagnose these diseases more early has been concerned by researchers. Detection of the traditional biopsy procedure is invasive, and it will not only destroy the tissue structure, may also lead to other side effects, such as taking high cost and time to complete the pathological diagnosis. We demonstrate a multispectral-based approach with image processing, which can simulate presents of the same image under different light sources. Also we investigate the visual effect caused by wavelength and color temperature of light sources to identify the most suitable illumination for detection of oral diseases. The main purpose of this study is to enhance the color difference between lesion and normal tissue, so that doctors can diagnose symptoms directly by naked eye and make early treatment in time.

and luminescence.

Keyword：Illumination design; (170.3010) Image reconstruction techniques; (170.6280) Spectroscopy, fluorescence