

A Study of Skin Reflectance Using Kubelka–Munk Model for Personalized Cosmetics

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The trend of personalized cosmetics has emerged as a major interest. One of ways to satisfy the issue is skin optics, which is a study of the light propagation in skin area. Light in skin tissue shows unique optical behaviors such as reflectance, absorption, scattering from person to person. Since it stems from the different optical properties of personal skin, understanding of optical characteristics in skin tissue is necessary to develop the personalized cosmetics. We performed the contribution analysis of skin parameters (skin thickness, hemoglobin fraction, and etc.) which determine the reflectance through Kubelka–Munk model. We calculated the theoretical reflectance of normal Asian women in 20s for visual light based on the research, which showed good agreement with the experimentally measured reflectance. Our study of light propagation in skin tissue based on Kubelka–Munk model will provide useful insight for development of personalized cosmetics.