

Optical spectroscopy of multiple scattering medium: Human skin

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Our methodology empowers high-resolution in vivo skin reflectance spectroscopy, allowing for the discernment and analysis of subtle nuances within reflected signals. These signals convey information about the biochemical and structural conditions of the skin, encompassing both the vasculature and bloodless skin. The research involves a meticulous examination of optical patterns associated with skin characteristics, presenting a comprehensive overview of critical optical parameters pertinent to the study of human health. To facilitate clinical trials, our team has devised an original experimental setup tailored specifically for in vivo studies. Clinical trials involving individuals with angiopathy issues subjected to spectroscopic analysis effectively demonstrate the efficacy of our in vivo experiments. A significant contribution of this study is the introduction of a new parameter, the Optical Ankle-Brachial Index (OABI), into the field of angiopathy practice. This parameter emerges as an effective descriptor of an individual's health status. Furthermore, its sensitivity to changes during surgery positions it as a valuable tool for monitoring shifts in health status. The innovative approach and outcomes of this study offer valuable insights at the intersection of optical spectroscopy and angiopathy, laying the groundwork for enhanced diagnostic and monitoring tools in healthcare

References

[1] Laser Phys. Lett. 1, No. 10, 521–524 (2004)