

## LIGHT TRANSPORT IN A FIBRIL FILM SHEET

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### ABSTRACT

Fiber Optic Trans Illuminating Imaging System (FOTI) is used for analyzing the light emission spectra from the human body tissues and various cells. All the organs of human body tissues and cells contain various light absorbing micromolecules such as Water, Monosaccharide's, Oligosaccharides, Fatty acids, Amino acids, Minerals, Nucleotides, etc. and macromolecules such as Carbohydrates, Proteins, DNA, RNA, Lipids, High energy compounds such as ATP's and phosphate groups. The signal comes in the form of a change in the intensity or the peak position of optical absorption, fluorescence emission, reflection, surface plasmon resonance (SPR), surface-enhanced Raman scattering (SERS), and electro-chemical potential/current under various conditions leading to the development of corresponding biosensors. All the micromolecules and macromolecules have specific absorption characteristics. The basic principle of fiber optic transilluminating imaging system is the irradiation of a sample and the analysis of the transmitted or reflected light. The measurement is noninvasive technique and it is very useful for monitoring human body tissues at molecular level for various clinical and medical diagnostic applications. Application areas include medical equipment manufacturers such as production, environmental analysis, polymer identification, analyzing the protein content of grains in medicine and biology. Biological samples are composed of proteins, carbohydrates, lipids and nucleic acids. Each of these organic molecules has a unique chemical composition and a unique absorption spectrum. Fiber optic transilluminating imaging system allows quantification of the sample based on their absorption spectrum.

**KEYWORDS:** Fiber, Optics, Light, Thin Film, Light Emitting Diodes

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