

## PHOTON PROPAGATION MEASUREMENTS THROUGH BIOLOGICAL TISSUE UTILIZING TIME-OF-FLIGHT METHOD

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The measurement methods for photon propagating through biological tissue were developed utilizing time-of-flight measurements method. The system consists of a TCSPC system with an SPC-150 card (Becker&Hickl), a hybrid detector (Becker&Hickl), optical fibers, and self-made fiber holding prob. The measurements were done lateral and transmitted at variable input-output fiber distances and tissue thickness. The created set-up allows make measurements in visible and near-infrared spectral ranges (560 nm – 800 nm). The wavelength step for measurements is 40 nm (560 nm, 600 nm, 640 nm, 680 nm, 720 nm, 760 nm, 800 nm). The distance between input-output fibers is 1 mm, 4 mm, 8 mm, and 12 mm). The measurement schema is presented in Figure 1. The pilot study of the cow brain with photon path length and number of transmitted through tissue photons will be presented.

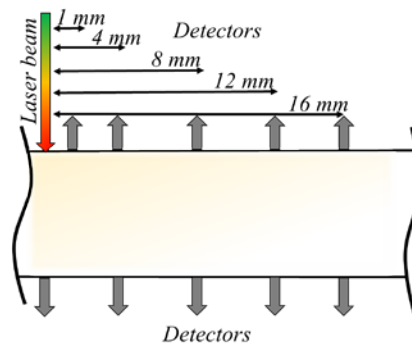


Fig.1. Schematic of measurement method lateral backscattering and transmitted photon propagation through biological tissue.