Background

Recent researches have showed the power and potential of polarized light imaging method especially when it was applied in the field of human cancerization tissue detection. Mueller matrix polarimetric imaging method has been always utilized for the analysis of the polarization characterization of the human.

In this paper, we report a new design of Mueller matrix polarimeter prototype which is portable and aimed to measure the $3 \times 3$ Mueller matrix of ex-vivo human tissues right in the operating room.

Method

Measurement System

Fig. 1: The schematic of the system

$3 \times 3$ Mueller Matrix

Where $s_{ij}$ are the polarization state of emergent and incident light described by a Stokes vector, $M$ is the $3 \times 3$ Mueller Matrix.

Results

Fig. 3: (a) a tissue strip from the right anterior lobe of liver under ambient light; (b) linear retardance parameter $\delta$ of MMPD technique; (c) parameter $A$ of MMT technique; (d) parameter $t$ of MMT technique.

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