

■Application example of polarization technology

Hello everyone. This time, I found a very interesting application example of polarization technology in the medical field, so I would like to introduce it.

■"Cancer Diagnosis Technology" Using Circularly Polarized Scattering

A research group of Dr. Nozomi Nishizawa of the Institute of Science and Technology Innovation, Tokyo Institute of Technology has experimentally demonstrated "cancer diagnostic technology" using circular polarization scattering. (1)

The result of line scanning of a biological sample in a straight line that straddles the cancer metastasis part and the healthy part of the sample is shown on the right side of Fig. 1. (The upper part of the graph is the microscopic image of the biological sample, and the part surrounded by the blue dotted line is the cancer metastasis part.) The lower graph plots the circular polarization (DOCP) of the scattered light measured at each point. A clear difference was obtained in the degree of polarization of scattered light between healthy tissue and cancer tissue regardless of the detection angle, indicating that cancer can be identified by this technology. Further development of practical research is expected in the future.

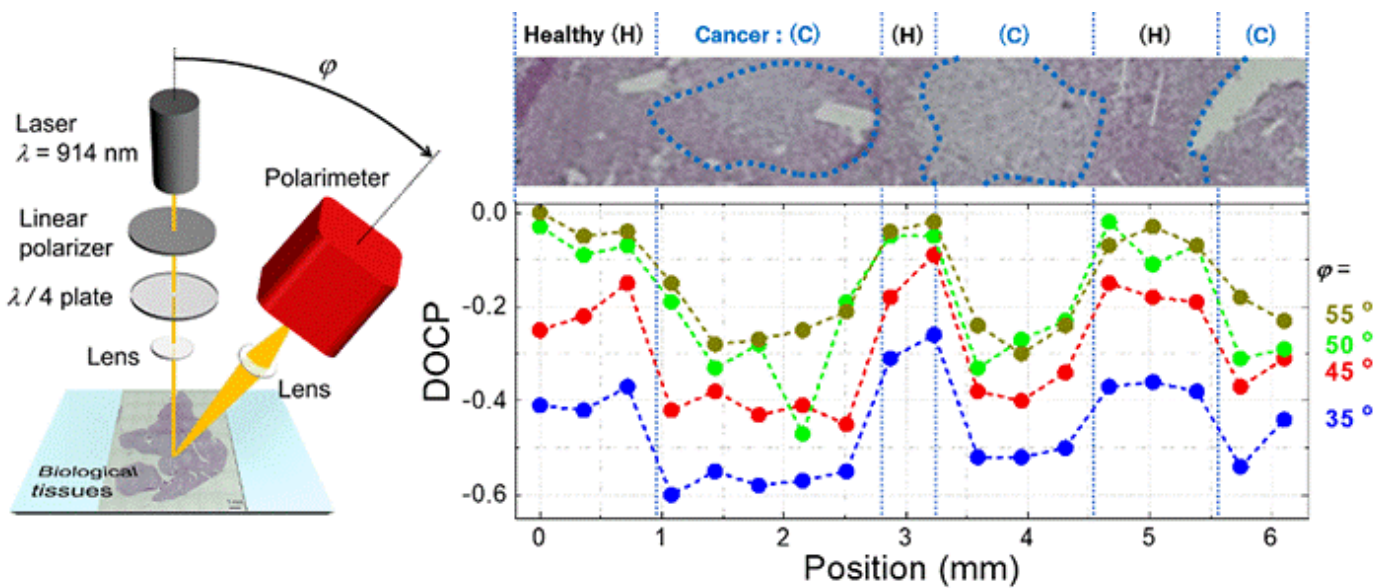
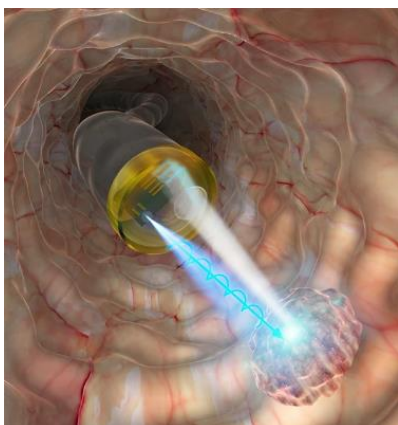


Fig.1 Demonstration experiment of cancer detection by circular polarization scattering on biological samples



At Luceo, we have manufactured small circular polarizing plates of about $\Phi 3 \text{ mm}$. It seems that it can be attached to the tip of the fiber.

Fig.2 "Image of cancer detection by Spin-LED in vivo"

■Circular polarizing plate

Luceo manufactures circular polarizing plates, which are made by bonding a 1/4 wave plate and a polarizing plate, which are necessary for generating circularly polarized light.

We have various type of polarizers (POLAX series) and various type of waveplates such as HI-RETAX, which is a high-precision wave plate for specific wavelengths, and SB-RETAX, a super broadband wave plate (SB-RETAX) that realizes circular polarization from white light to near-infrared light.

Please feel free to contact us for specification consultations and quotations.

*Polarizing Plate : <https://www.luceo.jp/polarizing-platepolax/>

*Wave Plate : <https://www.luceo.jp/wave-plateretaxhi-retax/>

*Super broadband Wave Plate : <https://www.luceo.jp/broadband-waveplate/>

Reference

(1)New cancer diagnostic technology using circular polarization scattering

<https://www.titech.ac.jp/news/2021/049223.html>

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That's all.