

# 85<sup>th</sup> RAP Seminar

The 85th Seminar on RIKEN Center for Advanced Photonics

Language: Japanese

Date: **December 22 (Fri), 16:20 - 17:20, 2023**

Location: **W319, 3F, Cooperation Center, Wako Campus, RIKEN**

(理研 和光キャンパス 研究交流棟 3階会議室 W319)

Title: **Features of a structured light beam and its application to laser scanning microscopy**

空間構造を持つ光の特性とレーザー顕微鏡への応用

Speaker: **Prof. Yuichi KOZAWA**

**Institute of Multidisciplinary Research for Advanced Materials  
Tohoku University**

小澤 祐市

東北大学 多元物質科学研究所 准教授



Pre-registration



A structured light beam is characterized by its spatially distributed amplitude, phase, and polarization on the beam cross-section. Spatially varying features of these parameters produce remarkable abilities that cannot be attained by conventional light beams such as linearly or circularly polarized Gaussian beams. In this talk, we will introduce some peculiar features of structured light beams, and our research related to laser scanning microscopy using structured light beams. Our method employs a light needle spot produced by a Bessel beam with a long focal depth as well as wavefront modulation for fluorescence signals. The combined use of these techniques enables us to capture the volumetric images of samples from a single two-dimensional raster scanning of an excitation spot without changing the observation plane in laser scanning microscopy. We discuss its applicability to rapid 3D observation of various samples using our method.