

Development of novel measurement technology f terahertz light, the spectroscopic ability to distinguish materials, and the safety towards the human body







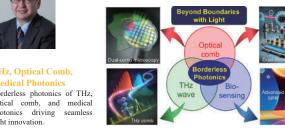


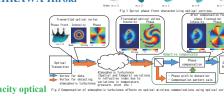


Dental caries affects all ages, and resin composite is key for its aesthetic and mechanical benefits. adhesives and photonics, we aim to investigate this interface's mechanics, aiming to innovate

Research involving a wide range of wavelengths

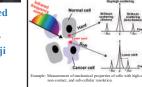


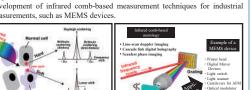




Development of Brillouin scattering microscope based on frequency combs

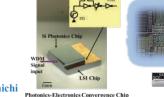






ultrabroadband wireless/optical communications and photonic computing.





unctional Optical Devices and Optical Integrated Circuits

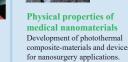
We use two-photon microscopy to study Ve are researching optical information processing technology using functional optical devices and optical integrated circuits to realize high-speed and high-capacity communications and neural network computing. Furthermore, we are researching optical and THz-waves seamless-connection fluorescent probes, helps us visualize

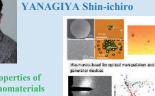


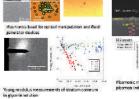


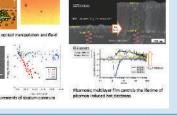
optical sensor by developing nanostructure materials We are aiming to construct the elemental technologies of optical devices







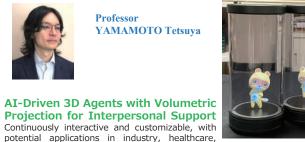














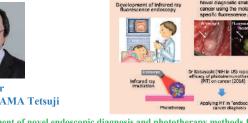




This research focuses on the development of diverse next-generation antibodies, including VHHs technology is employed to establish antibody selection systems based on library methods that do ot require animal immunization. This strategy enables the efficient generation of antibodies with

Institute of Post-LED Photonics, Tokushima University





Development of fluorescent probes targeting molecules specifically observed in cancer cells, development of molecular imaging diagnostic methods, and creation of novel light therapy that

Health diagnosis of infrastructure concrete structures using near-infrared

Internal erosion of salt and sulfuric acid, one of the causes of aging of concrete, is measured by



Associate Professo **KATAYAMA Tetsuro**

by spatio-temporal spectroscopy

Various research and development are being conducted for images that give a sense of realism, but among them, we are researching shooting technology, information processing technology, and display technology with a focus on stereoscopic images. Regarding photography techniques, we are nducting research on a camera for light field photography that can capture images in natural colors. Regarding display technology, for example, we are researching displays that use holography,





Synthesis of two-dimensional nanomaterials is performed with pulsed laser ablation technology such as optoelectronics and photocatalysts, utilizing metal nanostructures

Development of spatio-temporal spectroscopic measurement technology that can observe all chemical

species by combining pump probe measurement technique and single-molecule spectroscopic

easurement technique that can enable direct observation of chemical reactions.

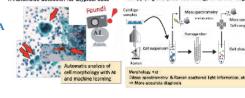


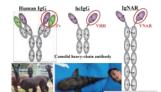


photonics scientists, and promote the development of new light sources and devices.









pathological mice models based on genetic analysis of immune and inflammatory diseases in humans and

mice, and development of optical devices that can

detect blood molecules correlated with the

evelopment of highly luminescent organic molecules that can be applied to

NARs, human single-domain antibodies, and human scFvs. In particular, advanced phage display



OTSUKA Kunihiro

Development of a time-resolved

spectroscopy system specialized for actual

femtosecond laser light source that glow

nano processing and mass production

Development of metamaterial fabrication technology that combines

light absorption, and the application to various sensors

mproved sensitivity in biological fluids.

Elucidation and application development of novel phenomena derived from

the detection of cardiac troponins and inflammatory marker (CRP) with

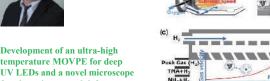
Hybrid nanostructures combined with a sandwich immunocomplex significantly enhance the

esponse, simple operation, ease of miniaturization and direct electrical readout make them especial

research in the field of viral infections.

We tackle to create a fundamental technology for

irology and optics.

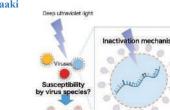


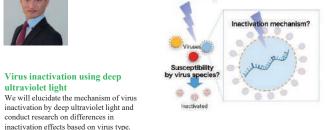




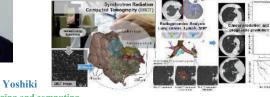








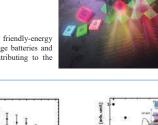


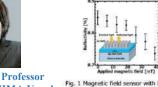


This field is related to medical imaging and medical image analysis. We are working on threedimensional CT image processing algorithms, which are the core computer-aided technology mainly based on three-dimensional CT images, and high-performance computer-aided technology that supports lung cancer detection, differential diagnosis, and prediction of malignancy and prognosis



conversion devices such as fuel cells, storage batteries an





TAKASHIMA Yusuke



visible light regions using a high refractive index subwavelength periodic structure (SWS) with nanostructures having a period slightly smaller than the wavelength of light for the wavelength range



Sterilizing power can be improved with UV plus α (substances with weak nergistic sterilizing power with light plus natural produc

