Frist International Conference on Sensing and Imaging through Scattering and Fluctuating Field in Biology, Telecommunication, and Astronomy (SI-Thru)

Date: 20-21 April, 2022
Hybrid: In-person in Pacifico Yokohama, Japan and online
Submission deadline: 14 January, 2022
http://si-thru.opicon.jp/

Optics and related imaging technologies have played an indispensable role in the development of natural science. However, one of the fundamental problems that cannot be overcome even with the most advanced optical technology is scattering and fluctuations that disturb light propagation. Scattering theories determined by wavelength and particle size have already been established. Adaptive optics is also established to compensate the light distortion in astronomy. However, no comprehensive theory has been established to deal with scattering and fluctuations in four dimensions (three-dimensional space and time), which are ubiquitous in the real world in air, water, and living organisms.

The purpose of this conference is to present and discuss the latest techniques, theories, and results for comprehensively understanding and overcoming scattering and fluctuation phenomena that are ubiquitous in multi-scale 3D space, ranging from nanometer to kilometer size. Applications include bioimaging, spatial information communication, astronomy, and other areas related to scattering and fluctuations. Topics covered in the conference are appeared below. You are very welcome to join this conference for presentations and exchange of ideas.

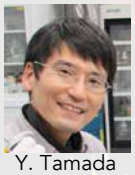
Chairs:
Osamu Matoba, Kobe University, Japan
Sylvain Gigan, Sorbonne Université, France
Co-chairs:
Yasuhiro Awatsuji, Kyoto Institute of Technology, Japan
Enrique Tajahuerce, Universitat Jaume I, Spain
Yosuke Tamada, Utsunomiya University, Japan

Program Chair
Yasuhiro Kamei, National Institute for Basic Biology, Japan
Program co-chairs
Kenjiro Kimura, Kobe University, Japan
Eriko Watanabe, The University of Electro-Communications, Japan
Yosihisa Takayama, Tokai University, Japan
Yutaka Hayano, National Astronomical Observatory of Japan


O. Matoba

S. Gigan

Y. Awatsuji

E. Tajahuerce

Y. Tamada

Y. Kamei

K. Kimura

E. Watanabe

Y. Takayama

Y. Hayano

Topics:

- Imaging through scattering media
- Imaging through fluctuating media
- Wavefront sensing
- Wavefront shaping
- Digital phase conjugation
- Transmission/reflection matrix approaches
- Scattering and fluctuation theory
- Scattering and fluctuation modeling
- Diffuse optical imaging
- Computational imaging
- Single-pixel imaging
- Ghost imaging
- Deep learning and machine learning
- Non-line-of-sight imaging
- Deep live-cell imaging
- Deep optical cell manipulation
- Live brain imaging
- Ultrasound imaging
- Photoacoustic imaging
- Nondestructive testing
- Adaptive optics
- Observational astronomy
- High-contrast imaging of exoplanet
- Spatial light modulation and deep biometry
- Next-generation communications
- Telecommunication
- Spatial information communication
- Modulation and coding
- Pointing, acquisition, and tracking
- Atmospheric propagation
- Transmitters and receivers for communication
- Terrestrial networks
- Quantum communication
- Other related areas