



NEURO GLOBAL Seminar

Speaker

Dr. Kohei OTOMO

Associate Professor, Graduate School of Medicine,
Juntendo University

Associate Professor (Concurrent), National Institute for
Physiological Sciences; Exploratory Research Center on Life
and Living Systems, National Institutes of Natural Sciences



Title “3D volumetric imaging approaches for optically untransparent biological specimens”

Date & Time May 7, 2024 (Tue) 16:00-17:30 (JST)

Venue Conference Room 1, School of Medicine Building 6 1F, Seiryō Campus

[MAP] https://www.tohoku.ac.jp/map/en/?f=SR_B08

Format Hybrid (On-site & Online)

Registration Refer to NGP Office

Related Website <http://www.dbsb.science>

- Neuro Global プログラム生 (Neuro Global Program Students)
【脳科学セミナーシリーズEx】 / 【先進脳科学セミナーシリーズEx】 セミナー 1ポイント
【Brain Science Seminar Series Ex】 / 【Advanced brain science seminar series Ex】 1 point
- 医学系研究科 (Graduate School of Medicine)
【医学履修課程】 国際交流セミナー (アドバンスド講義科目) 出席1回分
【Medical Science Doctoral Course】 International Interchange Seminar (Advanced Lecture course) 1 attendance
- 生命科学系研究科 (Graduate School of Life Sciences)
【単位認定セミナー】 【イノベーションセミナー (留学生対象)】 2ポイント
【Credit-granted seminar】 【Innovation seminar (For international students)】 2 points

東北大学 Neuro Global 国際共同大学院プログラム事務局
info@neuroglobal.tohoku.ac.jp
<http://www.neuroglobal.tohoku.ac.jp>

Contact: Prof. Noriko OSUMI
[info@neuroglobal.tohoku.ac.jp]

NEURO GLOBAL
Tohoku University



NEURO GLOBAL Seminar

Title

3D volumetric imaging approaches for optically untransparent biological specimens

Abstract

Fluorescence microscopy is one of the essential analytical methods for biological and medical research because of its potential to visualize nano/microstructures with high sensitivity and selectivity. However, fluorescence microscopy is an optical microscopy technique, that results in difficulties for visualizations of internal structures in untransparent, heterogeneous, and 3D volumetric biological specimens. To overcome these limitations, multi-photon excitation processes using near-infrared light pulses and tissue-clearing techniques have been developed and implemented for in vivo imaging and comprehensive visualization, respectively. In this talk, our customized in vivo multiphoton excitation microscopy system and a DIY constructible light-sheet microscopy system for cleared tissue specimens will be introduced. Moreover, the direction of technological developments required by the fields of biology, physiology, and medicine will also be discussed with several examples visualized by developed microscopy systems.