

## **Unit Name**

Optical Neuroimaging Unit  
Professor Bernd Kuhn

## **Collaborations**

Francois St-Pierre, Baylor College of Medicine, USA, Using FORCE to image voltage

Kenji Doya, OIST Graduate University, Japan, Imaging neuronal activity in somatosensory and motor cortex

Dr. Eduardo Martín, Instituto Cajal, Spain, Plasticity in the primary motor cortex of mice

Claudia Cecchetto, University of Padua, Italy, Measuring neuronal activity with voltage sensitive dyes and electrodes

Junghyun Jo, Ajou University School of Medicine, Korea, Development of a human striatal–midbrain assembloid model of alpha-synuclein propagation

Aneesh T Veetil , Tata Institute of Fundamental Research - Hyderabad, India, Labeling microglia in vivo

Jonathan Mapelli, University of Modena, Italy, Imaging voltage changes in human pyramidal neurons

Takashi Tominaga, Bunri University, Japan, Dynamic salient network function revealed by comprehensive whole-brain optical imaging

Yoko Yazaki-Sugiyama , OIST Graduate University, Japan, Imaging axon development in zebra finches

Philipp Flotho, Saarland University, Germany, 2D and 3D motion analysis, correction, and amplification

## **Research Personnel**

Christopher Roome, Staff Scientist

Soheil Keshmiri, Staff Scientist

Kazuo Mori, Research Unit Technician

Shinobu Nomura, Research Unit Technician

Sigita Augustinaite, Research Unit Technician

Mykola Medvidov, Research Unit Technician

Cedric Galetzka, PhD Student

Soumen Jana, PhD Student

Mohamed Mostafa Kamal Eltabbal, PhD Student

Aleksandra Gavrilova, PhD Student

Saffira Yan Tjon, PhD Student

Taisuke Higuchi, PhD Student

Karolina Agata Tarapata, Research Intern

Laura Perales Alonso, Research Intern

Yoko Mino, Research Intern

## Scholarly Contributions and Creative Productions (by Faculty)

### Journal Article

1. Tran HD, Shin MK, Yeo XY, Jung S, Junaid M, Lim SB, Kim J, Woo HG, Denman CR, Han RR, Kim M, Jeon D, Kim H, Kim YJ, Mun JY, Lee EJ, Park SM, Kuhn B, Arbutnott GW, Jo J. A human striatal-midbrain assembloid model of alpha-synuclein propagation. *Brain*. 2026 Mar 5;149(3):867-883.

### Presentation at Conference

1. Kuhn, B.  
Imaging Neuronal Activity with Two-Photon Microscopy in Behaving Mice. Keio University - OIST Joint Symposium, OIST 2025.

### Seminars

1. Kuhn, B.  
A Quick Summary of the Last 14 Years' Research in the Kuhn Unit (Wang Lab, Princeton University). 2025.

## Scholarly Contributions (by Unit Members)

Name of Unit Member	Type	Title	Outlet	Publisher	Year Pub
Heidi TeppolaGuerel	Journal Article	Arginine vasopressin activates serotonergic neurons in the dorsal raphe nucleus during neonatal development in vitro and in vivo	Neuropharmacology	Elsevier Ltd.	2025
Hoang-Dai Tran	Journal Article	A human striatal–midbrain assembloid model of alpha-synuclein propagation	Brain	OXFORD ACADEMIC	2025
Bruno Humbel	Journal Article	Anemonefish Chromatophore Distribution and Organization Revealed by TEM Studies		Zoological Science	2025
Bruno Humbel	Journal Article	Structure and Biochemistry of the LH1-RC Photocomplex from the Halophilic Purple Bacterium, <i>Rhodospirillum rubrum</i>		Biochemistry	2025
Bruno Humbel	Journal Article	Agouti and BMP signaling drive a naturally occurring fate conversion of melanophores to leucophores in zebrafish		Proc Natl Acad Sci USA	2025
Bruno Humbel	Journal Article	A Native LH1–RC–HiPIP Supercomplex from an Extremophilic Phototroph		Commun Biol	2025
Bruno Humbel	Journal Article	Structural insights into the photochemistry of the LH1–RC complex from the marine purple phototrophic bacterium <i>Rhodovulum sulfidophilum</i>		Communications Biology	

## Honors, Awards & Fellowships [By Unit Members Only]

- Term 3 2025 - Term 2 2026 Aleksandra Gavrilova, The JSPS Research Fellowship, JSPS リサーチフェローシップ, 2024, JSPS, JSPS リサーチフェローシップ [Fiscal Year: 2025-04-01]
- Term 3 2025 - Term 2 2026 Philipp Flotho, 2D and 3D motion analysis, correction, and magnification, 2Dおよび3Dのモーション解析、補正、拡大, 2025, JSPS Fellowship, 2Dおよび3Dのモーション解析、補正、拡大 [Fiscal Year: 2025]

Term 2 2023 - Term 2 2026 Heidi TeppolaGuerel, Postdoctoral Fellowships for Research in Japan, 外国人特別研究員, 2023, JSPS, 幼少期のストレスが縫線体-体性感覚系ニューロン・アストロサイトネットワークの機能的発達に及ぼす影響 [Fiscal Year: 2024-04-01]

### **External Service**

Term 1 2011 - Ongoing Reviewer for Journals, ACS Applied Bio Materials, Advanced Science, Cell Reports, Cerebral Cortex, Current Biology, eLife, Scientific Reports (Nature Publishing Group), Journal of Visualized Experiments, Nature Communications, Nature Nanotechnology, Frontiers in Cellular Neuroscience, Frontiers in Microbiology, Frontiers in Molecular Neuroscience, Journal of Neuroscience Methods, Journal of Neurophysiology, JoVE, Neurophotonics, Entropy (MDPI), iScience

Term 1 2011 - Ongoing Grant Reviewer, Israel Science Foundation, Italian Ministry of Education (Universities and Research), European Research Council

### **Other Institutional Service**

Term 1 2012 - Ongoing Student Candidate Interviews (University)

Term 1 2010 - Ongoing Faculty Candidate Interviews (University)

### **Outreach Activities [For Unit Members Only]**

Term 2 2026 Taisuke Higuchi, OIST Career Fair 2025, OIST, Graduate School [Fiscal Year: 2026-01-29]

Term 1 2025 Bruno Humbel, Sample Preparation for Electron Microscopy, Portorož, Slovenia [Fiscal Year: 2025-09-07]

Term 1 2025 Taisuke Higuchi, OIST-KEIO International Research Summer Camp, OIST, Keio University [Fiscal Year: 2025-10-06]

Term 1 2025 Taisuke Higuchi, Interview Session with Momoyama High School Students , OIST, Momoyama high school [Fiscal Year: 2025-10-14]

Term 1 2025 Taisuke Higuchi, Presentation and Feedback Session for Yokkaichi High School Students, OIST, Yokkaichi high school [Fiscal Year: 2025-10-01]

Term 1 2025 Bruno Humbel, Cryofixation and Freeze-Substitution, Southern University of Technology and Science, Shenzhen, China [Fiscal Year: 2026-01-08]

Term 1 2025 Bruno Humbel, Chemical Fixation, Tokuyasu Cryosectioning, Southern University of Technology and Science, Shenzhen, China [Fiscal Year: 2026-01-06]

Term 1 2025 Bruno Humbel, Specimen Preparation for Immunolabelling. Chemical Fixation, Resin Embedding and Cryo-Sectioning. Cryo-Fixation and Freeze-Substitution, The Max-Planck Institute for Developmental Biology, Tübingen, Germany [Fiscal Year: 2025-10-22]

Term 1 2025 Bruno Humbel, Chemical Fixation, High-Pressure Freezing, Freeze-Substitution at Array Tomography Workshop, University of Buenos Aires, Argentina [Fiscal Year: 2026-11-12]

Term 2 2025 Bruno Humbel, Biological Sample Preparation - Chemical Fixation, Cryo-Fixation, Freeze-Substitution, BioEMTalks, Frederick National Laboratory for Cancer Research, NCI, NIH [Fiscal Year: 2025-01-16]

Term 2 2025 Taisuke Higuchi, OIST Science Foresight 2026, AAST University [Fiscal Year: 2025-02-28]

Term 2 2025

Taisuke Higuchi, Admissions Workshop dinners with shortlisted applicants, OIST  
[Fiscal Year: 2024-08-24]

***Workshops and Seminars [Organized and Hosted by Faculty/Units]***

Title	Location	Co-Organizers	Date
10th International Conference on Intelligent Informatics and BioMedical Sciences 2023 (ICIIBMS 2020)	OIST		2025-11-23
Okinawa Computational Neuroscience Course	OIST	Erik De Schutter, Kenji Doya, Tomoki Fukai, Bernd Kuhn	2025-06-01