TIGP-INS Neuro-imaging workshop

Time: 14:00-16:30, Wednesday

Location: B100, Interdisciplinary Building, Academia Sinica

Credit: 3 credits

Course organizers: Pei-Lin Cheng, Yu-Wei Wu, Ya-Jen Cheng

Objectives:

The purpose of this workshop is to broaden students' knowledge and experience on neuro-imaging technologies. Students are expected to gain imaging technologies applicable to neuroscience and biological research. On the first day, basic knowledge of optics, microscopy and bio-image techniques will be introduced. After the basic bioimaging knowledge introduction, each section will integrate projects of interest and the principle of instrument utilized, aiming to teach "how to" apply bio-imaging technologies on resolving various topics of neuroscience and biological questions.

Evaluation:

60% Performance and Attendance；40 % Homework Assignment

Lecture Course:

Date	Topic	Lecturer
2025/3/26	Basic introduction & Advances in Light Microscopy	Dr. Jin-Wu Tsai 蔡金吾
2025/4/2	Two-photon calcium imaging of brain activity during behavior in VR	Dr. Kuo-Hua Huang 黃國華
2025/4/9	in vivo imaging and considerations: from dendritic spine to neural population (including lab visiting)	Dr. Kuo-Sheng Lee 李國昇
2025/4/16	Monitoring cellular events in action with biosensors	Dr. Pei-Lin Cheng 鄭珮琳
2025/4/23	Ultrastructural analysis by Electron Microscopy and Array Tomography	Dr. Hwai-Jong Cheng 程淮榮
2025/4/30	Super-resolution, Light Sheet, and Expansion microscopy (including lab visiting)	Dr. Bi-Chang Chen 陳壁彰
2025/5/14	Real-time monitoring and manipulation of neural circuit activities in rodents (including lab visiting)	Dr. Yu-Wei Wu 吳玉威
2025/5/21	Millisecond transformations of population output from postsynaptic perspective (including lab visiting)	Dr. Ching-Lung Hsu 徐經倫
2025/5/28	Preclinical MRI (including lab visiting)	Dr. Dennis W. Hwang 黃聖言
2025/6/4	Introduction to imaging analysis	Dr. Keng-hui Lin 林耿慧