

Abstracts of papers presented
at the 2026 Cold Spring Harbor Asia Conference

ILLUMINATING THE BRAIN: A SYMPOSIUM ON NEURAL IMAGING

June 16–June 19, 2026

Arranged by

Guoqiang Bi, *University of Science and Technology of China*

Yi Zuo, *University of California, Santa Cruz*



Cold Spring Harbor Conferences Asia
Cold Spring Harbor Laboratory



**ILLUMINATING THE BRAIN:
A SYMPOSIUM ON NEURAL IMAGING**
Tuesday, June 16 – Friday, June 19, 2026

Tuesday	7:00 pm	Keynote Speaker
Tuesday	8:00 pm	1 Novel Imaging Tools for Chemical and Electrical Signals in the Brain
Wednesday	9:00 am	2 Synapses from Molecules to Dynamics I
Wednesday	10:50 am	3 Synapses from Molecules to Dynamics II
Wednesday	3:00 pm	Poster Session
Wednesday	7:00 pm	4 Neural Circuit Basis of Development and Behavior I
Thursday	9:00 am	5 Neural Circuit Basis of Development and Behavior II
Thursday	10:50 am	6 Neural Circuit Basis of Development and Behavior III
Thursday	2:00 pm	7 From Micro to Nano-Scale I
Thursday	3:50 pm	8 From Micro to Nano-Scale II
Thursday	5:30 pm	Cocktails and Banquet
Friday		<i>Visit to Old Suzhou Departure</i>

Oral presentation sessions are located in the CSHA Auditorium

Poster session is in the Lake Front Hall.

Cocktail social hour is held outside in the Suz Garden.

Old Suzhou visits depart from the CSHA lobby

**optional tour requires additional fee.*

Meal locations and times are as follows:

Lunch: Main Cafeteria 12:00am - 1:30pm

Dinner: Main Cafeteria 6:00pm - 7:30pm

Banquet: Suz Garden 6:30pm

More information will be available at CSHA office.

(Map at the end of this abstract book)

PROGRAM

TUESDAY, June 16—7:00 PM

Opening Remarks

Guoqiang Bi

University of Science and Technology of China (USTC), Hefei, China

KEYNOTE SPEAKER

Fluorescence microscopy—A minimum for maximal spatio-temporal resolution

Stefan W. Hell [35'+10']

Presenter affiliation: Max Planck Institute for Biophysical Chemistry, Göttingen, Germany; Max Planck Institute for Medical Research, Heidelberg, Germany.

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TUESDAY, June 16—8:00 PM

SESSION 1 NOVEL IMAGING TOOLS FOR CHEMICAL AND ELECTRICAL SIGNALS IN THE BRAIN

Chairperson: **Masakazu Agetsuma**, National Institutes for Quantum Science and Technology, Chiba, Japan

AI-deciphering multiscale time computation in the suprachiasmatic nucleus

Heping Cheng, Zichen Wang, Jing Yu, Xiheng Fang, Jing Liu, Hua Han, Ying Xu, Lei Ma [20'+5']

Presenter affiliation: Peking University, Beijing, China; PKU-Nanjing Institute of Translational Medicine, Nanjing, China.

2

***in vivo* optical imaging of neurotransmitter release and membrane potential dynamics**

Na Ji [20'+5']

Presenter affiliation: University of California, Berkeley, Berkeley, California.

3

Everything everywhere all at once—Fast large-scale imaging of electrical activity in brain circuits with new voltage indicators

Michael Lin, Sungmoo Lee, Guofeng Zhang, Yukun A. Hao, Richard Roth, Yue Sun, Can Dong, Bok Eum Kang, Tristan Geiller, Lisa Giocomo, Jun Ding, Tom Clandinin [20'+5']

Presenter affiliation: Stanford University, Stanford, California.

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Absolute quantification of dopamine dynamics underlying physiology and pathology in vivo with a sensitive FLIM sensor

Yuging Yang, Yu Zheng, Yali Shi, Yulong Li [10'+5']

Presenter affiliation: School of Life Sciences, Peking University, Beijing, China; PKU-IDG/McGovern Institute for Brain Research, Beijing, China.

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WEDNESDAY, June 17—9:00 AM

SESSION 2 SYNAPSES FROM MOLECULES TO DYNAMICS I

Chairperson: **Xiaowei Chen**, Third Military Medical University, Chongqing, China

Imaging synapses in vivo

Arthur Konnerth [20'+5']

Presenter affiliation: Technical University of Munich, Munich, Germany.

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Imaging the engram synapse

Bong-Kiun Kaang [20'+5']

Presenter affiliation: Institute for Basic Science, Daejeon, South Korea.

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Optical measurement of synaptic plasticity in vivo

Michael Hausser [20'+5']

Presenter affiliation: University College London, London, United Kingdom.

PRISM—Single-round high-plex spatial RNA imaging reveals 3D cell atlas and subcellular RNA landscapes in mouse brain

Tianyi Chang, Shihui Zhao, Kunyue Deng, Zhizhao Liao, Mingchuan Tang, Chunhong Zheng, Yanyi Huang [10'+5']

Presenter affiliation: BIOPIC, Peking University, Beijing, China.

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WEDNESDAY, June 17—10:50 AM

SESSION 3 SYNAPSES FROM MOLECULES TO DYNAMICS II

Chairperson: **Jennifer Sun**, University College London, London,
United Kingdom

**Dissociating hallucinogenic and neuroplastic effects of
psychedelics in the mouse brain**

Jacob J. Baker, Emily Kogan, Shaorong Ma, Ju Lu, Yi Zuo [20'+5']
Presenter affiliation: University of California Santa Cruz, Santa Cruz,
California. 9

Deciphering the synaptic roots of cognitive dysfunction

Gordon X. Wang [20'+5']
Presenter affiliation: Stanford University, Stanford, California. 10

Proteostatic machinery at neuronal synapses

Chao Sun [20'+5']
Presenter affiliation: Aarhus University, Aarhus, Denmark. 11

**DOCK4 enhances NMDA receptor function in VLO to activate
VLO-vIPAG descending analgesic pathway**

Yaorong Yang, Jinhai Xu, Yujun Feng, Jiale Ren, Xiaoqing Chen, Daji
Guo, Wen-Cai Ye, Bin Jiang, Lei Shi [10'+5']
Presenter affiliation: Jinan University, Guangzhou, China. 12

WEDNESDAY, June 17—3:00 PM

POSTER SESSION

**Temporal association cortex gates sound-evoked arousal from
NREM sleep**

Haipeng Yu, Jincheng Wang, Ruiqi Pang, Yu Ding, Yi Zhou
Presenter affiliation: School of Psychology of Army Medical University,
Chongqing, China. 13

Toward awake single-cell calcium imaging in the area postrema

Yuheng Hu
Presenter affiliation: Westlake University, School of Life Sciences,
Hangzhou, China. 14

The effect of psilocybin on behavior and dendritic spine dynamics in the chronically stressed brain

Emily Kogan, Ju Lu, Yi Zuo

Presenter affiliation: University of California, Santa Cruz, Santa Cruz, California.

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Simultaneous imaging of perivascular astrocytes and vascular oxygenation using near-infrared fluorescent protein-based photoacoustic microscopy

Zhihui Qi, Kahei Chan, Zhiming Ye, Kun Yu, Hsuan Lo, Yang Hu, Liming Nie, Zhongxing Wang, Maojin Yao

Presenter affiliation: Sun Yat-Sen Memorial Hospital, Guangzhou, China; The First Affiliated Hospital, Sun Yat-sen University, Guangzhou, China.

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Neural population dynamics of movement and somatosensory encoding in the subthalamic nucleus and zona incerta

Hao-Yun Teng, Bing-Shiuan Wu, Chih-Ching Chung, Yu-Wei Wu

Presenter affiliation: Academia Sinica, Taipei, China; Taiwan National Yang Ming Chiao Tung University and Academia Sinica, Taipei, China.

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Basis of nanoscale function of neuromodulatory GPCR inhibitory pathways in long-term-depression

Viviana Villicaña Muñoz, Daniele Stajano, Pauline Belzanne, Daniel Choquet, Jérôme Baufreton, Eric Hosy

Presenter affiliation: Université de Bordeaux, CNRS UMR5297, Bordeaux, France.

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E-SCAPE—Single-objective light sheet microscopy with equivalent field of view and numerical aperture to conventional light-sheet systems

Xiaou Wang, Shilin Fang, Zhiyuan Wang, Runhan Tian, Yu Mu

Presenter affiliation: Chinese Academy of Sciences, Shanghai, China; University of Chinese Academy of Sciences, Beijing, China.

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Encoding of learned forelimb movements by presynaptic inputs to motor cortical dendritic spines

Yu-Hsuan Wu, Tzu-Hsien Liu, Poulomi Adhikari, Yu-Wei Wu

Presenter affiliation: Academia Sinica, Taipei, China; Academia Sinica and National Taiwan University, Taipei, China.

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Physics-informed neural representation enables high-resolution, artifact-free volumetric wide-field microscopy

You Zhou, Chenyu Xu, Zhouyu Jin, Bo Xiong, Xun Cao, Ning Gu

Presenter affiliation: Nanjing University, Nanjing, China. 21

Integrated cellular morphometrics link cortical architecture to tactile function in the aging primary somatosensory cortex

Xiaoyi Zhan, Pengcheng Tan, Tirzah Tan, Zev Dribin, Chenrui Xu, Chia-Chien Chen

Presenter affiliation: Duke Kunshan University, Suzhou, China. 22

WEDNESDAY, June 17—7:00 PM

SESSION 4 **NEURAL CIRCUIT BASIS OF DEVELOPMENT AND BEHAVIOR I**

Chairperson: **Ju Lu**, Lehigh University, Bethlehem, Pennsylvania, USA

Competition in brain development and a novel approach to neural coding

Michael Stryker [20'+5']

Presenter affiliation: University of California, San Francisco, San Francisco, California. 23

Dissecting the neural circuitry underlying motivated behavior and metabolic regulation

Bo Li [20'+5']

Presenter affiliation: Westlake University, Hangzhou, China. 24

Imaging neural interactions between brain areas at cellular resolution

Mark J. Schnitzer [20'+5']

Presenter affiliation: Stanford University, Stanford, California. 25

Revealing cell-type-specific circuit reorganization after intracortical microstimulation using two-photon imaging

Ming W. Fang, Maria C. Dadarlat, Jennifer Y. Sun [10'+5']

Presenter affiliation: University College London, London, United Kingdom. 26

Targeting insulo-frontal pathway to reduce stress-evoked cognitive rigidity

Shaorong Ma, Kuan Hong Wang, Yi Zuo [10'+5']

Presenter affiliation: University of California Santa Cruz, Santa Cruz, California. 27

Newborn neurons in the adult hippocampus contribute to CA3 representational drift

Xin Su, Sebastian Jessberger [10'+5']

Presenter affiliation: University of Zurich, Zurich, Switzerland. 28

THURSDAY, June 18—9:00 AM

SESSION 5 NEURAL CIRCUIT BASIS OF DEVELOPMENT AND BEHAVIOR II

Chairperson: **Gordon Wang**, Stanford University, Stanford, California, USA

All-optical interrogation reveals serotonergic modulation of motor population geometry during behavioral quiescence

Kexin Qi, Yuming Chai, Guodong Tan, Daguang Li, Quan Wen [20'+5']

Presenter affiliation: University of Science and Technology of China, Hefei, China. 29

A hierarchical attractor–integrator circuit implements serial dependence

Yu Mu [20'+5']

Presenter affiliation: Chinese Academy of Sciences, Shanghai, China; Chinese Academy of Sciences, University of Chinese Academy of Sciences, Beijing, China. 30

Mesoscale neural recording and analysis

Jiamin Wu [20'+5']

Presenter affiliation: Tsinghua University, Beijing, China. 31

Unraveling emotion and memory—Optical and mathematical dissection of prefrontal neural population dynamics

Masakazu Agetsuma [10'+5']

Presenter affiliation: National Institutes for Quantum Science and Technology, Chiba, Japan; Tokyo University of Science, Tokyo, Japan. 32

THURSDAY, June 18—10:50 AM

SESSION 6 NEURAL CIRCUIT BASIS OF DEVELOPMENT AND BEHAVIOR III

Chairperson: **Shaorong Ma**, University of California, Santa Cruz, California, USA

What the brain vascular connectome does and does not inform us about neurovascular and flow dynamics

David Kleinfeld [20'+5']

Presenter affiliation: University of California at San Diego, La Jolla, California.

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Holistic bursting cells

Xiaowei Chen, Hongbo Jia, Meng Wang, Ruijie Li, Jiahui Zhu, Junxia Pan [20'+5']

Presenter affiliation: Third Military Medical University, Chongqing, China; Guangyang Bay Laboratory, Chongqing, China.

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Glial regulation of neuronal activity and plasticity in the motor cortex

Wen-Biao Gan [20'+5']

Presenter affiliation: Shenzhen Bay Laboratory, Shenzhen, China.

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Parabrachial-thalamic circuitry driving nociplasticity for affective motivational responses to cold pain

Mousmi Rani, Nila P. Babu, Arnab Barik [10'+5']

Presenter affiliation: Indian Institute of Science, Bangalore, India.

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THURSDAY, June 18—2:00 PM

SESSION 7 FROM MICRO TO NANO-SCALE I

Chairperson: **Logan Grosenick**, Cornell Medical School, New York, New York

Cross-scale imaging of neural circuit structure and dynamics

Guo-Qiang Bi [20'+5']

Presenter affiliation: University of Science and Technology of China, Hefei, China.

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Mathematically surpassing microscope limits to enable high-throughput super-resolution imaging <u>Haoyu Li</u> [20'+5'] Presenter affiliation: Harbin Institute of Technology, Harbin, China.	38
From technology to discovery—Deeper, faster, and colorful photoacoustic imaging in neuroscience <u>Junjie Yao</u> , Bo Xiang [10'+5'] Presenter affiliation: Duke University, Durham, North Carolina.	39
Particles to patterns—Computational imaging and the impact of urban particulate matter pollution on zebrafish neurodevelopment <u>William Antcliff</u> , Molly O. Mann, Dr. Claire Thornton, Prof. Imelda M. McGonnell [10'+5'] Presenter affiliation: Royal Veterinary College, University of London, London, United Kingdom.	40
Integrating microprism two-photon imaging with MEAs for chronic, depth-resolved neural interface analysis Anne Gormaley, Alberto Vazquez, <u>Tracy Cui</u> [10'+5'] Presenter affiliation: University of Pittsburgh, Pittsburgh, Pennsylvania.	41

THURSDAY, June 18—3:50 PM

SESSION 8 FROM MICRO TO NANO-SCALE II

Chairperson: **Quan Wen**, University of Science and Technology of China, Hefei, China

Nanoscale imaging of the extracellular space in amyloid brain tissue <i>in vivo</i> <u>Valentin Nägerl</u> [20'+5'] Presenter affiliation: University Medical Center Göttingen, Göttingen, Germany.	42
Elucidating nanoscale architectures with 4Pi localization microscopy <u>Yongdeng Zhang</u> [10'+5'] Presenter affiliation: Westlake University, Hangzhou, China.	43

Heterogeneity of white-matter organization in the human brain

Emily Turschak, Wan-Qing Yu, Kevin Takasaki, Steven J. Cook, Russel Torres, Olga Gliko, Ayana Hellevik, Kareena Villalobos, Elizabeth Guadarrama, Soumya Chatterjee, Eric Perlman, Connor Laughland, Adam Glaser, Uygur Sümbül, R Clay Reid [10'+5']

Presenter affiliation: Allen Institute, Seattle, Washington.

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Connectomic analysis of a neural machine for adaptive sensation

Yumeng Qi, Haibin Sheng, Wenjing Wang, Jing Liu, Fangfang Wang, Yi Jiang, Haoyu Wang, Juan Chen, Ming Lei, Hua Han, Yunfeng Hua [10'+5']

Presenter affiliation: Shanghai Jiao Tong University School of Medicine, Shanghai, China.

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A V-shaped protein tag for FM/EM dual-visible molecular identification in cryo-ET

Feng Luo, Qiangjun Zhou [10'+5']

Presenter affiliation: Vanderbilt University, Nashville, Tennessee.

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THURSDAY, June 18—5:30 PM

COCKTAILS and BANQUET

FRIDAY, June 19

Visit to Old Suzhou

Departure