Yohsuke Fukai

Researcher

Nonequilibrium Physics of Living Matter
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Work

Sep. 2022-present Postdoctoral Researcher,
Nonequilibrium Physics of Living Matter Riken Hakubi Research Team,
RIKEN Center for Biosystems Dynamics Research.

Apr. 2019-Sep. 2022 Special Postdoctoral Researcher,
Nonequilibrium Physics of Living Matter Riken Hakubi Research Team,
RIKEN Center for Biosystems Dynamics Research.

Education

Apr. 2016-Mar. 2019 Ph. D. course, Dept. of Physics, Grad. Shool of Science, The University of Tokyo
Doctor of Philosophy, Physics, the University of Tokyo, 2019.

Oct. 2017-Dec. 2017 Visiting student in School of Physics, College of Sciences, Georgia Inst. of Technology.

Apr. 2015-Sep. 2017 Visiting student in Dept. of Physics, School of Science, Tokyo Inst. of Technology.

Apr. 2014-Mar. 2016 Master course, Dept. of Physics, Grad. Shool of Science, The University of Tokyo
Master of Science, Physics, the University of Tokyo, 2016.

Apr. 2012-Mar. 2014 Bachelor course, Dept. of Physics, Faculty of Science, The University of Tokyo
Bachelor of Science, Physics, the University of Tokyo, 2014.

Apr. 2010-Mar. 2012 Bachelor course, College of Arts and Sciences, The University of Tokyo.

Teaching Experience

Oct. 2015-Feb. 2016 Teaching assistant of undergraduate class
"Physics experiment II: Phase transitions" (Liquid crystal experiments),
Dept. of Physics, Faculty of Science, The Univ. of Tokyo.

Grants and Fellowships

Sep. 2024-present	ACT-X Research Area "Life and Information" Japan Science and Technology Agency.
Apr. 2022-present	Grant-in-Aid for Early-Career Scientists Japan society for the promotion of science.
Apr. 2019-Sep. 2022	Special Postdoctoral Researcher Program RIKEN.
Apr. 2017-Mar. 2019	Research Fellow of the Japan Society for the Promotion of Science (DC2) Japan Society for the Promotion of Science.
Sep. 2014-Mar. 2019	Advanced Leading Graduate Course for Photon Science fellowship student The University of Tokyo.

Publications

Y. T. Fukai et al., *Gene-scale in vitro reconstitution reveals histone acetylation directly controls chromatin architecture*, Nov. 2024, DOI: 10.1101/2024.11.08.622658

T. A. Katoh et al., "Optical microscopic imaging, manipulation, and analysis methods for morphogenesis research", Microscopy **73**, 226–242 (2024) DOI: 10.1093/jmicro/dfad059

Y. T. Fukai and K. Kawaguchi, "LapTrack: linear assignment particle tracking with tunable metrics", Bioinformatics **39**, btac799 (2023) DOI: 10.1093/bioinformatics/btac799

Y. T. Fukai and K. A. Takeuchi, "Initial perturbation matters: Implications of geometry-dependent universal Kardar–Parisi–Zhang statistics for spatiotemporal chaos", Chaos: An Interdisciplinary Journal of Nonlinear Science **31**, 111103 (2021) DOI: 10.1063/5.0071658

T. Iwatsuka et al., "Direct Evidence for Universal Statistics of Stationary Kardar-Parisi-Zhang Interfaces", Physical Review Letters **124**, 250602 (2020) DOI: 10.1103/PhysRevLett.124.250602

Y. T. Fukai and K. A. Takeuchi, "Kardar-Parisi-Zhang Interfaces with Curved Initial Shapes and Variational Formula", Physical Review Letters **124**, 060601 (2020) DOI: 10.1103/PhysRevLett.124.060601

Y. T. Fukai, "Experimental and numerical investigation of universal fluctuations in out-of-equilibrium interface growth", en, Ph. D. Thesis (the University of Tokyo, Tokyo, Japan, 2018)

Y. T. Fukai and K. A. Takeuchi, "Kardar-Parisi-Zhang Interfaces with Inward Growth", Physical Review Letters **119**, 030602 (2017) DOI: 10.1103/PhysRevLett.119.030602

International Conference Activities

Yohsuke T. Fukai, Tomoya Kujirai, Masatoshi Wakamori, Hitoshi Kurumizaka, Takashi Umehara and Kyogo Kawaguchi, "Reconstituted long chromatin array reveals modification pattern-dependent structure", Poster Session presented at "SMC complexes: orchestrating diverse genome functions", Numazu, Japan October, 2024.

Yohsuke T. Fukai, Keiichi Tamai, Hiroki Yamaguchi and Tetsuya Hiraiwa, "Universal interface fluctuations for absorbing phase transitions", Oral Session presented at "Recent developments in Kardar-Parisi-Zhang universality", Kyoto, Japan September, 2024.

Yohsuke T. Fukai and Kyogo Kawaguchi, "Reconstitution and characterization of long chromatin array with defined nucleosome modification patterns and positional barcodes", Poster Session presented at "RIKEN BDR Symposium 2024", Kobe, Japan March, 2024.

Yohsuke T. Fukai and Kyogo Kawaguchi, "Single-molecule observation of long chromatin array reveals modification-pattern-dependent fluctuations", Poster Session presented at "28th International Conference on Statistical Physics, Statphys28", Tokyo, Japan August, 2023.

Yohsuke T. Fukai and Kyogo Kawaguchi, "Reconstitution and observation of long chromatin array with defined nucleosome modification patterns", Poster Session presented at "RIKEN BDR Symposium 2023", Kobe, Japan March, 2023.

Tingying Peng, Yohsuke Fukai, Timothy Morello, Nicholas Schaub and Yu Liu, "BaSiCPy - a Python tool for microscopy illumination correction", Poster Session presented at "Bioengineering Solutions for Biology and Medicine 2022", Munich, Germany July, 2022.

Yohsuke T. Fukai and Kyogo Kawaguchi, "Reconstituting and observing long chromatin with defined nucleosome modification patterns", Poster Session presented at "RIKEN BDR Symposium 2022", March, 2022.

Yohsuke T. Fukai, Keiichi Tamai, Hiroki Yamaguchi and Tetsuya Hiraiwa, "Universal interface fluctuations for absorbing-state phase transitions", Oral Session presented at "27th International Conference on Statistical Physics, Statphys27", Buenos Aires, Argentina July, 2019.

Yohsuke T. Fukai and Masaki Sano, "Large-scale flow out of spatiotemporal chaos in electroconvection of cholesteric liquid crystal", Oral Session presented at "APS March Meeting 2019", Massachusetts, USA March, 2019.

Seminars

Yohsuke T. Fukai, "Software development toward fine-tunable and automatable bioimage analysis in Python", Helmholtz Munich (Online), Germany June, 2022.

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