

Young Scientist Award of the Physical Society of Japan, 2025

Every year, the Physical Society of Japan presents its Young Scientist Awards to young researchers to recognize outstanding achievements in their early research careers. This year's winners were recently decided by the board of directors of the JPS based on the recommendations of the selection committees established in 19 divisions of the JPS. The maximum number of winners from each division has been determined based on the number of talks given at the Annual Meetings in the past 3 years. Each winner is to give an award lecture at the next Annual Meeting of the JPS, which is scheduled for March 2025. Here is the list of winners and their research topics.

Theoretical Particle Physics:

Go Noshita(University of Tokyo)

"Mathematical study of supersymmetric gauge theory and superstring theory through infinite-dimensional quantum algebras"

Yu Hamada(DESY)

"New topological solitons in extended Higgs models"

Motoko Fujiwara(Technische Universität München)

"Research on dark matter search through temperature observations of neutron stars"

Experimental Particle Physics:

INADA, Tomohiro(European Organization for Nuclear Research)

"First Direct Observation of Collider Nutorinos with FASER at the LHC"

UNO, Kenta(High Energy Accelerator Research Organization, Institute of Particle and Nuclear Studies)

"Search for lepton-flavor-violating tau-lepton decays to $\ell\gamma$ at Belle"

MORINAGA, Masahiro(The University of Tokyo, International Center for Elementary Particle Physics)

"Search for long-lived charginos based on a disappearing-track signature using 136 fb^{-1} of pp collisions at $\sqrt{s} = 13 \text{ TeV}$ with the ATLAS detector"

Theoretical Nuclear Physics:

Tomona Kinugawa(Department of Physics, Tokyo Metropolitan University)

"Theoretical study on the compositeness of exotic hadrons"

Experimental Nuclear Physics:

Noritaka Kitamura(Center for Nuclear Study, University of Tokyo)

"Gamma-ray spectroscopy of ^{32}Mg and ^{30}Mg for a study of 'Island of Inversion'"

Shumpei Koyama(RIKEN Nishina Center Nuclear Dynamics Research Group)

"Study of mirror symmetry near the drip lines through the spectroscopic measurements of unbound nucleus ^8C "

Yuki Fujikawa(RCNP, Osaka University)

"Search for the 6α condensed states in ^{24}Mg using $^{12}\text{C} + ^{12}\text{C}$ scattering"

Cosmic Ray and Astrophysics:

Yuichiro TADA(IAR & Department of Physics, Nagoya University)

"Non-perturbative understanding of inflationary fluctuations by stochastic formalism"

KATO Sei(Institute for Cosmic Ray Research, University of Tokyo)

"Search for galactic cosmic-ray accelerators with very-high-energy gamma-ray observations"

HARADA Masayuki(Institute for Cosmic Ray Research, University of Tokyo)

"Search for supernova relic neutrinos with Super-Kamiokande"

Beam Physics:

Yuga Nakazawa(RIKEN Nishina Center for Accelerator-Based Science)

"Development of a muon linac for the J-PARC muon $g-2$ /EDM experiment"

Zechen Lan(Osaka University)

"Development of single-shot laser-driven neutron resonance spectroscopy for temperature profiling"

Division 1 (Atomic and Molecular physics, Quantum Electronics, Radiation):

Koki Ono(Department of Physics, Graduate School of Science, Kyoto University)

"Quantum simulation and new physics search by exploiting a clock transition of ultracold ytterbium atoms"

Kaoru Mizuta(Department of Engineering, University of Tokyo)

"Optimal quantum algorithms for simulating nonequilibrium quantum many-body dynamics"

Kazuki Yamamoto(Department of Physics, Tokyo Institute of Technology)

"Theory of fermionic superfluidity and critical phenomena in ultracold atoms subject to dissipation"

Division 2 (Plasma):

Yuki Takemura(National Institute for Fusion Science)

"Research on Controlling MHD Instabilities with Magnetic Island in Magnetically Confined Fusion Plasmas"

Division 3 (Magnetism):

NGUYEN DUY KHANH(Department of Applied Physics, The University of Tokyo)

"Discovery of extremely small size of magnetic skyrmions stabilized by novel itinerant-electron-mediated mechanism"

Terufumi YAMAGUCHI(RIKEN Center for Emergent Matter Science (CEMS))

"Analysis of Nonlinear Spin Dynamics and Application to Reservoir Computing"

Yasufumi Araki(Advanced Science Research Center, Japan Atomic Energy Agency)

"Theoretical formulation and validation of quantum geometric effects in spintronics"

Division 4 (Semiconductors, Mesoscopic Systems and Quantum Transport):

Akito Noiri(Center for Emergent Matter Science, RIKEN)

"Developments of qubits and quantum computation using semiconductor quantum dots"

Kazuki Yokomizo(Department of Physics, University of Tokyo)

"Construction of non-Bloch band theory of non-Hermitian systems and its applications"

Division 5 (Optical Properties of Condensed Matter):

Kento Uchida(Division of Physics and Astronomy, Graduate School of Science, Kyoto University)

"Extreme nonlinear spectroscopy in solids using intense infrared light"

Yoshihiro Okamura(Quantum-Phase Electronics Center, School of Engineering, The University of Tokyo)

"Terahertz optical phenomena derived from quantum geometry"

Division 6 (Metal Physics (Liquid Metals, Quasicrystals), Low Temperature Physics (Ultralow Temperatures, Superconductivity, Density Waves)):

Ueki Hikaru(Hearne Institute for Theoretical Physics, Department of Physics & Astronomy, Louisiana State University)

"Study of superconductivity and related phenomena by development of microscopic theories"

Katayama Haruna(Hiroshima University)

"Theoretical studies of the Hawking radiation using superconducting quantum circuits"

Division 7 (Molecular Solids):

Keishi Sunami(National Institute of Advanced Industrial Science and Technology (AIST))

"Exploration of novel magnetic excitations and functional properties in electron-lattice coupled organic ferroelectrics"

Shuhei Fukuoka(Department of Condensed Matter Physics, Graduate School of Science, Hokkaido

University)

"Study of p-d interaction and Mott transition in organic conductors"

Division 8 (Strongly Correlated Electron Systems):

Kentaro Ueda(Department of Applied Physics, Graduate School of Engineering, University of Tokyo)

"Study of topological cross-correlation in rare-earth compounds"

Shunsuke Kitou(Graduate School of Frontier Science, The University of Tokyo)

"Visualization of valence electron orbitals in strongly correlated electron materials"

Akito Daido(Department of Physics, Graduate School of Science, Kyoto University)

"Visualization of valence electron orbitals in strongly correlated electron materials"

Rina Tazai(Kyoto university, YITP, condensed matter theory group)

"Microscopic Origin of Quantum Phase Transitions in Kagome Superconductor AV_3Sb_5 (A=K,Rb,Cs)"

Division 9 (Surfaces & Interfaces, Crystal Growth):

Masahiro Haze(The Institute for Solid State Physics, the University of Tokyo)

"Static and dynamic properties of surface magnetism studied by scanning tunneling microscopy"

Division 10 (Dielectrics, Ferroelectricity, Lattice Defects and Nanostructures, Phononic Properties, and X-ray and Particle Beams):

Jumpei Nakamura(Muon Science Laboratory, Institute of Materials Structure Science, KEK)

"Muonium formation in group 14-16 semiconductors"

Division 11 (Fundamental Theory of Condensed Matter Physics, Statistical Mechanics, Fluid Dynamics, Applied Mathematics, Socio- and Econophysics) :

Kenji Itao(RIKEN Center for Brain Science (CBS))

"Principles of the Emergence of Diverse Human Social Structures: Toward the Construction of Universal Anthropology"

Kosuke Nakano(Center for Basic Research on Materials (CBRM), National Institute for Materials Science (NIMS))

"Development of a computational scheme for forces acting on atoms using first-principles quantum Monte Carlo method"

Kazusa Beppu(Department of Applied Physics, School of Science, Aalto University)

"Study on the formation of active turbulence and its control in swimming bacterial populations"

Division 12 (Soft Matter Physics, Chemical Physics, Biophysics):

Marie Tani(Graduate School of Science, Kyoto University)

"Physical Laws and Mechanisms Hidden in Everyday Soft Matter-Related Phenomena"

Mitsusuke Tarama(Graduate School of Science, Kyushu University)

"Active dynamics of cell migration and tissue formation"

Taiki Yanagishima(Graduate School of Science, Kyoto University)

"Emergence of Stability in Glasses due to Microscopic Mechanical Homogeneity"