

Young Scientist Award of the Physical Society of Japan, 2024

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 2024. Here is the list of winners and their research topics.

Theoretical Particle Physics:

Kensuke Akita(Institute for Basic Science)

“A precision calculation of relic neutrino decoupling”

Junsei Tokuda(Center for Theoretical Physics of the Universe, Institute for Basic Science)

“Positivity bounds for scattering amplitudes in gravitational theory”

Okuto Morikawa(Osaka University)

“Studies on generalized symmetries in lattice field theory”

Experimental Particle Physics:

SHIMIZU, Nobuhiro(International Center for Hadron Astrophysics, Chiba University)

“First search for $K_L \rightarrow \pi^0 \gamma$ ”

BRONNER, Christophe(Institute for Cosmic Ray Research, University of Tokyo)

“Improved constraints on neutrino mixing from the T2K experiment with 3.13×10^{21} protons on target”

OTONO, Hidetoshi(Research Center for Advanced Particle Physics, Kyushu University)

“The tracking detector of the FASER experiment”

Theoretical Nuclear Physics:

Yuuka Kanakubo(University of Jyväskylä)

“Construction of a framework for production of quark-gluon plasma fluid based on core-corona picture”

Hidetoshi Taya(RIKEN iTHEMS)

“Fundamental research on cooperative phenomena in perturbative and nonperturbative particle production processes under electric fields”

Takeru Yokota(RIKEN, Interdisciplinary Theoretical and Mathematical Sciences Program)

“Construction of energy density functional with functional-renormalization-group method”

Experimental Nuclear Physics:

Masaomi Tanaka(Kyushu University, Faculty of Arts and Science)

“Evolution of neutron skin probed by nuclear fragmentation reactions”

Momo Mukai(Nagoya University)

“Comprehensive nuclear spectroscopy of neutron-rich nuclei toward the N=126 waiting points”

Takuya Nanamura(Japan Atomic Energy Agency)

“Differential cross section measurement and phase shift analysis for Σ^+p elastic scattering”

Cosmic Ray and Astrophysics:

Nanami Kawada(Research Center for Neutrino Science, Tohoku University)

“Spectroscopic measurement of geoneutrinos from uranium and thorium with KamLAND”

Tomohiko Oka(Research Organization of Science and Technology, Ritsumeikan University)

“Multiwavelength data analysis of supernova remnants for unraveling of acceleration mechanisms of cosmic rays”

Sho Fujibayashi(Max Planck Institute for Gravitational Physics at Potsdam)

“Comprehensive study on the mass ejection and nucleosynthesis in binary neutron star mergers”

Beam Physics:

Masayasu HATA(Kansai Institute for Photon Science, National Institutes for Quantum Science and Technology)

“Research on plasma dynamics for laser-driven ion beam applications”

Takaaki YAMAGUCHI(Accelerator Laboratory, High Energy Accelerator Research Organization)

“Systematic study on the static Robinson instability in an electron storage ring”

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

Ryoichi Saito(School of Science, Tokyo Institute of Technology)

“Matter-wave interference of a trapped single ion for the development of an ion trap gyroscope”

Akinobu Niozu(Graduate School of Advanced Science and Engineering, Hiroshima University)

“Non-equilibrium structural dynamics of rare-gas clusters studied by XFEL”

Yuki Miyazawa(Institute of Innovative Research, Tokyo Institute of Technology)

“Bose-Einstein condensate of europium atoms”

Division 2 (Plasma):

Kunihiro Ogawa(National Institute for Fusion Science)

“Energetic particle confinement study in helical plasmas”

Masato Ota(National Institute for Fusion Science)

“Study of relativistic Coulomb field by electro-optic sampling”

Division 3 (Magnetism):

Takashi Kikkawa(Department of Applied Physics, Graduate School of Engineering, The University of Tokyo)

“An experimental study on magnon, phonon, and nuclear spintronics”

Yuya Haraguchi(Tokyo University of Agriculture and Technology)

“Development of new Kitaev materials”

Junji Fujimoto(Department of Electrical Engineering, Electronics and Applied Physics, Saitama University)

“Theoretical study of physical phenomena caused by electric current vorticity”

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

Ryo Okugawa(Department of Applied Physics, Tokyo University of Science)

“Exploration of novel properties in various topological phases through model construction and analysis”

Kenji Yasuda(Department of Physics, Massachusetts Institute of Technology)

“Symmetry control and functionality at the stacking interface of two-dimensional materials”

Division 5 (Optical Properties of Condensed Matter):

Katsumasa Yoshioka(NTT Basic Research Laboratories)

“Pioneering Terahertz Spectroscopy Techniques for Investigating Ultrafast Local and Nonlocal Responses”

Takayuki Kurihara(Institute of Solid State Physics)

“Spectroscopy and technical advancement of nonlinear magnonics in terahertz to mid-infrared”

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

Sachio Komori(Department of Physics, School of Science, Nagoya university)

“Research on unconventional proximity effects at superconductor/ferromagnet interfaces”

Shun Maegochi(Hitachi, Ltd.)

“Experimental study of nonequilibrium phase transitions using a superconducting vortex system”

Division 7 (Molecular Solids):

Shusaku Imajo(The Institute for Solid State Physics, The University of Tokyo)

“Study on unconventional superconductivity of molecular charge-transfer salts”

Takuro Sato(Institute for Molecular Science)

“Study of novel non-equilibrium electromagnetic responses in strongly correlated electron/spin systems”

Division 8 (Strongly Correlated Electron Systems):

Naoya Kanazawa(Institute of Industrial Science, University of Tokyo)

“Formation of topological spin textures and emergent electromagnetic properties in chiral crystals”

Maximilian Hirschberger(Department of Applied Physics, University of Tokyo)

“Thermoelectric studies of electronic structure in quantum materials”

Shunsaku Kitagawa(Division of Physics and Astronomy, Graduate School of Science, Kyoto University)

“Study of multiple superconducting phases due to sublattice degrees of freedom”

Akihiko Ikeda(Department of Engineering Science, University of Electro-Communications)

“Uncovering novel electronic phases in LaCoO₃ up to 600 Tesla using original strain gauge for 1000 T”

Division 9 (Surfaces & Interfaces, Crystal Growth):

Naoya Kawakami(Department of Electrophysics, National Yang-Ming Chiao Tung University)

“Research on silicene growth on Ag(111)”

Naoki Nagatsuka(Department of Chemistry, Graduate School of Science, Kyoto University)

“Electronic properties of surface defects and their effect on the adsorption structure of molecules”

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

Koji Michishio(National Institute of Advanced Industrial Science and Technology (AIST))

“Generation of high-quality positron beams using the positron trapping method and its applications”

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

Hiroyasu Tajima(Department of Communication Engineering and Informatics, University of Electro-Communications)

“Study of the effect of coherence on quantum gates and quantum engines”

Jumpei Yamagishi(Department of Basic Science, The University of Tokyo)

“Linear response theory of metabolic systems from microeconomic perspective”

Yoshihiko Nishikawa(Graduate School of Information Sciences, Tohoku University)

“Studies on static and dynamic properties of structural glasses based on large scale numerical simulations”

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

Tetsuro Nagai(Fukuoka University)

“Mass transport in heterogeneous systems studied using new dynamic Monte Carlo simulations and large-scale molecular dynamics simulations”

Yuji Higuchi(Kyushu University)

“Understanding structures and physical properties of soft matter by molecular simulations”

Shunsuke Yabunaka(Japan Atomic Energy Agency)

“Theoretical study of phase transitions and bifurcation phenomena in soft (active) matters”

Division 13 (Physics Education, History of Physics, Environmental Physics):

Hajime INABA(Meiji University School of Political Science and Economics)

“Historical investigations into the development of statistical mechanics”