June 16, 2026
NIMS

Announcement of NIMS Award 2026 Winners

The NIMS Award 2026 goes to Prof. Ryoji Kanno and Prof. Masahiro Tatsumisago for their pioneering research on solid electrolytes enabling all-solid-state batteries.

NIMS (National Institute for Materials Science) has decided to present the NIMS Award 2026 to Prof. Ryoji Kanno from the Institute of Science Tokyo and Prof. Masahiro Tatsumisago from Osaka Metropolitan University. They brought about significant innovations to “all-solid-state batteries,” in a field which in recent years has seen an intensifying of global competitions toward next-generation energy storage technologies.

Summary

Prof. Ryoji Kanno
Institute Professor
Institute of Science Tokyo

Prof. Masahiro Tatsumisago
Executive Advisor
Osaka Metropolitan University

Prof. Ryoji Kanno and Prof. Masahiro Tatsumisago pioneered the path leading to high-performance all-solid-state batteries through the development of sulfide-based ion-conducting solid materials and the elucidation of their conduction mechanisms.
Prof. Kanno paved the way for crystalline solid electrolytes exhibiting high ionic conductivity, whereas Prof. Tatsumisago pioneered the development of amorphous solid electrolytes. These achievements have led to industrial applications, including automotive batteries and stationary energy storage systems, as a key technology for realizing safe and high-energy-density next-generation batteries, and have become an important technological foundation for achieving a carbon-neutral society. Both have made worldwide impacts on all-solid-state battery research and its practical applications, as befit the aim of the NIMS Award 2026.

The ceremony and recipients’ lectures for the NIMS Award 2026 will take place during the “NIMS Award Symposium 2026 - Engineering the Future of Solid State Batteries,” to be held on Tuesday, November 10 at the Tsukuba International Congress Center. The award-winning lectures will be delivered with the following titles:

Between Electrochemistry and Materials Science —The Road from Ionic Conductor to Solid-State Batteries— by Prof. Ryoji Kanno
Development of Glass-Based Inorganic Solid Electrolytes for All-Solid-State Batteries by Prof. Masahiro Tatsumisago

■NIMS Award

Established in 2007, this international award is annually presented to individual researchers or groups from one of the four major areas of materials science: 1. Environmental and Energy Materials, 2. Functional Materials, 3. Structural Materials, and 4. Basic Materials Science. The selection is based on a specific theme set each year and is conducted through a recommendation and rigorous assessment by a committee consisting of leading experts. Focusing on the area of environmental and energy materials, this year's selection was conducted under the theme of "Energy Storage Materials"

■NIMS Award Symposium

The event honors the achievements of its winners and promotes academic exchange by bringing together researchers from around the world engaged in cutting-edge research. As in the previous year, the Symposium for 2026 will be held at the Tsukuba International Congress Center and will feature an award ceremony, the award-winning lectures, invited talks, and presentations by NIMS researchers.
Please visit the official website for details:
https://www.nims.go.jp/nims-award-symposium/

Summary of Research Achievements

The work of the awardees has made comprehensive and pioneering contributions to realizing all-solid-state batteries, which is a key technology in next-generation energy storage, through the development of sulfide-based ion-conducting solid materials and the elucidation of their conduction mechanisms.
Prof. Ryoji Kanno developed crystalline sulfide solid electrolytes, including $Li_{10}GeP_2S_{12}$ (LGPS) and argyrodite-type materials, achieving superionic conductivity at room temperature that significantly exceeds that of conventional liquid electrolytes. Furthermore, he advanced the understanding of lithium-ion diffusion pathways based on studies of crystal structures and defect chemistry, and established guidelines for designing materials exhibiting high ionic conductivity.
Prof. Masahiro Tatsumisago pioneered amorphous and metastable crystalline materials exhibiting fast ion conduction through the development of ion-conducting glasses and glass-ceramics typified by the Li_2S–P_2S_5 system, thereby establishing a materials foundation for the practical application of sulfide-based solid electrolytes.
Together, their complementary approaches—spanning amorphous to crystalline materials—

established comprehensive principles for achieving fast ionic conduction and advanced the understanding of electrode/electrolyte interfaces. These achievements have laid the scientific and technological foundation for high-performance all-solid-state batteries.

Impact on Academia and Industry

The combined contributions of Prof. Kanno and Prof. Tatsumisago have transformed the field of solid-state ionics and energy materials science by integrating seemingly opposing approaches incorporating crystalline and amorphous solids into a unified framework for ion conduction. Their work has significantly advanced the fundamental understanding of fast ion transport and stimulated extensive global research activities, as reflected in the high citations of their publications.
From an industrial perspective, their discoveries have triggered the development of sulfide-based all-solid-state battery technologies, which are being actively studied for applications in electric vehicles, grid-scale energy storage, and portable electronics. Their work has provided essential materials and design guidelines that have accelerated industrial R&D worldwide.
By enabling safer and higher energy-density battery systems, these achievements are expected to play a crucial role in advancing next-generation energy technologies and contribute to the realization of a carbon-neutral society.

■ Glossary

(1) **All-solid-state battery**: a next-generation battery that uses solid materials as electrolytes, offering high safety and high energy density.
(2) **Sulfide-based materials**: materials containing sulfur as a main component, known for their high ionic conductivity in all-solid-state batteries.
(3) **Solid electrolyte**: a solid material that conducts ions and enables ion transport between electrodes in all-solid-state batteries.
(4) **Amorphous material**: a material in which atoms are not arranged in a regular, ordered structure.
(5) **Crystalline material**: a material with a regularly ordered crystal structure of atoms.

References: NIMS Award Winners of the Past Five Years and Their Achievements

Affiliation is at the time of the award

2021 **Prof. Tsuneya Ando (Tokyo Institute of Technology/The University of Tokyo, Japan)**
"Fundamental theoretical studies on quantum states of low-dimensional materials"
Prof. Allan H. MacDonald (University of Texas at Austin, USA)
Prof. Pablo Jarillo-Herrero (Massachusetts Institute of Technology, USA)
"Pioneering work of new quantum physics by twistronics"

2022 **Prof. Teruo Okano (Institute of Advanced Biomedical Engineering and Science, Tokyo Women's Medical University, Japan)**
"Development of cell sheet engineering using temperature-responsive polymers

and its application to regenerative medicine”

Prof. Kazuhiko Ishihara (Osaka University, Japan)

“Pioneering work in the development of biomimetic polymer biomaterials and their medical applications”

Prof. Donald E. Ingber (Wyss Institute for Biologically Inspired Engineering at Harvard University, USA)

“Proposal of the cellular tensegrity model and the invention of organ-on-a-chip technology”

2023 **Prof. Dierk Raabe (Max-Planck-Institut für Eisenforschung GmbH, Germany)**

“Pioneering research on the sustainability and microstructure-based design of advanced metallic alloys”

2024 **Prof. Yuichi Ikuhara (The University of Tokyo, Japan)**

“Contribution to material interface research through innovations in transmission electron microscopy”

Prof. Franz Josef Giessibl (Institute of Experimental and Applied Physics, University of Regensburg, Germany)

“Contribution to nanomaterial research through innovations in non-contact atomic force microscopy”

2025 **Prof. Tsutomu Miyasaka (Toin University of Yokohama, Japan)**

Prof. Henry J. Snaith (University of Oxford, UK)

Prof. Nam-Gyu Park (Sungkyunkwan University, Korea)

“Development and Practical Application of Perovskite Solar Cells”

The list of past winners since 2007 can be found here:
https://www.nims.go.jp/nims-award/en/award.html

Contact Details

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What is NIMS?

NIMS (National Institute for Materials Science) is a national research and development agency in Japan specializing in materials science.

Every technology that supports our daily lives—energy, environment, healthcare, infrastructure, mobility—is built upon “materials” and “substances”. NIMS not only conducts research in fundamental materials science but also promotes the dissemination and practical application of its research outcomes.
Throughout history, societal progress has been going hand in hand with advances in materials science. Today, as the world faces increasingly urgent environmental and resource challenges, the importance of materials science is greater than ever, serving as a key to developing sustainable solutions on a global scale.
Guided by its vision, “Change the World with Materials,” NIMS continues to pursue world-leading research aimed at realizing a sustainable and prosperous society.

【Reference】

NIMS is !	https://www.nims.go.jp/eng/nims/introduction.html
NIMS vision	https://www.nims.go.jp/eng/nims/profile.html