
TANAKA Memorial Foundation Announces Recipients of Precious Metals Research Grants

Junior Associate Professor Hiroaki Kubota of Tokai University presented Gold Award for enhancing development of model-based design and production technologies for electronic parts containing precious metals. Also receiving a Gold Award is Associate Professor Fumihiko Inoue of YOKOHAMA National University for formation of backside power delivery network using precious metal wires.

Development of production technologies based on construction of high-accuracy models and development of precious metal wires for three-dimensional mounting, a technological innovation in semiconductors, received awards

The TANAKA Memorial Foundation's Representative Director, Hideya Okamoto, announced the recipients of the FY2021 Precious Metals Research Grants.

Following a rigorous screening process, the Gold Awards, each for 2 million yen, were presented to Junior Associate Professor Hiroaki Kubota of Tokai University and Associate Professor Fumihiko Inoue of YOKOHAMA National University. In addition, five research projects received Silver Awards, and four Young Researcher Awards were presented.

The TANAKA Memorial Foundation undertakes programs designed to foster developments in new precious metal fields while contributing to the advancement of science, technology, and socio-economics for the overall enrichment of society. The research grant program was launched in FY1999 and has continued each year since with the goal of supporting the various challenges of the "new world opened up by precious metals." This year, the program's 23rd year, a total of 137 applications were received in a wide range of fields where precious metals can make contributions to the research and development of new technologies. A total of 16.6 million yen in research grants was awarded for 23 projects.

The names of the two Gold Award recipients, their research, and the reasons for their selection are below.

■ **Junior Associate Professor Hiroaki Kubota, Tokai University**
Enhancing development of model-based design and production technologies for electronic parts containing precious metals

This research seeks to develop model-based design and effectiveness evaluation using numerical analysis methods—represented by methods such as the finite element method—to minimize cost and takt time related to product design, prototyping, and process design. This research was highly rated for its study of model construction and developmental process efficiency using Ag-Cu alloys, which has the potential of helping the development of processing technologies and improvement of performance for precious metal spring contacts and other products.

■ **Associate Professor Fumihiko Inoue, YOKOHAMA National University**
Formation of backside power delivery network using precious metal wires

This research seeks to develop technology for the development of metal wire formation, which is an element technology for three-dimensional mounting that is gaining attention as an integration technology for advanced logic devices. This research, which is related to the formation of precious metal wires as new materials that fulfill the conditions of metal wires, was highly rated for being research and development that can significantly contribute toward the practical application of this technology.

Five Silver Awards, four Young Researcher Awards, and 12 Encouragement Awards were also granted. The recipients and an overview of the Precious Metals Research Grants are indicated below. Applications for the FY2022 research granted are scheduled to open in the fall.

List of FY2021 Precious Metals Research Grants Recipients

Platinum Award (0 award, 5 million yen)	
Non granted	
Gold Award (2 awards, 2 million yen each)	
Hiroaki Kubota, Junior Associate Professor, Tokai University	Enhancing development of model-based design and production technologies for electronic parts containing precious metals
Fumihiko Inoue, Associate Professor, YOKOHAMA National University	Formation of backside power delivery network using precious metal wires
Silver Awards (5 awards, 1 million yen each)	
Shoso Singubara, Professor, Kansai University	Formation of electroless ruthenium plating film and lowering its resistance
Yuichi Manaka, Researcher, National Institute of Advanced Industrial Science and Technology	Value conversion of NOx using precious metal catalyst
Yoko Yamabe-Mitarai, Professor, The University of Tokyo	Platinum group metal-based high entropy super heat-resistant material
Takuya Nakashima, Associate Professor, Nara Institute of Science and Technology	Creation of light-emitting materials based on precious metal clusters
Akitsu Shigetou, Principal Researcher, National Institute for Materials Science	Hybrid bonding of corrosion-resistant precious metals and organic materials at low temperature under atmospheric pressure
Young Researcher Awards (4 awards, 1 million yen each)	
Kosuke Ueki, Assistant Professor, KINDAI University	Development of Co-Cr-W-X alloy for next-generation stents that balances mechanical properties, corrosion resistance, biocompatibility, and X-ray visibility
Shinya Masuda, Project Research Associate, The University of Tokyo	Selective synthesis of gold cluster catalyst with high carrying rate of atomically precise size and composition
Taichi Goto, Assistant Professor, Toyohashi University of Technology	Development of high-frequency spin wave device using precious metals
Asuka Inada, Assistant Professor, University of Miyazaki	Development of innovative metal-organic framework formed using peptides and precious metals and its application in hydrogen storage medium

Encouragement Award (12 awards, 300,000 yen each)

Chen Chuantong, Associate Professor, Osaka University	Minamiki Tsukuru, Research Scientist, National Institute of Advanced Industrial Science and Technology
Hiyori Uehara, Assistant Professor, National Institutes of Natural Sciences	Shinjiro Takano, Research Associate, The University of Tokyo
Shoko Fujii, Medical Doctor, Tokyo Medical and Dental University	Hiroyoshi Ohtsu, Assistant Professor, Tokyo Institute of Technology
Sun Jian, Special researcher, Tokyo Institute of Technology	Masakazu Matsubara, Associate Professor, Tohoku University
Katsunori Yogo, Assistant Professor, Nagoya University	Kaneyoshi Yamamoto, Professor, Hosei University
Haruyuki Ishii, Associate Professor, Yamaguchi University	Yoshiaki Nishijima, Associate Professor, YOKOHAMA National University

Overview of the 2021 Precious Metals Research Grants**[Conditions]**

Research content that falls under any of the following

- New technology related to precious metals
- Research and development related to precious metals that bring about innovative evolution in products
- Research and development of new products using precious metals
- * Precious metal refers to eight elements of platinum, gold, silver, palladium, rhodium, iridium, ruthenium and osmium.
- * If development is conducted jointly (or planned to be) with other material manufacturers, please indicate so.
- * Products that have already been commercialized, put to practical use, or that are planned are not eligible.

[Grant Amounts]

- Platinum Award: 5 million yen (1 award)
- Gold Award: 2 million yen (1 award)
- Silver Awards: 1 million yen (4 awards)
- Young Researcher Awards: 1 million yen (2 awards)
- Encouragement Award: 300,000 yen (several awards)
- * The grant amount is treated as a scholarship donation.
- * Awards may not be granted in some cases.
- * The number of awards is subject to change.

[Eligible Candidates]

- Personnel who belong to (or work for) educational institutions in Japan (universities, graduate schools, or technical colleges) or public and related research institutions may participate.
- * As long as the applicant is affiliated with a research institution in Japan, the base of activity can be in Japan or overseas.
- * The Young Researcher Awards are for researchers under the age of 37 as of April 1, 2021.

[Application Period]

- 9am, September 1, 2021 (Wed) - 5pm, November 30, 2021 (Tue)

[Inquiries Concerning the Research Grant Program]

Precious Metals Research Grants Office

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■TANAKA Memorial Foundation

Established: April 1, 2015

Address: 22F Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo

Representative: Hideya Okamoto

Purpose of Business: To provide grants for research related to precious metals to contribute to the development and cultivation of new fields for precious metals, and to the development of science, technology, and the social economy.

Areas of Business: Provision of grants for scientific and technological research related to precious metals. Recognition of excellent analysis of precious metals and holding of seminars and other events.

■TANAKA Kikinzoku Kogyo K.K.

Headquarters: 22F, Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo

Representative: Koichiro Tanaka, Representative Director & CEO

Founded: 1885

Incorporated: 1918

Capital: 500 million yen

Employees: 2,453 (as of March 31, 2021)

Sales: JPY 1,251,066,897,000 (FY2020)

Main businesses:

Manufacture, sales, import and export of precious metals (platinum, gold, silver, and others) and various types of industrial precious metals products.

URL: <https://tanaka-preciousmetals.com>

<Press Inquiries>

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