PRESS RELEASE

March 31, 2025

TANAKA Memorial Foundation

TANAKA Memorial Foundation Announces Recipients of Precious Metals Research Grants

Ichiro Tanaka Awards Presented to Assistant Professor Akihiro Ishii of Tohoku University for New Developments in Half-Heusler Compounds as Highly Refractive Transparent Materials, and Professor Yu Matsuda of Waseda University for Establishment of a Temperature Measurement Technique for Highly Efficient Operation of Cryogenic Fluids Using Ruthenium Complexes

The TANAKA Memorial Foundation's Representative Director, Hideya Okamoto, announced the recipients of the FY2024 Precious Metals Research Grants.

Following a rigorous screening process, Ichiro Tanaka Awards, for 3 million yen each, were presented to Assistant Professor Akihiro Ishii of Tohoku University and Professor Yu Matsuda of Waseda University. In addition, three research projects received the Innovative Precious Metals Award, and six KIRAMEKI 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. "Forging a better tomorrow with 'Hirameki' and 'Kirameki'" was adopted as the catchphrase for this year, the program's 26th year. Applications were invited for research and development themes that contribute toward the continued creation of a better future using the creativity of researchers and the potential of precious metals. As a result, a total of 238 applications were received, and a total of 27 research grants of 19.8 million yen was awarded.

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

■Ichiro Tanaka Award

Assistant Professor Akihiro Ishii of Tohoku University

New developments in Half-Heusler compounds as highly refractive transparent materials

This research led to the theoretical discovery that Half-Heusler compounds, including rhodium, iridium, platinum, gold, and other precious metals, become highly refractive materials that are transparent in the near infrared range. The research was highly rated for presenting a new method for using precious metals, and for its possible application to a wide range of technologies, including sensors for use in photoelectric conversion devices and automated driving technologies, and exposure equipment used in semiconductor manufacturing.

■Ichiro Tanaka Award

Professor Yu Matsuda of Waseda University

Establishment of a temperature measurement technique for highly efficient operation of cryogenic fluids using ruthenium complexes

This research seeks to develop a technique for measuring temperature distribution observed in the cryogenic range, which is not possible using infrared light, by using the fluorescence of ruthenium complexes. With increasing demand for liquefied natural gas and liquid hydrogen over recent years, the research was highly

rated for presenting an innovative technique able to measure the temperature distribution data required when designing equipment for improving the efficiency of transporting and operating such materials, and as research and development that can contribute significantly toward carbon neutrality.

Three Innovative Precious Metals Awards, six KIRAMEKI Awards, and 16 HIRAMEKI Awards were also granted. The recipients and an overview of the Precious Metals Research Grants are indicated below. Applications for the FY2025 research grants are scheduled to open in the fall.

List of FY2024 Precious Metals Research Grants Recipients

Umekichi Tanaka Award (0 awards: 10 million yen)	
Not applicable	
Ichiro Tanaka Award (2 awards: 3 million yen each)	
Akihiro Ishii, Assistant Professor Tohoku University	New developments in Half-Heusler compounds as highly refractive transparent materials
Yu Matsuda, Professor Waseda University	Establishment of a temperature measurement technique for highly efficient operation of cryogenic fluids using ruthenium complexes
Innovative Precious Metals Award (3 awards: 1 million yen each)	
Hiroshi Naka, Associate Professor Kyoto University	Pioneering and application of a deuterated substance synthesis method using precious metal catalysts
Kazuhiko Mase, Professor High Energy Accelerator Research Organization	Development of technologies for reducing vacuum evacuation time and improving product yield through palladium deposition
Yoshifumi Sakaguchi, Safety Section Manager (Chief Scientist), Comprehensive Research Organization for Science and Society (CROSS) Neutron Science and Technology Center	Mechanism for anomalous melting point depression exhibited by gold-silicon eutectic alloys: Elucidation of the unique mixing of atoms in liquids
KIRAMEKI Award (6 awards: 1 million yen each)	
Chen Zhenghao Kyoto University	Elucidation of the nature of the unique plastic deformation behavior of pure platinum metals
Ryo Koike, Associate Professor Keio University	Development of a high-gravitational 3D printer for creating 3D microstructures of precious metals
Hajime Ishikawa, Research Associate The University of Tokyo	Development of a complex iodine compound for synthesis of precious metal nanoparticles
Ryo Toyoshima, Lecturer The University of Tokyo	Development and functional elucidation of plasmonic carbon dioxide reduction catalysts with three-dimensional structures
Daiki Oshima, Assistant Professor Nagoya University	Performance improvements for magnetoresistant hydrogen sensors using hydrogen storing palladium metals
Masaki Kuwabara, Assistant Professor Rikkyo University	Development of filaments for absorption cells aimed at detection of habitable planets
HIRAMEKI Award (16 awards: 300,000 yen each)	
Michihisa Fukumoto, Associate Professor Akita University	Anna Nagai, Assistant Professor Kumamoto University
Yoshio Kobayashi, Professor Ibaraki University	Shinji Koyama, Associate Professor Gunma University
Yoshitomo Maeda, Assistant professor Japan Aerospace Exploration Agency	Junya Sekikawa, Professor Shizuoka University
Shuichi Toyouchi, Project assistant professor, lecturer Osaka Metropolitan University	Yoshinao Mizugaki, Professor The University of Electro-Communications
Michio Okada, Professor Osaka University	Naoya Kanazawa, Associate Professor The University of Tokyo

Yuuichirou Koizumi, Professor Osaka University	Naoto Todoroki, Associate Professor Tohoku University
Misa Nishino, Researcher Kanagawa Institute of Industrial Science and Technology	Takeshi Ohgai, Associate Professor Nagasaki University
Kimiyoshi Ichikawa, Specially appointed Assistant professor Kanazawa University	Natsuko Fujita, Associate senior scientist Japan Atomic Energy Agency

(Affiliated organizations and job titles correct as of time of presentation)

Overview of the 2024 Precious Metals Research Grants

[Conditions]

New research and development that uses precious metals or can be applied to precious metals, contributes to the creation of a sustainable future, and falls under any of the following

- New technology related to precious metals (new materials, processing methods, process development, etc.)
- Research that brings about innovative evolution in product development (new functions, process development, computational science, etc.)
- Research and development of new products using precious metals
- Effective technologies for creating a well-balanced and prosperous society

* 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] (Maximum amounts from a grant pool of 20 million yen)

・Umekichi Tanaka Award	10 million yen
・Ichiro Tanaka Award (Previously Gold Award)	3 million yen
・Innovative Precious Metals Award (Previously Silver Award)	1 million yen
・KIRAMEKI Award (Previously Young Researcher Award)	1 million yen
・HIRAMEKI Award (Previously TANAKA Special Award)	300,000 yen

* The grant amount is treated as a scholarship donation.

* Awards may not be granted in some cases.

Note: Names of the Gold Award, Silver Award, Young Researcher Award, and TANAKA Special Award have changed from this year.

[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 KIRAMEKI Awards are for researchers under the age of 37 as of April 1, 2024.

[Application Period]

- 9am, September 2, 2024 (Mon) - 5pm, November 30, 2024 (Sat)

[Inquiries Concerning the Research Grant Program]

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■TANAKA Memorial Foundation

Organization Name: TANAKA Kikinzoku Memorial Foundation
Address: 22F Tokyo Building, 2-7-3 Marunouchi, Chiyoda-ku, Tokyo
Representative: Hideya Okamoto (Special Advisor, TANAKA Holdings Co., Ltd.)
Incorporated: 2015
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 PRECIOUS METAL TECHNOLOGIES Co., Ltd.

Headquarters: 2-6-6 Nihonbashi Kayabacho, Chuo-ku, Tokyo
Representative: Koichiro Tanaka, Group CEO
Founded: 1885 Incorporated: 1918 Capital: 500 million yen
Employees: 2,798 (Including overseas subsidiaries) (December 31, 2024)
Sales: 353,213,723,000 yen (FY2024)
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

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