

TANAKA Memorial Foundation Announces Recipients of Precious Metals Research Grants

Associate Professor Masashi Kaneko of Osaka University presented Gold Award for modeling of precious metal extraction and separation using Moessbauer spectroscopy parameters and computational chemistry. Also receiving a Gold Award is Professor Seiji Miura of Hokkaido University for experiments to achieve microstructure control of precious metal-based high-entropy alloys.

Development of precious metal extraction and separation technologies using computational chemistry and development of microstructure-controlled precious metal-based high-entropy alloys received awards

The TANAKA Memorial Foundation's Representative Director, Hideya Okamoto, announced the recipients of the FY2022 Precious Metals Research Grants.

Following a rigorous screening process, the Gold Awards, each for 2 million yen, were presented to Associate Professor Masashi Kaneko of Osaka University and Professor Seiji Miura of Hokkaido University. In addition, four 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 24th year, a total of 159 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 16.2 million yen in research grants was awarded for 24 projects.

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

■ Associate Professor Masashi Kaneko of Osaka University Modeling of precious metal extraction and separation using Moessbauer spectroscopy parameters and computational chemistry

This research seeks to develop a computational method for predicting the solvent extraction equilibrium of precious metals. The research was highly rated for its development of a computational chemistry model for precious metal solvent extraction reactions according to chemical equilibrium theory, and based on computational chemistry benchmarking of precious metal complexes using Mössbauer spectroscopy parameters. The research has the potential of accelerating the development of new precious metal extraction agents in combination with experimental chemistry, while it also has scientific and industrial value as well.

■ Professor Seiji Miura of Hokkaido University

Experiments to achieve microstructure control of precious metal-based high-entropy alloys

This research seeks to develop innovative metal materials aimed at creating strengthening mechanisms with high thermal stability through the use of microstructure control of precious metal-based high-entropy alloys using two-phase crystal structures and their orientation relationship. The research was highly rated for its research related to high-entropy alloys, which are being more actively researched and are gaining attention for their unique material properties. The research has the potential of opening up new material fields for precious metals and expanding their industrial usage.

Four 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 FY2023 research granted are scheduled to open in the fall.

List of FY2022 Precious Metals Research Grants Recipients

Platinum Award (0 award, 5 million yen)	
Non granted	
Gold Award (2 awards, 2 million yen each)	
Masashi Kaneko, Associate Professor Osaka University	Modeling of precious metal extraction and separation using Moessbauer spectroscopy parameters and computational chemistry
Seiji Miura, Professor Hokkaido University	Experiments to achieve microstructure control of precious metal-based high-entropy alloys
Silver Awards (4 awards, 1 million yen each)	
Takatoshi Nagano, Lecturer Ibaraki University	Efforts to clarify mechanisms that cause cracking in thin ruthenium film and to achieve low electrical resistance
Naoji Matsuhisa, Associate Professor The University of Tokyo	Structural control and wearable applications of stretchable gold vapor deposition film
Zhou Weiwei, Assistant Professor Tohoku University	Manufacturing and functional enhancement of 2D Mxene-reinforced silver-based composite materials
Hiroshi Yukawa, Designated professor Nagoya University	Realization of deep tissue temperature imaging through development of band edge / defect-type near-infrared fluorescent quantum dots with silver in the core region
Young Researcher Awards (4 awards, 1 million yen each)	
Minori Goto, Assistant Professor Osaka University	Improved efficiency of heat-driven spin devices using thermal resistance of precious metal / insulator interfaces
Hideki Narita, Specially Appointed Assistant Professor Kyoto University	Control of magnetic superconductors using precious metals and development of nonvolatile superconducting devices
Wan-ting CHIU, Assistant Professor Tokyo Institute of Technology	Effects on mechanical properties and functionality of medical-use titanium-gold-based shape-memory alloys through addition of transition metal elements
Lustikova Jana, Assistant Professor Tohoku University	Formation of magnetic memory devices using precious metal / superconductor hetero-interfaces
Encouragement Award (14 awards, 300,000 yen each)	
Naotsugu Itoh, Specially-appointed Professor Utsunomiya University	Takahiro Namazu, Professor Kyoto University of Advanced Science
Teppei Araki, Associate Professor Osaka University	Makoto Hasegawa, Professor Chitose Institute of Science and Technology
Yuki Noda, Specially-appointed Assistant Professor Osaka University	Yuki Shiomi, Associate Professor The University of Tokyo
Takuya Matsumoto, Assistant professor Osaka Metropolitan University	Shinya Kato, Assistant Professor Nagoya Institute of Technology
Daisuke Tanaka, Professor Kwansei Gakuin University	Kure Shochiku(SONG-ZHU CHU), Professor Nagoya Institute of Technology
Atsushi Takagaki, Associate Professor Kyushu University	Yusuke Yamauchi, Group Leader National Institute for Materials Science
Yasuhiro Fukuma, Professor Kyushu Institute of Technology	Koki Kubota, Researcher University of Yamanashi

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

Overview of the 2022 Precious Metals Research Grants

[Theme]

- Themes that involve any of the following: new technologies to which precious metals can make a contribution, research related to precious metals that will bring innovative evolution to products, or research and development of new products using precious metals

[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, 2022.

[Application Period]

- 9am, September 1, 2022 (Thu) - 5pm, November 30, 2022 (Wed)

[Application Method]

- Enter the required information on the application form available on the TANAKA Memorial Foundation website (<https://tanaka-foundation.or.jp>) and upload details of the research (papers and supplementary material on the theme).

[Announcement]

- Results will be announced on the TANAKA Memorial Foundation website around the end of March 2023.
- * TANAKA will contact the award recipients directly.

[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.

[Inquiries Concerning the Research Grant Program]

Precious Metals Research Grants Office

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TANAKA Memorial Foundation website: <https://tanaka-foundation.or.jp>

■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: 2,429 (including overseas subsidiaries) (as of March 31, 2022)

Sales: 389,646.82 million yen* (FY2021)

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>

* Starting from this fiscal year, due to the application of accounting standards related to recognition of revenues, the sales figure includes some transactions displayed as net amounts.

<Press Inquiries>

TANAKA Holdings Co., Ltd.

<https://tanaka-preciousmetals.com/en/inquiries-for-media/>