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Press Release

Graduate School of Frontier Sciences, The University of Tokyo
Starlight Engine Ltd.
Kyoto Fusioneering Ltd.
Electric Power Development Co., Ltd. (J-POWER)
JGC JAPAN CORPORATION
Fujikura Ltd.
Furukawa Electric Co., Ltd.
Marubeni Corporation

The University of Tokyo and Eight Private Companies Driving Fusion Innovation Launch Corporate Sponsored Research Programs

— Developing both the Academic and Technological Foundations and Talent Base Needed for Fusion Energy Deployment through Industry-Academia Collaboration —

The University of Tokyo (President: Teruo Fujii), together with 8 companies, including: Starlight Engine Ltd. (CEO: Kiyoshi Seko), Kyoto Fusioneering Ltd. (CEO: Satoshi Konishi), Electric Power Development Co,, Ltd. (CEO: Hitoshi Kanno), JGC JAPAN CORPORATION (Representative Director, President: Yasuharu Yamaguchi), Fujikura Ltd. (Director, President and CEO: Naoki Okada), Furukawa Electric Co, Ltd. (President: Hideya Moridaira), and Marubeni Corporation (President and CEO: Masayuki Omoto), will launch the “Fusion System Design Engineering” program, a series of corporate sponsored research programs, on Thursday, May 1, 2025.

◆Fusion Energy: Key Background Information and Current Challenges

Global competition has been heating up in the race to demonstrate power generation via fusion energy,[*1] with the goal of achieving practical implementation as early as possible. Through the Japanese Cabinet Office’s Fusion Energy Innovation Strategy, there is a cohesive effort to accelerate the pace of progress on fusion energy to demonstrate fusion power generation by the 2030s. Private sector fusion energy demonstration projects, like the“FAST” Project[*2] spearheaded by Starlight Engine Ltd., are underway.

The demonstration of fusion power generation requires a comprehensive plant design based on the foundational principles of engineering design. The final configuration of a fusion plant depends heavily on multiple factors, including confinement method, intended use (e.g., experimental purposes, commercial power generation, radioisotope production, industrial heat supply), and applicable regulations and standards. Since the academic and technological frameworks necessary to support this grand design work are still being established, it is more

important than ever to develop and mentor the next generation of professionals working on fusion energy to continue and even speed up the pace of technological development.

◆The "Fusion System Design Engineering" Program – Corporate Sponsored Research Programs

Through corporate sponsored research programs, universities and external organizations, including private companies or research institutes, carry out joint research by leveraging their respective technologies and expertise to address areas of public importance.

Professor Akira Ejiri—an expert in fusion research from the Graduate School of Frontier Sciences, the University of Tokyo—will serve as the lead faculty member for the "Fusion System Design Engineering" Program. This program will be conducted in collaboration with the newly established Transdisciplinary Fusion Energy Center, launched within the same graduate school on April 1, 2025. The Fusion System Design Engineering Program will lay the academic foundation for fusion plant design while addressing the following key areas through industry-academia collaboration:

- Research on innovative technologies for advanced fusion systems
- Exploration of multiple potential applications for fusion energy
- Research on the requirements for facilities and equipment and their establishment based on current legislation, codes and standards
- Research on challenges related to the practical implementation and social integration of fusion energy

◆Future Outlook

The "Fusion System Design Engineering" program represents more than a research collaboration—it is a strategic step toward shaping Japan's long-term leadership in the global fusion energy race. By cultivating a pipeline of next-generation experts and establishing the design architecture necessary for future fusion plants, the program aims to create a foundation upon which commercial fusion energy can become a viable and scalable reality.

In the years ahead, this open collaboration will evolve into a core hub for fusion system innovation, generating new technologies, fostering industrial ecosystems, and informing public policy. The joint efforts of academia and industry will not only contribute to Japan's energy transformation but also position it as a key contributor to global decarbonization and sustainable development.

*1 **Fusion energy**: Fusion energy refers to the energy released when light atomic nuclei like hydrogen fuse under conditions of extreme temperature and pressure to form heavier nuclei. Fusion, a carbon-free energy source with widely available fuel resources, is expected to play a key role in decarbonization and energy security. Fusion is seen as a large-scale, centralized and safe energy source, as it involves no chain reactions, explosions, or high-level radioactive waste.

*2 **FAST Project**: FAST (Fusion by Advanced Superconducting Tokamak) is the first initiative of its kind to extract fusion energy from burning plasma, demonstrate integrated plasma sustainment, and address engineering

challenges for D-T (Deuterium-Tritium) reactors. Led by Starlight Engine Ltd. as part of a public–private–academic collaboration, the project targets an output of 50,000 to 100,000 kilowatts and a discharge duration of 1,000 seconds using the D-T fusion reaction.

◆Comments from Professor Akira Ejiri, Graduate School of Frontier Sciences, The University of Tokyo

It is with a strong sense of purpose that we embark on this corporate sponsored research programs alongside eight distinguished private companies, including Starlight Engine Ltd. Fusion energy will play a key role in achieving decarbonization and significantly contribute to the development of a sustainable society for the next generation. It is deeply gratifying to see fusion research—an area in which Japanese researchers have been involved in for many years—entering the phase of practical implementation. We are committed to ensuring that this program will make meaningful and impactful progress in support of this transition.