KYOTO FUSIONEERING

Dr. Satoshi Konishi

Co-Founder, Representative Director, Chief Executive Officer and Chief Fusioneer

Dr. Satoshi Konishi co-founded Kyoto Fusioneering in 2019, now serves as its CEO and spearheads scientific development to achieve commercialization of fusion energy. With over four decades in academics and R&D of fusion engineering, he contributed to fusion reactor technologies and engineering from pioneering tritium fuel recovery, system design, and separation methods to influencing policy in fusion energy development with over 250 publications and 40 patents under his belt.

1979	BS, University of Tokyo
1981	MS, University of Tokyo
1981-2003	Japan Atomic Energy Research Institute
1986, 1987	Assignment to Tritium Systems Test Assembly (TSTA), Los Alamos, USA
1989-1991	National Laboratory, USA, As Japanese Team Leader under US-Japan Collaborative Program
1991	Involved in first DT campaign at JET, United Kingdom
1991	ITER Engineering Design Activity Team Member at JAERI
2001-2011	Editor, Fusion Engineering and Design Journal, Elsevier
2003-present	Professor, School of Energy Science, Kyoto University
2008-2012	Director, Institute of Sustainability Science, Kyoto University
2009-2012	Chair of the ITER TBM Program Committee
2012-2017	ITER Program Committee, Japanese Representative
2014-2016	Board of Director Member, Atomic Energy Society of Japan
2017-present	ITER TBM Project Steering Committee, Japanese Representative
2017-present	Board of Director, Japan Society of Plasma Science and Nuclear Fusion Research

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Key Scientific Expertise

- Tritium processing technology, including:
  - Design and test of processing components including palladium membrane diffuser for purification, solid oxide electrolysis cell for tritiated water decomposition, vacuum pumps, storage bed based on ZrCo intermetallic tritide, cryogenic distillation, thermal diffusion, CECE-tritiated water separation, ion chamber, calorimetry, gas chromatograph.
  - Modelling and strategic planning of tritium fuel cycle.
- Tritium and fusion safety, including:
  - Design and test of tritiated water processing system.
  - Safety assessments, clean-up operations and environmental impact studies.
  - Hands-on operation of tritium facilities.
- Design and testing of high-temperature breeder blanket technology.
- Advanced fusion materials focusing on divertor and high heat flux components.
- Fusion power plant design and energy applications including:
  - Design of Japanese DEMO plants and tokamaks.
  - Non-electricity applications including hydrogen production and carbon capture.

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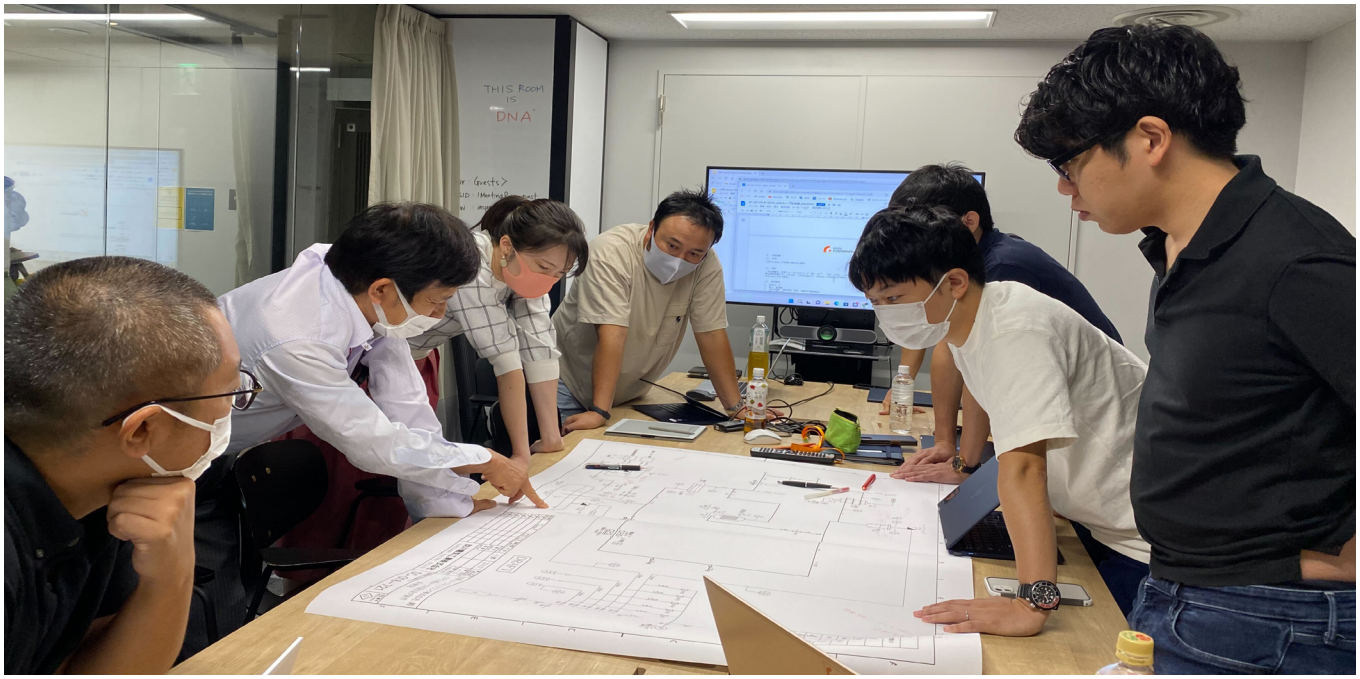
Publications

- Park, C., Noborio, K., Kasada, R., Yamamoto, Y., and Konishi, S. "Compatibility of SiCf/SiC Composite Exposed to Liquid Pb-Li Flow". Journal of Nuclear Materials (JNUCMAT), Vol. 417, Issues 1-3, pp. 1218-1220. Elsevier, Amsterdam, Netherlands, Oct-2011; DOI: 10.1016/J.JNUCMAT.2011.06.016Park, C., Nozawa, T., Kasada, R., Tosti, S., Konishi, S., and Tanigawa, H. "The Effect of Wall Flow Velocity on Compatibility of High-Purity SiC Materials with Liquid Pb-Li Alloy by Rotating Disc Testing for 3000h up to 900°C". Fusion Engineering and Design (FUSENGDES), Vol. 136, Part A, pp. 623-627. Elsevier, Amsterdam, Netherlands, Nov-2018. DOI: 10.1016/J.FUSENGDES.2018.03.042
- Fukada, S., Terai, T., Konishi, S., Katayama, K., Chikada, T., Edao, Y., Muroga, T., Shimada, M., Merrill, B., and Sze, D.K. "Clarification of Tritium Behavior in Pb-Li Blanket System". Materials Transactions, Vol. 54, No. 4, pp. 425-429 (Special Issue on Materials-System Integration for Fusion DEMO Blanket), The Japan Institute of Metals, 2013. URL: https://www.jstage.jst.go.jp/article/matertrans/54/4/54_MG201203/_pdf/-char/en
- Yamamoto, Yoshihiko, Yamanashi, T., Kawamura, Y., Isobe, K., Yamamoto, Yasushi, and Konishi, S. "Fundamental Study on Purity Control of the Liquid Metal Blanket Using Solid Electrolyte Cell". Fusion Science and Technology, Vol. 52, Issue 3: Proceedings of the 17th Topical Meeting on the Technology of Fusion Energy (TOFE), pp. 692-695. Taylor & Francis, U.S.A., 2007. DOI: 10.13182/FST07-A1570
- Pearson, R., Baus, C., Konishi, S., Mukai, K., D'Angio, A., and Takeda, S. "Overview of Kyoto Fusioneering's SCYLLA© ("Self-Cooled Yuryo Lithium-Lead Advanced") Blanket for Commercial Fusion Reactors". IEEE Transactions on Plasma Science, PP(99), Nov-2022. DOI: 10.1109/TPS.2022.3211410
- Konishi, S., Kasada, R., Okino, F., "Myth of initial loading tritium for DEMO — Modelling of fuel system and operation scenario". Fusion Engineering and Design 121 (2017), pp. 111-116.
- Konishi, S., Enoeda, M., Nakamichi, M., Hoshino, T., Ying, A., Sharafat, S., Smolentsev, S., "Functional materials for breeding blankets — status and developments". Nucl. Fusion 57 (2017) 092014 (19pp)



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Fusion Development Contribution

Born on November 20, 1956, in Tokyo, Dr. Konishi's journey in fusion sciences began with his education at the University of Tokyo where he obtained his PhD in Engineering in 1995. His early career at the Japan Atomic Energy Research Institute focused on tritium engineering and reactor design, laying the foundation for his later achievements.

At Kyoto University's Institute of Advanced Energy where he served as a professor for nearly 20 years, Dr. Konishi's research into tritium expanded to include the environmental sustainability of natural and advanced energy systems. Serving as the director of Institute of Sustainability Science, he delved into the solutions to issues pertaining sustainable development. Dr. Konishi's work in biomass and hydrogen marks his dedication to environmental stewardship, inspiring a generation of scientists. His work as the Center Director of the Complex Energy Processes at Kyoto University underscored this leadership in the field, with over 250 publications and 40 patents under his belt. In one of his most notable works, titled "Functional materials for breeding blankets—status and developments", he analyzed the material needed for breeding blankets in next-generation fusion power plants.

Dr. Konishi's visionary approach led to the co-founding of Kyoto Fusioneering in 2019. Here, he has been instrumental in steering the company towards innovative solutions in the fusion energy landscape, leveraging his expertise to address commercialization challenges. His commitment to nurturing the next generation of talent and revitalizing the industry has been a hallmark of his career. Within a few years of establishment, Kyoto Fusioneering has claimed leadership of fuel cycle systems and plant technologies. Konishi, with his world-renowned expertise in the fieldby addressing the technical challenges and proposing solutions for the development of critical materials, he propelled the fusion research on a highway path to commercialization.

Throughout his career, Dr. Konishi has been recognized for his contributions to both academia and industry. His extensive publication record and numerous patents are a testament to his commitment to advancing the field of fusion energy.
Dr. Konishi's life, form a curious student in post-war Tokyo to a leader in fusion science, epitomizes a dedication to addressing some of the most pressing energy challenges of our times.