JST Press Release #1450

September 18, 2020

Japan Science and Technology Agency
5-3, Yonbancho, Chiyoda-ku, Tokyo

JST announces 19 Project Managers selected for four goals of the Moonshot Research and Development Program

The Japan Science and Technology Agency (JST) has announced the Project Managers (PMs) selected for the four Moonshot Goals handled by JST under the Moonshot Research and Development Program.

Through the program JST is pursuing challenging R&D concepts set by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in order to solve issues facing our future society such as super-aging populations and global warming. Each of JST's four Moonshot Goals has a Program Director (PD), under which PMs will each formulate an R&D scenario, design a project, and plan and manage the organization of R&D to achieve their respective Moonshot Goals.

Open calls for PMs were held for each goal, and applications were reviewed by PDs in cooperation with external experts. A total of 127 applications were received, after which document and interview screening was conducted to make a final selection of 19 PMs.

Under the direction of their PD, selected PMs will refine their plans to achieve their Moonshot Goal so that the R&D will be more effective and efficient. Once their PD is satisfied with the level of refinement, each PM can begin their R&D project.

For details, please refer to the website below.
https://www.jst.go.jp/moonshot/en/index.html

Appendices

Appendix 1: Number of applications and selected PMs
Appendix 2: Selected PMs and projects
Appendix 3: Evaluating experts
Reference: Viewpoints in Selection

Contact

Department of Moonshot Research and Development Program, JST
7, Gobancho, Chiyoda-ku, Tokyo 102-0076
Tel: +81-3-5214-8419
E-mail: moonshot-koubo[at]jst.go.jp

Appendix 1

Number of applications and selected PMs

Moonshot Goal	Application	Selected
Moonshot Goal 1 Realization of a society in which human beings can be free from limitations of body, brain, space, and time by 2050. (PD: HAGITA Norihiro)	39	3
Moonshot Goal 2 Realization of ultra-early disease prediction and intervention by 2050. (PD: SOBUE Gen)	49	5
Moonshot Goal 3 Realization of AI robots that autonomously learn, adapt to their environment, evolve in intelligence and act alongside human beings, by 2050. (PD: FUKUDA Toshio)	30	4
Moonshot Goal 6 Realization of a fault-tolerant universal quantum computer that will revolutionize economy, industry, and security by 2050. (PD: KITAGAWA Masahiro)	9	7
Total	127	19

Appendix 2

Selected PMs and projects

Moonshot Goal 1: Realization of a society in which human beings can be free from limitations of body, brain, space, and time by 2050.

Project Manager	Affiliation	Project Title
ISHIGURO Hiroshi	Professor, Graduate School of Engineering Science, Osaka University	Realization of a Human-Avatar Symbiotic Society where Everyone can Experience a Diverse Range of Human Activities
KANAI Ryota	President and CEO, Araya, Inc.	Freedom from Bodily Limitations by Expanding Physical and Perceptional Capabilities
MINAMIZAWA Kouta	Professor, Graduate School of Media Design, Keio University	Development of Cybernetic Avatars to Create Shared-Experience with Harmonious Physical and Social Characteristics

Moonshot Goal 2: Realization of ultra-early disease prediction and intervention by 2050.

Project Manager	Affiliation	Project Title
AIHARA Kazuyuki	University Professor, The University of Tokyo	Comprehensive Mathematical Understanding of the Complex Control System between Organs and Challenge for Ultra-Early Precision Medicine
OHNO Shigeo	Emeritus Professor and Project Professor, Graduate School of Medicine, Yokohama City University	Challenge toward the Control of Intractable Cancer through Understanding of Molecular, Cellular, and Interorgan Networks
KATAGIRI Hideki	Professor, Graduate School of Medicine, Tohoku University	Challenge for Eradication of Diabetes and Comorbidities through Understanding and Manipulating Homeostatic Systems
TAKAHASHI Ryosuke	Professor, Graduate School of Medicine, Kyoto University	Towards Overcoming Disorders Linked to Dementia based on a Comprehensive Understanding of Organ Connectivity

MATSUURA Yoshiharu	Professor, Research Institute for Microbial Diseases, Osaka University	Understanding and Control of Virus-Human Interaction Networks

Moonshot Goal 3: Realization of AI robots that autonomously learn, adapt to their environment, evolve in intelligence and act alongside human beings, by 2050.

Project Manager	Affiliation	Project Title
SUGANO Shigeki	Professor, Faculty of Science and Engineering, Waseda University	Smart Robot that is Close to One Person for a Lifetime
NAGATANI Keiji	Project Professor, School of Engineering, The University of Tokyo	Innovation in Construction of Infrastructure with Cooperative AI and Multi-Robots Adapting to Various Environments
HARADA Kanako	Associate Professor, Graduate School of Medicine, Graduate School of Engineering, The University of Tokyo	Co-evolution of Human and AI-Robots to Expand Science Frontiers
HIRATA Yasuhisa	Professor, Graduate School of Engineering, Tohoku University	A New Lifestyle Alongside AI-enabled Robots to Create Together a Diverse and Inclusive Society that Leaves No One Behind

Moonshot Goal 6: Realization of a fault-tolerant universal quantum computer that will revolutionize economy, industry, and security by 2050.

Project Manager	Affiliation	Project Title
KOASHI Masato	Professor, Graduate School of Engineering, The University of Tokyo	Research and Development of Theory and Software for Fault-tolerant Quantum Computers
KOSAKA Hideo	Professor, Faculty of Engineering /Institute of Advanced Sciences, Yokohama National University	Development of Quantum Interfaces for Building Quantum Computer Networks
TAKAHASHI Hiroki	Assistant Professor, Experimental Quantum Information Physics Unit, Okinawa Institute of Science and Technology Graduate University	Fault-tolerant Quantum Computing with Photonically Interconnected Ion Traps
FURUSAWA Akira	Professor, School of Engineering, The University of Tokyo	Development of Large-scale Fault-tolerant Universal Optical Quantum Computers

MIZUNO Hiroyuki	Senior Chief Researcher, Center for Exploratory Research, R&D Group, Hitachi, Ltd.	Silicon Massively Parallel NISQ Computer
YAMAMOTO Takashi	Professor, Graduate School of Engineering Science/Institute for Open and Transdisciplinary Research Initiatives, Osaka University	Quantum Cyberspace with Networked Quantum Computer
YAMAMOTO Tsuyoshi	Research Fellow, System Platform Research Laboratories, NEC Corporation	Development of Integration Technologies for Superconducting Quantum Circuits

※The title of the projects are subject to change after refinement.

Appendix 3

Evaluating experts

Moonshot Goal 1 : Realization of a society in which human beings can be free from limitations of body, brain, space, and time by 2050.

	Name	Affiliation
Program Director (PD)	HAGITA Norihiro	Chair and Professor, Art Science Department, Osaka University of Arts
External Experts	INAMI Masahiko	Advisor to the President and Professor, Research Center for Advanced Science and Technology, The University of Tokyo
	OCHIAI Hiroyuki	Professor, Institute of Mathematics for Industry, Kyushu University
	KANOH Toshiyuki	Senior Chief Engineer, Data Science Research Laboratories, NEC Corporation
	KITANO Hiroaki	President & CEO, Sony Computer Science Laboratories, Inc.
	KOBAYASHI Masahiro	President, HANAMIZUKI LAW OFFICE
	SAKUMA Ichiro	Professor, Medical Device Development and Regulation Research Center, The University of Tokyo
	TSUBOI Takashi	Professor, Department of Mathematical Engineering, Faculty of Engineering, Musashino University
	DOI Miwako	Auditor, National Institute of Information and Communications Technology
	TOKUDA Hideyuki	President, National Institution of Information and Communications Technology
	NOHARA Sawako	President & CEO, IPSe Marketing, Inc.
	HIGASHINO Teruo	Professor, Graduate School of Information Science and Technology, Osaka University
	FUJISAWA Kumi	President, Think Tank SophiaBank

Moonshot Goal 2: Realization of ultra-early disease prediction and intervention by 2050.

	Name	Affiliation
Program Director (PD)	SOBUE Gen	Chairperson, Aichi Medical University
External Experts	ISA Tadashi	Professor, Graduate School of Medicine, Kyoto University
	OKABE Shigeo	Professor, Graduate School of Medicine, The University of Tokyo
	OCHIAI Hiroyuki	Professor, Institute of Mathematics for Industry, Kyushu University
	OBATA Nobuaki	Professor, Graduate School of Information Sciences, Tohoku University
	KOKUBU Hiroshi	Professor, Graduate School of Science, Kyoto University
	SUGANO Sumio	Professor, Future Medicine Education and Research Organization at Chiba University
	SUZUKI Rami	Head, Medical Affairs Division, Janssen Pharmaceutical K.K.
	TAKAI Yoshimi	Professor, Graduate School of Medicine, Kobe University
	TANIGUCHI Tadatsugu	Advisor, Office of the President, The University of Tokyo
	TOMIOKA Ken	Department Manager Marketing Department, Marketing Sector Healthcare Business Unit, Nikon Corporation
	NAKAYAMA Toshinori	Vice-president, Chiba University／ Dean, Graduate School of Medicine, Chiba University
	NISHIURA Yasumasa	Professor Emeritus, Hokkaido University
	YONEDA Yoshihiro	Director General, National Institutes of Biomedical Innovation, Health and Nutrition (NIBIOHN)
	WAKAYAMA Masato	Vice President, Tokyo University of Science

Moonshot Goal 3: Realization of AI robots that autonomously learn, adapt to their environment, evolve in intelligence and act alongside human beings, by 2050.

	Name	Affiliation
Program Director (PD)	FUKUDA Toshio	Professor, Graduate School of Science and Technology, Meijo University
External Experts	ISHIZUKA Mitsuru	Professor Emeritus, The University of Tokyo
	UEKI Miwa	Project Manager, FUJITSU LABORATORIES LTD.
	UEDA Naonori	Fellow, NTT Communication Science Laboratories / Deputy Director, RIKEN Center for Advanced Intelligence Project
	OKURA Michiko	Professor, S.I.T. Research Laboratories, Shibaura Institute of Technology
	OKUNO Hiroshi G.	Professor Emeritus, Kyoto University
	OBATA Nobuaki	Professor, Graduate School of Information Sciences, Tohoku University
	KASAHARA Hironori	Senior Executive Vice President, Waseda University/ Professor, Faculty of Science and Engineering, Waseda University
	KUBOTA Takashi	Professor, Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency (JAXA)
	KOKUBU Hiroshi	Professor, Graduate School of Science, Kyoto University
	KOSUGE Kazuhiro	Distinguished Professor, Graduate School of Engineering, Tohoku University
	SHIOZAWA Keiko	Director, AdIn Research, Inc.
	HASHIMOTO Hideki	Professor, Faculty of Science and Engineering, Chuo University

Moonshot Goal 6: Realization of a fault-tolerant universal quantum computer that will revolutionize economy, industry, and security by 2050.

	Name	Affiliation
Program Director (PD)	KITAGAWA Masahiro	Professor, Graduate School of Engineering Science, Osaka University/ Director, Center for Quantum Information and Quantum Biology, Institute for Open and Transdisciplinary Research Initiatives, Osaka University
External Experts	ISHIUCHI Hidemi	Assistant to General Manager, KIOXIA Corporation
	IMOTO Nobuyuki	Specially Appointed Professor, Institute for Open and Transdisciplinary Research Initiatives, Osaka University
	OZAWA Masanao	Designated Professor, College of Engineering, Chubu University
	KAWABATA Shiro	Group Leader, Device Technology Research Institute, National Institute of Advanced Industrial Science and Technology
	KOZUMA Mikio	Professor, School of Science, Tokyo Institute of Technology
	SANO Kentaro	Team Leader, RIKEN Center for Computational Science
	SHIGEMOTO Isamu	Chief Research Associate, Advanced Materials Research Laboratories, Toray Industries, Inc.
	NAKAMURA Yasunobu	Professor, Research Center for Advanced Science and Technology, The University of Tokyo
	MURAO Mio	Professor, Graduate School of Science, The University of Tokyo
	YAMASHITA Shigeru	Professor, College of Information Science and Engineering, Ritsumeikan University
	WAKAYAMA Masato	Vice President, Tokyo University of Science

Reference

Viewpoints in Selection

Our selection was based on the following viewpoints and made in a comprehensive manner.

① Nature as a PM

○ To have a wide human network of relevant researchers within and outside of Japan and to possess specialized knowledge

○ To have the ability for management to construct an optimum R&D institution and review the organization proactively, depending on the status of the progress (including those in relation to the management and usage of research data) and to have leadership ability

② R&D projects proposed by PMs

○ The target and/or the contents of the project proposed by the PM (referred to as "proposal contents" from here) must be based on a bolder idea than conventional ones and be a challenging one and must be an innovative one with which a strong impact is expected in the future industry and/or society.

○ The proposal contents must be able to clearly explain the adequate scenario (the hypothesis of the success) from the viewpoint of social implementation including the viewpoint of technology and the assignments of the roles to governmental bodies and private sectors for the achievement of the goal in 2050.

○ The proposal contents must entail collecting the knowledge of researches and developments and ideas at a high level, regardless of their geographical location within or outside of the country.