Press Release No.1661

December 22, 2023

Japan Science and Technology Agency (JST)
5-3, Yonbancho, Chiyoda-ku, Tokyo 102-8666

JST to fund 46 research projects under the Adopting Sustainable Partnerships for Innovative Research Ecosystem (ASPIRE) Program

The Japan Science and Technology Agency (JST, President HASHIMOTO Kazuhito) has approved funding for 46 new research projects through the "ASPIRE for Top Scientists / Top Teams" and "ASPIRE for Rising Scientists" under the ASPIRE program.

The call for proposals was welcoming applications from Japan-based researchers and international partners funded by eligible counterpart institutions. The seven designated fields were: AI and information, biotechnology, energy, materials, quantum, semiconductors and telecommunications.

A total of 74 proposals were submitted to "ASPIRE for Top Scientists / Top Teams", out of which 26 were selected by expert evaluation (Appendix 1). For "ASPIRE for Rising Scientists", a total of 78 proposals were submitted and 20 were selected (Appendix 2).

For "ASPIRE for Top Scientists / Top Teams", each project is planned to be funded for five years with support of up to 500 million JPY. For "ASPIRE for Rising Scientists", each project is planned to be funded for three years with support of up to 90 million JPY.

Attachments

Appendix 1: List of Projects Selected for "ASPIRE for Top Scientists / Top Teams"
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Appendix 3: Experts for the Evaluation
Annex 1: Evaluation Criteria for "ASPIRE for Top Scientists / Top Teams"
Annex 2: Evaluation Criteria for "ASPIRE for Rising Scientists"

Enquiries

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Appendix 1

List of Projects Selected for "ASPIRE for Top Scientists / Top Teams"

■ AI and Information

#	Title	Researcher Name/Affiliation	Counterpart
1	Advanced research on discrete math, graph algorithm and graph theory	KAWARABAYASHI Kenichi Professor, Principles of Informatics Research Division, National Institute of Informatics	Denmark
2	Establishing an international collaborative research network on human-centered vision and media technologies	SATO Yoichi Professor, Institute of Industrial Science, The University of Tokyo	US, Netherlands, UK
3	International platform for building a human foundation model towards omoiyari AI	NISHINO Ko Professor, Graduate School of Informatics, Kyoto University	US
4	Network of software studies towards social trust in information technologies	HASUO Ichiro Professor, Information Systems Architecture Science Research Division, National Institute of Informatics	Netherlands, Germany, UK
5	AI-powered computational photography: from theory to practice	MATSUSHITA Yasuyuki Professor, Graduate School of Information Science and Technology, Osaka University	US, Canada

■ Biotechnology

#	Title	Researcher Name/Affiliation	Counterpart
1	Development of a new bioeconomy platform through induced reprogramming in plants	SUGIMOTO Keiko Team Leader, Center for Sustainable Resource Science, RIKEN	US, Belgium, UK

■ Energy

#	Title	Researcher Name/Affiliation	Counterpart
1	Manufacturing of ion conducting membrane applied for novel intermediate temperature electrolyzer for carbon neutral society	ISHIHARA Tatsumi Professor, International Institute for Carbon-Neutral Energy Research, Kyushu University	Germany, UK
2	Decentralized international collaboration network for innovative battery technology and net-zero society	OKUBO Masashi Professor, Faculty of Science and Engineering, Waseda University	US, Germany
3	Next-generation solid oxide cells for power generation and hydrogen production	SASAKI Kazunari Professor, Faculty of Engineering, Kyushu University	US
4	International partnership for advanced lithium-air secondary battery innovations	NAKANISHI Syuji Professor, Graduate School of Engineering Science, Osaka University	US, Germany, UK

■ Materials

#	Title	Researcher Name/Affiliation	Counterpart
1	Physical properties and device applications of metal Mg-intercalated GaN superlattice (MiGs) nanostructures and their implications for the ultra-high doping of ultra-wide bandgap semiconductors (AlN, Ga2O3, etc.)	AMANO Hiroshi Professor, Institute of Materials and Systems for Sustainability, Nagoya University	US
2	Development of innovative nanoporous materials that enable precise macromolecular recognition	UEMURA Takashi Professor, Graduate School of Engineering, The University of Tokyo	France
3	Interdisciplinary research of EXtreme Aspect-Ratio (EXAR) nanomaterials	SHIOMI Junichiro Professor, Graduate School of Engineering, The University of Tokyo	US, Sweden, Germany
4	Discovery of new transition-metal compounds using advanced synthesis technique and exploring novel functional properties based on structure-property relationships	SHIMAKAWA Yuichi Professor, Institute for Chemical Research, Kyoto University	UK
5	Ferroelectric renaissance: carbon neutrality achieved by "fourth generation materials" surpassing perovskite ferroelectrics	FUNAKUBO Hiroshi Professor, School of Materials and Chemical Technology, Tokyo Institute of Technology	US, Germany

■ Quantum

#	Title	Researcher Name/Affiliation	Counterpart
1	Transformative quantum technology platform and international mobility accelerator for future quantum natives	ASAI Shoji Professor, School of Science, The University of Tokyo	US
2	Quantum control technology for pioneering gravitational wave astronomy	SOMIYA Kentaro Associate Professor, School of science, Tokyo Institute of Technology	Australia
3	Innovation of quantum electronics based on topological materials	NAKATSUJI Satoru Professor, School of Science, The University of Tokyo	US
4	RIKEN-Berkeley mathematical quantum science initiative	HATSUDA Tetsuo Program Director, Interdisciplinary Theoretical and Mathematical Sciences Program, RIKEN	US
5	Forging a global research network for quantum information and quantum biology	MIZUKAMI Wataru Associate Professor, Center for Quantum Information and Quantum Biology, Osaka University	US, Germany, Belgium, UK

■ Semiconductor

#	Title	Researcher Name/Affiliation	Counterpart
1	Establishment of international collaboration networks for advanced atomic-layer processing	HAMAGUCHI Satoshi Professor, Graduate School of Engineering, Osaka University	US
2	Demonstrating “probabilistic supremacy” with creating foundation for large-scale, integrated, spintronic probabilistic computer	FUKAMI Shunsuke Professor, Research Institute of Electrical Communication, Tohoku University	US

■ Telecommunications

#	Title	Researcher Name/Affiliation	Counterpart
1	Open digital infrastructure through the convergence of telecommunications and AI	ESAKI Hiroshi Professor, Graduate school of Information Science and Technology, The University of Tokyo	Finland
2	Research on sensing, actuation, communication, and intelligent signal processing infrastructure for ambient intelligence	OTSUKI Tomoaki Professor, Faculty of Science and Technology, Keio University	US, UK, Norway, Canada, Australia
3	Multi-physics based system design for future ICT networks	KAWANISHI Tetsuya Professor, Faculty of Science and Engineering, Waseda University	Germany
4	Inclusive creation of next generation cyber infrastructure	NAKAO Akihiro Professor, School of Engineering, The University of Tokyo	Finland

Appendix 2

List of Projects Selected for "ASPIRE for Rising Scientists"

■ AI and Information

#	Title	Researcher Name/Affiliation	Counterpart
1	Seamless reality: a technological foundation for merging cyber-physical spaces through real world oriented avatars	ITOH Yuta Project Associate Professor, Interfaculty Initiative in Information Studies,The University of Tokyo	Austria, France, UK
2	A comprehensive framework for fair graph analysis	SASAKI Yuya Assistant Professor, Graduate School of Information Science and Technology , Osaka University	Netherlands, Denmark,
3	Deep scientific computing: integration of physical structure and deep learning through mathematical science	YAGUCHI Takaharu Professor, Graduate School of Science, Kobe University	UK
4	Strategic platform for the next-generation acoustically actuated user interfaces	FUSHIMI Tatsuki Assistant Professor, Institute of Library, Information, and Media Science, University of Tsukuba	US, Spain, UK

■ Biotechnology

N/A

■ Energy

#	Title	Researcher Name/Affiliation	Counterpart
1	Assessment of innovative energy technologies and exploration of decarbonized energy system using novel global energy system model	FUJIMORI Shinichiro Professor, Graduate School of Engineering, Kyoto University	Austria
2	Study of organic-inorganic composite interfaces for fast charge transport on photoelectrolysis device	WANATABE Motonori Associate Professor, International Institute for Carbon-Neutral Energy Research, Kyushu University	Switzerland

■ Materials

#	Title	Researcher Name/Affiliation	Counterpart
1	Development of highly efficient luminescent dendrimer materials for sustainable light-emitting devices	ALBRECHT Ken Associate Professor, Institute for Materials Chemistry and Engineering, Kyushu University	Germany, UK
2	International collaboration for developing next-generation sustainable materials through precision design of carbohydrate-based hybrid polymers	ISONO Takuya Associate Professor, Faculty of Engineering, Hokkaido University	France
3	Creating 3D terahertz metamaterials through the combination of laser micro-processing and carbon materials	KONISHI Kuniaki Associate Professor, Graduate School of Science, Institute for Photon Science and Technology, The University of Tokyo	Finland
4	A comprehensive study on flexible and stretchable electronics	MATSUHISA Naoji Associate Professor, Research Center for Advanced Science and Technology, The University of Tokyo	US, Austria, Germany, Finland, UK

■ Quantum

#	Title	Researcher Name/Affiliation	Counterpart
1	Innovative optical circuits using topological quantum properties	AMEMIYA Tomohiro Associate Professor, School of Engineering , Tokyo Institute of Technology	US
2	Quantum state control using spin-orbit nanostructures in semiconductor and topological materials	KOHDA Makoto Professor, Graduate School of Engineering, Tohoku University	Germany
3	Infrastructure development on diamond quantum information technology	SHIKANO Yutaka Professor, Institute of Systems and Information Engineering, University of Tsukuba	Germany
4	Quantum detection of terahertz-wave for next-generation high speed communications	MURATE Kosuke Assistant Professor, Graduate school of Engineering,,Nagoya University	Canada

■ Semiconductor

#	Title	Researcher Name/Affiliation	Counterpart
1	Exploring adaptive data compression hardware for next-generation highly efficient computational infrastructure	UENO Tomohiro Research Scientist, Center for Computational Science, RIKEN	US, Canada
2	Development of a coarse-grained logic array platform for ASIC design universalization	KOSUGE Atsutake Lecturer, Graduate School of Engineering, The University of Tokyo	US
3	Development of novel nano selective-area epitaxy of III-V nanowires and nano photonics applications	TOMIOKA Katsuhiro Associate Professor, Graduate School of Information Science and Technology and Research Center for Integrated Quantum Electronics (RCIQE), Hokkaido University	Australia

■ Telecommunications

#	Title	Researcher Name/Affiliation	Counterpart
1	Hyperdimensional communication technologies for 6G networks	OTA Kaoru Professor, Graduate School, Muroran Institute of Technology	Canada
2	Intelligent and integrated optimization framework of high-frequency channel environment for next-generation wireless communications	SUGIURA Shinya Associate Professor, Institute of Industrial Science , The University of Tokyo	UK
3	Resilient cyberspace generative framework with communication, sensing and learning integration	SUTO Katsuya Associate Professor, Graduate School of Informatics and Engineering, The University of Electro-Communications	Finland, Canada

Appendix 3

Experts for the Evaluation

■ Program Director

Name	Position and Institution
MIYANO Kenjiro	Emeritus Fellow, National Institute for Materials Science

■ AI and Information

Name	Position and Institution	Role
YAGI Yasushi	Professor, Institute of Scientific and Industrial Research, Osaka University	Program Officer
ETOU Minoru	Professor, Institute for Open and Transdisciplinary Research Initiatives, Osaka University	Advisor
OKABE Yasuo	Professor/Director, Academic Center for Computing and Media Studies, Kyoto University	Advisor
KATO Kazuhiko	Executive Director, University of Tsukuba	Advisor
SATO Yoshinobu	Professor, Division of Information Science, Nara Institute of Science and Technology	Advisor
SUGIMOTO Akihiro	Professor, Digital Content and Media Sciences Research Division, National Institute of Informatics	Advisor
TAKIZAWA Hotaka	Professor, Institute of Systems and Information Engineering / Director, Academic Computing and Communications Center, University of Tsukuba	Advisor
NAKAMURA Satoshi	Professor, Graduate School of Information and Science, Nara Institute of Science and Technology	Advisor
NAKAMURA Yuichi	Professor, Academic Center for Computing and Media Studies, Kyoto University	Advisor
BABAGUCHI Noboru	Professor/Dean, Faculty of Management and Information Sciences, Fukui University of Technology	Advisor
MAEDA Eisaku	Professor, School of System Design and Technology, Tokyo Denki University	Advisor
MASE Kenji	Designated Professor/Professor Emeritus, Mathematical and Data Science Center, Nagoya University	Advisor
MATSUI Tomoko	Professor, Department of Statistical Modeling, The Institute of Statistical Mathematics	Advisor
MINATO Shin-ichi	Professor, Graduate School of Informatics, Kyoto University	Advisor

MINOH Michihiko	Director, Information R&D and Strategy Headquarters, RIKEN	Advisor
MORISHIMA Shigeo	Professor, Faculty of Science and Engineering, Waseda University	Advisor
MORITA Hiroshi	Professor, Graduate School of Information Science and Technology, Osaka University	Advisor
YAMADA Seiji	Professor, Digital Content and Media Sciences Research Division, National Institute of Informatics	Advisor

■ Biotechnology

Name	Position and Institution	Role
TAKEYAMA Haruko	Professor, School of Advanced Science and Engineering, Waseda University	Program Officer
IGARASHI Kiyohiko	Professor, Graduate School of Agricultural and Life Sciences, The University of Tokyo	Advisor
OZAWA Takeaki	Professor, Graduate School of Science, The University of Tokyo	Advisor
KAMIYA Noriho	Professor, Graduate School of Engineering, Kyushu University	Advisor
TAKAGI Masahiro	Professor, Graduate School of Advanced and Science and Technology, Japan Advanced Institute of Science and Technology	Advisor
TAKEDA Mizuho	President, MVP Inc.	Advisor
TABATA Satoshi	Vice-President of the Board of Trustees, and Director, Kazusa DNA Research Institute	Advisor
HASHIMOTO Setsuko	President & CEO, CellSeed Inc.	Advisor
MATSUI Minami	Project Professor, Kihara Institute for Biological Research, Yokohama City University	Advisor
YURA Kei	Professor, Faculty of Core Research Natural Sciences Division, Ochanomizu University	Advisor
YOSHINO Tomoko	Professor, Institute of Engineering, Tokyo University of Agriculture and Technology	Advisor

■ Energy

Name	Position and Institution	Role
KANNO Ryoji	Institute Professor, Institute of Innovative Research, Tokyo Institute of Technology	Program Officer
INABA Minoru	Professor, Faculty of Science and Engineering, Doshisha University	Advisor
OTOMO Toshiya	Professor, Institute of Materials Structure Science, High Energy Accelerator Research Organization	Advisor
KANEMITSU Yoshihiko	Professor, Institute for Chemical Research, Kyoto University	Advisor
SAKURAI Yoji	Professor Emeritus, Toyohashi University of Technology	Advisor
SAKAEBE Hikari	Professor, Institute for Materials Chemistry and Engineering, Kyusyu University	Advisor
NAKAMURA Yumiko	Deputy Director, Energy Process Research Institute, Department of Energy and Environment, AIST	Advisor
HORITA Teruhisa	Director, Research Institute for Energy Conservation, Department of Energy and Environment, AIST	Advisor
HONMA Itaru	Professor, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University	Advisor
IBA Hideki	Chief Professional Engineer, Advanced Material Engineering Div., Toyota Motor Corporation	Advisor

■ Materials

Name	Position and Institution	Role
AIDA Takuzo	Deputy Center Director, Center for Emergent Matter Science, RIKEN	Program Officer
ISHIDA Yasuhiro	Team Leader, Center for Emergent Matter Science, RIKEN	Advisor
INAGAKI Shinji	Principal Fellow, Beyond-X Research Division, Toyota Central R&D Labs., Inc.	Advisor
UCHIDA Kenichi	Distinguished Group Leader, Research Center for Magnetic and Spintronic Materials, National Institute for Materials Science	Advisor
KATAOKA Kazunori	Center Director, Innovation Center of Nanomedicine, Kawasaki Institute of Industrial Promotion	Advisor
KATAOKA Jun	Professor, School of Advanced Science and Engineering, Faculty of Science and Engineering, Waseda University	Advisor

KITAGAWA Susumu	Distinguished Professor/ Deputy Director-General, Kyoto University Institute for Advanced Study	Advisor
KITAGAWA Hiroshi	Professor, Graduate School of Science, Kyoto University	Advisor
TAJIMA Keisuke	Team Leader, Center for Emergent Matter Science, RIKEN	Advisor
HAMACHI Itaru	Professor, Graduate School of Engineering, Kyoto University	Advisor
YASHIMA Eiji	Professor, Graduate School of Engineering, Nagoya University	Advisor
YAMAUCHI Yusuke	Distinguished Professor, Graduate School of Engineering, Nagoya University	Advisor
YAMAGUCHI Shigehiro	Professor, Institute of Transformative Bio-Molecules, Nagoya University	Advisor

■ Quantum

Name	Position and Institution	Role
KAWAKAMI Norio	Visiting Professor, Graduate School of Science and Engineering, Ritsumeikan University	Program Officer
IWAMOTO Satoshi	Professor, Research Center for Advanced Science and Technology, The University of Tokyo	Advisor
KATSUMOTO Shingo	Educational lecturer, Faculty of Science and Engineering, Tokyo City University	Advisor
KOBAYASHI Kensuke	Professor, Graduate School of Science, The University of Tokyo	Advisor
TAKIGAWA Masashi	Associate Researcher, Institute of Materials Structure Science, High Energy Accelerator Research Organization	Advisor
TARUCHA Seigo	Group Director, Center for Emergent Matter Science, RIKEN	Advisor
TOKURA Yasuhiro	Professor, Faculty of Pure and Applied Sciences, University of Tsukuba	Advisor
FUJII Keisuke	Professor, Graduate School of Engineering Science, Osaka University	Advisor
MATSUDA Yuji	Professor, Graduate School of Science, Kyoto University	Advisor
MUKAIYAMA Takashi	Professor, School of Science, Tokyo Institute of Technology	Advisor

■ Semiconductor

Name	Position and Institution	Role
AMANO Hideharu	Professor, Faculty of Science and Technology, Keio University	Program Officer
IIDA Masahiro	Professor, Research and Education Institute for Semiconductors and Informatics, Kumamoto University	Advisor
ISHIHARA Tohru	Professor, Graduate School of Informatics, Nagoya University	Advisor
IWASAKI Hiroe	Professor, Institute of Engineering, Tokyo University of Agriculture and Technology	Advisor
USAMI Kimiyoshi	Professor, Faculty of Engineering, Shibaura Institute of Technology	Advisor
ENDOH Tetsuo	Director, Center for Innovative Integrated Electronic Systems/Professor, Graduate School of Engineering, Tohoku University	Advisor
KIMOTO Tsunenobu	Professor, Graduate School of Engineering, Kyoto University	Advisor
NAKAMURA Hiroshi	Professor, Graduate School of Information Science and Technology, The University of Tokyo	Advisor
HIRAMOTO Toshiro	Professor, Institute of Industrial Science, The University of Tokyo	Advisor
MOTOHISA Junichi	Director, Research Center for Integrated Quantum Electronics/Professor, Faculty of Information Science and Technology, Hokkaido University	Advisor

■ Telecommunication

Name	Position and Institution	Role
YAMANAKA Naoaki	Professor, Faculty of Science and Technology, Keio University	Program Officer
UYEMATSU Tomohiko	Professor, School of Engineering, Tokyo Institute of Technology	Advisor
OKI Eiji	Professor, Graduate School of Informatics, Kyoto University	Advisor
SUZUKI Masatoshi	Visiting Professor, Graduate School of Fundamental Science and Engineering, Faculty of Science and Engineering, Waseda University	Advisor
TOMIZAWA Masahito	Senior Executive Vice President and CTO, NTT Innovative Devices Corporation	Advisor

NAKANO Yoshiaki	Professor, Graduate School of Engineering, The University of Tokyo	Advisor
NAMIKI Shu	Research Director, Platform Photonics Research Center, National Institute of Advanced Industrial Science and Technology	Advisor
HASEGAWA Hiroshi	Professor, Graduate School of Engineering, Nagoya University	Advisor
FUJISHIMA Minoru	Professor, Graduate School of Advanced Science and Engineering, Hiroshima University	Advisor

Annex 1

Evaluation Criteria for "ASPIRE for Top Scientists / Top Teams"

(1) Relevance and diversity of the research system	・Does the research team have a well-balanced composition of expertise, given the objectives of the proposal?
(2) Qualification of the PIs of the research team in Japan and in the partner country (in case of ASPIRE for Top Teams, qualification of the PI and team)	・Does the PI have sufficient ability to manage the research? ・Does the PI (including the team in the case of ASPIRE for Top Teams) have sufficient research achievements to have potential to join the international top research community, or can be deemed to already be a part of it as shown by high level research achievements? ・Does the PI (including the team in the case of ASPIRE for Top Teams) have enough experience of promoting early career researchers through international brain circulation, etc.? ・Do the PI and team have sufficient qualifications, research facilities, and resources (funds, human and material resources, etc.) to carry out the research activities in accordance with the proposal and purpose of this call?
(3) Relevance and quality of the research content and plan	・Are the proposed research activities of a high standard in the research field/area concerned? ・Is the proposed research plan expected to lead to research of an international top-level standard? ・Are synergy effects expected from conducting international joint research as a part of this project?
(4) Concreteness and relevance of plans for building and expanding international networks	・Has the target international top research community been clearly defined and does it match the purpose of this call? ・Has an appropriate, concrete, and feasible plan been formulated for the purpose of building, enabling participation in, and developing a top international research community? ・Is there sufficient budget for building and expanding the international network, and is there an appropriate budget plan?
(5) Concreteness and feasibility of plans for promoting early career researchers and researcher mobility	・Are appropriate goals set for fostering early career researchers through international mobility activities? ・Are there plans to involve a sufficient number of early career researchers? ・Is an effective developing plan for the early career researchers considered and is the plan suitable for fostering the next generation of top researchers? ・Are the roles and length of stay for the outgoing researcher(s) clearly described and appropriate? Is the hosting research institution appropriate and able to sufficiently accommodate the outgoing researcher(s)? ・Is the exchange plan feasible, with concrete preparations made involving sufficient coordination with the involved parties in Japan and partner country or countries? ・Is the budget sufficiently allocated for promoting early career researchers, and is the budget plan appropriate?

Annex 2

Evaluation Criteria for "ASPIRE for Rising Scientists "

(1) Relevance and quality of the research content and plan	・Does the proposal adequately correspond to the purpose of the call? ・Are the proposed research activities of a high standard in the research field/area concerned? ・Are synergy effects expected from conducting international joint research as a part of this project?
(2) Quality of plans to promote international researcher mobility	・Are the research and exchange activity plans of the outgoing researcher in the partner country appropriate and detailed in a concrete manner? ・Are the plans for fostering the early career researchers appropriate and sufficiently described in detail? ・ Are the plans for international and sustainable participation in the research community specific and appropriate?
(3) Appropriateness and level of detail of travel and invitation plans	・Is the role of the outgoing researcher in the partner country clear and sufficiently detailed? ・Is the research environment in the partner country sufficient for the activities of the outgoing researcher? ・Is the role of the researcher to be invited to Japan clear at the host institution? ・Is the research environment at the Japan-side host institution sufficient for the activities of the incoming researcher? ・Is the exchange plan feasible, with concrete preparations made involving sufficient coordination with the involved parties in Japan and partner country? ・Are the amount requested and use of funds based on the content of the international joint research reasonable and sufficient to effectively carry out the plan?
(4) Relevance and diversity of the research system	・Does the research team have a well-balanced composition of expertise, given the objectives of the proposal?
(5) Qualification of the PIs of the research team in Japan and in the partner country, as well as the outgoing researcher and researcher to be invited to the Japan-side host institution.	・Does the PI have sufficient qualifications, research environment, and resources (funds, human and material resources, etc.) to carry out the research activities in accordance with the proposal and purpose of this call? ・ Does the background (academic background, professional background, achievements, etc.) of the outgoing researcher and researcher to be invited to the Japan-side host institution have sufficient qualifications to carry out research activities, and are they expected to contribute to promote international researcher mobility and circulation in the future?