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

JST is to fund three research projects coordinated by Japan and Germany in the field of Optics and Photonics within the framework of the Strategic International Collaborative Research Program (SICORP)

JST decided to start the new projects coordinated by Japan and Germany within the framework of the Strategic International Collaborative Research Program (SICORP) (Appendix 1).

Based on intergovernmental agreements on science and technology cooperation, JST has been executing the international joint research program called SICORP*¹ since FY2009, together with leading countries and regions and in research fields that have been strategically prioritized by MEXT.

JST and BMBF*² jointly opened the call for the new research projects between the two countries in the field of Optics and Photonics (Appendix 2).

A total of 24 proposals were submitted in response to the joint call for proposals. Based on the results of evaluation by the experts, JST and BMBF jointly decided to adopt the three projects.

The research period is supposed to be three years.

*1) SICORP: <https://www.jst.go.jp/inter/>

*2) Federal Ministry of Education and Research (BMBF): <https://www.bmbf.de/en/index.html>

Appendices

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Contact

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Abstract of the new projects

Project Title	Principal Investigator (JST side: Academia)	Position and Institution	Abstract of Project
	Principal Investigator (JST side: Industry)		
	Principal Investigator (BMBF side: Academia)		
	Principal Investigator (BMBF side: Industry)		
1	Miniaturizedfull- organic spectroscopic NIR- OLED-sensor- systems (FLEXMONIRS)	KIDO Junji	Professor, Director of Frontier Center for Organic Materials (FROM), Yamagata University
		ITO Keiichi	President and Representative Director, ITO Electronic Co., Ltd.
		Karl LEO	Professor, Director of Dresden Integrated Center for Applied Physics and Photonic Materials (IAPP), Technische Universität Dresden
In this project, researchers and industry partners from Japan and Germany integrate their technologies into one research with mutual advantages and business interests - developing miniaturized spectroscopic near-infrared (NIR) OLED-sensor systems for specific applications to gain rapid market entry. This project aims to reach three major scientific achievements: -Development of organic NIR illumination source (Japanese side) -Development of miniaturized spectroscopic NIR sensor (German side)			

		Ronny TIMMRECK	CEO, Senorics GmbH	-Integration in complete measurement system (both sides) By using organic electronics, it is possible to fabricate low-cost, miniaturized and highly functional devices which can be clearly differentiated from other conventional detectors. The basic technology developed herein can well be used in several important areas, for example, in the field of agri-food quality control and food packaging, household and consumer electronics, personalized healthcare applications, industry 4.0 and others.
2	Novel plasmonic materials and nanostructures for ultrasensitive and reproducible SERS/LSPR biosensing for biomedical applications (PlasmonBioSense)	TAMIYA Eiichi	Professor, Laboratory Director, AIST-Osaka University Advanced Photonics and Biosensing Open Innovation Laboratory	The purpose of this research is not only to fabricate metal nanostructures using nanoimprint technology, but also to develop highly sensitive and highly functional biochips using LSPR and SERS, and to construct new bio-nano measurement technology and medical diagnostic technology. Therefore, the German team designs and constructs a metal nanostructure using plasmon active silver and gold, and the Japanese team modifies the biomolecule to be measured on the fabricated metal nanostructure for LSPR and
		NISHIMORI Yasushi	Director, Furuno Electric Co., Ltd.	

		Wolfgang FRITZSCHE	Professor, Head of Department, Leibniz Institute of Photonic Technology (IPHT) Jena	SERS. As a result, we will develop a highly sensitive and highly functional bionanosensor that can simultaneously measure multiple biomolecular reactions. Through joint research by teams from both countries, we will build a technology that can simultaneously measure multiple biomolecular reactions, and develop it into a diagnostic technology that can detect early stage cancers and pathogenic microorganisms in the future. Development of diagnostic technology is expected.
		Christoph STÖVER	Head of Product Development Freiburg, Temicon GmbH	
3	Mid-IR and near-IR laser source and optics for high-brightness EUV radiation (MIRROR)	YAMANOUCI Kaoru	Professor, The University of Tokyo	In this project, we will develop optics in the mid-infrared and near-infrared wavelength regions, technologies of mid-infrared laser oscillation, amplification and wavelength conversion, and an apparatus for the high-order harmonic generations, all of which are necessary for generating high-brightness high-order

		SUGIURA Muneo	Vice-Executive Engineer, TOKAI OPTICAL CO., LTD.	harmonics in the extreme ultraviolet wavelength region (13-2 nm). Specifically, the Japan team will develop optics in the mid-infrared wavelengths at 1.6 and 2.4 μm, technologies of femtosecond laser oscillation and amplification, and technologies of the wavelength conversion from near-IR to mid-IR. The German team will develop technologies of high-order harmonics generation using a gas cell for the high-order harmonics generation and a fiber laser. Through the cooperation between the two teams, high-order harmonic light sources using high-intensity mid-infrared laser pulses will be realized, and high-intensity high-order harmonics can be expected to be applied to cutting-edge material sciences.
		Jens LIMPert	Professor, Fraunhofer Institute for Applied Optics and Precision Engineering (IOF) and Institute of Applied Physics, Abbe Center of Photonics Friedrich Schiller University Jena	
		Tino EIDAM	CTO, Active Fiber Systems GmbH (AFS)	

Abstract of the joint call for proposals

Funding Agency (German side)

BMBF: Federal Ministry of Education and Research

<https://www.bmbf.de/en/index.html>

Field of the call and requirement for the application

Projects must be joint researches between the two countries in the field of Optics and Photonics

Eligibility for Applicants

Any independent researcher personally affiliated with (and actively conducting research at) a domestic Japanese research institution, regardless of nationality, is eligible to apply.

Research period

3 years

Amount of funding (JST side)

Up to 54 million yen from JST to the researchers (JST side) per project over 3 years, including overhead costs (30 percent of direct costs).

Evaluation method

Based on evaluation by the experts from the two countries and discussion between JST and BMBF.

Evaluation Criteria

- I. Fulfilment of the formal prerequisites for funding
- II. Compliance with “1 Aim and purpose of program” and “2 Object of funding” in the call document
- III. Scientific and technological criteria
 - a. Quality and originality of the project
 - b. Scientific and technological expertise of the applicant and the German and Japanese partners involved
 - c. Scientific benefits and prospects for the exploitation of the expected results
- IV. Criteria concerning international cooperation
 - a. Experience of the applicant in international cooperation
 - b. Establishment of new or consolidation of already existing bilateral/international partnerships
 - c. Quality of the cooperation and added value for partner institutions
- V. Plausibility and feasibility of the project (financing; milestones; time frame)

Experts for the evaluation (JST side)

Experts for the evaluation (JST side)

Member Name	Position and Institution
YATAGAI Toyohiko*	Special Contract Professor, Center for Optical Research & Education, Utsunomiya University
ITO Hiromasa	Senior Visiting Scientist, Riken
UMEHARA Toshiyuki	CTO, NITTO DENKO CORPORATION
OSADA Hidenori	CEO, OPI CORPORATION
OZEKI Yasuyuki	Associate Professor, Graduate School of Engineering, The University of Tokyo
OMATSU Takashige	Professor, Graduate School of Engineering, Chiba University
KURODA Kazuo	Special Contract Professor, Center for Optical Research & Education, Utsunomiya University
KOIKE Yasuhiro	Professor, Dept. Applied Physics and Physico-Informatics, Keio University
KODAMA Ryosuke	Professor, Director of Institute of Laser Engineering, Osaka University
SAKABE Shuji	Professor, Chemistry research institute, Kyoto University
SUGIOKA Koji	Team Leader, Center for Advanced Photonics, RIKEN
SUZUKI Akiyoshi	CEO, AS Lithography Consultants
TAIRA Takunori	Group Director, RIKEN SPring-8 Center
TAKEDA Mitsuo	Special Contract Professor, Center for Optical Research & Education, Utsunomiya University
DEGAWA Toru	CEO, Techno Integration Corporation
DOI Toshiro	Special Contract Professor, Global Innovation Center, Kyushu University
NAKATA Yoshiki	Associate Professor, Institute of Laser Engineering, Osaka University
HOSOKAWA Yoichiroh	Professor, Graduate School of Science and Technology, Nara Institute of Science and Technology
MINOSHIMA Kaoru	Professor, Graduate School of Information Science and Technology, The University of Electro-Communications
YAMAGUCHI Masahiro	Professor, Department of Information and Communications Engineering, Tokyo Institute of Technology
YAMAMURA Kazuya	Professor, Graduate School of Engineering, Osaka University

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