

**Department of Science & Technology**  
**(International Bilateral Co-operation Division)**  
**Indo-Japan Cooperative Science Programme (IJCSP-2018)**

An Indo-Japanese joint call for proposal under India-Japan Cooperative Science Programme (IJCSP) was issued by Department of Science and Technology (DST), Ministry of Science & Technology, Government of India, New Delhi and the Japan Society for the Promotion of Science (JSPS) for inviting Indian and Japanese scientists to submit their proposals for joint research projects and joint workshops in the areas of i) Fundamental Sciences: Physical and Chemical Systems, ii) Materials and System Engineering: Man-made Systems, iii) Natural Systems: Life Sciences and Bioengineering, iv) Astronomy, Space, Earth System and Sciences and v) Mathematics and Computational Science. The last date for submitting the proposals was 6<sup>th</sup> September, 2017. A total of 96 proposals (92 joint projects and 4 joint workshops) were received against the call. After judicious assessment based on scientific strength, technical aspects, project objectives and national priorities of both the countries, Department of Science and Technology (DST), India and Japan Society for the Promotion of Science (JSPS), Japan have jointly decided to support the following 24 proposals (21 joint research projects and 3 workshops). Project coordinators are being informed separately to complete administrative formalities for release of DST grant.

**List of Projects**

**[A] Fundamental Sciences: Physical and Chemical Systems**

<b>Sl No.</b>	<b>Title of the Project</b>	<b>Indian PI</b>	<b>Japanese PI</b>
1.	Nanoscale Studies of Chemisorption and Physisorption of DNA molecule at the Titanium dioxide/Water Interface	Subrata MAJUMDER Assistant Professor, National Institute of Technology Patna	Kenji YASUOKA Professor, Keio University
2	Construction of p/n Heterojunction through the Self-assembly of Functional Dyes	Ayyappanpillai AJAYAGHOSH Director, CSIR-National Institute for Interdisciplinary Science and Technology	Shigeyuki YAGI Professor, Osaka Prefecture University
3	Local structure and dynamics of hydrogen bonds in water: Supercooled water and binary mixtures	Biman BAGCHI Professor, Indian Institute of Science	Shinji SAITO Professor, National Institutes of Natural Sciences
4	Spin Hall nano-oscillator using ferromagnet /antiferromagnet heterostructures	Pranaba Kishor MUDULI Assistant Professor, Indian Institute of Technology, Delhi	Yasuhiro FUKUMA Associate Professor, Kyushu Institute of Technology

5	Synthesis and physical properties of new superconductors using high-pressure technique	Sonachalam ARUMUGAM Professor, Bharathidasan University	Chihiro SEKINE Professor, Muroran Institute of Technology
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**[B] Materials and System Engineering: Man-made Systems**

SI No	Title of the Project	Indian PI	Japanese PI
1	Integrated thin films of graphene-ionic liquids for lubrication in MEMS application	Om Prakash KHATRI Sr. Scientist, Indian Institute of Petroleum	Hiroyuki SUGIMURA Professor, Kyoto University
2	Development of peptide conjugated nano-magnetic probes as cancer theranostics	Selvamani PALANISAMY Assistant Professor, Anna University	Yasushi TAKEMURA Professor, Yokohama National University
3	Supercritical Fluid Process Development for Next Generation (Magnesium/Sodium Ion) Battery Electrode Materials	Dinesh RANGAPPA Professor, Visvesvaraya Technological University	Takaaki TOMAI Associate Professor, Tohoku University
4	Development of light-weight lattice structure with superior shock attenuation properties	Mira MITRA Associate Professor, Indian Institute of Technology, Kharagpur	Tomohiro YOKOZEKI Associate Professor, The University of Tokyo
5	Synthesis of soft-ionic microgels and their directed self-assembly using an external electric and chemical fields	Priti Sundar MOHANTY Associate Professor, Kalinga Institute of Industrial Technology (KIIT university)	Junpei YAMANAKA Professor, Nagoya City University
6	Novel lipid-filled high strength polymer composite for highly functional joint prosthesis application	Sujeet Kumar SINHA Professor, Indian Institute of Technology Delhi	Yoshinori SAWAE Professor, Kyushu University

**[C] Natural Systems: Life Sciences and Bioengineering**

SI No	Title of the Project	Indian PI	Japanese PI
1	Molecular epidemiological study on drug resistance of diarrheagenic Gram-negative bacteria in India	Balasubramanian GANESH Scientist-D, National Institute of Epidemiology	Nobumichi KOBAYASHI Professor, Sapporo Medical University
2	Genome Engineering of the Bombycid and Saturniid Silkmoths in Asia	Rajesh KUMAR Scientist-C, Central Muga Eri Research and Training Institute, Central Silk Board, Ministry of Textiles	Toru SHIMADA Professor, The University of Tokyo
3	Exploring the therapeutic potential of cyclic mismatch binding ligands (CMBLs) in cervical cancer sub-	Sudhir KRISHNA Professor, National Centre for Biological Science, Tata	Chikara DOHNO Associate Professor, Osaka University

	sets	Institute of Fundamental Research	
4	Japan-India collaborative research aspiring for conquering sickle cell disease by elucidating the developmental mechanism	Manisha Rajan MADKAIKAR Director-In-Charge, National Institute of Immunohaematology (ICMR)	Junichi FUJII Professor, Yamagata University
5	Bio-inspired nano-hierarchical architecture of fabrication and maturation of spheroid based tendon-ligament tissues	Subha Narayan RATH Assistant professor, Indian Institute of Technology, Hyderabad	Koichi NAKAYAMA Professor, Saga University
6	Neuro-cognitive instrumentation of validated human-robot interactions to enhance learning and developmental processes in children	Bishakh BHATTACHARYA Professor, Indian Institute of Technology Kanpur	Hiroaki WAGATSUMA Associate Professor, Kyushu Institute of Technology

#### **[D] Astronomy, Space, Earth Systems and Sciences**

<b>SI No</b>	<b>Title of the Project</b>	<b>Indian PI</b>	<b>Japanese PI</b>
1	Arc accretion in the past and present and its bearing on Metallogeny	Sajeev KRISHNAN Associate Professor, Indian Institute of Science	Tsuyoshi TOYOSHIMA Professor, Niigata University
2	Theoretical studies in explosion physics of nearby supernovae based on high-quality optical and near-infrared observational data	Devendra Kumar SAHU Associate Professor, Indian Institute of Astrophysics	Koji KAWABATA Professor, Hiroshima University

#### **[E] Mathematics and Computational Science**

<b>SI No</b>	<b>Title of the Project</b>	<b>Indian PI</b>	<b>Japanese PI</b>
1	Developing open source tool using quantum based feature selection for high dimensional datasets	Amlan CHAKRABARTI Professor, Calcutta University	Basabi CHAKRABORTY Professor, Iwate Prefectural University
2	Design and Development of Real-Time Transportation Safety Monitoring System for Smart Cities	Mohan C. KRISHNA Associate Professor, Indian Institute of Technology Hyderabad	Masaki ITO Research Associate, The University of Tokyo

### List of Workshops

#### [A] Fundamental Sciences: Physical and Chemical Systems

<b>SI No</b>	<b>Title of the Workshop</b>	<b>Indian PI</b>	<b>Japanese PI</b>
1	Designing emergent materials	Priya MAHADEVAN Professor, S.N.Bose National Centre for Basic Sciences	Jobu MATSUNO Senior Research Scientist, RIKEN

#### [B] Materials and System Engineering: Man-made Systems

<b>SI No</b>	<b>Title of the Workshop</b>	<b>Indian PI</b>	<b>Japanese PI</b>
1	India-Japan Workshop on Biomolecular Electronics and Organic Nanotechnology for Environment Preservation	Gajjala SUMANA Principal Scientist, National Physical Laboratory	Hideo KISHIDA Professor, Nagoya University
2	Highly conductive CFRP using conductive polymers and nanomaterials for structural applications	Sanjay DHAKATE, Senior Principal Scientist, National Physical Laboratory	Takahira AOKI Professor, The University of Tokyo