

SCHEME FOR TRANSFORMATIONAL AND ADVANCED RESEARCH IN SCIENCES
Recommended proposals in the first call for proposals (April 2019)

S. No.	Proposal ID	Domain	Title	PI	PI Institution	City	State
1	108	Biological Sciences	A targeted engineering approach to study PPAR α as a metabolic regulator for regression of cardiac hypertrophy	Dr. Sagartirtha Sarkar	University of Calcutta	Kolkata	West Bengal
2	127	Biological Sciences	Mosquito biodiversity and insecticide resistance documentation using phenotypic, barcoding and metabarcoding methods	Dr. Rama Vaidyanathan	Dr. M.G.R. Educational and Research Institute	Chennai	Tamil Nadu
3	158	Biological Sciences	Single domain antibodies as novel therapeutics for snakebites.	Dr. Sharvan Sehrawat	IISER Mohali	Mohali	Punjab
4	167	Biological Sciences	Elucidation of mechanism and pharmacology of purinergic channels through cryoEM imaging	Dr. Aravind Penmatsa	IISc Bangalore	Bangalore	Karnataka
5	171	Biological Sciences	Structural basis of the interaction between Staphylococcus aureus pore forming toxins and GPCRs: A novel framework for combating antimicrobial resistance	Dr. Somnath Dutta	IISc Bangalore	Bangalore	Karnataka
6	180	Biological Sciences	Understanding the molecular dynamics of Ying yang1 (Yy1) during retina regeneration	Dr. Rajesh Ramachandran	IISER Mohali	Mohali	Punjab
7	224	Biological Sciences	Epigenetic regulation and its inhibition as a mechanism to block GPI anchor biosynthesis in C. albicans	Dr. Rohini Muthuswami	Jawaharlal Nehru University	New Delhi	The Government of NCT of Delhi (UT)
8	229	Biological Sciences	Antibacterial polymers to combat drug-resistant bacteria	Dr. Abhijit Mishra	IIT Gandhinagar	Gandhinagar	Gujarat
9	245	Biological Sciences	Potential use of a BBX protein in engineering drought tolerance in Soybean	Dr. Sourav Datta	IISER Bhopal	Bhopal	Madhya Pradesh
10	248	Biological Sciences	Calcium permeable onco-TRP channels as diagnostic markers and therapeutic targets for cancer	Dr. Appu Kumar Singh	IIT Kanpur	Kanpur	Uttar Pradesh
11	267	Biological Sciences	A biomimetic ECM protein-based bioadhesive graft copolymer for implants - Targeting enhanced soft tissue integration and osseointegration	Dr. Nishant Chakravorty	IIT Kharagpur	Kharagpur	West Bengal

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12	274	Biological Sciences	Study of the mechanisms of cell death and immunomodulatory responses triggered by Thermostable Direct Hemolysin, a major virulence factor of <i>Vibrio parahaemolyticus</i>	Dr. Kausik Chattopadhyay	IISER Mohali	Mohali	Punjab
13	296	Biological Sciences	A systems approach to decipher the mechanisms of activation of CpxAR two-component system by long-chain fatty acids, a pathway implicated in antibiotic resistance and virulence of gram-negative bacteria	Dr. Rachna Chaba	IISER Mohali	Mohali	Punjab
14	297	Biological Sciences	Systematic evaluation of the role of cellular cathepsins in influenza infection and identification of novel anti-influenza drug targets	Dr. Indranil Banerjee	IISER Mohali	Mohali	Punjab
15	298	Biological Sciences	Molecular and structural studies of the role of host adhesion molecules in facilitating LpqH (19 kDa surface antigen) mediated entry of <i>Mycobacterium tuberculosis</i> into pneumocytes	Dr. Dibyendu Samanta	IIT Kharagpur	Kharagpur	West Bengal
16	325	Biological Sciences	Pathology on a Spinning Disc	Dr. Arnab Sarkar	IIT (BHU) Varanasi	Varanasi	Uttar Pradesh
17	328	Biological Sciences	Therapeutic induction of translational readthrough across thalassemia-causing premature stop codon in beta-globin mRNA	Dr. Sandeep Eswarappa	IISc Bangalore	Bangalore	Karnataka
18	369	Biological Sciences	Unravelling the molecular mechanism of DEAD-box RNA helicase 3 (DDX3X) mediated regulation of influenza virus RNA synthesis and virus life cycle.	Dr. Arindam Mondal	IIT Kharagpur	Kharagpur	West Bengal
19	384	Biological Sciences	An integrated approach for developing a liposome based point of care paper diagnostic kit for dual detection of Dengue virus infection	Dr. SUVANKAR GHORAI	SRM Institute of Science and Technology	Chennai	Tamil Nadu
20	385	Biological Sciences	Investigation on the molecular mechanism of the tumor-suppressor and anti-cancerous functions of Arginyltransferase 1 (Ate1)	Dr. Akhilesh Kumar	Banaras Hindu University	Varanasi	Uttar Pradesh

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21	409	Biological Sciences	Silica-induced Nephrotoxicity: Implications in Uddanam Chronic Kidney Disease of Unknown Origin	Dr. Anil Kumar Pasupulati	University of Hyderabad	Hyderabad	Telangana
22	416	Biological Sciences	Unravelling the role of Phytochrome B in temperature-mediated regulation of growth and defense responses in Rice (<i>Oryza sativa</i> L.)	Dr. Sreeramaiah N. Gangappa	IISER Kolkata	Kolkata	West Bengal
23	424	Biological Sciences	Investigating structure function relationship of the ATPase-GTPase duo FlhFG that critically regulates flagellar gene transcription and chemotaxis of <i>Vibrio cholerae</i>	Dr. Jhimli Dasgupta	St. Xavier's College Kolkata	Kolkata	West Bengal
24	454	Biological Sciences	The effect of ageing and neurodegeneration on Memory	Dr. Kavita Babu	IISc Bangalore	Bangalore	Karnataka
25	507	Biological Sciences	Nucleolus in control of breast tumor heterogeneity	Dr. Bramanandam Manavathi	University of Hyderabad	Hyderabad	Telangana
26	508	Biological Sciences	Improved root nodule formation in groundnut by overexpressing genes linked with receptor-mediated signalling	Dr. Swarup Roy Choudhury	IISER Tirupati	Tirupati	Andhra Pradesh
27	523	Biological Sciences	Resisting Resistance: Precise Inhibitors against Ribosomal Methyltransferases involved in Antimicrobial Resistance	Dr. Ruchi Anand	IIT Bombay	Mumbai	Maharashtra
28	524	Biological Sciences	Benchmarking herbal Ayurvedic medicines using NMR metabolomics techniques	Dr. Kavita Dorai	IISER Mohali	Mohali	Punjab
29	528	Biological Sciences	Designing and large scale production of recombinant single chain antibody (scFv) against human Tumor Necrosis Factor alpha (hTNF- α)	Dr. YOGENDER PAL KHASA	University of Delhi	New Delhi	The Government of NCT of Delhi (UT)
30	548	Biological Sciences	Actin Cytoskeleton Mediated Regulation of Golgi Architecture and Vesicular Trafficking by trans-Golgi Associated Protein nPIST	Dr. Sankar Maiti	IISER Kolkata	Kolkata	West Bengal

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S. No.	Proposal ID	Domain	Title	PI	PI Institution	City	State
31	563	Biological Sciences	Development of Light-Gated BLUF Coupled Protease Based Optogenetic Tools for Modulating Sumoylation Mediated Neural Signaling and Synapses Plasticity	Dr. Suneel Kateriya	Jawaharlal Nehru University	New Delhi	The Government of NCT of Delhi (UT)
32	581	Biological Sciences	Structural studies on Mycobacterium Ribosome-CgtA complexes by cryo-EM towards identifying potential drug target(s)	Dr. Partha Pratim Datta	IISER Kolkata	Kolkata	West Bengal
33	583	Biological Sciences	Synthesis and evaluation of diverse N-functionalized heterocyclic hybrids as multi-target directed ligands for neuroprotective and neurorestorative therapies	Dr. Senthil Raja A	IIT (BHU) Varanasi	Varanasi	Uttar Pradesh
34	584	Biological Sciences	Identification of novel mitochondrial substrates for dengue proteases and development of potential anti dengue virus protease molecules to protect the mitochondrial homeostasis	Dr. Musturi Venkataramana	University of Hyderabad	Hyderabad	Telangana
35	591	Biological Sciences	Investigating the role of anti-inflammatory drugs on migrating border cell in Drosophila oogenesis: an excellent model for studying tumor metastasis.	Dr. Mohit Prasad	IISER Kolkata	Kolkata	West Bengal
36	607	Biological Sciences	Optimizing the deployment of Host Mediated Pathogen Gene Silencing (HIGS) for enhancing resistance against Sclerotinia sclerotiorum, causal agent for stem rot in plants.	Dr. Jagreet Kaur	University of Delhi	New Delhi	The Government of NCT of Delhi (UT)
37	614	Biological Sciences	Evaluation of Genetically Attenuated Whole Cell Vaccines against Multi Drug Resistant Acinetobacter baumannii and Klebsiella pneumoniae infections in Murine Model	Dr. Ranjana Pathania	IIT Roorkee	Roorkee	Uttarakhand
38	632	Biological Sciences	Model Development for clinician to predict the bone and soft tissue strength and quality for type 2 Diabetic patients.	Dr. NAVIN KUMAR	IIT Ropar	Ropar	Punjab
39	634	Biological Sciences	Employing Engineered Ubiquitin to Understand the Ubiquitin Proteasome Network Dynamics	Dr. Parul Mishra	University of Hyderabad	Hyderabad	Telangana

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S. No.	Proposal ID	Domain	Title	PI	PI Institution	City	State
40	661	Biological Sciences	Restoration of the intestinal barrier in Enteropathogenic E. coli infections: Lysosome and cytoskeleton pathways as novel drug targets.	Dr. Saima Aijaz	Jawaharlal Nehru University	New Delhi	The Government of NCT of Delhi (UT)
41	666	Biological Sciences	NANOSOL: A MULTI FUNCTIONAL ADVANCED THERAPEUTIC BURN WOUND DRESSING	Dr. Sundar Manoharan	Pandit Deendayal Petroleum University	Gandhinagar	Gujarat
42	672	Biological Sciences	Understanding the mechanism of Mg ²⁺ mediated SOS induction in Mycobacterium tuberculosis to decipher its role in antibiotic resistance and survival in macrophage	Dr. Saravanan Matheshwaran	IIT Kanpur	Kanpur	Uttar Pradesh
43	708	Biological Sciences	Structural characterization of functional prion domain of mammalian cytoplasmic polyadenylation element-binding protein 3 (CPEB3)	Dr. Vinesh Vijayan	IISER Thiruvananthapuram	Vithura	Kerala
44	709	Biological Sciences	Delineating the molecular basis of Rho GTPase mediated actin degradation and its implication in amoebic encystation	Dr. Sunando Datta	IISER Bhopal	Bhopal	Madhya Pradesh
45	729	Biological Sciences	Structure, function and molecular mechanism of transcription regulators in Mycobacterium spp.	Dr. RAMANATHAN NATESH	IISER Thiruvananthapuram	Vithura	Kerala
46	730	Biological Sciences	From the Gut: SUMO cycles its way into gastrointestinal disorders	Dr. Girish Shriram Ratnaparkhi	IISER Pune	Pune	Maharashtra
47	759	Biological Sciences	Multiplexed fluorophore detection on a miniaturized optofluidic platform for affordable healthcare and other applications	Dr. Anil Prabhakar	IIT Madras	Chennai	Tamil Nadu
48	779	Biological Sciences	Investigation of autophagosome-lysosome fusion defect in a Drosophila model of MPS VII to identify potential drug targets and druggable molecules	Dr. Rupak Datta	IISER Kolkata	Kolkata	West Bengal
49	784	Biological Sciences	Microfluidic Chip to Capture and Lyse Pathogen from Body Fluids	Dr. Suhanya Duraiswamy	IIT Hyderabad	Sangareddy	Telangana

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50	818	Biological Sciences	Epigenetic modulation of centromeres to produce in vivo haploids by triggering uniparental genome elimination in plants	Dr. Ravi Maruthachalam	IISER Thiruvananthapuram	Vithura	Kerala
51	820	Biological Sciences	Detection of early onset of myocardial infarction at the point of care using a hybrid nanomaterial platform	Dr. Subinoy Rana	IISc Bangalore	Bangalore	Karnataka
52	122	Chemical Sciences	Fluorometric polymeric sensor for speedy formalin detection in commercial fishes	Dr. Priyadarsi De	IISER Kolkata	Kolkata	West Bengal
53	175	Chemical Sciences	Cavity catalysis (CAVCAT): Accelerating Chemical Reactions by Coupling to Vacuum Field	Dr. Jino George	IISER Mohali	Mohali	Punjab
54	202	Chemical Sciences	Room Temperature Capture and Photocatalytic Reduction of CO ₂ on Iron Oxide-Based Nanomaterial Surfaces	Dr. Atanu Bhattacharya	IISc Bangalore	Bangalore	Karnataka
55	215	Chemical Sciences	High entropy alloy nanoparticles (HEA-NPs) supported CeO ₂ catalyst for Dry reforming of CO ₂ .	Dr. Sudhanshu Sharma	IIT Gandhinagar	Gandhinagar	Gujarat
56	250	Chemical Sciences	Electrophilic Aluminum Compounds for Catalytic CO ₂ Hydrosilylation	Dr. Ajay Venugopal	IISER Thiruvananthapuram	Vithura	Kerala
57	255	Chemical Sciences	From Waste to Asset using Cheap and Abundant Alkaline Earth Metal Catalysts: Carbon dioxide as a building block for Methanol Formation and N-Methylation of Amines	Dr. Debasis Koley	IISER Kolkata	Kolkata	West Bengal
58	257	Chemical Sciences	Photocatalysis Employing Combination of Plasmonic Nanoparticle and Molecular Catalyst: Probing Spatiotemporal Interfacial Charge/Energy Transfer Dynamics	Dr. Vishal Govind Rao	IIT Kanpur	Kanpur	Uttar Pradesh
59	270	Chemical Sciences	Biodegradable, Biocompatible Polyurethanes from Alternative, Non-toxic Amino Acid based Monomers	Dr. Tushar Jana	University of Hyderabad	Hyderabad	Telangana
60	278	Chemical Sciences	Inorganic-Organic Hybrid Solids as Ion-Conduction Membranes in Charge Storage Devices	Dr. Ramanathan Vaidhyanathan	IISER Pune	Pune	Maharashtra

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61	283	Chemical Sciences	Using machine learning to develop a mechanical metric for local hydrophobicity	Dr. Vishwanath Haily Dalvi	Institute of Chemical Technology	Mumbai	Maharashtra
62	284	Chemical Sciences	Bio-catalysis driven microscale flow at functional organic interfaces for healthcare applications	Dr. Subhabrata Maiti	IISER Mohali	Mohali	Punjab
63	310	Chemical Sciences	Probing the Molecular Orientation and Charge transfer Dynamics at Interfaces for the Design and Fabrication of More Efficient Optoelectronics Devices	Dr. Ravindra Pandey	IIT Roorkee	Roorkee	Uttarakhand
64	320	Chemical Sciences	NHC-Supported Cobalt Dinitrogen Complexes: Synthesis and Application in Catalytic Transformation of Molecular Nitrogen into Ammonia	Dr. Geetharani K	IISc Bangalore	Bangalore	Karnataka
65	333	Chemical Sciences	Chemical tuning of crystal-field topology around the f-element ions to tailor single-molecule magnetism	Dr. Arun Kumar Bar	IISER Tirupati	Tirupati	Andhra Pradesh
66	374	Chemical Sciences	Mitochondria-targeted Photo-triggered Drug Delivery System: A Strategy of Prodrug Activation and Real-time Monitoring of Drug Release	Dr. Pijus Kumar Sasmal	Jawaharlal Nehru University	New Delhi	The Government of NCT of Delhi (UT)
67	375	Chemical Sciences	Liquid Junction Solar Cells with Silicon Nanowires Photoanodes Modified with Hole Conducting Materials	Dr. Melepurath Deepa	IIT Hyderabad	Sangareddy	Telangana
68	426	Chemical Sciences	Deciphering Chemical Code of Extracellular matrix in Cancer Biology	Dr. Raghavendra Kikkeri	IISER Pune	Pune	Maharashtra
69	435	Chemical Sciences	Transforming Natural Antimicrobial Peptides into Peptidomimetics to Access Potential Antibiotics	Dr. Hosahudya Gopi	IISER Pune	Pune	Maharashtra
70	450	Chemical Sciences	Microelectromechanical Sensor based on Multinuclear Spin-State Switching Molecular Assemblies	Dr. Abhishake Mondal	IISc Bangalore	Bangalore	Karnataka
71	473	Chemical Sciences	Catalytic Reduction of CO ₂ under Ambient Condition: A Metal-free Approach using Organic Radicals	Dr. Swadhin K. Mandal	IISER Kolkata	Kolkata	West Bengal

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72	560	Chemical Sciences	Cavitation-based porous organic polymer to molecular nanocage: catalysts for metal-free CO ₂ conversion	Dr. Abhijit Patra	IISER Bhopal	Bhopal	Madhya Pradesh
73	604	Chemical Sciences	Characterization and biofouling studies on Silver incorporated Sulphonated Poly Ether Ether Ketone (SPEEK) membranes for microbial fuel cell applications	Dr. Sangeetha D	Anna University	Chennai	Tamil Nadu
74	629	Chemical Sciences	Design of Efficient, Recyclable and Sustainable Immobilised Molecular-Pincer Group (VIII) Metal Catalytic Systems for Fine Chemical Synthesis Via Direct Functionalisation of Carbon Dioxide	Dr. Akshai Kumar A S	IIT Guwahati	Guwahati	Assam
75	643	Chemical Sciences	Integrating metabolic and protein engineering for the production of sustainable biofuels	Dr. Supratim Datta	IISER Kolkata	Kolkata	West Bengal
76	655	Chemical Sciences	Cost effective, ultralight and highly recyclable cellulose nanofabricated hybrid aerogels for oil/water separation	Dr. Pradip Kumar Maji	IIT Roorkee	Roorkee	Uttarakhand
77	782	Chemical Sciences	Developing a Recurrent Neural Network-Based Algorithm for Sustainable Design of Hydrogen Storage Materials	Dr. K V Jovan Jose	University of Hyderabad	Hyderabad	Telangana
78	182	Data Science and Mathematics	On some challenging boundary-value-problems arising in the vibro-acoustical study of Indian musical instruments	Dr. Anurag Gupta	IIT Kanpur	Kanpur	Uttar Pradesh
79	261	Data Science and Mathematics	Short and Long-term Fog Predictions using Data Science	Dr. Arnab Bhattacharya	IIT Kanpur	Kanpur	Uttar Pradesh
80	367	Data Science and Mathematics	Physics Guided Data Science Approach for Predictive Understanding of Hydrological Processes	Dr. Udit Bhatia	IIT Gandhinagar	Gandhinagar	Gujarat
81	388	Data Science and Mathematics	SPADE - Stochastic ParMOON for Analysis, Design and Estimation	Dr. Sashikumaar Ganesan	IISc Bangalore	Bangalore	Karnataka

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82	391	Data Science and Mathematics	A multiple-point geostatistics based approach to extend the spatial extent and data period of WRF output at high-spatial resolution and to predict realizations of hourly weather data over the Northwest Himalayas	Dr. Sanjeev Kumar Jha	IISER Bhopal	Bhopal	Madhya Pradesh
83	395	Data Science and Mathematics	Design and Implementation of Efficient and Secure Searchable Encryption	Dr. Debdeep Mukhopadhyay	IIT Kharagpur	Kharagpur	West Bengal
84	705	Data Science and Mathematics	Speech based articulatory visualization tool for assessment of patients with amyotrophic lateral sclerosis (ALS)	Dr. Prasanta Kumar Ghosh	IISc Bangalore	Bangalore	Karnataka
85	163	Earth Sciences	Does The Ediacaran Shuram Excursion represent a globally synchronized diagenetic event?	Dr. Melinda Kumar Bera	IIT Kharagpur	Kharagpur	West Bengal
86	373	Earth Sciences	Understanding the Critical Orientation for Seismic Excitation and Developing Associated GMPEs for Indian Subcontinent	Dr. Dhiman Basu	IIT Gandhinagar	Gandhinagar	Gujarat
87	401	Earth Sciences	Ground Motion Prediction for Site-Specific Seismic Hazard Analysis: demonstrated case studies from Gujarat, western India	Dr. Sanjay Singh Bora	IIT Gandhinagar	Gandhinagar	Gujarat
88	504	Earth Sciences	Novel whole-Earth models for planetary magnetism	Dr. Binod Sreenivasan	IISc Bangalore	Bangalore	Karnataka
89	651	Earth Sciences	Subsistence and symbolism in prehistoric India: Understanding environmental contexts in relation to Homo sapiens dispersals and adaptations	Dr. Parth R. Chauhan	IISER Mohali	Mohali	Punjab
90	693	Earth Sciences	Ocean-Crust-Mantle Interaction: An elemental and isotopic study of the fluid-rock interaction in ocean floor and subduction zone	Dr. Rajneesh Bhutani	Pondicherry University	Puducherry	Puducherry (UT)

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91	743	Earth Sciences	Operational coastal flood management through short-to-medium range (real-time) flood vulnerability mapping in the Brahmani-Baitarani River Basin integrating human and climate induced impacts	Dr. Bhabagrahi Sahoo	IIT Kharagpur	Kharagpur	West Bengal
92	766	Earth Sciences	Comparing the disparate impacts of Oak and Chir pine tree species on their local hydrological and hydroclimatic regimes in the west-central Himalayas	Dr. Jaya Khanna	National Institute of Science Education and Research	Jatni	Odisha
93	787	Earth Sciences	Flood risk assessment in tropical rivers in the Anthropocene and under climate change scenario using hydro-geomorphic modeling	Dr. Vikrant Jain	IIT Gandhinagar	Gandhinagar	Gujarat
94	116	Nano Sciences	2D-TMD and carbon dot embedded metal-oxide nanomaterials for ultrasensitive and ultrasensitive H ₂ S detection	Dr. Shaibal Mukherjee	IIT Indore	Indore	Madhya Pradesh
95	135	Nano Sciences	Pb-free perovskite for commercially deployable high-efficiency thin-film photovoltaics	Dr. Sushobhan Avasthi	IISc Bangalore	Bangalore	Karnataka
96	145	Nano Sciences	Silver nanowire-based transparent and flexible tactile and force sensors	Dr. Parasuraman Swaminathan	IIT Madras	Chennai	Tamil Nadu
97	148	Nano Sciences	Fundamental study of organic solvent transport in nanochannels for energy and environment applications	Dr. Vishal Nandigana	IIT Madras	Chennai	Tamil Nadu
98	226	Nano Sciences	Topotronic device design for Ultra-low-power logic and Quantum Computing	Dr. Bhaskaran Muralidharan	IIT Bombay	Mumbai	Maharashtra
99	231	Nano Sciences	Harnessing low cost, high efficiency stable photovoltaics based on layered hybrid perovskites	Dr. Rupak Banerjee	IIT Gandhinagar	Gandhinagar	Gujarat
100	238	Nano Sciences	Ferroelectric and Multifunctional thin films towards photovoltaic applications	Dr. Debraj Choudhury	IIT Kharagpur	Kharagpur	West Bengal

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S. No.	Proposal ID	Domain	Title	PI	PI Institution	City	State
101	302	Nano Sciences	Design and Development of Multi-bit Phase Change Memory for High Density, High Speed Non-volatile Random Access Memory (NVRAM) Applications	Dr. Anbarasu Manivannan	IIT Madras	Chennai	Tamil Nadu
102	334	Nano Sciences	Printed 2D transition metal dichalcogenide transistors aiming at high mobility intra-flake transport	Dr. Subho Dasgupta	IISc Bangalore	Bangalore	Karnataka
103	336	Nano Sciences	Investigation of nanoscale heat transport at solid-liquid interfaces for engineering tailored nanostructures in thermal interface systems	Dr. SARITH P SATHIAN	IIT Madras	Chennai	Tamil Nadu
104	405	Nano Sciences	Electrochemical fabrication of sub-nm pores on mica and Si-nitride sheets for desalination applications	Dr. Gopinadhan Kalon	IIT Gandhinagar	Gandhinagar	Gujarat
105	421	Nano Sciences	Design, Growth and Fabrication of InGaN/GaN Based Direct Emission Green Laser Diode Operating in the Emission Range of 500-530nm.	Dr. Apurba Laha	IIT Bombay	Mumbai	Maharashtra
106	428	Nano Sciences	Metal nanostructure assisted plasmonic hot electron induced phase transformation in 2D-transition metal di-chalcogenides for hydrogen evolution reaction	Dr. Santanu Das	IIT (BHU) Varanasi	Varanasi	Uttar Pradesh
107	440	Nano Sciences	Handheld electronic tool for impedance-sensing detection of mercury in water using aptamer templated metal nanoparticles	Dr. Chetan Singh Thakur	IISc Bangalore	Bangalore	Karnataka
108	443	Nano Sciences	Design and implementation of small scale environmental energy harvesters by piezoelectric / multiferroic polymer nanocomposites	Dr. RANEESH B	Catholicate College	Pathanamthitta	Kerala
109	498	Nano Sciences	Ultra-high Sensitivity Infrared Photodetector Using Cascaded Gain	Dr. Kausik Majumdar	IISc Bangalore	Bangalore	Karnataka

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110	509	Nano Sciences	On the reduction of iR-losses, flow optimization and identifying alternative membranes to Nafion for 1kW-4kWh vanadium redox flow battery suitable for residential use	Dr. Kothandaraman Ramanujam	IIT Madras	Chennai	Tamil Nadu
111	527	Nano Sciences	Optimization of nanocatalysts for sustainable conversion of food wastes into value added products	Dr. EESHAN KALITA	Cotton University	Guwahati	Assam
112	534	Nano Sciences	Optomechanical systems for mass spectrometry	Dr. Akshay Naik	IISc Bangalore	Bangalore	Karnataka
113	537	Nano Sciences	Whispering Gallery enabled light scattering: Achieving enhanced efficiency in perovskite quantum dot sensitized mesoporous metal oxide whisperonic solar cells	Dr. Sudakar Chandran	IIT Madras	Chennai	Tamil Nadu
114	572	Nano Sciences	Development of a novel class of wide band gap thermoelectric materials: quaternary chalcogenides Cu ₂ NiSnQ ₄ (Q=S,Se)	Dr. ANBALAGAN G	University of Madras	Chennai	Tamil Nadu
115	626	Nano Sciences	Improving pulse (Chick pea and soybean) production and nitrogen content of the soil by nano iron pyrite seed treatment	Dr. Mainak Das	IIT Kanpur	Kanpur	Uttar Pradesh
116	631	Nano Sciences	Development of Large Area Two Dimensional Layered Quantum Material for Memristor Applications.	Dr. Abhishek Misra	IIT Madras	Chennai	Tamil Nadu
117	639	Nano Sciences	Mitigation of food borne pathogens using combination of natural food grade peptides decorated on nanoparticles; development of safe and active antimicrobial packaging film.	Dr. Naveen Kumar Navani	IIT Roorkee	Roorkee	Uttarakhand
118	641	Nano Sciences	Green synthesis and characterization of biocompatible multicolor luminescent carbon dots for bioimaging and/or sensing applications	Dr. Narayan Chandra Das	IIT Kharagpur	Kharagpur	West Bengal
119	653	Nano Sciences	Development of piezo-MEMS based microfluidic density sensor for real time condition monitoring of human blood	Dr. Rudra Pratap	IISc Bangalore	Bangalore	Karnataka

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120	654	Nano Sciences	Phase selective CVD growth with controllable 1T-to-1H phase transition in WS ₂ monolayer for optoelectronic device applications	Dr. VISWANATH BALAKRISHNAN	IIT Mandi	Mandi	Himachal Pradesh
121	679	Nano Sciences	Development of NiCo ₂ O ₄ decorated MoS ₂ and rGO nanocomposites based flexible solid state supercapacitor for energy storage applications	Dr. R Jayavel	Anna University	Chennai	Tamil Nadu
122	713	Nano Sciences	Photonic metasurfaces for enhanced IR absorption and its applications for sensing and heat absorbing windows	Dr. Sachin Kumar Srivastava	IIT Roorkee	Roorkee	Uttarakhand
123	751	Nano Sciences	Degenerate Two Dimensional Semiconductor Nanostructures for Multifunctional Applications	Dr. Vasu Kuraganti	Vellore Institute of Technology	Vellore	Tamil Nadu
124	774	Nano Sciences	Development of silicon photonics platform for sensing at mid-IR wavelengths	Dr. Emani Naresh Kumar	IIT Hyderabad	Sangareddy	Telangana
125	156	Physical Sciences	Engineering unconventional superconductivity in artificial geometry of quantum materials	Dr. Tanmoy Das	IISc Bangalore	Bangalore	Karnataka
126	240	Physical Sciences	Studying the marriage of quantum spin liquids with other novel states of electronic matter to discover new functionalities	Dr. Yogesh Singh	IISER Mohali	Mohali	Punjab
127	253	Physical Sciences	Femtosecond laser processed spider silk as a novel 3D-scaffold and biosensor	Dr. Kamal Singh	IISER Mohali	Mohali	Punjab
128	271	Physical Sciences	Hybrid photonic-plasmonic nanostructures for quantum photonics	Dr. Ramachandrarao Yalla	University of Hyderabad	Hyderabad	Telangana
129	272	Physical Sciences	Disentangling the role of the Spin Mixing Conductance on the Spin Seebeck Effect	Dr. Sunil Nair	IISER Pune	Pune	Maharashtra
130	293	Physical Sciences	Study of the interaction between synthetic sequence-defined macromolecules and lipid-membrane towards developing antibacterial and anticancer drug	Dr. Mintu Porel	IIT Palakkad	Palakkad	Kerala
131	304	Physical Sciences	Spin orbit torque driven domain wall synapse based hardware neural network	Dr. Pranaba Kishor Muduli	IIT Delhi	New Delhi	The Government of NCT of Delhi (UT)

SCHEME FOR TRANSFORMATIONAL AND ADVANCED RESEARCH IN SCIENCES
Recommended proposals in the first call for proposals (April 2019)

S. No.	Proposal ID	Domain	Title	PI	PI Institution	City	State
132	308	Physical Sciences	Integration of 2D materials in organic and organic-inorganic hybrid solar cells: Insights into charge extraction and transport	Dr. Manoj A G Namboothiry	IISER Thiruvananthapuram	Vithura	Kerala
133	345	Physical Sciences	Effect of electron-phonon coupling on the topological phonons	Dr. Dipanshu Bansal	IIT Bombay	Mumbai	Maharashtra
134	358	Physical Sciences	Local probe of impurity effects in Kitaev systems	Dr. Avinash V. Mahajan	IIT Bombay	Mumbai	Maharashtra
135	363	Physical Sciences	Quantum point contact charge amplifiers embedded in a planar superconducting microwave resonator: Quantum-limited charge sensing and counting	Dr. Madhu Thalakulam	IISER Thiruvananthapuram	Vithura	Kerala
136	396	Physical Sciences	Quantum Emitters based on atomic defects in diamond and 2D materials	Dr. V. Praveen Bhallamudi	IIT Madras	Chennai	Tamil Nadu
137	561	Physical Sciences	Borophene: a new entrant in flatland en route to synthetic materials design	Dr. Aparna Deshpande	IISER Pune	Pune	Maharashtra
138	566	Physical Sciences	Atomistic to circuit modeling of 2D channel based spin logic gates.	Dr. Aniket Singha	IIT Kharagpur	Kharagpur	West Bengal
139	647	Physical Sciences	Solid state quantum optical devices using 2D materials	Dr. Sajal Dhara	IIT Kharagpur	Kharagpur	West Bengal
140	662	Physical Sciences	Diamond Quantum Sensors for Nanomagnetometry of Magnetic 2D Materials	Dr. Phani Kumar Peddibhotla	IISER Bhopal	Bhopal	Madhya Pradesh
141	778	Physical Sciences	Reprogrammable Polymer Based Soft Actuators	Dr. Dillip Kumar Satapathy	IIT Madras	Chennai	Tamil Nadu

Reference no.: STARS/Rec-final/Apr19/01 dt. 28.10.2019