

## Consultancy Projects - Underway

Sl. No.	Title of the project	Principal Investigator	Sponsoring Agency	Total Budget (INR)	Duration
1	Robust operational space motion control of a waist assistive powered exoskeleton	Dr. Santhakumar Mohan	DRDO CAIRS	₹3,176,000.00	30 November 2021 - 31 May 2023
2	Robust receive beamforming algorithm for underwater sonar imaging system for Mine Like Object Detection in the presence of reverberation	Dr. Mahesh R. Panicker	DRDO NPOL	₹989,218.00	16 May 2022 - 15 May 2023
3	Development of a River Basin Management Plan for the Bharathapuzha River Basin	Team Leader: Prof. Balaji Narasimhan (IITM & Adjunct Faculty, IITPKD) Dy. Team Leader: Prof. Sudheer K. P. (Executive Vice President, KSCSTE)  <b>Hydro-climatological Expert: Dr. Sarmsitha Singh</b> <b>Water Resource Engineer: Dr. Athira P.</b> <b>Hydrological Modelling: Dr. Subhasis Mitra</b>	Irrigation Design Reseach Board (IDRB)	₹7,300,000.00	25 February 2022 - 24 February 2024
4	World Skills International Competition - Mentoring For Digital Construction Skillset	Dr. Senthilkumar V.	Construction Skill Development Council of India	₹300,000.00	01 February 2022 - 30 September 2022
5	Filter development for Radiographic Images	Dr. Mahesh R. Panicker	Visi Consult Pvt. Ltd., Maharashtra	₹54,000.00	20 March 2022 - 20 September 2022
6	Experimental investigation for determining drying shrinkage potential using area specific concrete compositions for flooring applications	Dr. Sunitha K. Nayar	Floormart Global, Maharashtra	₹368,160.00	25 March 2022 - 31 December 2022
7	Crack Detection using Automated Magnetic Particle Inspection	Dr. Mrinal Kanti Das	Sansera Engineering Ltd.	₹2,174,150.00	Not yet started
8	Automatic Target Detection using Side Scan Sonar (SSS) and Multibeam Echosounder (MBE) Images	Dr. Mahesh R. Panicker	DRDO CAIR	₹1,965,000.00	Not yet started



## Sponsored Projects - Underway

Sl. No.	Title of the project	Principal Investigator	Sponsoring Agency	Duration	Total Budget (INR)
1	A novel class of functionally controlled macromolecules with tunable properties for material and biomedical applications	Dr. Mintu Porel	SERB- Ramanujan Fellowship	13 August 2018 - 12 August 2023	₹3,800,000.00
2	A Compressed Sensing based Framework for Physical Layer Security in Large Dimensional Wireless Communication Systems	Dr. Lakshmi Narasimhan Theagarajan	DST INSPIRE Fellowship	28 September 2018 - 27 September 2023	₹3,500,000.00
3	Discovery, single crystal synthesis and investigation of anisotropic physical properties of novel spin-orbit materials	Dr. Soham Manni	DST INSPIRE Fellowship	15 October 2018 - 14 October 2023	₹3,500,000.00
4	Integrating wastewater treatment to groundwater softening and defluoridation using microbial desalination cell	Dr. Praveena Gangadharan	SERB- ECRA (Early Career Research Award)	15 May 2019 - 14 November 2022	₹3,519,480.00
5	Bio-inspired Hybrid Underwater Vehicle for Ocean Observations	Dr. Santhakumar Mohan	SERB Core Research Grant (CRG)	18 July 2019 - 16 January 2023	₹2,838,284.00
6	Development of Failure Limiting Diagram For Surface Modified Wheel-rail and Wind-turbine Bearing Materials Through Rolling Contact Fatigue Studies	Dr. D. Kesavan	SERB EMEQ	27 November 2019 - 26 November 2022	₹4,927,120.00
7	Analysis of Evacuation Options considering Citizen Mobility Patterns and Disaster Vulnerability in a Himalayan Region Transportation Network	1. Dr. B. K. Bhavathrathan 2. Dr. Manoj M (Asst. Prof. IIT Delhi) 3. Dr. Rahul T. M. (Asst. Prof., IIT Ropar)	National Mission on Himalayan Studies (NMHS)	10 December 2019 - 09 December 2022	₹1,353,836.00
8	A multimodal brain-machine interface-based neuro-enhancement system for retarding the decline of cognitive and motor functions in the early-stages of Dementia, Stroke and Parkinson's Disease patients	Prof. Vinod A. Prasad	DST CSRI	18 January 2020 - 17 January 2023	₹6,717,160.00
9	Isolated Transition Metal Atoms on Defect- Engineered Graphene: Synthesis and Catalytic Oxidation of Indoor Volatile Organic Compounds	Dr. Dinesh Jagadeesan	SERB CRG	05 February 2020 - 04 February 2023	₹3,767,070.00
10	Diffuse interface immersed boundary/finite volume framework for compressible viscous flows	Dr. Ganesh Natarajan	SERB MATRICS	21 February 2020 - 20 February 2023	₹660,000.00
11	Development of Membrane-confined Stem Grouted Piles and their Behaviour under Uplift Loading	Dr. Sudheesh T. K.	SERB CRG	07 March 2020 - 06 March 2023	₹3,041,700.00
12	Oriented Diameter of Graphs	Dr. Deepak Rajendraprasad	SERB MATRICS	21 February 2020 - 20 February 2023	₹660,000.00
13	Study of the interaction between synthetic sequence-defined macromolecules and lipid-membrane towards developing antibacterial and anticancer drug	Dr. Mintu Porel	Scheme for Transformational and Advanced Research in Sciences (STARS) - Ministry of Human Resource Development	15 May 2020 - 14 May 2023	₹9,968,000.00
14	Raaz: A cryptographic library with formal guarantees	Dr. Piyush P. Kurur	DST ICPS	26 July 2019 - 25 July 2022	₹2,268,000.00
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16	Towards Automating Deterministic Bug-reproduction during Post-silicon Validation	Dr. Sandeep Chandran	Semiconductor Research Corporation	01 September 2020 - 31 August 2023	USD 29,880
17	Design and Development of a new Sitting- Type Lower Limb Rehabilitation Robot	Dr. Santhakumar Mohan	Council of Scientific and Industrial Research (CSIR)	01 November 2020 - 31 October 2023	₹2,210,000.00
18	Robotics and Automation in Agriculture	Dr. Santhakumar Mohan & Prof. Laxmidhar Behera (from IIT Kanpur side)	Ministry of Electronics and Information Technology (MeitY)	01 November 2020 - 31 October 2023	₹5,184,000.00
19	DST INSPIRE Fellowship (Transferred from Chennai Mathematical Institute)	Dr. Parangama Sarkar	DST INSPIRE	01 September 2016 - 31 August 2022	₹1,339,329.00
20	An Algorithm for Automated Identification of Geometric Inconsistencies on Road Networks by Employing Cluster-Calibrated Speed Prediction Models	Dr. B. K. Bhavathrathan	SERB SRG	19 December 2020 - 18 December 2022	₹2,659,820.00
21	High- Speed Online Monitoring of Software Applications	Dr. Sandeep Chandran	SERB SRG	19 December 2020 - 18 December 2022	₹2,259,790.00
22	HARKAL: Hardware Accelerated Robust Kernel Adaptive Learning	Dr. Subrahmanyam Mula	SERB SRG	19 December 2020 - 18 December 2022	₹1,724,280.00
23	Magneto transport studies in 2D materials	Dr. Jayakumar Balakrishnan	SERB CRG	28 December 2020 - 27 December 2023	₹4,528,383.00
24	Design and Synthesis of a Novel Class of Sequence-defined Macrocycles with Modular Post-synthetic Modification for Material and Biomedical Applications.	Dr. Mintu Porel	SERB CRG	21 December 2020 - 20 December 2023	₹5,364,832.00
25	An Accurate and Efficient Parallel R-C Digitizer for Moisture Sensing	Dr. Sreenath V.	SERB SRG	30 December 2020 - 29 December 2022	₹2,805,440.00
26	Characterizing quantum computers: Entanglement in noisy quantum error correcting codes	Dr. Amit Kumar Pal	SERB SRG	23 December 2020 - 22 December 2022	₹2,266,771.00
27	Mapping the folding/misfolding mechanism of SOD1 using single molecule fluorescence spectroscopy	Dr. Supratik Sen Mojumdar	SERB SRG	22 December 2020 - 21 December 2022	₹2,870,000.00
28	Modeling Latency In Cell-Free Massive MIMO To Enable URLLC In 5G Cellular Systems	Dr. Jobin Francis	SERB SRG	22 December 2020 - 21 December 2022	₹1,100,950.00
29	Energy-Efficient Multicore Programmable Accelerator for ULP massive edge computing	Dr. Satyajit Das	SERB SRG	25 December 2020 - 24 December 2022	₹1,624,980.00
30	Design and Development of an intelligent underwater vehicle with a manipulator for offshore oil/gas and other marine applications.	Dr. Santhakumar Mohan	Naval Research Board	25 January 2021 - 24 January 2024	₹4,526,850.00
31	Estimation of the thermal contact conductance of realistic spacecraft bolted joints	Dr. Samarjeet Chanda	ISRO RESPOND Programme, Department of Space	19 February 2021 - 18 February 2023	₹3,044,000.00
32	Single crystal growth and investigation of topological materials.	Dr. Moumita Nandi	DST INSPIRE Fellowship	24 December 2020 - 23 December 2025	₹3,500,000.00
33	Theoretical Modelling Of High Pressure Chemistry & Study of Unusual Molecular Systems	Dr. Priyakumari C P	DST INSPIRE Fellowship	01 April 2019 - 31 March 2024	₹717,147.00
34	Understanding the role of protein S-palmitoylation, the only reversible protein lipidation, in regulating mitochondrial dynamics and functioning	Dr. Sushabhan Sadhukhan (NDPF - Dr. Anupama Binoy)	SERB NPDF	09 March 2021 - 08 March 2023	₹2,025,600.00
35	Real-Time Air Quality and Weather Monitoring System for IIT Palakkad Campus	Dr. Praveena Gangadharan	IIT Palakkad	20 March 2021 - 20 March 2023	₹14,596,658.00
36	Multiscale modelling of chromatin assembly and dynamics	Prof. Ranjith Padinhateeri, Biosciences and Bioengineering, Indian Institute of Technology Bombay	DST National Supercomputing Mission (NSM)	06 April 2021 - 05 April 2023	₹2,426,520.00
37	Reinforcement corrosion in bridge bent caps - fatigue response: An experiment and analytical study	Dr. Madhu Karthik M	SERB CRG	10 March 2021 - 09 March 2024	₹3,422,232.00
38	Framework and Compiler for Social Network Analysis	Dr. Unnikrishnan C.	DST National Supercomputing Mission (NSM)	12 March 2021 - 11 March 2023	₹2,334,000.00

39	Mesoscale modeling of amorphous solids for large scale simulations	Dr. Pinaki Chaudhuri (Associate Professor, Physics, The Institute of Mathematical Sciences, Chennai)	DST National Supercomputing Mission (NSM)	24 March 2021 - 23 March 2023	₹4,581,000.00
40	Robust Multi-view Learning for Extreme Events Detection and Prediction in Time Series Data	Dr. Sahely Bhadra	SERB CRG	25 March 2021 - 24 March 2024	₹3,617,337.00
41	Design and Fabrication of an LED-based solar simulator with integrated electrical and optical measurement capability	Dr. Arvind Ajoy	DST (SERD 2019 - Solar Energy Research & Development)	15 April 2021 - 14 April 2024	₹6,540,601.00
42	Mou with Kerala Highway Research Institute	Dr. Sudheesh T. K.	Kerala Highway Research Institute (KHRI)	13 July 2021 - 12 July 2024	₹6,000,000.00
43	Study on Novocrete Stabilization Technology For Pavement Construction	Dr. Veena Venudharan	Nisco Builders and Developers Private Limited	01 August 2021 - 01 August 2023	₹720,000.00
44	A novel chemical proteomics approach to elucidate the mechanism of action of (-Epigallocatechin-3- Gallate (EGCG)), the major green tea polyphenol using Strategic Bioorthogonal Probe, and improving the bioavailability of EGCG	Dr. Sushabhan Sadhukhan	Council of Scientific and Industrial Research (CSIR)	02 September 2021 to 01 September 2024	₹1,100,000.00
45	Design and Development of Cost-Effective Floating-Solar Energy Generation Technologies and Infrastructure for Achieving Nearly Zero-Energy Villages	Dr. Srinivasa Bhaskar Karanki, IIT Bhubaneswar	DST (SERD 2019 - Solar Energy Research & Development)	14 September 2021 - 13 September 2024	₹4,521,200.00
46	Recycling C&D waste including non-concrete parts for geotechnical engineering applications	Dr. Divya P. V.	DST - WMT (Waste Management Techniligy Programme)	15 September 2021 - 14 September 2024	₹6,618,440.00
47	Studies on the performance of coir geotextile reinforced embankments	Dr. Divya P. V.	Central Coir Research Institute	24 July 2021 - 23 July 2024	₹2,532,000.00
48	Resilient reinforced soil structures for the sustainable stabilization of steep slopes and landslide mitigation measures	Dr. Divya P. V.	Kerala Infrastructure Investment Fund Board (KIIFB)	01 September 2021 - 01 September 2023	₹7,487,280.00
49	MoU with Bexel India Consulting LLP	Dr. Senthikumar V.	Bexel India Consulting LLP	13 October 2021 - 12 October 2022	₹216,000.00
50	Fabrication of low cost sensor devices for early detection of biomarkers related to neurological disorders using 2D nanomaterials	Dr. Abdul Rasheed P.	Department of Biotechnology	01 September 2021 - 31 August 2026	₹11,360,000.00
51	Ocean Acoustic Data Archival and Analytics Framework	Dr. Sahely Bhadra	Naval Research Board	27 October 2021 - 26 October 2022	₹2,899,657.00
52	Design and fabrication of inorganic electrochromic devices using layer engineering	Dr. Revathy Padmanabhan	ISRO RESPOND Programme, Department of Space	07 December 2021 - 06 December 2023	₹2,470,000.00
53	Simulation Studies of electronic/photonic band gap materials for microwave applications	Dr. Sukomal Dey	ISRO RESPOND Programme, Department of Space	04 December 2021 - 03 December 2023	₹1,368,000.00
54	Securing Deep Neural Networks against Adversarial Attacks in Medical Imaging	Dr. Vivek Chathurvedi	IHUB NTIHAC Foundation, IIT Kanpur	07 December 2021 - 06 December 2024	₹1,303,520.00
55	Finding the Progenitors of Carbon Enhanced Metal-Poor Stars	Dr. Projijwal Banerjee	SERB SRG	13 December 2021 - 12 December 2023	₹1,994,335.00
56	Study of Thermoregulation and Ventilation in Termite Mound Structures: Biomimetic Design Concepts for Passive Cooled Buildings	Dr. Pramod Kuntikana	SERB SRG	29 December 2021 - 28 December 2023	₹3,258,030.00
57	Design and Development of a Software Solution for Enhanced Monitoring of Future Power System with High Renewable and Power Electronics Penetration	Dr. Manas Kumar Jena	SERB SRG	30 December 2021 - 29 December 2023	₹2,905,950.00
58	Solid state welding of Ti alloy and Ni alloy metal prints for aerospace, energy and health sectors	Dr. Buchibabu Vicharapu	SERB SRG	31 December 2021 - 30 December 2023	₹3,259,870.00
59	Complex network analysis of granular materials	Dr. Krishnaraj K P	DST Inspire	01 November 2021 - 31 October 2026	₹3,500,000.00
60	An automated fluorescence slide imaging microscope for portable and low cost applications	Dr. Vijay Muralidharan	SERB SRG	28 January 2022 - 27 January 2024	₹3,125,350.00
61	Biomolecular characterization of a novel putative intracellular steroid hormone-binding receptor from Wuchereria bancrofti for the chemotherapeutic intervention of bancroftian filariasis	Dr. Suprabhat Mukherjee, Department Of Animal Science, Kazi Nazrul University	SERB CRG	24 January 2022 - 23 January 2025	₹108,300.00
62	Factorizing Matrices Under Structural Constraints	Dr. Lakshmi Narasimhan Theagarajan	SERB MATRICS	21 February 2022 - 20 February 2025	₹660,000.00
63	Multiscale Modeling of Ferroelectrics for Negative Capacitance Applications	Dr. Arvind Ajoy	SERB MATRICS	18 February 2022 - 17 February 2025	₹660,000.00
64	On exact results in generalized Sachedv-Ye-Kitavev models	Dr. Prithvi Narayan P	SERB MATRICS	23 February 2022 - 22 February 2025	₹660,000.00
65	Production of biofertilizers from source separated urine	Dr. Shanmugaraju Sankarasekaran	Department of Science & Technology - Science For Equity Empowerment and Development (SEED)	31 March 2022 - 30 March 2024	₹8,923,790.00
66	Utilization of partially treated grey water and C&D waste for production of low-cost modular toilet units and other living units	Dr. Shanmugaraju Sankarasekaran	Department of Science & Technology - Science For Equity Empowerment and Development (SEED)	31 March 2022 - 30 March 2024	₹6,812,046.00