

S.No	Project Title	Project ID	Name of the Sponsor	Principal Investigator	Start Date[MM/DD/YYYY]	End Date [MM/DD/YYYY]	Project Description	Total Cost
1	CLP 06/14 Development of a biosensor based assay using chicken egg yolk antibodies for rapid diagnosis of rotavirus infection	CECRI/CLP/2014/00070	Indian Council of Medical Research	SheelaBerc hmans	07/14/2014	08-09-2016	To develop a rapid, highly sensitive and specific indigenous ELISA and a novel biosensor based kit using anti-VP6 chicken egg yolk antibodies for diagnosis of Group-A rotavirus infection.	1455000
2	CLP 05/15 - CATALYTIC ACTIVATION & DEACTIVATION MECHANISMS IN ELECTROCHEMICAL RENEWABLE ENERGY SYSTEMS	CECRI/CLP/2015/00071	Prof. Dr. Fritz Scholz	S Senthil Kumar	05-01-2015	04/30/2017	(i) Design strategies to induce creation of catalytically active asperities; (ii) identify their presence using electrochemical / spectroscopic tools; and (iii) apply these approaches to fuel cell electrocatalytic reactions; (iv) design experimental conditions for "hot-wire electrochemistry" of electrocatalytic reactions; (v) characterize surface changes in real-time; and (vi) in-situ microscopic imaging of nanoparticle catalysts (particle sintering and its growth) under reaction conditions using (Poseidon) TEM-electrochemical cell.	428000
3	CNP 01-16 SUGGESTION OF SUITABLE WATER TREATMENTPRACTICE TO MITIGATE CORROSION AND SCALE FORMATION IN HEAT EXCHNAGERS OF TG3 AND TG4	CECRI/CNP/2016/08848	Tamilnadu Newsprint and Papers Ltd	S Syed Azim	05-09-2016	08-09-2016	SUGGESTION OF SUITABLE WATER TREATMENTPRACTICE	343500
4	CNP-02/15 - SUGGESTION OF SUITABLE PROTECTIVE COATING SYSTEM FOR STEEL AND CONCRETE STRUCTURE OF M.S UNIT OF KERALA MINERALS AND METALS LIMITED	CECRI/CNP/2015/08277	The Kerala Minerals and Metals Ltd.	S Syed Azim	06-01-2015	11/30/2016	1) Recommendation of suitable anti corrosion painting schemes for steel, concrete structures and equipments etc., 2) Detailed paint specifications along with list of suppliers. 3) Methods of surface preparations 4) Quality control of supplied paint samples. 5) Inspection during application ( 3visits)	365170

5	GAP 26 /13 2-Dimensional Nanosheets based Ultra-low Density Sponges for Energy and Environmental Applications	CECRI/GAP/2014/03048	SERB under Department of Science and Technology	kuldeepsingh	03/18/2014	03/17/2017	2-Dimensional Nanosheets based Ultra-low Density Sponges for Energy and Environmental Applications	2620000
6	GAP 04/14 - Metal-Organic Redox Frameworks (MOFs) for Photochemical Textile Processes	CECRI/GAP/2014/03051	University Grants Commission	M AnbuKulandainathan	07-11-2014	07-10-2016	(A) To synthesise and study new types of dye-loaded MOFs via (i) physisorption and (ii) via post-synthetic covalent attachment B) To employ "conformal transformation" of MOFs for the production of novel low density photo-absorber materials based on oxides (C) To explore the dark and light redox electrochemistry of the new materials with view of application in solar energy harvesting and photochemical water splitting (D) To investigate textiles with suitable photo-electrochemical activity for application in water treatment, photo-drug release, and/or sanitation (D) To engage in UK-India exchange of students of staff between Bath and CECRI/Alagappa University Karaikudi	1356800
7	GAP 24/13 - Synthesis and Characterization of Magnetostrictive Fe-Ga alloy thin films	CECRI/GAP/2014/02943		S Mohan	02/18/2014	08/17/2016	Synthesis and Characterization of Magnetostrictive Fe-Ga alloy thin films	1324640
8	GAP 01/16 - A Supramolecular Approach to Improve the Efficiency of Enzyme Mimic Catalysis	CECRI/GAP/2016/03579	DST	D Velayutham	12-07-2015	12-06-2020	A Supramolecular Approach to Improve the Efficiency of Enzyme Mimic Catalysis	8627428
9	GAP-11/14-Understanding the Potential of Graphene for Corrosion Control Applications	CECRI/GAP/2014/03098	SERB under Department of Science and Technology	SundarMayavan	09-03-2014	09-02-2017	To develop fundamental understanding on how graphene and graphene like material interacts with metals like mild steel, aluminum and copper. To develop anti-corrosion coating system based on achieved understanding.	2500000

10	GAP 08/14 - SYNTHESIS, PHYSICAL AND BIOLOGICAL APPLICATIONS OF SUPRA AND SUPER-MOLECULES	CECRI/GAP/2014/03080	DST	D Velayutham	03-03-2014	03-02-2019	Scope of this project includes the development of new charge/electron storage devices, synthesis of single molecular wires that have conducting or rectifying behavior, development of new synthetic methodology for the synthesis of supramolecular architectures and understanding the molecule-molecule interactions that will lead to several photophysical and biological applications.	8616800
11	GAP 11/13 - Development of Nano-topography of Favourable Composition on Ti and Ti alloys by Chemical Solution Treatments for Bone and Dental Application	CECRI/GAP/2013/02191	Science and Engineering Research Board	Deepak Pattanayak	07-09-2013	07-08-2016	1. To understand the relationship between metallic material (Ti and Ti alloys) and its surface response to the apatite (calcium phosphate) formation in simulated body fluid solution (SBF); and 2. To propose surface modification with Ca <sup>2+</sup> , Sr <sup>2+</sup> , Si <sup>4+</sup> , Ag <sup>+</sup> ions that can induce fast bone formation as well as antibacterial effect when implanted in the body.	2787300
12	GAP 16/15 - CAPTURE & ELECTROCHEMICAL CONVERSION REACTIONS OF CO <sub>2</sub> AND CO: SEARCH FOR EFFICIENT CO <sub>2</sub> REDUCTION CATALYSTS WITH COUPLED ANALYSIS OF REACTION PRODUCTS USING HYPHENATED TECHNIQUES	CECRI/GAP/2016/03395	DST NEW DELHI	K L N Phani	01-01-2016	12-31-2018	CAPTURE & ELECTROCHEMICAL CONVERSION REACTIONS OF CO <sub>2</sub> AND CO: SEARCH FOR EFFICIENT CO <sub>2</sub> REDUCTION CATALYSTS WITH COUPLED ANALYSIS OF REACTION PRODUCTS USING HYPHENATED TECHNIQUES	4516000
13	GAP 08/15 - DEVELOPMENT OF MAGNETOSOME BASED BIOSENSOR FOR THE DETECTION OF PATHOGENIC BACTERIA IN FOOD SAMPLES	CECRI/GAP/2015/03250	Department of Biotechnology DBT	J Mathiyarasu	08/17/2015	08/16/2018	DEVELOPMENT OF MAGNETOSOME BASED BIOSENSOR FOR THE DETECTION OF PATHOGENIC BACTERIA IN FOOD SAMPLES	1479600
14	GAP 05/14 - Design and Development of alkaline anion exchange membranes with nano ionic channels and membrane-electrode-assembly for water electrolyser applications	CECRI/GAP/2014/03061	SERB under Department of Science and Technology	S Vengatesan	07-21-2014	07/20/2017	Development of hydrocarbon-based anion exchange membranes with nano ionic channels 2. Morphological and structural analysis of the membranes using advanced analytical methods 3. Investigation of the prepared membranes with non-noble metal catalyst (Ni)	2500000

15	GAP 14/14 - Studies on Pyrochlore Compounds for Mixed Ionic-Electronic conductivity.	CECRI/GAP/2015/03177		G V M Kiruthika	04-01-2015	03/31/2018	Oral Presentation entitled" Oxide Ion Conduction Studies on RE <sub>2-x</sub> Sr <sub>x</sub> Sn <sub>2</sub> O <sub>7</sub> System [(RE=Nd&Gd);(x=0.1&0.2)] for Energy Applications" delivered at the " National Conference on Nano and Functional Materials" held at BITS Pilani, Rajasthan during Nov 7-8, 2014 .	3726000
16	GAP 08/13- Silica/Alumina encapsulated Fluoropolymer as a Core-Shell Nanostructure for Superhydrophobic Fabrics	CECRI/GAP/2013/02052	Science and Engineering Research Board	M AnbuKulan dainathan	07-01-2013	12/31/2016	Silica/Alumina encapsulated Fluoropolymer as a Core-Shell Nanostructure for Superhydrophobic Fabrics	2650000
17	GAP 19/15 - Studies on XVO <sub>3</sub> (X=Bi/Ba/Sr) vanadates stabilized with various Pb –free stable perovskite end members for high temperature dielectric applications	CECRI/GAP/2016/03394	DST SERB	B Subramanian	12/18/2015	12/17/2018	Studies on XVO <sub>3</sub> (X=Bi/Ba/Sr) vanadates stabilized with various Pb –free stable perovskite end members for high temperature dielectric applications	2480000
18	GAP 15/15 - Switching from silicon to organic materials: New vistas for future generation electronics	CECRI/GAP/2015/03387	DST	M Sathish	02-12-2015	02-11-2020	Switching from silicon to organic materials: New vistas for future generation electronics	3500000
19	GAP/02/13 Optofluidic detection of air and liquid flow inside microchannels	CECRI/GAP/2013/02374		SundarMayavan	05-01-2013	04/30/2018	Optofluidic detection of air and liquid flow inside microchannels	7787400
20	GAP 15/13 - Design and Synthesis of Red- and Near-Infrared Emissive Materials and Their Applications in electroluminescent and Electrochemiluminescent Devices	CECRI/GAP/2014/02937	DST Science and Engineering Research Board SERB	M VIJAYAN	05/15/2013	05/14/2018	Design and Synthesis of Red- and Near-Infrared Emissive Materials and Their Applications in electroluminescent and Electrochemiluminescent Devices	8627400
21	GAP 22/2015 Applications of homogeneous gold catalysis and C-H activation reactions for the synthesis of bioactive carbo- and heterocycles	CECRI/GAP/2016/03467	DST SERB	M Sathish	12-01-2015	11/30/2018	Applications of homogeneous gold catalysis and C-H activation reactions for the synthesis of bioactive carbo- and heterocycles	1943600

22	GAP 12/13 - Generation and Electrochemical Reactivity of Metal Atomic Clusters	CECRI/GAP/2013/02192		K L N Phani	08-01-2013	07/31/2016	(i) Chemical / electrochemical synthesis of dispersions of metal atomic clusters of and their immobilization on electrode surfaces. (ii) Characterization of metal atomic clusters using spectroscopy, bulk-continuum / molecule-like voltammetry, x-ray electron spectroscopy (XPS), mass spectrometry and (electrochemical-) scanning tunneling microscopy & I-V spectroscopy. (iii) Catalytic electro-sorptive properties of Au <sub>n</sub> clusters, with n < 25 atoms for electrocatalytic reactions: oxygen reduction and hydrogen evolution, CO oxidation, and metal underpotential deposition; (iv) transition of atomic clusters of gold to nanoparticles using electrochemical STM and I-V spectroscopy on restricted regions of the cluster-/nanoparticle-modified electrodes.	4910400
23	GAP 21/15 - Hierarchical Composite Nanostructure Photocatalysts for Efficient Water Splitting under Solar Light Irradiation	CECRI/GAP/2016/03449	Ministry of New and Renewable Energy	M Sathish	01-03-2016	28-02-2019	Hierarchical Composite Nanostructure Photocatalysts for Efficient Water Splitting under Solar Light Irradiation	3308200
24	GAP 06/15 Fabrication of high efficiency solid state solar cell using perovskite type nanocrystalline sensitizers and solid state electrolyte	CECRI/GAP/2015/03193	SERB under Department of Science and Technology	R Thangamuthu	05/22/2015	05/21/2018	Fabrication of high efficiency solid state solar cell using perovskite type nanocrystalline sensitizers and solid state electrolyte	1980000
25	GAP 14/15 Solid state batteries for consumer electronics & ELVs	CECRI/GAP/2015/03355	National Automotive Board	D Jeyakumar	11-11-2015	11-10-2018	Solid state batteries for consumer electronics & ELVs	33473300
26	GAP 16/13 - Hybrid nanostructured materials for Quantum dot based Photo electrochemical Solar cells	CECRI/GAP/2014/02845	Department of Science and Technology	Subhendu Panda	09/18/2013	09/17/2016	a) Synthesis of high quality semiconductor QDs and hetero-nanostructures to experimentally investigate the excitation, recombination, and transport properties in order to identify their potential applications.  b) Assembly of these nanostructures to fabricate high efficiency and robust QD based solar cells.	2500000

27	GAP 10/13 - Removal of Herbicides from Water by Advanced Electro-Oxidation processes	CECRI/GAP/2013/02053	Department of Science and Technology	S Vasudevan	07-01-2013	12/31/2016	The objective of this project is to remove the most commonly used chlorophenoxyacid herbicides, including 2-(2-methyl-4-chlorophenoxy) propionic acid (MCPA), 4-chloro-2-methylphenoxyacetic acid (MCPA), 2,4-dichlorophenoxyacetic acid (2,4-D), 2-(2,4-dichlorophenoxy) propionic acid (2,4-DP), and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T) by Advanced Electro-oxidation Process from drinking water. The main objective is to develop a process scheme, with newer electrode materials, for achieving a full destruction or transformation to biodegradable compounds or less toxic compounds of organic pollutant in wide pH range either (i) by the direct oxidation (anodic) process (ii) by the electro-Fenton (cathodic) processes, or (iii) by the combination of electro-Fenton with direct oxidation process. The final part of the project is the operation of a flow reactor on the method presenting the best performances for pollutant removal and due consideration will be given in the cost of the removal process. The milestones of the project include the following: Preparation of electrodes Physico-chemical characterization of electrodes Electrochemical characterization of catalysts Studies on oxidation of chlorophenoxy herbicides in water Laboratory scale studies Optimisation of flow reactor Analysis of results and report preparation	1941200
28	GAP 03/14 - Graphene based multi-electrode array for the multiplexed detection of DNA mutations for the early diagnosis of chronic diseases	CECRI/GAP/2014/03046	SERB DST	Subbiah Alwarappan	07-02-2014	07-01-2017	Graphene based multi electrode array for the multiplexed detection of DNA mutations.	2500000

29	GAP 11/15 - SYNTHESIS OF NANO-SCALE ARCHITECTURES: STUDY AND EVALUATION OF THEIR PHOTOPHYSICAL AND ELECTRONIC APPLICATIONS	CECRI/GAP/2015/03260	DST SERB	D Velayutham	09-01-2015	08-31-2018	To synthesize viologen based nanoscale architectures, oligophenyleneethynylene based macrocycles and rod like molecules and to investigate their applications towards molecular electronics, self-assembly, etc.	2454400
30	GAP - 20/15 Synthesis, Characterization, and Studies of Novel Poly ThienoIndenoindole Based Low Band Gap Polymers for Organic Solar Cell Applications	CECRI/GAP/2016/03401	Dept. of Science and Technology	R Thangamuthu	09/28/2015	09/27/2018	Development of organic solar cells based on low band gap polymers	3299600
31	GAP 07/14 Synthesis and characterization of novel graphene- based materials for electrochemical applications	CECRI/GAP/2014/03069	SERB under Department of Science and Technology	M Sathish	07/23/2014	07/22/2017	To synthesis GNS using various preparation strategies (Modified Hummers' method, supercritical fluid exfoliation method, hydrothermal method) and the nature of starting carbon source material (graphite with different size). To prepare various graphene-nanocomposites (metal, metal oxide and battery materials) and functionalized graphene-nanocomposites for electrochemical applications To evaluate the electrochemical applications of graphene, functionalized graphene and graphenenanocomposites in supercapacitor, Li-ion battery and Li-air battery.	2500000

32	GAP 01/15 Enhancement of biomineralization with osteoblast cells on biodegradable Mg based amorphous alloy coated metallic/polymeric substrates for orthopedic implants	CECRI/GAP/2015/03180	DST SERB	B Subramani an/S Maruthamuthu	05-20-2015	05-19-2018	<p>To develop biodegradable Mg-, based amorphous alloy coatings on metals/polymers using physical vapor deposition methods like reactive magnetron sputtering and KrF - Pulsed laser deposition (PLD).</p> <p>To evaluate the mechanical properties, such as elasticity, hardness, toughness, etc, and to establish the relationship between the mechanical properties with the porous structure</p> <p>To do in-vitro corrosion studies in simulated body fluid</p> <p>To study the biological compatibility of the metallic glass coatings including in-vitro and in-vivo investigations including intramuscular implantation. Leaching of metal ions will be studied.</p> <p>To investigate the microbes interactions with metallic glass coated implants and to investigate after intramuscular implantation.</p> <p>The adhesion and proliferation of osteoblasts cells on metallic glass coated metal/ polymer surface will be evaluated</p>	3665600
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33	GAP 09/2015: Development of double perovskite and pyrochlore based graded thermal barrier coatings and their stability against high temperature fatigue and corrosion	CECRI/GAP/2015/03254	SERB under Department of Science and Technology	GOSIPATH ALA SREEDHAR	08/31/2015	08/30/2019	A coefficient of thermal expansion (CTE) mismatch between bond coat (NiCrAlY) and ceramic top coat in thermal barrier coating (TBC) can infuriate the coating failure during thermal cycles. To overcome this issue, several strategies such as functionally graded thermal barrier coating and composite coatings have been developed and tested. But such technologies have not been commercialized for TBC applications. The perovskites and pyrochlores have the matching CTE with bond coat material. So these materials can be proposed as an intermediate layer between bond coat and top coat to minimize the sharp discontinuities in CTE mismatch. The double perovskite have suitable thermo-physical properties to meet TBC top coat material these includes low thermal conductivity, high melting point and high temperature phase stability. Such materials synthesis and the development of strategical design for TBC are sparse. Hence these works consider these two issues for enhancing the TBC life.	3918000
34	GAP 10/14 - Electrophoretic deposition of large area, wrinkle-free graphene with voltage pulses in supercritical fluids for energy storage applications	CECRI/GAP/2014/03088	DST NEW DELHI	C Naveen Kumar	08-03-2014	08-02-2017	Electro deposit graphine oxide in super critical fluid for energy storage applications.	2500000

35	GAP 18/13 - Electrochemiluminescence of Metal Clusters : Synthesis , Characterization and suitable for Environmental Applications	CECRI/GAP/2014/02850	Department of Science and Technology	S Senthil Kumar	11-07-2013	11-06-2017	1.To develop a novel synthetic protocol for preparing noble metal clusters by chemical and electrochemical methods 2. To elucidate the possible mechanism of electron transfer annihilation of electro generated anion and cation radicals from metal clusters via inter and intra-band transition in the HOMO-LUMO gap or metal clusters with suitable stabilizer (act as electron donor or acceptor or redox active co- reactant) in ECL electrode platform; and 3. To design and fabricate a simple metal cluster based ECL electrode assembly to improve the ECL intensity and thereby enhance selectivity and sensitivity of analyte molecule to an extent approaching zepto-molar levels and possibly single-molecule detection.	4447600
36	GAP 03/12 - Dye Sensitized Solar Cell (DSSC) / Quantum dot Dye Sensitized Solar Cell (QDSSC)	CECRI/GAP/2012/00415	Ministry of New and Renewable Energy	A Palaniappan	05/15/2012	05/31/2017	Preparation of SnO <sub>2</sub> :F electrodes by physical vapor deposition techniques.Synthesis and characterization of semiconductor oxides, especially TiO <sub>2</sub> , using chemical and electrochemical methods Preparation and characterization of Preparation and characterization of conducting polymer/carbon/Pt counter electrodes. To explore alternative metal oxide nanoporous media from binary, ternary and quaternary transparent conducting oxides	20360000

37	GAP 10/15 - Efficient poly(ethylene oxide) based electrolytes for lithium-sulfur batteries	CECRI/GAP/2015/03262	SERB DST	A Stephan	08/17/2015	08/16/2018	<p>Optimization of conventional non-aqueous electrolytes by incorporation of electrolyte additives</p> <ol style="list-style-type: none"> <li>1.1. Electrolytes based on 1,3-Dioxolane/TEGDME with additives (e.g., LiNO<sub>3</sub>, P2S<sub>5</sub>)</li> <li>2. Based on the optimized compositions obtained from 1.1, nanocomposite polymer electrolytes will be studied as barriers to shuttling of polysulfides.</li> <li>2.1 Nanocomposite polymer electrolytes will be prepared with PEO+ inert fillers (e.g., chitin, metal organic frame work)+lithium salt (e.g., LiTFSI, LiCF<sub>3</sub>SO<sub>3</sub>).</li> <li>3. Assembly and cycling of Li/S cells with optimized liquid electrolytes.</li> <li>4. Characterization of solid electrolyte/lithium interphase by XPS, FT-IR and impedance spectroscopy.</li> <li>5. In addition, we have planned to briefly look at all-solid-state Li/S batteries based on the experience gained from the systems mentioned above. Fillers, such as MOF may give better performance.</li> </ol>	3622500
38	GAP 12/15 -Development of high performance carbon nanomaterials for enhancing the cathodic oxygen reduction and performance of anode in microbial fuel cells	CECRI/GAP/2015/03337	DST International Bilateral Programme	S M Senthil Kumar	01-01-2015	12/31/2017	<p>Design and synthesis N-doped graphene/CNT supported metal oxides as oxygen reduction reaction catalysts Characterize and investigate the ORR mechanism of new catalysts in neutral and alkaline media Development of MFCs with air breathing cathodes based on our catalysts materials</p>	254000

39	GAP 06/13 - Molecular recognition of bio-molecules: Enhancement of sensitivity and selectivity using functional siloxane membranes	CECRI/GAP/2013/02051	Science and Engineering Research Board	James Joseph	06/20/2013	12/19/2016	<p>The objectives of the project include the following:          To develop methods for the synthesis of nano-noble metal sols (Au, Ag, Pd and Pt) and semiconductor QDs like CdSe-ZnS entrapped in functional siloxane networks (Solubilization/hydrophobization of nanoparticles/core shell QD's/nano metal sols) and their characterization. Optimization of film forming strategies for the preparation of monolayers (using thiolatedsilanes) and multilayer networks of siloxane polymers on solid electrodes and their characterization Standardization of sensing schemes such as immobilization of biomolecules like enzymes, Glucose oxidase, Urease abdCreatininedeiminase, chemically derivatizing with cyclodextrins, selective ionophoresetc Electrochemical and spectro-chemical measurement (in-situ and ex-situ) of analyte concentration Working out strategies for enhancing selectivity and sensitivity of the functional siloxane membranes using specific interactions between the analyte and membrane The milestones of the project include the following:          Recruitment of Junior Research Fellow          Purchase of Equipment and chemicals          design of in-situ UV-Vis evaluation          Establishing links with other laboratories for HR-TEM, FE-SEM and other necessary facilities Standardization of methodologies for the synthesis of siloxane films along with npble metals Structural and composition characterization of siloxane films along with noble metal/QD/bioactive compounds by spectrochemical, structural and topological studies Evaluation of the active component incorporated functional siloxane films for relevant biosensing application Data analysis and consolidation</p>	1865200
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40	CLP 07/15 - New materials for high performance, low cost, sustainable sodium ion batteries	CECRI/ICP/2015/00014	University of Glasgow	S Gopukumar	06-01-2015	05/31/2017	The main aim of this joint project is to combine the strengths of Prof. Gregory's laboratory at Glasgow in designing and producing new phosphide-based materials for sodium storage with the capability at Dr Gopukumar's laboratory at CSIR – Central Electrochemical Research Institute, Karaikudi to optimise these materials for use in sodium ion batteries. Various electrochemical techniques like cyclic voltametry, impedance and galvanostatic charge/ discharge studies will be done at CECRI to test the new cells that the project produces.	2044000
41	SSP 01/14 - Development of Galvanic DO Sensor Probes	CECRI/SSP/2014/01956		D Jeyakumar	06-24-2014	07/31/2016	S.No. Objectives / Milestones / Scope Deliverables Date 1	1123600
42	SSP 02/15 - Evaluation of Li-ion cells	CECRI/SSP/2015/02106		S Gopukumar	04-01-2015	10/31/2016		941858
43	SSP 13/12 - Development of Multilayer Wear Plating Composition and Process - Phase I Development of Environmental friendly Coating to Replace Hexavalent Chrome Plating with Trivalent Chrome Plating Multilayer Plating Baths - Phase II	CECRI/SSP/2013/01046	The Boeing Company	S Mohan	09-01-2012	08/31/2017	The objectives of the project includes the following: To develop and optimize an electrolyte and pulse current parameters for depositing Cu-Cr(+3) multilayer films. CECRI will build on past efforts of plating Cu-Ni multilayers and trivalent chromium plating to develop the new process. All the electrodeposition will be done on 2.5 cm and 2.5 cm steel substrate The thickness to be achieved will be 75 microns and hardness will be 600 VHN minimum The milestones of the project includes the following: Development of Cu-Cr Multilayer to a thickness of 1 Microns Interim report Development of Cu-Cr Multilayer to a thickness of 75 Microns Preparation of final report The Scope of the project is to develop a multilayer coating of copper and chrome, deposited from a bath with copper and trivalent chrome ions.	12763552
44	SSP12/14 - Design & Development of 12 V/ 5 Ah SLI Flooded Lead-Acid Battery for On board charging.	CECRI/SSP/2014/02055	TVS Motor Company Limited	S Ambalavanan / SundarMayavan	12-11-2015	12-10-2017	DESIGN & DEVELOPMENT OF 12 V/ 5 Ah SLI FLOODED LEAD-ACID BATTERY FOR ON BOARD CHARGING	2479898

45	SSP13 -14 Development of Corrosion Database for the copper chromium plated components	CECRI/SSP/2015 /02064	BOEING COMPANY	S Sathiyana ayanan	04-01-2015	09/30/2016	Development of Corrosion Database	7298802
46	SSP/02/16 - "Performance evaluation of water based inhibitor's & powder inhibitor's effectiveness for reinforcement bars".	CECRI/SSP/2016 /02482	Krishna Conchem Products Private Limited	S Syed Azim	06-08-2016	10-07-2016	Characterization of inhibitor by FT-IR, XRD, SEM, EDAX, etc Electrochemical studies – A.C impedance, linear and Tafel polarization Macrocell test Time to cracking study Gravimetric study	330000
47	SSP/18/15 - Development of conductive polymer based paint / primer coatings on Aluminum alloys Phase I – Feasibility study	CECRI/SSP/2016 /02303	BOEING COMPANY	S Sathiyana ayanan	01-13-2016	06-12-2017	Task I - Painting process Set-Up Task II - Formulation and Testing Task III - Evaluation of the painted panel Task IV - Evaluation of the painted panel	2575856
48	SSP-04/15 Re-assessment of the rope drums of radial gate components, for their suitability and structural integrity at Sardar Sarovar Dam Project, Gujarat.	CECRI/SSP/2015 /02116		G T Parthiban	06-04-2015	07/31/2016	Re-assessment of the rope drums of radial gate components, for their suitability and structural integrity at Sardar Sarovar Dam Project, Gujarat, 120 Numbers .	948131
49	TSP 05/2014 - Evaluation of Li-ion cells	CECRI/TSP/2014 /00813	Godfrey Phillips India Ltd	S Gopukumar	06-10-2014	12/15/2016	Testing of Li-ion cells	2391021
50	CLP 25/13 - Identifying Non-Peroxide Approaches to Eliminating Tooth Stains	CECRI/CLP/2014 /00069	Colgate Palmolive Company	Deepak Pattanayak	3/3/2014	9/2/2016	Identifying Non-Peroxide Approaches to Eliminating Tooth Stains	12077447
51	CNP 05/2016 : Review and validation of cathodic protection code of practices	CECRI/CNP/2016 /09000	Mahanagar Gas Ltd	SP MANOHAR AN	8/4/2016	2/3/2017	Review and validation of cathodic protection code of practices	368550
52	CNP 04/2016 : Review and validation of procedures on painting of Mahanagar Gas Limited ( MGL )assets	CECRI/CNP/2016 /08998	Mahanagar Gas Ltd	S Syed Azim	8/4/2016	12/3/2016	Review and validation of procedures on painting of Mahanagar Gas Limited ( MGL )assets	157500
53	CNP 03/16 - advise on electro polishing of Stainless steel	CECRI/CNP/2016 /08994	Sieco Engineers Private Limited	S Mohan	6/12/2016	8/31/2016	advise on electro polishing of Stainless steel	300000

54	CNP 02/2016 - Recommendation of suitable corrosion protection measures for sea water system equipment, piping and structures to enhance the life of KKNPP unit 3 & 4	CECRI/CNP/2016/08963	NPCIL, Mumbai	S Syed Azim	7/11/2016	10/10/2016	Recommendation of suitable corrosion protection measures for sea water system equipment, piping and structures to enhance the life of KKNPP unit 3 & 4	2033805
55	SSP 03/16 Tri-layer coating of lithium sphere fuel for closed cycle propulsion of underwater torpedoes	CECRI/SSP/2016/02547	Naval Science and Technological Laboratory	D Jeyakumar	8/1/2016	7/31/2017	Tri-layer coating of lithium sphere fuel for closed cycle propulsion of underwater torpedoes	15422611
56	SSP 04/16 Design and development of 5 Numbers of, higher pressure, 0.5 Nm <sup>3</sup> / h capacity PEM - based Water electrolyser stack for the generation of hydrogen	CECRI/SSP/2016/02546	Eastern Electrolyser Ltd. New Delhi	S.Sozhan	8/3/2016	11/2/2017	Design and development of 5 Numbers of, higher pressure, 0.5 Nm <sup>3</sup> / h capacity PEM - based Water electrolyser stack for the generation of hydrogen	897345