

## **ALAGAPPA UNIVERSITY**

### **DST-PURSE PHASE-I SCHEME (2011- 2014) ALL SCIENCE DEPARTMENTS**

**File No:** SR/S9/Z-23/2010/42 ©

**Amount Sanctioned:** 600 Lakhs

<b>Duration- 2011-2014 DST - PURSE Project Co-ordinators</b>	<b>Period</b>
Dr. C.Sanjeevi Raja Professor and Head, Department of Physics.	<b>2011-2012</b>
Dr. S. Karutha Pandian Senior Professor and Head, Department of Biotechnology.	<b>2013-2014</b>

#### **Science Department Participated in DST-PURSE PHASE- I**

<b>Department of Mathematics</b>	<b>Department of Oceanography and Coastal Area Studies</b>
<b>Department of Physics</b>	<b>Department of Animal Health and Management</b>
<b>Department of Industrial Chemistry</b>	<b>Department of Bioinformatics</b>
<b>Department of Biotechnology</b>	<b>Department of Bioelectronics and Biosensors</b>
<b>Department of Computer Science and Engineering</b>	<b>Department of Nanoscience and Technology</b>

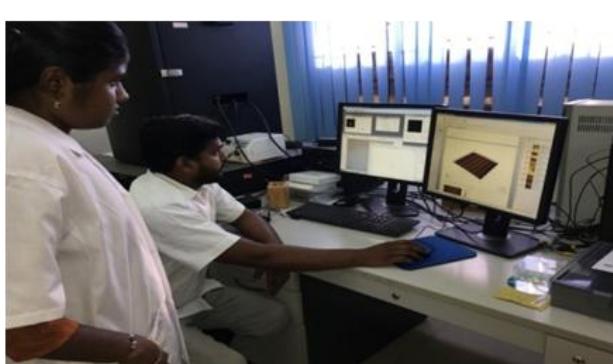
## **Development of Research & Scientific Excellence of the University with DST PURSE support**

Alagappa University has granted with an amount of Rs. 6 crores for the DST-PURSE Phase-I during the year 2009 to 2014. Initially, ten science departments with 54 teaching faculties were involved in the PURSE Scheme, later four new departments elevated the faculty strength to 68 at the completion of first phase. The introduction of 12 new programmes has contributed to the student gross from 375 to 530. Similarly, Ph.D scholars graduation has increased from 104 to 297 and the steady growth of research publications from 686 to 1515 contributed to the increase of h-index from 26 to 60. More than 44 Ph.D students were directly benefitted. 129 new research projects and three special assistance schemes (UGC- Innovative and UGC-SAP) were sanctioned by various funding agencies. Major equipments procured during the period of DST- PURSE Phase I were utilized by the students and faculty members of this University, Affiliated colleges and also various Institutions from all over India. Overall evaluation of the DST-PURSE first phase was rated as EXCELLENT. During the DST-FIST Phase-I, the University has been accredited with A Grade by Nation Assessment Accreditation Council.

### **Brief Report**

Under DST-PURSE funding, our research delved into the multifaceted realm of polymer and nanocomposite science. Synthesizing and characterizing materials, including polypyrrole/platinum nanocomposites and electrochromic copolymers, revealed unique structures and diverse electrochemical behaviors. Polymer-metal composites, such as polyaniline/bimetal configurations, exhibited improved antibacterial activity, demonstrating potential in various applications. Our exploration extended to polythiophenes for supercapacitors, where size-controllable nanoparticles showed enhanced environmental stability. Additionally, proteomics and metaproteomics approaches unveiled molecular mechanisms of drugs against human pathogens and identified novel enzymes/pathways in marine environments. This research, supported by DST-PURSE, contributes significantly to materials science, electrochemistry, and proteomics, promising applications in dynamic electrochromic devices, antibacterial materials, and eco-friendly supercapacitors. The findings underscore the importance of continued interdisciplinary support for advancing scientific frontiers.

## **Major Research facilities established under DST- PURSE Phase- II scheme**



**Atomic Force Microscope (AFM)**



**MALDI – TOF Mass Spectrometry (MALDI)**



**Vibrating Sample Magnetometer (VSM)**



**Scanning Electron Microscope (SEM)**



**Solar Cell Simulator (SCS)**

## **Glimpse of Conference/Workshops organized under PURSE scheme**

### **International Workshop on Advanced Energy Materials (IWAEM), 2012**



### **Recent advances in textile and electrochemical sciences, 2012**



### **National Workshop on Characterization Techniques, 2012**



### **Role of Microbes in Health, Agriculture and Industry, 2012**



### **International Workshop on Frontier Areas of Chemical Technologies, 2014**



### **Microbial Phylogenetics and Proteomics, 2014**



## DST PURSE Scheme Research Outcomes

Out of 1515 Research Publications **398** publications has been acknowledged with DST-PURSE Phase-I

### PUBLICATIONS

Sl. No.	
<b>Department of Industrial Chemistry</b>	
1.	Sethuraman, V., Muthuraja, P., Sethupathy, M., <b>Manisankar, P.</b> (2014), Development of Biosensor for Catechol Using Electrosynthesised Poly (3-methylthiophene) and Incorporation of Laccase Simultaneously, <i>Electroanalysis</i> , Vol. 26: 1958–1965 [wiley] (Impact Factor: 2.817)
2.	Sethupathy, M., Pandey, P., <b>Manisankar, P.</b> (2014), Evaluation of photovoltaic efficiency of dye-sensitized solar cells fabricated with electrospun PVDF-PAN-Fe <sub>2</sub> O <sub>3</sub> composite membrane, <i>Journal of Applied Polymer Science</i> , Vol. 131: 41107(1-8) [wiley] (Impact Factor: 1.395)
3.	Boomi, P., Prabu, H. G., <b>Manisankar, P.</b> , Ravikumar, S. (2014), Study on antibacterial activity of chemically synthesized PANI-Ag-Au nanocomposite, <i>Applied Surface Science</i> Vol. 300: 66–72 [Elsevier BV, Netherland] (Impact Factor: 2.112).
4.	Thanjam, S., Philips, M. F., Lee, K.P., <b>Manisankar P.</b> , Gopalan, A. I. (2014), Facile One-Pot Synthesis of Poly(4-aminodiphenylamine) /Copper Nanocomposite and Electrocatalytic Oxidation of Ascorbic Acid, <i>Journal of Nanoelectronics and Optoelectronics</i> , Vol. 8: 545–550 [American Scientific Publishers] (Impact Factor: 0.479).
5.	Jayamani, A., Thamilarasan, V., Sengottuvelan, N., <b>Manisankar, P.</b> , Kang, S. K., Kim, Y. I., & Ganesan, V. (2013), Synthesis of mononuclear copper(II) complexes of acyclic Schiff's base ligands: Spectral, Structural, Electrochemical, Antibacterial, DNA binding and Cleavage Activity, <i>SpectrochimicaActa Part A: Molecular and Biomolecular Spectroscopy</i> , Vol. 122: 365-374 [Elsevier BV, Netherland] (Impact Factor: 1.977).
6.	Jayamani, A., Thamilarasan, V., Sengottuvelan, N., <b>Manisankar, P.</b> , Kang, S. K., Kim, Y. I., & Ganesan, V. (2014), Photovoltaic performance of dye-sensitized solar cells fabricated with polyvinylidene fluoride - polyacrylonitrile - silicon dioxide hybrid composite membrane, <i>Journal of Materials Chemistry and Physics</i> , Vol. 143: 1191-1198 [Elsevier BV, Netherland] (Impact Factor: 2.072).

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| 7. | Sethupathy, M., Ravichandran, S., <b>Manisankar, P.</b> (2014), Preparation of PVdF-PAN-V <sub>2</sub> O <sub>5</sub> Hybrid Composite Membrane by Electrospinning and Fabrication of Dye-Sensitized Solar Cells, International Journal of Electrochemical Science, Vol. 9: 3166 – 3180 [ESG] (Impact Factor: 3.729). |
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8.	Sethupathy, M., Pandey, P., <b>Manisankar, P.</b> (2014), Development of Quasi-Solid-State Dye-Sensitized Solar Cell Based on an ElectrospunPolyvinylidene Fluoride-Polyacrylonitrile Membrane Electrolyte, <i>Journal of Applied Polymer Science</i> , Vol. 131: 40022-40030 [wiley] (Impact Factor: 1.395).
9.	Sethuraman, V., Muthuraja, P., <b>Manisankar, P.</b> (2013), Fabrication of Polyaniline - Polyphenol Oxidase Based Efficient Biosensor for Catechol, <i>RSC Analytical methods</i> , Vol. 5: 6523-6530 [The Royal Society of chemistry] (Impact Factor: 1.938).
10.	Thanjam, I. S., Philips, M. F., <b>Manisankar, P.</b> , Lee, K. P., & Gopalan, A. (2013), A kinetic study on the formation of poly (4 aminodiphenylamine)/copper nanocomposite using UV-visible spectroscopy, <i>SpectrochimicaActa - Part A: Molecular and Biomolecular Spectroscopy</i> , Vol. 116: 321–330 [Elsevier BV, Netherland] (Impact Factor: 1.977).
11.	Thamilarasan, V., Jayamani, A., <b>Manisankar, P.</b> , Kim, Y. I., & Sengottuvelan, N. (2014), Green-emitting phosphorescent iridium (III) complex: Structural, photophysical and electrochemical properties, <i>Inorganica Chimica Acta</i> , Vol. 408: 1693-1706 [Elsevier BV, Netherland] (Impact Factor: 1.687).
12.	Rajasekharan, V., Stalin, T., Viswanathan, S., <b>Manisankar, P.</b> (2013), Electrochemical Evaluation of Anticorrosive Performance of Organic Acid Doped Polyaniline Based Coatings, <i>International Journal of Electrochemistry</i> , Vol. 8: 11327 – 11336. [ESG] (Impact Factor: 3.729). 1.956 (2013)
13.	Mohan, P., <b>Paruthimal Kalaignan, G.</b> (2013), Electrochemical performances of co-substituted (La & Li) $\text{LiLa}_{x-y}\text{Li}_y\text{Ni}_{1-x}\text{O}_2$ cathode materials for rechargeable lithium-ion batteries, <i>Material Research Bulletin</i> , Vol. 48: 3049-3057, [Elsevier BV, Netherland] (Impact Factor: 1.913)
14.	Arunsunai Kumar, K., <b>ParuthimalKalaignan, G.</b> , Muralidharan, V. S. (2013), Enhanced corrosion resistance of Ni-W alloy with the inclusion of TiN nanoparticle by Electrodeposition method, <i>Transaction Institute of Metal finishing</i> Vol. 91: 202-206 [Maney's online publishing] (Impact Factor: 1.23)
15.	Mohan, P., <b>Paruthimal Kalaignan, G.</b> (2013), Structure and Electrochemical performances of co-substituted $\text{LiCo}_x \text{Li}_{x-y}\text{Mn}_{2-x}\text{O}_4$ cathode materials for the rechargeable lithium ion batteries, <i>Journal of Nanoscience and Nanotechnology</i> , Vol. 13: 6694-6700 [American Scientific Publishers] (Impact Factor: 1.149)
16.	Mohan, P., <b>Paruthimal Kalaignan, G.</b> Manisankar, P. (2013), Preparation and Electrochemical performances of samarium substituted $\text{LiSm}_{1-x}\text{Ni}_x\text{O}_2$ ( $0.00 > x > 0.20$ ) cathode materials for rechargeable lithium-ion batteries, <i>Science of Advanced Materials</i> , Vol. 5: 143-154 [ American Scientific Publishers] (Impact Factor: 2.509)

17.	Mohan, P., <b>Paruthimal Kalaignan, G.</b> (2013), Corrosion inhibition effect of mild steel in 1M HCl by N'-(2-hydroxybenzylidene) benzohydrazide with Iodide ions, Advanced Science, Engineering and Medicine, Vol. 5: 827-834. [ American Scientific Publishers] (Impact Factor: 0.862)
18.	Pethaiah, S. S., <b>Paruthimal Kalaignan, G.</b> , Sasikumar, G., Ulaganathan, M., Swaminathan, V. (2013), Development of nano Catalyzed Membrane for PEM Fuel cell Applications, Journal of Solid State Electrochemistry, Vol. 1: 2917-2925 [Springer] (Impact Factor: 2.279)
19.	Mohan, P., <b>Paruthimal Kalaignan, G.</b> (2013), 1,4-bis (2-nitro benzylidene) thiosemicarbazide as an effective corrosion Inhibitor for Mild Steel, Journal of Materials Science & Technology, Vol. 29: 1096-1100 [Elsevier BV, Netherland] (Impact Factor: 1.198)
20.	Mohan, P., <b>Paruthimal Kalaignan, G.</b> (2013), Structure and electrochemical performance of $\text{LiFe}_x \text{Ni}_{1-x} \text{O}_2$ ( $0.00 \leq x \leq 0.20$ ) cathode materials for rechargeable lithium-ion batteries, Journal of Electroceramics, Vol. 31: 210-217. [Springer] (Impact Factor: 1.143)
21.	Nachiappan, N., <b>Paruthimal Kalaignan, G.</b> , Sasikumar, G. (2013), Influence of methanol impurity in hydrogen on PEMFC performance, Ionics, Vol. 19: 17-522 . [Springer] (Impact Factor: 1.84)
22.	Kasturibai, S., <b>Paruthimal Kalaignan, G.</b> (2013), Physical and Electrochemical Characterization of Ni-SiO <sub>2</sub> nanocomposite coatings, Ionics, Vol. 19: 763-770. [Springer] (Impact Factor: 1.84)
23.	Mohan, P., <b>Paruthimal Kalaignan, G.</b> (2013), Electrochemical behavior of surface modified SiO <sub>2</sub> -coated LiNiO <sub>2</sub> cathode materials for rechargeable Lithium-ion batteries, Journal of Nanoscience and Nanotechnology, Vol. 13: 2765-2770 [American Scientific Publishers] (Impact Factor: 1.339)
24.	Mohan, P., <b>Paruthimal Kalaignan, G.</b> (2013), Electrochemical performance of La <sub>2</sub> O <sub>3</sub> -coated layered LiNiO <sub>2</sub> cathode materials for rechargeable Lithium-ion batteries, Ionics, Vol. 19: 895-902. [Springer] (impact Eactor: 1.836)
25.	Mohan, P., Ranjith, B., <b>Paruthimal Kalaignan, G.</b> (2014), Electrochemical performance of surface modified LaPO <sub>4</sub> -coated LiMn <sub>2</sub> O <sub>4</sub> cathode materials for rechargeable lithium batteries, Ceramics International, Vol. 40: 1415 -1421 [Elsevier BV, Netherland] (Impact Factor: 1.789).
26.	Ganesan, R. M., <b>Gurumallesh Prabu, H.</b> Synthesis of gold nanoparticles using herbal Acorus calamus rhizome extract and coating on cotton fabric for antibacterial and UV blocking applications, Arabian Journal of Chemistry, In press [Elsevier BV, Netherland] (Impact Factor: 0.896).

27.	Anthoniamma, S. C., <b>Gurumallesh Prabu, H.</b> (2015), Photocatalytic activity of TiO <sub>2</sub> films prepared by sol-gel and electrodeposition on the decolourization of monoazo dyes, <i>Journal of Sol-Gel Science and Technology</i> , Vol. 7:3 118-126. [Springer] (Impact Factor: 1.547).
28.	Yazhini, K. B., <b>Gurumallesh Prabu, H.</b> (2015), Antibacterial Activity of Cotton Coated With ZnO and ZnO-CNT Composites, <i>Applied Biochemistry and Biotechnology</i> , Vol. 175: 85-92. [Springer] (Impact Factor: 1.94).
29.	Kavitha, A. L., <b>Gurumallesh Prabu, H.</b> , Babu, S. A. (2013), Synthesis of low-cost iron oxide: Chitosan Nanocomposite for Antibacterial Activity, <i>International Journal of Polymeric Materials</i> , Vol. 62: 45-49 [Taylor] (Impact Factor: 1.87).
30.	Boomi, P., <b>Gurumallesh Prabu, H.</b> , Mathiyarasu, J. (2014), Synthesis, characterization and antibacterial activity of polyaniline/Pt-Pdnanocomposite, <i>European Journal of Medicinal Chemistry</i> , Vol. 72: 18-25 [Elsevier BV, Netherland] (Impact Factor: 3.5)
31.	Anandhavelu, S., <b>Thambidurai, S.</b> (2013), Effect of annealing temperature on optical and electrochemical properties of chitosan-ZnO nanostructure, <i>Ionics</i> , Vol. 19: 903-909 [Springer] (Impact Factor: 1.674)
32.	Anandhavelu, S., <b>Thambidurai, S.</b> (2013), Preparation of eco-friendly chitosan-ZnO composite for chromium complex dye adsorption, <i>Coloration Technology</i> , Vol. 129: 187-192 [Wiley] (Impact Factor: 0.959)
33.	Pandiselvi, K., <b>Thambidurai, S.</b> (2013), Synthesis of porous chitosan– polyaniline/ZnO hybrid composite and application for removal of reactive orange 16 dye, <i>Colloids and Surfaces B: Biointerfaces</i> , Vol. 108: 229-238 [Elsevier BV, Netherland] (Impact Factor: 3.554)
34.	Pandiselvi, K., <b>Thambidurai, S.</b> (2014), Chitosan-ZnO/polyaniline ternary nanocomposite for high performance Supercapacitor, <i>Ionics</i> , Vol. 20: 551-561. [Springer] (Impact Factor: 1.674)
35.	Pandiselvi, K., Manikumar, A., <b>Thambidurai, S.</b> (2014), Synthesis of novel polyaniline/MgO composite for enhanced adsorption of reactive dye, <i>Journal of Applied Polymer Science</i> , Vol. 131: 40210 (9) [Wiley] (Impact Factor: 1.913)
36.	Ramanujam, K., <b>Sundrarajan, M.</b> (2014), Biocidal activities of monochlorotriazine – b- cyclodextrin with MgO modified cellulosic fabric, <i>The journal of the textile institute</i> ; In press. [Elsevier BV, Netherland] (Impact Factor: 0.725)
37.	Ramanujam, K., <b>Sundrarajan, M.</b> (2014) Antibacterial effects of biosynthesized MgO nanoparticles using ethanolic fruit extract of <i>Emblica Officinalis</i> , <i>Journal of photochemistry and photobiology B: Biology</i> ; Vol.141: 296-300. [Elsevier BV,

	Netherland] (Impact Factor: 3.11)
38.	Ambika, S., <b>Sundrarajan, M.</b> (2014), Synthesis of b-cyclodextrin /ZnO nanocomposites and its improve antibacterial activity on cotton fabric, World journal of pharmacy and pharmaceutical sciences; Vol. 3: 751-761. [World journal of Pharmacy and Pharmaceutical Sciences] (Impact Factor: 2.7)
39.	Ramanujam, K., <b>Sundrarajan, M.</b> (2014), Grafting of cellulosic fabric using PVP with MgO nanoparticles for improve performance of bacterial and fungal pathogens, World journal of pharmacy and pharmaceutical sciences; Vol 3: 1989-2004. [World journal of Pharmacy and Pharmaceutical Sciences] (Impact Factor: 2.7)
40.	Gowri, S., Gandhi, R. R., <b>Sundrarajan, M.</b> (2014), Structural, optical, antibacterial and antifungal properties of zirconia nanoparticles by biobased protocol, Journal of Material Science and Technology, Vol. 30: 782-790. [Elsevier BV, Netherland] (Impact Factor: 1.198)
41.	Yuvakkumar, R., Suresh, J., <b>Sundrarajan, M.</b> (2014), Rambutan ( <i>Nepheliumlappaceum L.</i> ) peel extract as synthesis of Nickel Oxide nanocrystals, Materials Letters, Vol. 128: 170-174 [Elsevier BV, Netherland] (Impact Factor: 2.224)
42.	Yuvakkumar, R., Suresh, J., Nathanael, A. J., <b>Sundrarajan, M.</b> (2014), Novel green synthetic strategy to prepare ZnOnanocrystals using rambutan ( <i>Nepheliumlappaceum L.</i> ) peel extract and its antibacterial applications, Material Science and Engineering C, Vol 41: 17–27 [Elsevier BV, Netherland] (Impact Factor: 2.404 )
43.	Ramalakshmi, M., Sakthivel, P., <b>Sundrarajan, M.</b> , Chen S.M. (2013), Novel method of room temperature ionic liquid assisted Fe <sub>3</sub> O <sub>4</sub> nanocubes and nanoflakes synthesis, Materials Research Bulletin, Vol. 48: 2758-2765. [Elsevier BV, Netherland] (Impact Factor: 1.913)
44.	Gowri, S., Gandhi, R. R., <b>Sundrarajan, M.</b> (2013) Green synthesis of tin oxide nanoparticles by aloe vera: Structural, optical and antibacterial properties, Journal of nanoelectronics and optoelectronics; Vol. 8: 1-10. [American Scientific Publishers] (Impact Factor: 0.64)
45.	Ramalakshmi, M., <b>Sundrarajan, M.</b> (2013) [BMIM][TfO] Ionic liquid-assisted oriented growth of Co <sub>3</sub> O <sub>4</sub> nanowarms materials, Materials Research Bulletin; Vol. 48: 618-623. [Elsevier BV, Netherland] (Impact Factor: 2.108)
46.	Rajiv Gandhi R., Gowri S., Suresh J., <b>Sundrarajan, M.</b> (2013) Ionic liquid assisted synthesis of ZnO nanostructures: controlled size, morphology and antibacterial properties, Journal of material science and technolog, Vol. 29: 533-538. [Elsevier BV, Netherland] (Impact Factor: 1.198)

47.	Mohandoss, S., Maniyazagan., <b>Stalin, T.</b> (2015), A highly selective dual mode detection of $\text{Fe}^{3+}$ ion sensing based on 1,5-Dihydroxyanthraquinone in the presence of $\beta$ -cyclodextrin, Materials Science and Engineering C, Vol. 48: 94–102. [Elsevier BV, Netherland] (Impact Factor: 3. 076).
48.	Kavitha. R., <b>Stalin, T.</b> (2015), Naphthalenediols: A new class of novel fluorescent chemosensors for selective sensing of $\text{Cu}^{2+}$ and $\text{Ni}^{2+}$ in aqueous solution, Journal of Luminescence Vol. 158: 313-321. [Elsevier BV, Netherland] (Impact Factor: 2.367).
49.	Srinivasan, K., <b>Stalin, T.</b> , Shanmugapriya, A., Sivakumar, K. (2013), Spectroscopic and electrochemical studies on the interaction of an inclusion complex of $\beta$ -cyclodextrin with 2,6-dinitrophenol in aqueous and solid phases, Journal of Molecular Structure,1036 494–504. [Elsevier BV, Netherland] (Impact Factor: 1.599).
50.	Srinivasan, K., <b>Stalin, T.</b> (2013), Studies on inclusion complexes of 2,4-dinitrophenol, 2,4-dinitroaniline, 2,6-dinitroaniline and 2,4-dinitrobenzoic acid incorporated with $\beta$ -cyclodextrin used for a novel UV absorber for ballpoint pen ink, Journal of Inclusion Phenomena and Macrocyclic Chemistry, Vol. 750. [Springer] (Impact Factor: 1.650).
51.	Paramasivaganesh, K., Srinivasan, K., Manivel, A., Anandan, S., Sivakumar, K., Radhakrishnan, S., <b>Stalin, T.</b> (2013), Studies on inclusion complexation between 4,4-dihydroxybiphenyl and $\beta$ -cyclodextrin by experimental and theoretical approach, Journal of Molecular Structure, Vol.1048: 399–409. [Elsevier BV, Netherland] (Impact Factor: 1.599).
52.	Sivakumar, K., Hemalatha, G., Parameswari, M., <b>Stalin, T.</b> (2013), Spectral, electrochemical and docking studies of 5-indanol: $\beta$ -CD inclusion complex, Physics and Chemistry of Liquids, An International Journal, Vol. 51: 567-585. [Taylor & Francis] (Impact Factor: 0.813).
53.	Sivakumar, K., Bhakyajothi, V., Parameswari, M., Prema, D., <b>Stalin, T.</b> (2013), Spectral Studies on the Supramolecular Assembly of 1H2NA: $\beta$ -CD Complex and its Analytical Application as Chemosensor for the Selective Sensing of $\text{Cr}^{3+}$ , Polycyclic Aromatic Compounds, Vol. 33: 221-235. [Taylor & Francis] (Impact Factor: 1.044).
54.	Priya, A. S., Sivakamavalli, J., Vaseeharan, B., <b>Stalin, T.</b> (2013), Improvement on dissolution rate of inclusion complex of Rifabutin drug with $\beta$ -cyclodextrin, Int. Journal of Biological Macromolecules,Vol. 62: 472–480, [Elsevier BV, Netherland] (Impact Factor: 2.596)
55.	Kavitha, R., <b>Stalin, T.</b> (2014), A highly selective chemosensor for colorimetric detection of $\text{Hg}^{2+}$ and fluorescence detection of pH changes in aqueous solution, Journal of Luminescence, Vol. 149: 12–18. [Elsevier BV, Netherland] (Impact Factor: 2.144 )

56.	<b>Stalin, T.</b> , Srinivasan, K., Sivakumar, K. (2014), Study of the cyclodextrin and its complexation with 2,4-dinitrobenzoic acid through photophysical properties and 2D NMR spectroscopy, <i>Journal of Molecular Structure</i> , Vol.1060: 239–250 [Elsevier BV, Netherland] (Impact Factor: 1.550)
57.	<b>Stalin, T.</b> , Srinivasan, K., Sivakumar, K., Radhakrishnan, S. (2014), Preparation and characterizations of solid/aqueous phases inclusion complex of 2, 4-dinitroaniline with $\beta$ -cyclodextrin, <i>Carbohydrate Polymers</i> , Vol.107: 72–84 [Elsevier BV, Netherland] (Impact Factor: 3.479)
58.	Srinivasan, K., Radhakrishnan, S., <b>Stalin, T.</b> (2014), Inclusion complexes of $\beta$ -cyclodextrin-dinitrocompounds as UV absorber for ballpoint pen ink, <i>Spectrochimica Acta Part A</i> , Vol.129: 551–564 [Elsevier BV, Netherland] (Impact Factor: 2.129)
59.	Srinivasan, K., <b>Stalin, T.</b> (2014), Study of inclusion complex between 2,6-dinitrobenzoic acid and $\beta$ -cyclodextrin by $^1\text{H}$ NMR, 2D $^1\text{H}$ NMR (ROESY), FT-IR, XRD, SEM and photophysical methods, <i>Spectrochimica Acta Part A</i> , Vol.130: 105–115. [Elsevier BV, Netherland] (Impact Factor: 2.129)
60.	Srinivasan, K., Sivakumar, K., <b>Stalin, T.</b> (2014), 2, 6-dinitroaniline and $\beta$ -cyclodextrin inclusion complex properties studied by different analytical methods, <i>Carbohydrate Polymers</i> , Vol. 113: 577–58. [Elsevier BV, Netherland] (Impact Factor: 3.479)
61.	Maniyazagan., Mohandoss, S., Sivakumar, K., <b>Stalin, T.</b> (2014), N-phenyl-1-naphthylamine/ $\beta$ -cyclodextrin inclusion complex as a new fluorescent probe for rapid and visual detection of $\text{Pd}^{2+}$ , <i>Spectrochimica Acta Part A</i> , Vol.133: 73–79, [Elsevier BV, Netherland] (Impact Factor: 2.129)
62.	Lakshmi, A., Raj, A., <b>Gopu, G.</b> , Arumugam, P., Vedhi, C. (2013), Electrochemical, electrochromicbehaviour and effects of supporting electrolyte on nano-thin film of poly (3,4-ethylenedioxy thiophene), <i>Electrochimica Acta</i> , Vol. 92: 452-459 [Elsevier BV, Netherland] (Impact Factor:4.088)
63.	Lakshmi, A., <b>Gopu, G.</b> , Thanikaikarasan, S., Mahalingam, T., Alvarez, P., Sebastian, P. J., Vedhi, C. (2014), Electroanalysis of Diazepam on Nano size Conducting Poly (3-Methylthiophene) Modified Glassy Carbon Electrode. <i>Journal of New Materials for Electrochemical Systems</i> Vol. 17: 185-190 (Impact Factor: 0.659)
64.	Ribeiro, F. W. P., Barroso, M. F., Morais, S., <b>Viswanathan, S.</b> , de Lima-Neto, P., Correia, A. N., Delerue-Matos, C. (2014), Simple laccase-based biosensor for formetanate hydrochloride quantification in fruits, <i>Bioelectrochemistry</i> , Vol. 95: 7 – 14. [Elsevier BV, Netherland] (Impact Factor: 3.870).

65.	Freitas, M., <b>Viswanathan, S.</b> , Nouws, H. P. A., Oliveira, M. B. P. P., Delerue-Matos, C. (2014), Iron oxide/gold core/shell nanomagnetic probes and CdSbiolabels for amplified electrochemical immunosensing of <i>Salmonella typhimurium</i> , Biosensors and Bioelectronics, Vol.51: 195-200, [Elsevier BV, Netherland] (Impact Factor: 6.451).
66.	da Silva, H., Pacheco, J. G., Magalhães, J. M., <b>Viswanathan, S.</b> , Delerue-Matos, C. (2014), MIP-graphene-modified glassy carbon electrode for the determination of trimethoprim, Biosensors and Bioelectronics, Vol.52: 56-61 [Elsevier BV, Netherland] (Impact Factor: 6.451).
67.	Marques, R. C., <b>Viswanathan, S.</b> , Nouws, H. P., Delerue-Matos, C., & González-García, M. B. (2014), Electrochemical immunosensor for the analysis of the breast cancer biomarker HER2 ECD, Talanta, Vol.129: 594-599. [Elsevier BV, Netherland] (Impact Factor: 3.756).
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### **Department of Mathematics**

1	<b>N. Anbazhagan</b> , G. Arivaringnan and A. Irle A Two – Commodity Continuous Review Inventory System with Substitutable Items Stochastic Analysis an Applications, Vol.30, pp.1919, 2012, ISSN 0736-2994 (Impact Factor : 0.419)
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**RESEARCH PROJECTS DURING DST- PURSE PHASE- I SCHEME ( 2011-2014)**

1.	Dr. M. Ramesh Prabhu	Investigations on nano filler incorporated PEMA composite electrolytes for lithium batteries	UGC	9.608
2.	Dr.P.Manisankar	One-step co-electropolymerized nano Conducting polymer–enzyme composite film biosensor for sensitive determination of polyphenol antioxidants	DST	20.09
3.	Dr.P.Manisankar	One time grant	UGC	7.00
4.	Dr. G. Paruthimal Kalaignan	Development of Acidizing inhibitors for Petroleum oil wells	UGC	6.068
5.	Dr. G. Paruthimal Kalaignan	One time grant	UGC BSR	7.00
6.	Dr. H. Gurumallesh Prabu	Sonophotochemical degradation of dyes catalyzed by different polyoxometalates immobilized on TiO <sub>2</sub> nanoparticles	UGC	6.54
7.	Dr. S. Thambidurai	Optimization study of salt-free reactive dyeing and fixing of seaweed nano particles on cotton fabric for permanent antibacterial finishing	UGC	5.60
8.	Dr. M. Sundrarajan	Effective minimization of Pollution load in reactive dye bath using eco-friendly salt and Ozonation	UGC	4.33
9.	Dr. T. Stalin	Development of newer modified electrodes using conducting polymer nano composites for dye sensitized solar cells	UGC	7.24

10	Dr. T. Stalin	Enhanced Host-guest electrochemical recognition of various organic pollutants using cyclodextrin in the presence of carbon nanotubes	DST	21.20
11.	Dr. K. Balamurugan	Physiological and molecular changes in <i>Caenorhabditis elegans</i> during subsequent bacterial infections	UGC, New Delhi	10.853
12.	Dr. K. Balamurugan	<i>Caenorhabditis elegans</i> translational level response against <i>Vibrio</i> spp. infection	DST, New Delhi	19.56
13.	Dr. K. Pandima Devi	Evaluation of the effect of <i>Padina gymnospora</i> against $\beta$ -amyloid peptide (25-35) induced neurotoxicity: An in-vitro study	DST, India	28.64
14.	Dr. M. Ramesh	Development of abiotic stress tolerant indica rice lines (IR 64) with Stress Associated Protein gene (SAP 8) through Agrobacterium – mediated transformation	CSIR, New Delhi.	24.52
15.	Dr. M. Ramesh	Micropropagation and reintroduction of endangered medicinal plant <i>Nilgirianthus ciliatus</i> (Nees) Bremek	DST, New Delhi.	15.28
16.	Dr. M. Sivakumar	Studies on Composite Polymer Electrolytes Based on Copolymers for Secondary Lithium Batteries	UGC	11.2 Lakhs

17	Dr. G. Ravi	Preparation of ZnO nano structure thin films by spin coating method for spintronic and optical applications	UGC	13,00,800
18	Dr. S. Karutha Pandian	Gene expression and protein profiling of Group A Streptococcus upon treatment with quorum quenching agents from marine bacteria	ICMR	21.93
19	Dr. S. Karutha Pandian	Production, purification and characterization of $\alpha$ -amylase from marine sediment bacterium <i>Bacillus subtilis</i> S8-18 and its evaluation for antibiofilm activity against human pathogens	CSIR	21.42
20	Dr. S. Karutha Pandian (Project Coordinator) & Dr. A. Veera Ravi (Principal Investigator)	Antipathogenic potential of marine cyanobacteria in preventing quorum sensing dependent bacterial infections among aquaculture organisms	DBT	55.09
21	Dr. B.Vaseeharan	cDNA cloning mRNA a transcript and functional analysis of novel immune related genes prophenoxidase and peroxinectin from indian white shrimp <i>Fenneropeneaus indicus</i>	CSIR	23.50
22.	Dr. N. M. Prabhu	Isolation and characterization of potential probiotic strains for successful treatment of bacterial disease in <i>Cyprinus carpio</i> , <i>Osteoglossum -bichirrossum</i> and <i>Cichlasoma</i> spp.	UGC	8.78

23.	Dr. J. Jeyakanthan	Structural and Functional Analysis ... from <i>Thermus thermophilus</i>	DBT	50.25
24.	Dr. J. Jeyakanthan	Structural and functional studies ... from <i>pyrococcus horikoshii</i>	UGC	12.90
25.	Dr. J. Jeyakanthan	Structure Determination ... <i>Thermus thermophilus</i>	DBT	32.16
26.	Dr. J. Jeyakanthan	Structural and Functional Studies ... from <i>Pyrococcus horikoshii</i> - (AU & IITG)	DBT	77.0
27.	Dr. Sanjeev Kumar Singh	“QM/MM Partial charges, Binding pocket contours analysis and FEP calculation for designing potent inhibitors of HTLV-Protease : A De novo drug design Approach”	CSIR	20.18
28.	Dr. P. Srinivasan	Development of Microarray for the detection of Bacteria / Bacteriophages and controlling measures against pathogenic bacteria from shrimp aquaculture environment	DST-FAST TRACK	17.19

**RESEARCH SCHEME DURING DST- PURSE PHASE- I SCHEME ( 2011-2014)**

S.No	Department	Research Scheme	Period	Amount in Lakhs
1	Industrial Chemistry	DST – Fund for Improvement of Science & Technology Infrastructure (FIST)	2020-2025 (Level -2)	84.50
2	Physics		2015-2020	121.00
3	Biotechnology		2015-2020	144.00
4	Physics	UGC- SAP - II	2009-2013	70.50
5	Industrial Chemistry	UGC- SAP	2007-2012	70.50
6	Biotechnology	UGC- SAP	2011-2016	76.00