



# CHEMFLASH



THE CHEMISTRY DEPARTMENT NEWSLETTER

## EASWARI ENGINEERING COLLEGE (AUTONOMOUS)

VOLUME 9

ISSUE 4

OCTOBER 2020

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### MESSAGE FROM THE DEPARTMENT HEAD

The Department of Chemistry has been functioning, since the inception of the college in the year 1996. Our vision is to build foundation for excellence and spur development of the Institution as a premier Institution, by igniting and nurturing enthusiasm, interests and passion, in the study of chemistry, in professional courses, as a part of curricula. Our major mission is to awaken the young minds and discover their talents both in theory and in practical chemistry, through dedication to teaching, commitment to students and innovative instructional methods. Our department faculties and staffs are working on our vision and mission. The outcomes of our work are released in, **Chemflash**, quarterly newsletter of chemistry department. It highlights the department's activities, and faculty's research, award/honors, outreach activities, and achievements. It also focuses on recent happenings/findings in the field of chemistry. Hence, this newsletter is sure to motivate all the budding engineers. I express my heartiest congratulations to all the faculty and staff members in our department.

**Dr. C. Ravichandran**  
HOD/Chemistry

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#### TYPES OF CHEMICAL BONDS



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# International Virtual Conference On **ADVANCES IN CHEMICAL SCIENCES**

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## Department News

The Department of Chemistry has organized International Virtual Conference on "Advances in Chemical Sciences - 2020" on 13th & 14th August 2020. The major

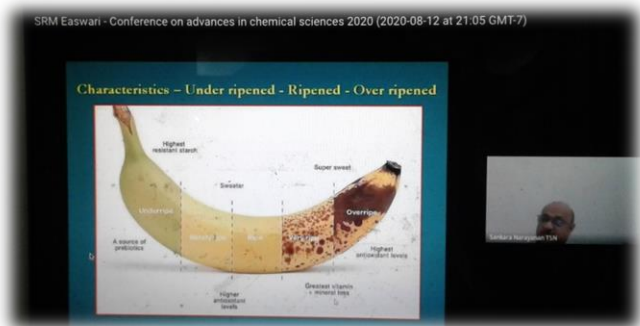
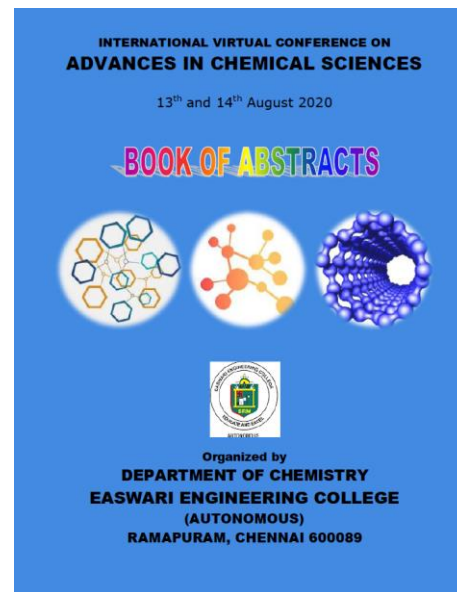
theme of this conference was in organic, inorganic, physical, analytical, polymer, environmental, nanosciences and engineering chemistry.

The first day of conference was started with virtual inauguration function. The Dr. C. Ravichandran, Head of Chemistry Department and Convener of the conference delivered the welcome address and gave an overview of the conference. Dr. R. S. Kumar, the Principal, Easwari Engineering College delivered the presidential address and Prof. Gurmeet Singh, Vice Chancellor, Pondicherry University, Puducherry, a renowned academic administrator and an internationally reputed expert in the field of corrosion science and smart materials, inaugurated and delivered the special address. Dr. B. Venkatachalapathy, Dean Research, SRM IST, Ramapuram and Trichy Campuses felicitated the programme.

Subsequently, technical session was started. In first, Dr. T.S.N. Sankara Narayanan, a Research Professor in Ulsan National Institute of Science and Technology Republic of Korea was delivered an invited lecture on Global challenges - Chemistry solutions. Then, Dr. S. Anand Kumar, Associate Professor in Anna University gave a talk on Bio-based polymers and composites for sustainable future. The first day conference was finished with oral presentations.

The second day of conference was started with the invited lecture of Dr. Smagul Karazhanov who is a Senior Researcher in Institute for Energy Technology, Norway. Dr. Smagul elegantly discussed about the first and second generation of solar cells. Then, Dr. Desikan Rajagopal, a Professor VIT University, Vellore, gave an invited lecture on Nano liposome formulation in cardiovascular disease. The second day of the conference was finished with poster presentation.

.Overall, 127 research papers were accepted by the technical committee of this conference. Out of which 24 research papers were shortlisted for oral presentation and 21 research papers for poster presentation. The key note address by eminent speakers in the technical session has enriched the scientific knowledge in the emerging areas. In addition, the conference provided the source for recuperating the novel scientific ideas to the students, researchers, industrialists and academicians.



## International Virtual Faculty Development Programme On Recent Trends On Current Science And Technology

The Department of Chemistry has organized five days International Virtual Faculty Development Programme on 'Recent Trends on Current Science and Technology' on 24-28 August 2020. Each day had two invited lectures.

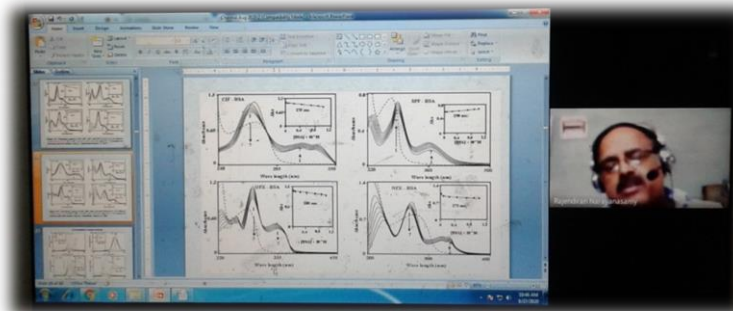
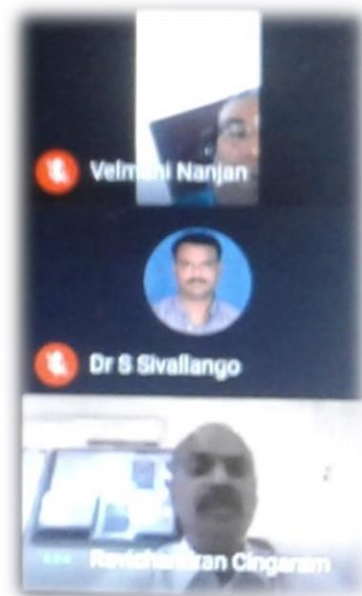
The first day of this programme was started with welcome address given by Dr. C. Ravichandran, Head of Chemistry Department. Subsequently, Dr. Ananthakrishnan Srinivasan, Professor and Dean of Faculty Affairs, Indian Institute of Technology, Guwahati delivered a lecture on Polymer nanocomposites for sustainable resistive random access memory. In the afternoon session, Dr. K. Gurunathan, Chairperson of Chemical Sciences, Professor and Head, Alagappa University, Karaikudi gave invited lecture on Solar Hydrogen production by using Efficient Nano photocatalyst.

In the second day, Dr. KS Kiran, Professor in Jain Deemed to be University, Bangalore delivered a lecture on Docking studies and drug delivery system. In the afternoon session, Sreenath Subrahmanyam, Director, Institute of BioEcoSciences, USA gave invited lecture on Sustainable Development: Opportunities and Challenges.

In the third day, Dr. A. Jafer Ahamed, Associate Professor, Jamal Mohammed College, Tirchirappalli delivered a lecture on Green synthesis of Metal Oxide nanoparticles and their applications. In the afternoon session, Dr. E. Murugan, Director- Guindy campus, Professor and Head, University of Madras, Chennai gave invited lecture on Dendrimer catalysis - Past, Present and Future: An Overview.

In day four, Dr. N. Rajendran, Professor, Annamalai University, Chidambaram, delivered a lecture on Drug interaction with biomolecules. In the afternoon session, Dr. S. Ravichandran, Principal Scientist, Electro Inorganic Chemicals Division, Central Electrochemical Research Institute, Karaikudi gave invited lecture on Hydrogen: Fuel of the Future.

In the last day, Dr. S. Easwaramoorthi, Senior Scientist, CSIR-Central Leather Research Institute, Chennai, delivered a lecture on Photofunctional Materials. In the afternoon session, Dr. S. Anand Kumar, Associate Professor, Anna University, Chennai gave invited lecture on Science and technology of Nanomaterials.



Overall, more than 100 participants including faculties and researchers were attended this faculty development programme. In each session, participants were fruitfully interacted with speakers. The key note address by eminent speakers in the technical session has enriched the scientific knowledge in the emerging areas.

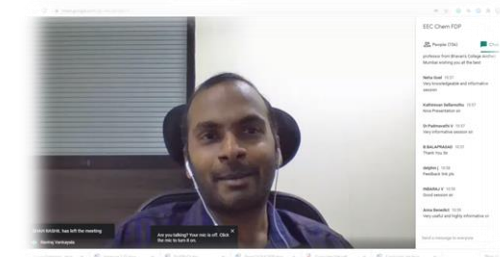
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# International Virtual Faculty Development Programme On Applications of Advanced Materials and Technologies in Chemical Science

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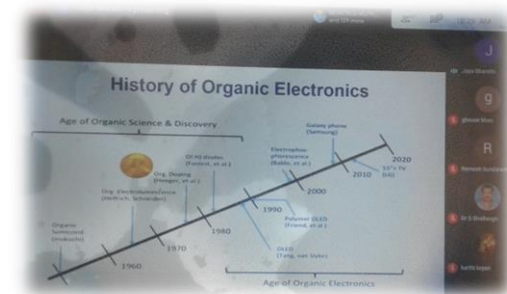
The Department of Chemistry has organized five days International Virtual Faculty Development Programme on 'applications of advanced materials and technologies in chemical science' on 31<sup>st</sup> August to 4<sup>th</sup> September 2020. Each day had two invited lectures.

The first day of this programme was started with welcome address given by Dr. C. Ravichandran, Head of Chemistry Department. Subsequently, Dr. Raviraj Vankayala, Assistant Professor, Department of Bioscience and Bioengineering, Indian Institute of Technology, Rajasthan, delivered a lecture on Light-activated nanotheranostics for personalized medicine. In the afternoon session, Dr. G. Sekaran, Visiting Professor in SRMIST and former Senior Scientist in Central Leather Research Institute, Tamil Nadu gave invited lecture on a novel sludge free technology for the treatment of refractory organics containing wastewater from Pharmaceutical industry. In the second day, Dr. J. Jayabharathi,

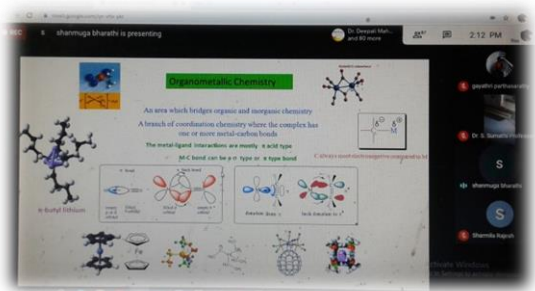


Professor & Director CIPR, Department of Chemistry, Annamalai University, Tamil Nadu, India delivered a lecture on Efficient blue emitter for white light-emitting devices. In the afternoon session, Dr. Bharath Govindan, Postdoctoral Researcher, Khalifa University, Abu Dhabi, UAE gave invited lecture on Technologies for the conversion of CO<sub>2</sub> into fuels toward climate change control.

In the third day, Dr. K. Kumutha, Professor and Head, Department of Agricultural Microbiology, Tamil Nadu Agricultural University, Madurai, Tamil Nadu delivered a lecture on Bio inoculants in sustainable agriculture. In the afternoon session, Dr. C. Vedhi, Assistant Professor, School of Chemistry, V. O. C College, Thoothukudi gave invited lecture on Nanomaterials modified electrodes for sensing of chemicals. In day four, Dr. Dennyson Savarira, Postdoctoral Researcher, Khalifa University, Abu Dhabi, UAE, delivered a lecture on Contact lenses for ocular diagnostics. In the afternoon session, Dr. K. Shanmuga



Bharathi, Assistant Professor Department of Chemistry, Periyar University, Tamil Nadu, gave invited lecture on Ruthenium sandwiches for chemical transformations. In the last day, Dr. T. Prabhakaran, FAPESP- Postdoctoral Fellow, Institute of Physics 'Gleb Wataghin' (IFGW), Universidade Estadual de Campinas (UNICAMP), Brazil delivered a lecture on Multifunctional ferrite nanostructures and applications. In the afternoon session, Dr. S. Nagarajan, Professor, Department of Chemistry, Central University of Tamil Nadu, Thiruvarur gave invited lecture on Multifunctional ferrite nanostructures.



Overall, nearly 200 participants including faculties and researchers were attended this faculty development programme. In each session, participants were fruitfully interacted with speakers. The key note address by eminent speakers in the technical session has enriched the scientific knowledge in the emerging areas.

### **A new electrochemical drug sensor reported**

A research papers entitled "Voltammetry Determination of Cefotaxime on Zinc Oxide Nanorod Modified Electrode" was published by **V. Vanitha and C. Ravichandran** in *Current Pharmaceutical Analysis* (Impact Factor: 0.923), Volume 17, 31-37: 2021.

### **Studies on TiO<sub>2</sub> based composites was published**

A research paper entitled "Synthesis, spectral, thermal studies and dielectric behavior of functionalized TiO<sub>2</sub>-loaded diglycidyl epoxy nanocomposite film" was accepted in *Polymer Bulletin* (2.014). The authors on this paper are **P. Nisha, S. Suresh, K. Jayamoorthy, K.I. Dhanalekshmi and C. Ravichandran.**

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### **Participation in Conference/Webinar/Faculty Development Programme**

Dr. K. Saravanan has participated in an International Web-Conference on Recent Trends in Scientific Research, organized by Postgraduate and Research Department of Chemistry, Dr. Ambedkar Government Arts College 3rd & 4th August 2020.



Dr. K. Saravanan has participated four webinars such as 'Wellness webinar on yoga connecting body and mind (28.08.2020, S.A. Engineering College), Molecular Dynamics simulation and its application in characterizing composite materials, (20.08.2020, Easwari Engineering College), Role of lasers in defence, (18.08.2020, St. Joseph's College of Engineering) and Diagnostic applications of radiation, (07.08.2020, St. Joseph's College of Engineering).

Dr. M.J. Shanmugam has participated in a webinar on Recent Advancements in Supercapacitor Electrode Materials, Nehru Institute of Engineering and Technology (17.09.2020)

Dr. K. Saravanan has participated in a FDP on Advances in computational and experimental research in physics, organized by SRM institute of Science and Technology (27.07.2020 to 08.08.2020)

Dr. B. Shanthi has participated in a FDP on Applications of remote sensing in soil and groundwater contamination assessment, organized by Sri Krishna College of Engineering and Technology (27.07.2020 to 01.08.2020)

Dr. K. Saravanan has participated in a FDP on Challenging role of chemistry in drug design and development, organized by K.S. Rangasamy College of Technology (10.08.2020 to 14.08.2020)

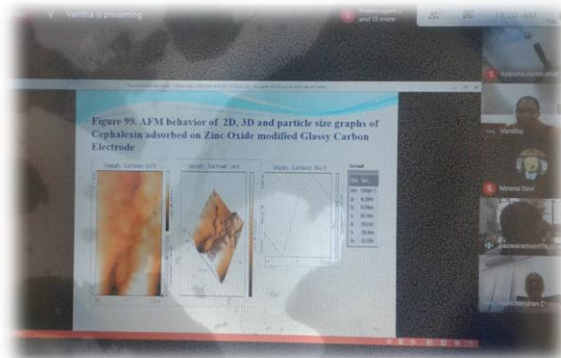
Dr. K. Saravanan has participated in a FDP on Smart and Nano Materials, organized by Easwari Engineering College (14.09.2020 to 18.09.2020). Dr. K. Saravanan has participated in a FDP on Frontiers in Chemistry, organized by St. Joesph's College of Engineering (16.09.2020 to 18.09.2020).



# Doctoral Students have completed Viva-Voce Examination



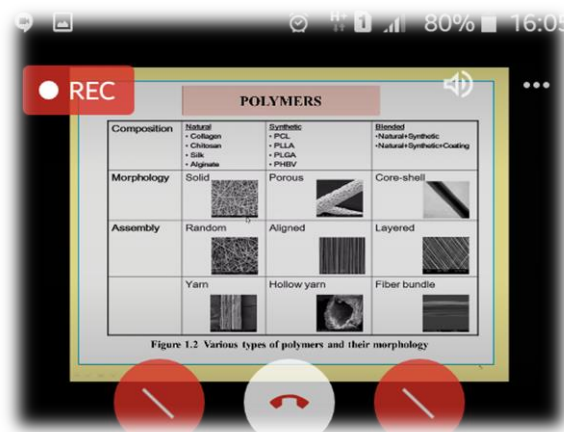
## Mrs. V. Vanitha



Mrs. V. Vanitha, the doctoral student (Part-time) of Dr. C. Ravichandran, Professor and Head, the Department of Chemistry, Easwari Engineering College has completed Ph.D. Viva-voce examination on 14<sup>th</sup> October 2020. The title of the Ph.D. thesis is 'Electroanalysis of antibiotics on metal oxide nanoparticles modified glassy carbon electrode'. This examination was conducted through online mode. Mrs. V. Vanitha was successfully defended her Ph.D., viva voce examination and thus external examiners recommended for Ph.D., award.

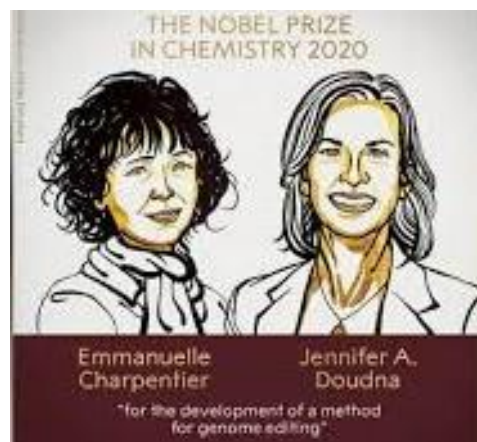
## Mrs. K. Seethalakshmi

Mrs. K. Seethalakshmi, the doctoral student (Part-time) of Dr. B. Venkadachalopathy, Professor of Chemistry, Easwari Engineering College has completed Ph.D. Viva-voce examination on 22<sup>nd</sup> September 2020. The title of the Ph.D. thesis is 'Nanofibers for Biomedical Applications'. This examination was conducted through online mode. Mrs. K. Seethalakshmi was successfully defended her Ph.D., viva voce examination and thus external examiners recommended for Ph.D., award.



## The Nobel Prize in Chemistry 2020: Genetic Scissors: A Tool for Rewriting the Code of Life

Emmanuelle Charpentier and Jennifer A. Doudna have discovered one of gene technology's sharpest tools: the CRISPR/Cas9 genetic scissors. Using these, researchers can change the DNA of animals, plants and microorganisms with extremely high precision. This technology has had a revolutionary impact on the life sciences, is contributing to new cancer therapies and may make the dream of curing inherited diseases come true.



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