



JSS MAHAVIDYAPEETHA

JSS COLLEGE OF ARTS, COMMERCE & SCIENCE

(An Autonomous College of University of Mysore)

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Re-accredited by NAAC with 'A+' grade (CGPA 3.30)

Recognized by UGC as "College with Potential for Excellence"

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Report of
Two Day National Conference on 'Current Trends and
Future Opportunities in Chemical Sciences'
on
13 & 14 March 2026

Two day National Conference on 'Current Trends and Future Opportunities in Chemical Sciences' was organized by IQAC and PG Department of Chemistry.

The programme was **inaugurated by Prof. K S Rangappa, Former Vice-Chancellor, University of Mysore, Mysuru**, and delivered inaugural address. The conference comprised of **five technical sessions, Oral and Poster presentations** (from Faculty, research scholars and PG Students).

Prof. Rangappa highlighted that the study of matter at the molecular level is fundamental to advancements in therapeutic inventions, material analysis, and various modern applications. Prof. Rangappa also pointed out that current research in chemical sciences plays a vital role in the development of energy storage devices, sensors, biomarkers, and biomolecules. Stressing that science thrives on curiosity, he underlined the importance of green and sustainable chemistry, stating that the future of chemical sciences must align with sustainability and the development of clean energy sources. He further observed that chemistry is increasingly integrating with emerging areas such as artificial intelligence and data science, and encouraged researchers and scientists to strengthen collaborative efforts to achieve meaningful and high-quality research outcomes.

The President of the inaugural function, the Chief Executive Prof. B. V. Sambashivaiah, called upon the participants to effectively utilize the opportunities available in interdisciplinary areas such as analytical development, pharmaceutical research, drug discovery, bio-inorganic chemistry, polymer science and material science. He emphasized the crucial role of chemistry in

the discovery of new drugs and the development of advanced materials, noting that modern research techniques are driving innovative scientific breakthroughs. Prof. Sambashivaiah also highlighted that chemists must follow systematic research approaches to discover new knowledge and contribute meaningfully to the field of science.



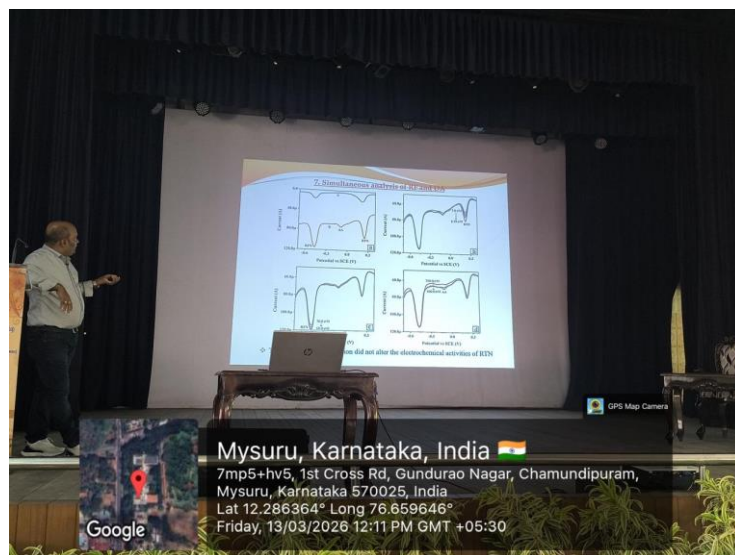
The Principal of the College Dr. M. Prabhu welcomed. Dr. Mallesha L, Convener and Dr. N. Rajendraprasad, IQAC Coordinator, Dr. Pushpanjali P A, Dr. H.V. Kavya were present. Ms. Preethi M nandoor of MSc Chemistry compered. Ms. Ankitha Kulkarni proposed vote of thanks.

A total of 25 teachers and 202 research scholars and students from different parts of the country took part in the conference.

On **Day 1, 13th March 2026**, a technical session on “*Advances in Biosensing: Cyclic Voltammetry-Based Strategies for Sensitive Electrochemical Detection*” was delivered by **Dr. J. G. Manjunatha**, Associate Professor, Department of Chemistry, FMKM Cariappa College, Madikeri.

He explained about the rapid and reliable detection of biologically and environmentally relevant analytes is crucial for applications in healthcare diagnostics, environmental monitoring, and food safety.. Among various electrochemical techniques, cyclic voltammetry (CV) plays a central role in investigating redox behavior, electrode kinetics, and sensor performance. In recent years, significant progress has been made in the development of CV based biosensing strategies through the integration of advanced nanomaterials, functional polymers, and modified electrode architectures. This presentation highlights recent advances in cyclic voltammetry-based electrochemical biosensors for the sensitive detection of pharmaceuticals, biomolecules, and environmental contaminants. Special emphasis is placed on the design of modified electrodes incorporating nanostructured materials such as graphene derivatives, metal and metal-oxide nanoparticles, and functionalized carbon nanomaterials to

enhance electron transfer and catalytic activity. These modifications significantly improve detection sensitivity, selectivity, and analytical performance. Furthermore, the role of cyclic voltammetry in optimizing sensor parameters, understanding electrochemical mechanisms, and evaluating sensor stability is discussed.



This session was followed by oral presentation sessions where participants presented their valuable research contributions. The day concluded with an engaging poster presentation session, providing a platform for young researchers to share their innovative ideas.



On **Day 2, 14th March 2026**, the conference continued with another stimulating technical session on “*Nanochemistry-Based Analytical Methods for Bioanalytical and Environmental Monitoring Applications*” delivered by **Dr. N. A. Chamaraja**, Assistant Professor, Department of Chemistry, JSS Academy of Technical Education, Bengaluru.

He reminded the participants that nanochemistry has emerged as a transformative interdisciplinary field enabling the development of advanced functional nanomaterials with unique physicochemical properties. These materials play a crucial role in addressing challenges related to environmental monitoring, biomedical diagnostics, and sustainable technologies. Various nanoparticles, including silver, zinc oxide, calcium oxide, iron oxide, and doped metal oxide nanostructures, were synthesized using conventional as well as green synthesis approaches. These nanomaterials demonstrate significant potential in environmental remediation and biomedical applications. Polymer nanocomposite films based on polyvinylpyrrolidone (PVP) and polyvinyl alcohol (PVA) incorporated with metal oxide nanofillers were fabricated and systematically investigated for their structural, optical, electrical, and thermal properties. The developed nanocomposites exhibited improved UV-shielding efficiency, enhanced conductivity, and superior thermal stability, making them promising candidates for optoelectronic devices and protective coatings. These findings highlight the growing significance of nanochemistry in advancing sustainable environmental and biomedical technologies.



We also had an enriching talk on “*Emerging Field of Robotics in Science and Technology*” by **Dr. M. Rakesh**, Assistant Professor and Research Coordinator, Department of Robotics and Artificial Intelligence, Dayananda Sagar College of Engineering, Bengaluru.

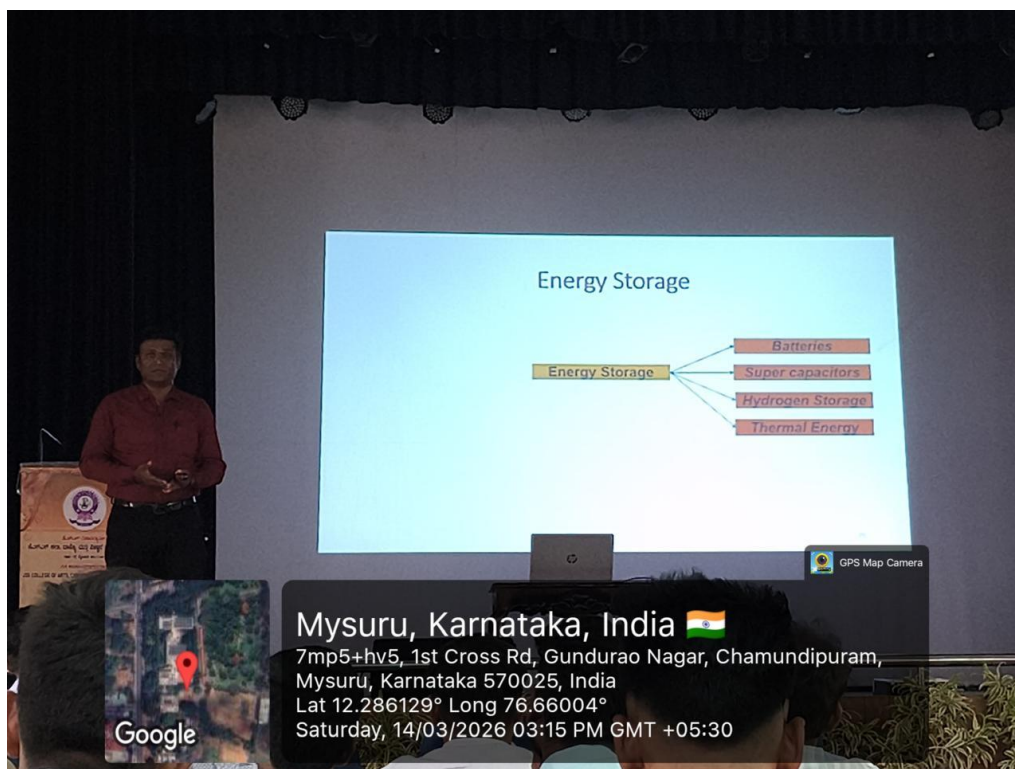
He highlighted that robotics has rapidly evolved as a key interdisciplinary field combining mechanical engineering, electronics, computer science, and artificial intelligence. Advanced areas such as autonomous robots, collaborative robots (Cobots), medical, soft robotics (flexi robots), digital twin technology, Automobile and surgical robotics, agricultural robotics, chemical engineering, pharmaceuticals, defence, space robotics, and swarm robotics are gaining significant attention. These technologies integrate machine learning, computer vision, sensor fusion, and Internet of Things (IoT) to enhance robot perception, adaptability, and efficiency. In scientific research and industrial applications, robots are increasingly used for hazardous tasks, precision manufacturing, healthcare assistance, environmental monitoring, and exploration of remote or extreme locations such as deep oceans and outer space. The rapid development of human–robot interaction and soft robotics further expands the capabilities of robotic systems. Overall, emerging robotics technologies are expected to play a vital role in advancing scientific discovery, improving productivity, and addressing global challenges in various sectors of science and technology.



At the same time, participants also delivered their oral presentations at the seminar hall.

Later in the afternoon, we also had an insightful session on “*Nanomaterials in Energy and Catalytic Applications*” delivered by **Dr. D. S. Prasanna**, Assistant Professor, Department of Applied Sciences, VTU Bengaluru Region, Muddenahalli, Chikkaballapur.

He pointed out that nanostructured materials have emerged as key functional materials for sustainable energy technologies and catalytic processes due to their high surface area, tunable electronic properties, and enhanced charge transport characteristics. Recent research focuses on the controlled synthesis and functionalization of metal and metal-oxide nanomaterials, along with hybrid nanocomposites prepared through chemical, hydrothermal, and green synthesis approaches. Tailoring the morphology, defect structure, and surface chemistry of these nanomaterials plays a critical role in enhancing their catalytic and electrochemical performance. The improved catalytic activity arises from enhanced light absorption, efficient charge carrier separation, and the availability of abundant active sites on nanostructured surfaces.



Another remarkable lecture was delivered by **Dr. K. Muruga Poopathi Raja**, Professor and Head, Department of Chemistry, Central University of Kerala, on “*Design of Peptidomimetic Ligands for Alzheimer’s Disease: A Computational and Chemical Biology Approach.*”

He described that Dementia is a clinical syndrome (a group of co-occurring signs and symptoms) that involves the progressive deterioration of intellectual function. Various cognitive abilities can be impaired with dementia, including memory, reasoning, attention, decision making, visuospatial function and orientation. Alzheimer’s Disease (AD) age-related dementia. Which is caused by **Beta site Amyloid precursor protein Cleaving Enzyme 1 (BACE1)**, It is also called as β -secretase, Asp2 and Memapsin 2 which cleaves a type-I membrane-bound protein called Amyloid precursor protein (APP). The cleavage of APP by BACE1 produces $A\beta_{42}$ or $A\beta_{40}$ peptide fragments. The accumulation of $A\beta$ peptides forms Exo cellular plaques called senile plaques and Neurofibrillary tangles in the brain and causes neuronal cell death which leads to dementia and ultimately death. In non-Amyloid pathway APP cleaved by two proteases α -secretases followed by the γ -secretase and produces sAPP β which is a soluble form of APP. In Amyloid pathway APP is cleaved by α -secretase followed by β -secretase.



In Valedictory, **Dr. Mallesha L.**, Convener welcomed. Valedictory session was presided by **Dr. M. Prabhu**, Principal, **Dr. K. Muruga Poopathi Raja**, Professor and Head, Department of Chemistry, Central University of Kerala, they were distributed the Prize amount & Certificates for the Oral/Poster Presentation winners. **Dr. Pushpanjali P. A.**, Organizing Secretary, read the concluding remarks and **Dr. H.V. Kavya**, Organizing Secretary proposed vote of thanks.

Cash prizes were awarded to both oral and poster presenters, including first prize, second prize, two third prizes, and consolation prizes in each category.

PRIZE WINNERS OF ORAL PRESENTATION

Sl. No.	Prize	Name	Address	OP No.
1	1 st Prize	S V NAVEENA	Department of Chemistry, Central University of Karnataka, Kalaburgi	OP-11
2	2nd Prize	GIDDAERAPPA	Nano Material Research Laboratory, Yenepoya University, Mangalore	OP-01
3	3rd Prize	B SHREESHARAN	Postgraduate Department of Physics, JSS College, Mysuru	OP-15
4	3rd Prize	SANJAY JAGANNATHA	Jain University, Bengaluru	OP-08
5	Consolation Prize	M B SHIVASWAMY	Department of Chemistry, JSS Science and Technology University, Mysuru	OP-28

PRIZE WINNERS OF POSTER PRESENTATION

Sl. No.	Prize	Name	Address	PP No.
1	1 st Prize	SHREYAS D	Jain University, Bengaluru	PP-26
2	2nd Prize	YASHIKA P B	NMAM Institute of Technology, NITTE (Deemed to be University), Nitte	PP-31

3	3rd Prize	D. SUMANTHA	FMKMC College, Madikeri	PP-22
4	3rd Prize	THEERTHA THANGAMMA	JSS Science and Technology University, Mysuru	PP-07
5	Consolation Prize	GAGANA R	Jain University, Bengaluru	PP-05

In the formal valedictory function the prizes have been awarded to the winners of oral and poster presenters. To the 1st, 2nd, 3rd & consolation prize winners, Certificates and cash of Rs. 1000/-, Rs.750/- and Rs. 500/- were awarded correspondingly & Participation certificates were given to the students.

We hope that the knowledge shared during these two days will inspire further research collaborations and innovations in chemical sciences.

Dr. H V Kavya
Organizing Secretary

Dr. P A Pushpanjali
Organizing Secretary