

CSIR Foundation Day Celebration

सी एस आई आर – संरचनात्मक अभियांत्रिकी अनुसंधान केंद्र, चेन्नई
CSIR-Structural Engineering Research Centre, Chennai

सी एस आई आर मद्रास कॉम्प्लेक्स
CSIR Madras Complex
28 September 2022

India Ka Mahotsav



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CSIR FOUNDATION DAY

The CSIR foundation day, was celebrated with great enthusiasm on 26 and 28 September 2022, at the CSIR Campus in Taramani, Chennai by CSIR-Structural Engineering Research Centre (CSIR-SERC) and CSIR Madras Complex (CMC).

Open Day was observed on 26 September 2022, at CSIR Campus, Taramani, Chennai, by CSIR-Structural Engineering Research Centre (CSIR-SERC) and CSIR Madras Complex comprising the regional units of CSIR-CECRI, CSIR-CEERI, CSIR-CSIO, CSIR-NEERI and CSIR-NML.

All laboratories in the CSIR Campus were kept open for the general public between 9.30 am and 4 pm. Elaborate arrangements were made to receive the visitors. Technologies, products and state-of-the-art facilities were showcased and demonstrated for the benefit of the visitors. Around 8000 visitors including school and college students, teachers, professionals from the industry, entrepreneurs and general public visited the campus with great enthusiasm. They had first-hand glimpse of multifarious and multi-discipline R&D programmes currently going on in the laboratories and the technologies developed. The visitors showed keen interest and passionately interacted with the scientific staff.



CSIR MADRAS COMPLEX

Council of Scientific & Industrial Research
Taramani, Chennai - 600113.

CSIR FOUNDATION DAY CELEBRATION

The foundation day function was held on 28 September 2022 and was presided over by Dr. N. Anandavalli, Director, CSIR-SERC and Coordinating Director, CMC. Shri U.K. Bhattacharya, Director-Projects, NTPC, New Delhi was the chief guest of the function who delivered the Foundation Day Lecture.

As a part of the function, Director, CSIR-SERC and Coordinating Director, CMC, honoured the employees of CSIR-SERC and CMC, who have superannuated during the past one year. The employees who have completed 25 years of service in CSIR were also felicitated. Cash and studentship awards were also presented to the wards of the employees of CSIR-SERC and CMC for their meritorious educational and sports achievements.

Every year, as a part of CSIR foundation day celebrations, an inter-school quiz programme, Eureka, and CSIR open day science competitions for the wards of employees of CSIR-SERC and CMC are organized. This year, Eureka 2022 was organized on 15 September 2022 at the CSIR Campus. Around Forty schools from in and around Chennai participated in the event. CSIR open day science competition was held on 21 August 2022 at the CSIR campus and more than 100 students participated. Prizes were distributed for the winners of the competitions on 28 September 2022, during the foundation day function by Dr. N. Anandavalli, Director.



HINDI FORTNIGHT CELEBRATION

Hindi Fortnight was celebrated in the campus, jointly by CSIR Madras Complex and CSIR-SERC during 1.09.2022 to 14.09.2022. Various Competitions in Hindi was conducted during the week.



As part of the Hindi Fortnight Celebrations, a Scientific and Technical Seminar was organized on 14th Sep 2021 with the theme “75 years of Independence: Contribution of CSIR in Nation building”. Around 15 Scientists from CSIR-SERC, CSIR-CMC and CSIR-CLRI presented their R&D work related to the theme. A “Kavi Sammelan” was also organized on 13 Sep 2022 as part of this celebrations.



The valedictory function was held on 23 Sep 2022 at the Vigyan Auditorium. Prof. (Smt) Chitti Annapoorna, Prof. and Head, Department of Hindi, University of Madras was the Chief Guest and delivered the Hindi Fort-night Lecture. Dr. N. Anandavalli, Director, CSIR-SERC and Co-ordinating Director, CMC presided over the function and distributed prizes to the winners of the competitions etc. Smt. Vani Satyanarayana, Hindi Officer presented the report of Hindi Implementation.



VIGILANCE AWARENESS WEEK

Vigilance Awareness Week was conducted in the campus during 10.10.2022 to 1.11.2022. The event began with the Pledge taking, workshop, lecture, invited talk, debate competitions among staff members. The valedictory function was organized on 4.11.2022. Dr. N. Anandavalli, Director, CSIR-SERC and Coordinating Director, CMC presided over the function and Shri E. Ramachandramoorthy, DSP, DVAC, Chennai was the Chief Guest and delivered the Valedictory address. The program was held at Vigyan Auditorium. Prizes were also distributed to the winners of various competitions including students of KVCLRI.



Vigilance Awareness Week Pledge & Events

Fit India Freedom Run 3.0

Fit India Freedom Run 3.0- Azadi ka Amrit Mahotsav was organised in the Campus on 31.10.2023

**Gandhi Jayanthi as SHRAMDHAN DAY**

Gandhi Jayanthi on 2nd Oct 2022 was observed as “SHRAMDHAN DAY” in the campus. Cleanliness drive and Swachhata Shapath (Pledge) was taken by all present.



Floral Tribute to Mahatma Gandhi by the Coordinating Director



Swachhata pledge being administered Coordinating Director



Unity Walk



Tree Planting



Cleanliness Drive



Cleanliness Drive

Technology Demonstrated

India's first indigenously developed and manufactured hydrogen fuel cell bus.

On August 21, 2022, Messrs KPIT Technologies, Pune, displayed India's first hydrogen fuel cell bus using the fuel cell technology that CSIR-CECRI, CSIR-NCL and KPIT Technologies jointly developed. Dr. Jitendra Singh, the Union Minister for Science and Technology, unveiled and launched the Bus. In this project the fuel cell technology with thin metallic plates was developed and tested for their durability at CSIR-CECRI Madras Unit.



Demonstration of prototype of Fuel cell Vehicle on 21st 2022

Visit of Professor N. Kalaiselvi, Director General, CSIR, and Secretary, Department of Scientific and Industrial Research, on 3rd November 2022.

Dr. K. Ramesha, Scientist In-charge, and staff members of CECRI Chennai Unit, extended their warm welcome to the Director General, CSIR. Dr. K. Ramesha appraised the present activities of the Unit. In particular, he briefed about the progress made in the ICeNGESS project. The DG interacted with the staff members, in which she lauded the efforts and achievements made by the Unit and requested to continue the same in the future.

Indo-German Science and Technology Centre (IGSTC) conducted a meeting on 10th October 2022 at CECRI Unit, Chennai.

Dr. K. Ramesha, Scientist In-charge, and staff members of CECRI Chennai Unit, extended their warm welcome to Sri Madan, Director, IGSTC, and Dr. Rupak Bhattacharya, Scientific officer, IGSTC. Dr. K. Ramesha also extended warm welcome to Prof. Nagesh Iyer, (former Director of SERC) and Prof. M. Pradeep Mujumdar, Head of Civil Engineering, IISc, Bangalore, who were accompanying the IGSTC team. Dr. A. S. Prakash and Dr. K. Ramesha briefed the team about the progress made in the on-going Indo-German bilateral project "Advanced Lithium Ion Transporting Solid Electrolytes for Solid-State Lithium Batteries (SELBA)". The delegates interacted with CECRI scientists and praised the work done in the project. In the same meeting the delegates also reviewed progress made in the Indo-German bilateral project entitled "Clean Water", coordinated by IITM, where CSIR-SERC is a stakeholder.

Academic visits and talks

1. Dr. A. S. Prakash delivered a talk entitled, "Batteries for EVs", during the IGSTC Outreach event on 26th September 2022 at Fairfield by Marriot, Coimbatore.
2. Dr. A. S. Prakash delivered an invited lecture entitled, "Electrochemical Energy Conversion and Storage" at a National Seminar organized by the Naval Science & Technological Laboratory (NSTL) under the aegis of DRDO at Visakhapatnam on 28th and 29th September 2022.
3. Dr. Santoshkumar D. Bhat delivered an invited talk entitled, "Polymer Electrolyte Fuel Cells: Research Opportunities and Technology Challenges" at Poornaprajna Institute of Scientific Research, Bengaluru, on 20th October 2022.
4. Dr. A. S. Prakash delivered an invited lecture during the "Two-days Awareness-cum-Workshop Programme on 'Electric Vehicles, Charging Infrastructure and Renewable Hybrid Energy' in North East India", during 9th and 10th November 2022 at the City Convention Centre, Imphal, jointly organized in association with the State Transport Department, Manipur, and the CSIR laboratories, Indian Institute of Petroleum, Dehradun, and North East Institute of Science and Technology, Jorhat.
5. Dr. Santoshkumar D. Bhat delivered an invited talk entitled, "Role of Hydrogen in Energy Transition" at the Hyatt Centric, New Delhi, during the "Coal Gasification India Meet" on 16th November 2022, during an online refresher course in Environmental Studies, organised by the UGC Human Resource Development Centre, Mumbai.
6. Dr. A. S. Prakash, represented as an Expert Member and Jury, for the EV Innovation Challenge – EVangelise'22, held during 19th and 20th December 2022 at the iCreate campus, Dev Dholera. A mega event, with participation of eminent members from the EV Ecosystem including the international thought leaders, Industry partners, Start-ups, Investors, incubators, policy makers and more.

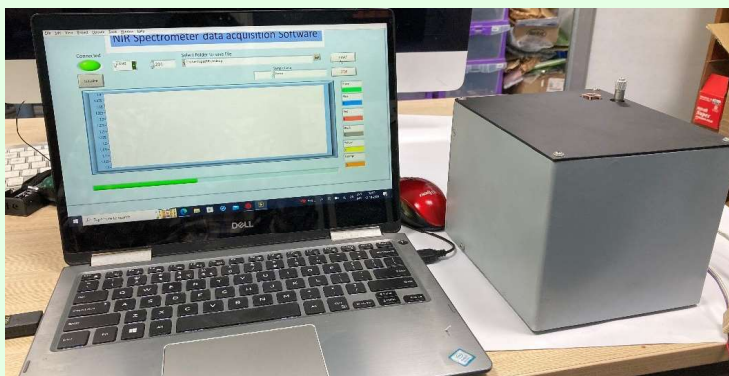
R & D news

1.1 Development of portable NIR spectrophotometer

Objectives: Design and Development of optical bench for near infrared spectrum measurement. Prototype development of portable NIR spectrophotometer (Multiple prototype). Design and development of GUI for evaluation, plotting and spectral pre-treatment measured spectra.

Deliverables : Prototype of portable NIR spectrophotometer. GUI software for NIR spectra acquisition, visualization, spectral pre-treatment and saving.

Work Progress: The interface software and firmware has been designed for Cortex-M4F based microcontroller. The firmware has been tested to electronic subsystem. Design and fabrication of battery management unit has been completed. Fabrication and testing of electronic subsystem, optical subsystem has been completed. Initial hardware prototype of Portable NIR spectrophotometer with Wi/Fi and USB interface has been fabricated. The initial prototype is shown in fig.1. Alignment and wavelength calibration of optical components and detector element is in progress. GUI has been developed for collecting the spectra on Desktop computer/laptop.



Demonstration of prototype of Fuel cell Vehicle on 21st 2022

1.2 Development of Plastic Sorter

CSIR-CEERI is developing a system capable of identifying mono-layer polymers on a moving conveyor. The developed system can perform inline/live characterization of plastics moving on a small conveyor unit. For characterisation of the plastics, Near Infrared Spectroscopy (NIRS) is used. To improve the accuracy of classification AI-based data modelling has been used. The models have been developed with the help of sample set containing over 5000 NIRS signatures. The software has been developed using the open source scripting tool Python. The programs have been optimised for efficient computation on CPU/GPU platforms.

Currently designs for a full-scale mechanical/mechatronic model is being performed.

Shri. Vikas C M, Founder & Director, Welt Recycling Private Limited

(<https://www.welt-recycling.com/>), Chikmagalur has come forward to take the technology to identify & sort cleaned and washed mono-layer hard plastics (PET, HDPE, LDPE, PP) and commercialize it. He has received an Idea2PoC grant by the Startup Karnataka cell.



Shri. Vikas, discussing with team regarding the plastic sorting system

Important Events

Conducted a 5-days Faculty Development Program on “THz Spectroscopy & Imaging” with hands-on sessions from Dec 19th to 23rd, 2022.

Participation in Seminars/Conferences/Workshops/Symposia etc. :

Participant's Name	Conference, Place and Date
A. Mercy Latha	47th international conference on infrared, millimeter and terahertz waves (IRMMW- THz) 2022, Delft, 28th Aug to 2nd Sep, 2022 (participated online)

Conference :

Name of the author(s)	Title of the Topic	Venue	Date
A Mercy Latha, Swapna Esampelly, AS Nirmala Devi	Terahertz Image Reconstruction using Compressive Sensing	Delft, Netherlands	28.8.2022

Major Highlights

- The technology, Induction Motor Stethoscope (MSOCPE), developed by CSIR-CSIO, Chennai Centre is transferred to M/s. Intellimax Labs Private limited Bengaluru on 30.09.2022.



- CSIO, Chennai Centre in association with M/s. TeckXpert has organised Technologist-Industrialist Meet & Expo (TIME-2022) event from 30th September to 1st October 2022 to showcase technologies developed by CSIR-CSIO. The event was inaugurated by Comde. Sh. B. Balasundaram, Overall Head for Machinery trial Unit, Southern Region Indian Navy, presided over by Director CSIR-CSIO. As a part of the program, the technologies developed by CSIR-CSIO, participating units of the CMC and the products of CSIO Licensee and other manufacturing industries were showcased. On the second day of the program, different technical lectures and presentations were delivered by the experts. A brainstorming session with manufacturing and service industries to address their issues was held to conclude the event. 230 participants from various manufacturing industries, academic institutions and Licensees of CSIO have attended the program.

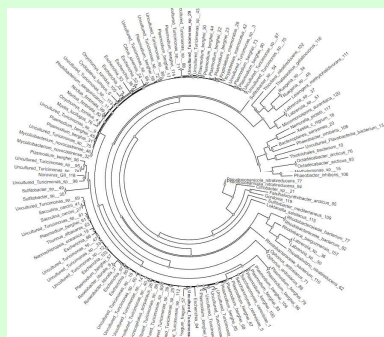


- During September 2022, the Calibration laboratory of the CSIO, Chennai Centre has been accredited in accordance with the standard ISO/IEC 17025:2017 by NABL.
- CSIO, Chennai Centre participated in the TIME2022 event organised by CSIR-CSIO, Chandigarh during 2 – 3, December 2022 and demonstrated tFOCUS, iAQMS, MSCOPE, Viroxygelly, Fluoropath and Air Sampler technologies to the event participants.



On-going R&D Activities

- Centre of Excellence for Fireworks at Sivakasi, Tamilnadu: Foundation stone for RACE facility (Raw materials/Chemicals Composition & Emissions Testing Facility) as Centre of Excellence (CoE) has been laid at Sivakasi. This CoE will cater to the needs of various fireworks manufactures in India. The correlation between composition and emissions of fireworks will be developed, which will be used to control the emissions of fireworks.
- Participation in Hydrogen Mission: CZC, CSIR-NEERI is currently participating Hydrogen mission program, one of the national-level important activities in India. Low-cost electrodes with minimum Platinum loading are being developed under this project.
- Water quality management: CZC, CSIR-NEERI is involving several NGT hearings (Kuzhikandam Thodu, Kerala, Sarkar Periyapalayam Lake, Tamilnadu, etc.) and providing recommendations about the water quality of various water bodies to the authorities.
- Supporting of Industries: CZC, CSIR-NEERI is currently addressing the issues with the products/effluents of Industries. CZC, CSIR-NEERI is trying to address the issues with the products of TTK Healthcare Ltd.
- CSIR-NEERI, Chennai Center as a part of the project with CSIR-CCMB, Hyderabad is carrying out a project on “Surveillance of SARS-COV2 and Antibiotic Resistant Bacteria (ARB) in Wastewater”. Major drains and Nallahs of Chennai city are being sampled every week to monitor the presence of COVID genetic material and as well as the emergence of antibiotic resistant bacteria. CSIR-NEERI, Chennai Center has successfully performed 50 weeks of sampling and has characterized antibiotic resistant bacteria. Research outcome of this study has indicated the prevalence of multi-drug resistant bacteria to be prevalent in all the samples analyzed.



- CSIR-NEERI Chennai Center has proposed to assess lead contamination at Universal Lead Alloys, Ranipet under the direction of TNPCB and National Green Tribunal.
- CSIR-NEERI Chennai Center as a part of Waste to Wealth mission is undertaking studies to convert banana peel waste in to useful products such as agarbakthi's at Palani Temple, Tamilnadu.



NML's Contribution to Technology developed from R&D project:

- NML Madras Centre achieved another milestone by successfully developing a graphene-based membrane technology for water purification from low-grade graphite ore using natural source-based reagents for flotation as an outcome of project sponsored by Ministry of Mines in collaboration with CSIR-NIIST, Thiruvananthapuram.

New Projects initiated:

- “Failure Investigation of Molybdenum electrode in Glass Melting Furnace” (Sponsored by M/s The New India Assurance Company Limited, Chennai)
- “Failure analysis of rollers in slew bearings & Raceways in slew bearings of Gottwald-make harbor mobile crane” (Sponsored by M/s The New India Assurance Company Limited, Neyveli.

Awards:

- Dr. M. Ananda Rao received S. P. Mehrotra Award 2022 for the best colloquium among the scientists of NML.
- Dr. Ajita Kumari received the ‘Best Paper Award’ during the 37th National Convention of Chemical Engineers and National Seminar on “Battery Energy Storage System” organized by The Institution of Engineers (India) Tamil Nadu State Centre, Anna University, Chennai, Tamil Nadu held during 9th - 10th September 2022 for the paper titled “Neural network-based sensitivity analysis and process modelling of carbon recovery from processing plant sludge” co-authored by N. Vasumathi, D.S.V. Abhishek, T. V. Vijaya Kumar.

Course attended:

- Dr. Ajita Kumari and Dr. Mousumi Gharai attended the online short-term course on ‘Deep Learning Algorithms and Applications in Engineering and Sciences’ Organized by the Department of CSE, NIT Warangal & Department of CSE-AI & ML, SNIST in association with the Center for Continuing Education, National Institute of Technology Warangal from 28th November 2022 to 3rd December 2022

Invitation:

- Dr. T V Vijaya Kumar, Chief Scientist and Scientist In-Charge was the Chief Guest for the Manak Manthan programme on “Stainless Steel Utensils - Specification” as per IS 14756:2022. The programme was organized on 24.11.2022 by the Chennai branch office of the Bureau of Indian Standards at Hotel Turyaa, Rajiv Gandhi Salai, Perungudi, Chennai.

**Conferences attended:**

- Dr. Ajita Kumari attended and presented a paper on “Enrichment of low-grade grade graphite utilizing plastic waste derivatives for battery application” co-authored by N. Vasumathi, DSV Abhishek, K. Chennakesavulu and T V Vijaya Kumar at the 37th National Convention of Chemical Engineers and National Seminar on “Battery Energy Storage System” organized by The Institution of Engineers (India) Tamil Nadu State Centre, Anna University, Chennai, Tamil Nadu, held during 9th - 10th September.
- Ms. N. Vasumathi attended the Chemical Engineering Congress & 75th Annual Session of Indian Institute of Chemical Engineers, CHEMCON – 2022 held at Kanpur, UP, during 27 - 30 December 2022 and presented a paper on “Development and application of leather processing waste-based biodiesel as flotation reagent for graphite ore beneficiation” co-authored by Ajita Kumari, Brindha V., Vedaraman N., Vijaya Kumar T V., Gopalkrishna S J.,

INFORMATION PERTAINING TO RECRUITMENT, PROMOTION, RETIREMENTS ETC. FOR THE PERIOD 01.07.2022 TO 31.12.2022 IN RESPECT OF COMMON SERVICES AND THE PARTICIPATING UNITS OF THIS COMPLEX IS AS BELOW :

APPOINTMENTS :-

S.no	Name & Designation	Date of Joining	Unit
1.	Dr Mousumi Gharai , Scientist	25. 08. 2022(F/N)	CSIR-NML

PROMOTION/FINANCIAL UPGRADATIONS

S.no	Name & Designation	Pay	Date of Promotion/ MAC	Unit
1.	Dr. M. V. Ananth(Late), Chief Scientist	Pay Matrix Level – 14 Rs.188200/-	21.03.2015	CSIR-CECRI
2.	Dr. V. V. Giridhar(Late), Chief Scientist	Pay Matrix Level – 14 Rs.188200/-	27.06.2015	CSIR-CECRI
3.	Smt P. Kalaiselvi, Sr. Technical Officer(3)	Pay Matrix Level –12 Rs. 86100/-	19.03.2022	CSIR-CECRI
4.	Dr. (Smt.)A. Carmalin Sophia(Late), Sr. Scientist	Pay Matrix Level –12 Rs.88700/-	14.12.2015	CSIR-NEERI
5.	Shri S. Kumaresan, MTS(MACP-II),	Pay Matrix Level – 3 Rs.36100/-	01.09.2018	CSIR-NEERI
6.	Shri C. Shyam Sunder, COA	Pay Matrix Level – 12 Rs.88700/-	18.11.2022	CMC
7.	Smt K. Mahalakshmi, FAO	Pay Matrix Level –11 Rs.88400/-	09.11.2022	CMC
8.	Dr. T.V. Vijaya Kumar, Chief Scientist	Pay Matrix Level –14 Rs.188200/-	02.11.2021	CSIR-NML

RETIREMENT/SUPERANNUATION/VRS

S.no	Name & Designation	Date of Promotion/ MAC	Unit
1.	Smt R. Usha, Sr. Technician(3)	31.07.2022(AN)	CSIR-CEERI
2.	Smt P. Sasirekha, ASO(G)	31.07.2022 (AN) (Voluntary Retirement)	CSIR-CEERI

TRANSFERS

S.no	Name & Designation	From	To	DOJ/Date of reliving
1.	Dr. Srikanth Vasamsetti, Principal Scientist	CSIR-CSIO, Chandigarh	CSIR-CSIO Chennai Unit, CMC	02.08.2022
2.	Shri A. Deenadayalan, FAO	CSIR-IICT, Hyderabad	CMC	18.11.2022
3.	Smt M. P. Geetha, COFA	CMC	CSIR-NGRI, Hyderabad	14.11.2022(AN)
4.	Shri Arvind Kumar Khandelwal, Technical Officer	CSIR-CEERI, Pilani	CSIR-CEERI Chennai Unit, CMC	08.12.2022

DEATH

S.no	Name & Designation	Date of Resignation	From
1.	Shri K. Balamurugan, Sr. Technician(2) Group II(4) (Driver)	21.10.2022	CSIR Madras Complex, Chennai

Independence Day Celebrations



Dr. N. Anandavalli, Director CSIR-SERC and Coordinating Director, CMC, hoisting the National flag and addressing the gathering on the eve of Independence day-2022