



September 2020
Volume 1 Issue 1

A monthly e-newsletter of CSIR-CECRI
—compilation of significant happenings—

79th CSIR Foundation Day Celebrations

CSIR-Central Electrochemical Research Institute (CSIR-CECRI), Karaikudi celebrated the **79th Foundation Day of Council of Scientific and Industrial Research (CSIR)** with usual gaiety, on virtual mode concerning the pandemic situation. In his welcome address, Dr. D. Velayutham, Chief Scientist, CSIR-CECRI travelled down the memory lane and shed light on the birth history of CSIR, which became a reality on 26th September, 1942.



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*“to serve society
through science and
tools of science for
public good”*

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Dr. (Mrs) N. Kalaiselvi, Director, CSIR-CECRI, in her presidential address, recalled the seminal contributions of CSIR and the significance of CSIR Labs in rising to fulfil the needs of society through their scientific interventions.

She highlighted the Mantra of **Self Reliance** by our Hon'ble Prime Minister and the R&D activities of CSIR-CECRI towards realizing it by striving to be the **Centre of Excellence** in the areas of Energy and Metallurgy. She gave examples of establishment of incubation centres to nurture fundamental and technological research in this regard. By sponsoring candidates for their research, private industries and the host institutions can mutually gain a lot and diversify to extend the areas of research catering to the pressing needs of the society, she opined.

Dr. R. Mukundan, MD and CEO of Tata Chemicals Limited (TCL), Mumbai was the Chief Guest and delivered the 79th CSIR Foundation Day Lecture. Citing the recent trends set by CSIR, particularly in the present pandemic period, he remarked that a new CSIR has born with a vibrant leadership and energetic researchers.

Both CSIR and TCL are working on a common agenda - **to serve society through science and tools of science for public good** - towards a common goal, he added. He recalled the association of TCL with CSIR-CECRI on corrosion science and engineering in the past and on energy storage at present. He appealed to all the participants to join hands in creating a *net zero carbon world*, so that the passionate dream of our Hon'ble PM to be the **First**

Carbon-free Country can become true.

Dr. D. Singh, CMD, Indian Rare Earths Ltd., Mumbai and Dr. Rahul Walawalkar, MD, Customized Energy Solutions India Pvt. Ltd. and President, India Energy Storage Alliance and Chair, Global Energy Storage Alliance, Pune took part as the Guests of Honour and briefed the audience on the pivotal role of CSIR-CECRI in setting the standards on e-mobility and its crucial role to play in developing an **Energy Independent India**.

On this occasion, the Annual Report (2019-20) of CSIR-CECRI was also released by Director, CSIR-CECRI. The event concluded with vote of thanks by Shri. C. Shyam Sunder Administrative Officer, CSIR-CECRI.

Dr. Harsh Vardhan, Hon'ble Union Minister for Science and Technology graced the Foundation Day Celebrations at CSIR HQ, New Delhi on September 26, 2020 and conferred various awards and prizes including CSIR Young Scientist Awards, CSIR Technology Awards and CSIR Innovation Awards. Prof. Ajay K Sood FRS, IISc Bengaluru delivered the CSIR Foundation Day Lecture on **Science Without Borders**.

At Karaikudi, staff members of CSIR-CECRI who have completed 25 years of service and those who retired from service during 2019-20 were felicitated with a memento, shawl and sammaan patra by Director, CSIR-CECRI. Wards of Staff Members who excelled in their curricular activities during 2019-20 were also felicitated during this event.



CSIR's Brainstorming on “Atmanirbhar Bharat: Energy Management and Energy Storage Devices”



CSIR organized a one day Online Brainstorming Session on **Atmanirbhar Bharat: Energy Management and Energy Storage Devices** on September 16, 2020 coordinated by CSIR-CECRI, Karaikudi.

Dr. Shekhar C. Mande, Director General, CSIR in his presidential address, recalled the significance of the term **Swadeshi** coined by Mahatma Gandhi and the need to become self-sufficient even though global village is the buzz word these days. He claimed that many global nations are closely following our footsteps in reaping the advantages in staying geographically closer.

Setting the context of the Brainstorming, Dr. (Mrs) N. Kalaiselvi, Director, CSIR-CECRI and Nodal Director of Energy (*Conventional & Non-Conventional*) and Energy Devices Theme of CSIR, kindled the focus of the participants towards our Hon'ble Prime Minister, Shri. Narendra Modi's vision to conduct periodic brainstorming on topics of national and global relevance. Considering the exploding growth in the population, vehicles, pollution levels and boom in the usage of e-gadgets etc., this brainstorming holds prime prominence and promises to provide a prudent roadmap to ensure sustainable future in energy needs, she said.

In order to nurture our biosphere and to evolve with clean energy parallelly with the green environment, we should not get entangled by the confinements

and encroachment of e-sphere into our lives, she also remarked.

Scientific lectures from eminent experts both from globally renowned scientists and outstanding industry leadership category shared their ideas and suggestions in the direction of helping the nation to ensure clean, green, affordable and sustainable energy to all its citizens in the near future.

Illuminating lectures by Speakers across the globe (Abroad: USA, Czech Republic, France, Switzerland, Singapore and Canada; India: Thermax, GAIL, Reliance, Nayara Energy, IESA and BEE) provided vital inputs and shared their research experiences & expertise and kept the 300+ participants energised throughout the day long proceedings.

Later, a detailed discussion on the Action Plan was held amongst the industry and the sub-vertical lab Directors and Nodal Scientists under the Energy theme of CSIR. Valuable inputs received from them were consolidated which will be incorporated in the roadmap of CSIR under the Energy theme to define the path ahead for the activities for further implementation. The event ended with this concluding remark by Dr. Kalaiselvi.

CSIR-HRDC, Ghaziabad helped CSIR-CECRI, Karaikudi in organizing this Brainstorming Session and CSIR-CECRI would share the action plans with CSIR HQ, New Delhi for consideration and implementation with priority.

Business Development Leads

- ❖ Online Discussion on CSIR-CECRI's Farmer Friendly Hand-held Soil Testing Kit with Sathguru Management Consultants, Hyderabad (01 Sep)
- ❖ Internal Discussion on furthering Fuel Cell Technology (03 Sep)
- ❖ Online Discussion on R&D with JSW Steel (04 Sep)
- ❖ Online Meeting with CSIR on Innovation Centre for Next Generation Energy Storage Solutions - Collaboration with TATA Chemicals Ltd. (07 Sep)
- ❖ Online Brainstorming Session on Solid Oxide Fuel Cells with CSIR-CECRI Chennai Unit (07 Sep)
- ❖ Online Discussion on R&D with TATA Chemicals (10 Sep)
- ❖ Online Discussion on Electrolytes with Prof. Saroj Kumar Nayak, IIT, Bhubaneswar (11 Sep)
- ❖ Online Meeting with BPCL Officials on Research Collaboration (21 Sep)
- ❖ Visit of Officials from Tunga, Bangalore - Discussion on Military Reserve Primary Battery (22 Sep)
- ❖ Online Discussion on Magnesium Technology with Khosmic EPC Pvt. Ltd. (30 Sep)
- ❖ NDA signed with Octillion Power Systems, Pune on Battery R&D
- ❖ NDA signed with Vinh Hao 6 Power Joint Stock company, Vietnam on corrosion studies

Updates on CSIR Theme Projects

- ❖ Online Review Meeting: CSIR Theme on Smart Manufacturing Mission (03 Sep)
- ❖ Online Meeting: CSIR Theme on Energy (Conventional and Non-Conventional) and Energy Storage Devices [E2D] Sub-Verticals (08 Sep)
- ❖ Project Completion Meeting [Online] of FTT/FTC Projects of CSIR (2nd Tranche) on Energy and Energy Devices Theme by the CSIR constituted Monitoring Committee (09 Sep)

Official Events

- ❖ Online Meeting on Incorporation of Regional Language in CSIR-CECRI Website (04 Sep)
- ❖ Interview for Engagement of Part Time Medical Officer (07 Sep)
- ❖ Administrative Collegium Meeting (07 Sep)
- ❖ Virtual Meeting on First World Solar Technology Summit (08 Sep)
- ❖ Internal Auditing (NABL) Meeting (09 Sep)
- ❖ Online Progress Review Meeting of EAC approved projects with CPWD, Trichy (11 Sep)
- ❖ Blood Sample Collection from Volunteers of CSIR-CECRI for Phenome India CSIR Cohort Project led by CSIR-IGIB on testing of antibodies against SARS-CoV-2 (17-18 Sep)
- ❖ Webinar in Tamil on "Contribution of CSIR in mitigating COVID-19" (18 Sep)
- ❖ Virtual Global Conference and Expo on World Energy Storage Day with an invited lecture by Director, CSIR-CECRI (22 Sep)
- ❖ Discussion with CSIR-ISTAD (22 Sep)
- ❖ Meeting of DG-CSIR with Lab Directors (23 Sep)
- ❖ Discussions on Jal Jeevan Mission (24, 26, 28 Sep)
- ❖ ICeNGESS: Online Pre-Indent Conference Meeting (24 Sep)
- ❖ Address by DG, CSIR on the Eve of 79th CSIR Foundation Day (25 Sep)
- ❖ Discussion with TWAD Board Officials (26 Sep)
- ❖ Introductory Discussion of DG, CSIR with Chairpersons of the newly constituted Research Councils of CSIR Labs (28 Sep)
- ❖ CSIR Young Scientist Awardees 2020 Confabulation (29 Sep)
- ❖ Discussion on VAIBHAV Summit and First Panel Discussion on Sustainable Mobilities coordinated by CSIR-CECRI, the Champion Institute in Energy, as identified by VAIBHAV (29 Sep)
- ❖ Town Official Language Implementation Committee Meeting (29 Sep)

JIGYASA Activities

- ❖ The following lectures were arranged as a part of the ongoing **CSIR-CECRI Live Webinar Series on Electrochemical Science and Technology** (every Wednesday):
 - Climate change and green energy action by Dr. S. Ravichandran (02 Sep)
 - Anodizing - an electrochemical approach to colouring by Dr. C. Jeyabharathi (09 Sep)
 - Realizing fuel cells as future energy sources : insights on fundamentals into applications by Dr. S. Vengatesan (16 Sep)
 - Electrodeposition of semiconductor nanomaterials for device applications by Dr. Subhendu Kumar Panda (23 Sep)
 - Fundamentals of Water Treatment Processes by Dr. R. Malini (30 Sep)
- ❖ A Online Workshop for Science Teachers of KVS, NVS, Govt./Govt. Aided Schools was organised by CSIR-CECRI during 14-16 Sep 2020.
- ❖ A planning session on online competitions to be conducted under JIGYASA was held on 29 Sep 2020.



Online Lectures on CSIR Guidelines for Ethics in Research and Governance

- ❖ Standing Publications, Ethics and Scientific Vigilance Committee, CSIR-CECRI organized the following lectures on **CSIR Guidelines for Ethics in Research and Governance** (virtual mode) during 24, 25 and 28 September 2020 to enlighten students, researchers and staff members :
 - *CSIR Guidelines on Publication Ethics and related Information* by Dr. N. Lakshminarasimhan (24 Sep)
 - *Good Laboratory Practices* by Dr. Subrata Kundu (24 Sep)
 - *Lecture and Demo on iThenticate Software* by Mr. S. Gunasekaran (25 Sep)
 - *Plagiarism in Scientific Publications* by Dr. M. Sathish (28 Sep)
- It was an eye-opener and enriching experience for the participants to assist them in following due diligence in their future publishing efforts.



Hindi Month Celebrations

CSIR-CECRI celebrated **Hindi Month** during 1-30 September, 2020 with a great zeal. During this celebration, various competitions in Hindi were conducted for staff members and wards.

Online Daily Quiz and Hindi Hand writing Competitions were organised for all staff members (Administrative, Scientific and Technical). R&D Poster presentation competition in Hindi was conducted exclusively for Scientists and Research Scholars. Section-wise Hindi competitions were conducted for staff members in Administration and Hindi *Kavitha Paatt* (Poetry

Recitation - through WhatsApp) for wards of CECRI Staff. A total of 92 members participated in the above competitions. Prizes will be distributed to during the Valedictory Function proposed to be held during the month of October, 2020.

Apart from this, OLIC meeting and TOLIC meeting were conducted on 28th and 29th September, respectively. It has been proposed to conduct a Joint Hindi Competition and Workshop for TOLIC and CECRI during October 2020.



Centre for Education and AcSIR Highlights

- ❖ Other State Quota Committee Meeting (09, 29 Sep)
- ❖ Faculty Meeting (28 Sep)
- ❖ Project Work and Viva-voce Online Examination for Final Semester B.Tech. Students (22 Sep)
- ❖ Online University Exams for B.Tech. Students (24, 26 and 28 Sep)
- ❖ Viva-voce Examination for Mr. K. Selvakumar was conducted on Sep 23 [Online]
- ❖ DAC meeting for Ms. P. Aarthi was conducted on Sep 23

Snapshots



Paying Tributes to Padma Bhushan Dr. RM. Alagappa Chettiar on the 79th CSIR Foundation Day



Honouring Retirees and Meritorious Wards on the 79th CSIR Foundation Day



Boomi Pooja for Electrical Sub Station II (04 Sep)



Inauguration of Music System at Canteen (23 Sep)



JIGYASA: Online Workshop for Science Teachers of KVS, NVS, Govt and Govt-aided Schools



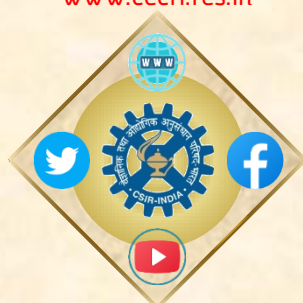
Online Lectures on CSIR Guidelines for Ethics in Research and Governance

TECHNOLOGY COMPENDIUM OF CSIR-CECRI

- ❖ Indigenous Li-ion battery
- ❖ Indigenous Sodium Ion Battery
- ❖ Performance Improved Lead Acid Battery
- ❖ Integrated Corrosion Monitoring Sensor Gadget accessible through a Mobile App
- ❖ Thermal Barrier Coatings for Strategic Applications
- ❖ Electrochemical Production of Sodium Hypochlorite as a Disinfectant (against COVID-19)
- ❖ Tri-layered reusable face mask with antibacterial coating
- ❖ Polymer Electrolyte Membrane (PEM) fuel cell
- ❖ Triboluminescent Coating and Smart Camera for Crack Detection in Structural Components
- ❖ Electrochemical Defluoridation of Drinking Water
- ❖ Solar Powered Proton Exchange Membrane (PEM) Based Water Electrolyser for Hydrogen Generation
- ❖ Cement-Polymer Composite Coating System for Corrosion Protection of Reinforcing and Prestressing Steels
- ❖ Solid Lubricant Coatings for Brahmos Missile Application
- ❖ Li Spheres for Torpedo Applications
- ❖ Electrowinning and Recovery of Tin from Primary Ore and Secondary Sources
- ❖ Electroplating of Gold, Copper and Nickel, Chromium, Zinc-Nickel Alloy; Anodizing of Aluminium; Electropolishing of Stainless Steel
- ❖ Electro-catalytic Conversion of CO₂ and butadiene to Adipic Acid; CO₂ to Formic Acid; CO₂ to Oxalic Acid.
- ❖ Farmer Friendly Soil Health (predictive) Analyzer
- ❖ Three Coat System for Steel Structures
- ❖ Inhibitor Cement Slurry Coating (ICSC) for Rebars
- ❖ Electrochemical Preparation of DL-Homocysteine Thiolactone Hydrochloride from DL-Homocysteine
- ❖ Electrochemical Perfluorination of Sulfolane to Perfluoro Butane Sulfonyl Fluoride
- ❖ Electrochemical Preparation of Calcium Lactobionate and Calcium Gluconate
- ❖ Electrochemical Production of KIO₃
- ❖ Degradable Amorphous Alloy Coatings by Sputtering for Bioimplants
- ❖ Multicoat Protective Schemes for Concrete Structures and Bridges
- ❖ Moisture Compatible Coating for Cooling Towers
- ❖ Temporary Protective Coating for Maraging Steel & 15CDV6
- ❖ Corrosion Resistant Thermal Coating for Hydroclaves
- ❖ Al-Zn-In Galvanic Alloy Anode for Cathodic Protection
- ❖ Formulation of Neutral Paint Removing Jelly
- ❖ Corrosion Resistant Inhibitive Admixtures for Portland Pozzolana Cement
- ❖ Inhibitor Admixture for Concrete
- ❖ Cost Effective Metallic Coatings to Rebars Embedded in Concrete Structures
- ❖ Redox Active Polymer Encapsulated Lamellar (REL) Compound based Anticorrosive Coating for Reinforcement Bars
- ❖ Extraction of Calcium, Magnesium by Molten Salt Electrolysis
- ❖ Extraction of Zinc oxide and Metallic Zinc from Galvanizer Ash
- ❖ Extraction of Rare Earths and Alloys by Molten Salt Electrolysis

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