Curriculum Vitae – Prof. Kothandaraman Ramanujam

Personal Information

Date of Birth	26th May 1978
Sex	Male
Nationality	Indian
E-mail I.D	rkraman@iitm.ac.in and rkraman@smail.iitm.ac.in
Phone:	044-2257 4249

Education

2006	Ph.D. Thesis title: Studies on Direct Methanol and Direct Borohydride Fuel Cells. Supervisor: Prof. Ashok Kumar Shukla Indian Institute of Science Bangalore, India
2000	M. Sc in Applied Chemistry Anna University, Chennai, India
1998	B. Sc in Chemistry Bharathiar University (Sri Vasavi College) (University 1st Rank Holder, Gold medalist), Coimbatore, India

Current and Previous Position

July 2021-Present	Professor Department of Chemistry, Indian Institute of Technology Madras, India
2016-2021	Associate professor Department of Chemistry, Indian Institute of Technology Madras, India
2011-2016	Assistant professor Department of Chemistry, Indian Institute of Technology Madras, India
March 2009-Feb 2011	Post-Doctoral Researcher, with Prof. Christina Bock and Prof. Barry MacDougall Group, National Research Council of Canada, Ottawa, Canada
March 2007 - Feb 2009	Post-Doctoral Researcher, with Prof. Scott Calabrese Barton Group, Michigan State University, East Lansing, MI, USA

Fellowships, Awards, and Honours

- Recipient of SMC Bronze Medal – 2023 from the Society of Materials Chemistry, BARC, India.
- Recipient of CRSI Bronze Medal – 2023 from the Chemical Research Society of India
- Vice president for Society for Advancement of Electrochemical Science and Technology Karaikudi – 2023-24
- Council Member of Electrochemical Society of India, IISc, Bangalore (2023-24)
- Director nominated member of Board of Industrial Consultancy & Sponsored Research-IIT Madras (2023-2024)
- Recipient of the Department of Foreign Affairs and Trade's Australia Awards Fellowships for "Accelerating the clean energy transition in partnership with India" to collaborate with The University of Sydney (2023)

- Recipient of "TREND SETTER GRANT AWARD-2023" from the Energy Consortium, IIT Madras (along with the award Rs. 50 lakhs project was awarded)
- Recipient of "CSR Changemaker Award-2023" from IIT Madras
- Faculty Advisor and initiator of The Electrochemical Society – Indian Institute of Technology Madras Student Chapter (since 2022)
- Guest editor for the special issue (2022) on "Energy Storage and Photovoltaics" from J. Photochemistry and Photobiology
- Guest editor - J. Electrochem. Soc., the USA for the focus issue on Energy Storage in China 2021
- Co-chaired and conducted the MRSI-AGM conclave symposium "Batteries, fuel cell, and supercapacitor" between Dec 20-23^{rd,} 2021
- Recipient of Amara Raja Award-2021 (sponsored by M/S Amara Raja Batteries Ltd.) from The Electrochemical Society of India
- Fellow of the Royal Society of Chemistry (FRSC)
- Fellow of the Academy of Sciences, Chennai
- Vice President of Indian Society for Electroanalytical Chemistry (ISEAC) for 2021-24, BARC, Mumbai
- Invited to present a keynote lecture at the symposium entitled "Chemistry and Materials for New Batteries Technology" organized by the Canadian Chemistry Conference and Exhibition (CCCE 2022) in Calgary from June 13th – 17th, 2022
- Invited to present award lecture (Amara Raja Award-2021) at the National Symposium on Electrochemical Science and Technology (NSEST-2021) on the 24th at Inorganic Physical Chemistry-IISc-Bangalore
- Presented invited lecture (DRT Analysis of Lithium Sulfur Batteries) at Wiley InfoMat Workshop in India: Current Status and Future Potential of Energy Technologies, on June 24th, 2022
- Cover pages published at no cost (New J. Chem. 44, 2020, 10175-10748; ISSN 1144-0546 and ChemElectroChem, 5 (14), 2018, 1740-1740)
- Visiting Professorship: Energy, Environment & Chemical Engineering Department, Washington University @ St. Louis, Missouri (2019)
- Honorary scientific advisor for Twin Pole India Pvt. Ltd and Kapindra Precision Engineering Pvt. Ltd., Research Park, IIT Madras
- Member of the Board of Studies of PSG College of Technology, Coimbatore
- Director nominated department representative for the Faculty Council of the Research Park of IIT Madras (since July 2019)
- Member of Board of Global Engagement, IIT Madras, Since 2020
- Department-nominated member of the Board of Placement for the year 2018-2019
- Adjunct faculty at National Centre for Catalysis Research, IIT Madras, Chennai (Since 2012)
- Principal investigator and co-ordinator of the Advanced Centre for Energy Storage and Conversion setup using the Institute of Eminence fund from IIT Madras
- Secured 94.4 percentile score on Graduate Aptitude Test in Engineering (GATE-2000)

- University Gold medallist: Bachelor of Science in Chemistry, Bharathiar University, Coimbatore, Tamil Nadu, India, April 1998

Details of academic/ outreach/ science popularization activities

1. With the support of the Electrochemical Society (ECS)-New Jersey, catalyzed the opening of the ECS-Indian Institute of Technology Madras (IITM) Student Chapter (https://www.ecsiitm.com/blank-1).

   As a faculty advisor of the ECS-IITM student chapter organized and conducted several outreach activities. They are listed below.

   (i) ECS-IITM Student Chapter Inaugural Event and Workshop – December 10, 2022.
   (ii) A study tour was organized for student chapter members and IIT M.Sc students on December 30, 2022. Students visited the International Advanced Research Centre for Powder Metallurgy and New Materials at IITM Research Park to understand fuel cell making.
   (iii) Conducted the fastest finger quiz competition alongside a three-day international conference on energy conversion and storage (IECS-2023) between January 18-20, 2023.
   (iv) ECS-IITM Student Chapter along with SRM University, conducted a two-day workshop on "Electrochemical Techniques for Next Generation Batteries" with hands-on activities on batteries and supercapacitors.
   (v) Conducted quiz competition as part of the workshop.
   (vi) Organized eminent lecture series through the ECS-IITM student chapter. The first speaker of this series was Prof. Werner Paulus from the University of Montpellier, France, on April 19, 2023.
   (vii) Conducted a workshop on "Biosensors and Electroanalytical Techniques" on June 27, 2023, with Prof. Sadagopan Krishnan, Oklahoma State University, USA. Conducted hands-on finite/infinite diffusion experiments with impedance and rotating disk electrodes and electrochemical sensing of dopamine.
   (viii) Organized a lecture by Prof K Vidyasagar on "Structural correlations of nonmolecular solid-state energy materials" on September 5, 2023, as part of Teacher's Day celebrations
   (ix) Conducted an Indo-Korean workshop at Terrace Hall between September 20-21, 2023. Performed hands-on sessions with zinc-bromine battery, fuel cells, electrochemical impedance spectroscopy, rate constant calculations using Tafel slop, and the making of reference electrodes.
   (x) Organized a workshop on December 5, 2023, as part of the Energy Summit 2023.
2. He has served as guest editor in two international journals, namely J. Electrochem. Soc and J. Photochemistry and Photobiology.
3. Our student chapter activities are published in the international magazine "Interface" published by ECS (https://iopscience.iop.org/article/10.1149/2.009231IF).

4. The ECS-IITM Student chapter was recently recognized as "**Chapter of Excellence 2023**" along with another student chapter based out of Texas by the **Electrochemical Society, USA**.
5. In association with the Electrochemical Society of India (ECSI), Bengaluru, a monthly webinar series was conducted online for the benefit of the students (details of the talks are given below).

S.No	Name of the Speaker	Affiliation	Date of webinar	Title of talk
1.	Mr. Sanyam Pursi	Samsung SDI America	20-08-2022	TiO_2 Nanowires application as anode materials and importance of artificial solid electrolyte interphase in Lithium-ion battery
2.	Dr. Venkataraman Thangadurai	Professor (Physical Chemistry), FRSC (UK), FIAAM, FECS, University of Calgary, Alberta, Canada	01-10-2022	Beyond Lithium-ion Batteries
3.	Dr. Veerabhadrarao Kaliginedi	Assistant Professor, Department of Inorganic and Physical Chemistry (IPC), IISc Bangalore, India	29-10-2022	Charge transport at Electrode Molecule interface
4.	Dr. Tharamani C. N.	Associate Professor, Department of Chemistry, Indian Institute of Technology Ropar, Punjab, India	26-11-2022	Advanced energy materials for energy conversion device
5.	Dr. S Senthil Kumar	Principal Scientist at National Aerospace Laboratories, Bangalore	28-01-2023	An overview of CSIR of CSIR-NAL's solid oxide fuel cell/ electrolyzer technology
6.	Dr. Siva Rama Krishna Chaitanya Sharma Yamijala	Assistant Professor, Department of Chemistry, Indian Institute of Technology Madras, Chennai, India	06-02-2023	Computing a Few Electrochemical Properties that can Help us to Identify Whether a 2D Material can be a Promising Anode Material or Not

7.	Dr J N Balaraju	Chief Scientist & Deputy Head, Surface Engineering Division	29-04-2023	Nanocrystalline nickel alloy coatings for aerospace and engineering applications
8.	S. Ravichandran	Senior Principal Scientist CSIR-Central Electrochemical Research Institute, Karaikudi-630003, India.	27-05-2023	Electrochemical Interfaces for Green Hydrogen Generation
9.	Prof. Sadagopan Krishnan	Professor, Oklahoma State University, USA.	22-07-2023	Electrochemical biosensors, fuel cells, and Electrocatalysis
10.	Dr. Satpal Singh Badsara	Department of Chemistry, University of Rajasthan, Jaipur, Rajasthan, India	28-10-2023	Electro-Organic Synthesis: Green and Sustainable Approach for Forging New Bonds

6. Contributed to academic activities as the vice president of the Indian Society for Electroanalytical Chemistry (ISEAC).
7. Contributed to academic activities as the vice president of the Society for Advancement of Electrochemical Science and Technology (SAEST) Karaikudi.

News articles citing our work

- https://tech-talk.iitm.ac.in/a-new-class-of-battery/
- *https://twitter.com/iitmadras/status/1631195298872840192?t=S36XIIWYi5nddJsp7n3AKw&s=08*
- https://www.thehindubusinessline.com/business-tech/iit-m-scientists-develop-improved-flow-battery-technology/article66847902.ece
- https://www.thehindubusinessline.com/business-tech/ammonia-from-used-batteries/article36929429.ece
- https://www.thehindubusinessline.com/business-tech/putting-rooftop-solar-to-many-good-uses/article64577772.ece
- https://www.pressreader.com/india/the-hindu-business-line/20220425/281956021344451
- https://www.iastoppers.com/articles/can-flow-batteries-support-india-s-renewable-energy-pivot
- https://techindiaexpress.in/can-flow-batteries-support-indias-renewable-energy-pivot/

Review articles

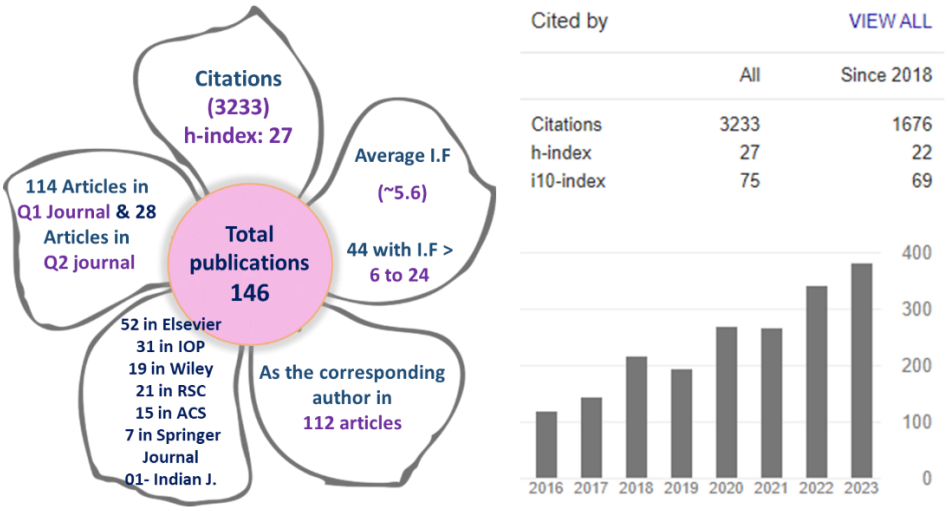
1. A. Murali, M. Sakar, S. Priya, V. Vijayavarman, S. Pandey, Ryansu Sai,Y. Katayama, M. Abdul Kadera and R. Kothandaraman, Insights into the Emerging Alternative Polymer-based Electrolytes for All-Solid-State Lithium-ion Batteries: A Review, *Materials Letters*, 313, 2022, 131764

2. Nandini Jaiswal, Harun Khan and Kothandaraman R, A review on the recent developments and challenges in the membrane-less soluble lead redox flow battery, *J. Electrochem. Soc*., 169, **2022**, 040543
3. A. K. Shukla, and R. Kothandaraman, Methanol-resistant oxygen-reduction catalysts for direct methanol fuel cells, Annu. Rev. Mater. Res., 33, **2003**, 155-168.

Book Chapters

1. R. Kothandarman, Ramavath Naik and L.K. Nivedha "Advanced Technologies for Rechargeable Batteries" (Volume II): Zinc-ion Batteries: Materials to Mechanism of Energy Storage, *Taylor and Francis-CRC Press*, 2023, In Press.
2. R. Kothandaraman and Chinmay M.R. Advanced Technologies for Rechargeable Batteries" (Volume 1): Aqueous Acidic Redox Flow Battery Chemistries, *Taylor and Francis-CRC Press*, 2023, In Press.

Appendix - List of Journal Publications



146. Richa Gupta, Kothandaraman Ramanujan, A highly conjugated tetrakis-lawsone organic cathode material for enhancing the capacity utilization in the zinc-ion batteries, *J. chemical sciences*, Accepted, **2023**.

145. Anandhakumar Sukeri, Swati Panigrahi, and Kothandaraman Ramanujam, Sonochemically synthesized hydride-stabilized boron nanosheets via radical-assisted oxidative exfoliation for energy storage application, *Chem Comm.,* Accepted **2023**. DOI: 10.1039/D3CC04342H

144. Sandeep Kumar Mohapatra, Kothandaraman R, and Sethuraman Sankararaman, Molecular size exclusion effect extending the cycling stability of a non-aqueous redox flow battery, *APL Energy,* **2023**, 1, 036103. https://doi.org/10.1063/5.0167853

143. Sundar Sudharsan, Rajendran Rajaram Sachin Kumar, Parasuraman Swaminathan, Kothandaraman Ramanujam, Lakshman Neelakantan, Copper oxide anchored polyaniline modified glassy carbon electrode: A new sensor platform for the Amperometric determination of Chlorpyrifos, Electrochimica Acta, Accepted, **2023,** 471, 143305. https://doi.org/10.1016/j.electacta.2023.143305

142. Sharma Jeet, Gupta Richa, Mishra Sarthak, Ramanujam, Kothandaraman, Kulshrestha Vaibhav, Sulfonated Poly (2, 6-dimethyl-1, 4-phenylene ether) Modified Mixed Matrix Bi-functional Polyelectrolyte Membrane for Long-run Anthrarufin-Based Redox Flow Battery, *ACS Applied Materials & Interfaces,* **2023**, 15, 44899. DOI: https://doi.org/10.1021/acsami.3c08089

141. Sandeep Kumar Mohapatra, Kothandaraman R, and Sethuraman Sankararaman, Benzylviologen/N-hexylphenothiazine based non-aquous organic redox flow battery in inert condition, *J. Energy Storage*, **2023**, 72, 108739. DOI: https://doi.org/10.1016/j.est.2023.108739

140. Rajaram Rajendran, Sachin Kumar, Kothandaraman Ramanujam, and Lakshman Neelakantan, Electrochemical Determination of Paraquat Using Ordered Mesoporous Carbon (CMK-3) Modified Glassy Carbon Electrode, *J. Electrochem. Soc.,* **2023,** 170, 087514. DOI: 10.1149/1945-7111/acedd0

139. Rajaram Rajendran, Sachin Kumar, S Sudharsan, Pavul Raj Rayappan, Kothandaraman Ramanujam and Lakshman Neelakantan, Amperometric Determination of Hydrazine Using Au Nanoparticle Incorporated CMK-3 Modified Glassy Carbon Electrode, *J. Electrochem. Soc.,* **2023,** 170, 087511, DOI: https://doi.org/10.1149/1945-7111/aced70

138. Premkumar G, Toka Swu, Richa Gupta and Kothandaraman R, C-H functionalization of aromatic amines for azidation catalyzed by Betti base coordinated copper(II) complexes under ultrasonication, *New J. Chem.,* **2023**, 47, 15677-15685. DOI: https://doi.org/10.1039/D3NJ01927F

137. Richa Gupta, Chinmaya Mirale and Kothandaraman Ramanujam, Dimerizing Lawsone into Bis(lawsone) to Counter Solubility and Attain Facile Zn^{2+} Ion Diffusion for Stable Capacity in Aqueous Zinc-Ion Batteries, *ACS Appl. Energy Mater.* **2023**, 6, 13, 7119–7128**. DOI:** https://doi.org/10.1021/acsaem.3c00799

136. Abhilipsa Sahoo, and Kothandaraman Ramanujam**,** Use of voltage for recomposing degraded redox active molecules for flow battery applications, *J. Mater. Chem. A,* **2023**, 11, 13623-13632, DOI: https://doi.org/10.1039/D3TA00624G (Invited Article)

135. Pavul Raj, Mohana Priya Babu, Raja Murugan, Muthuraj Divamahalakshmi, Kothandaraman Ramanujam**,** Confined sulfur electrode to achieve quasi-solid state sulfur conversion reaction in Li-S battery, *J. Energy Storage*, 67, 107601, **2023**, DOI: https://doi.org/10.1016/j.est.2023.107601

134. Manju P. Maman, Tamilselvi Gurusamy, Arun K. Pal, Rajkumar Jana, Kothandaraman Ramanujam, Ayan Datta and Sukhendu Mandal, Electrocatalytic Reduction of Nitrogen to Ammonia Using Tiara-like Phenylethanethiolated Nickel Cluster, *Angew. Chem. Int. Ed.* e202305462, **2023**, DOI: https://doi.org/10.1002/anie.202305462

133. Tamilselvi Gurusamy, Rajendran Rajaram, Ganapathi Rao Kandregula and Kothandaraman Ramanujam**,** Electrochemical sensing of NADH using 4 nitrobenzediazonium tetrafluoroborate salt functionalized multiwalled carbon nanotubes, *Dalton Trans.,* 52, 6041 – 6051, **2023**, DOI: https://doi.org/10.1039/D3DT00216K **(Invited Article)**

132. Sravani Potham, Kothandaraman Ramanujam, A novel hierarchical porous activated carbon-organic composite cathode material for high performance aqueous

zinc-ion hybrid supercapacitors, *J. Power Sources*, 557, 232551, **2023**, DOI: https://doi.org/10.1016/j.jpowsour.2022.232551; Citations-1

131. Ganguly Dipsikha, Ramanujam Kothandaraman, Sundara Ramaprabhu, Low-temperature synthesized Pt_3Fe alloy nanoparticles on etched carbon nanotubes catalyst support using oxygen-deficient Fe_2O_3 as catalytic centre for PEMFC applications, *ACS Sustainable Chem. Eng.* 11, 3334–3345, **2023**, DOI: https://doi.org/10.1021/acssuschemeng.2c06453

130. Suriyanarayanan Subramanian, Babu Mohana Priya, Murugan Raja, Muthuraj Divamahalakshmi, Ramanujam Kothandaraman, Nicholls Ian**,** Highly efficient and recycling of cobalt from spent lithium ion batteries using an N-methylurea-acetamide non-ionic deep eutectic solvent, *ACS Omega*, 8, 6959–6967, **2023**, DOI: https://doi.org/10.1021/acsomega.2c07780

129. Priya Vallayil, Sethuraman Sankararaman, Kothandaraman Ramanujam, Structurally and electrochemically tunable pyrylium platforms: A new class of redox anolyte for non-aqueous organic redox flow battery operating at a high-current density, *J. Energy Storage,* 58, 106325, **2023**, DOI: https://doi.org/10.1016/j.est.2022.106325

128. Subramanian Suriyanarayanan, Sudip Mandal, Kothandaraman Ramanujam, Ian A.Nicholls, Smart bio-nano interface derived from zein protein as receptors for biotinyl moiety*, Talanta,* 256, 124298, **2023**, DOI: https://doi.org/10.1016/j.talanta.2023.124298

127. Subramanian Suriyanarayanan, Ganapathi Rao Kandregula, Kothandaraman Ramanujam, Ian A. Nicholls, Sustainable synthesis of hierarchically grown chloramphenicol-imprinted poly(caffeic acid) nanostructured thin films, J Appl Polym Sci, 140, e53560, **2023**, DOI: https://doi.org/10.1002/app.53560; Citations-1

126. Jeet Sharma, Harun Khan, Prashant Upadhyay, Ramanujam Kothandaraman, Vaibhav Kulshrestha, Stable Poly(2,6-dimethyl-1,4-phenylene ether) Based Cross-Linked Cationic Polyelectrolyte Membrane with Ionic Microstructure Modification for Efficient VRFB Performance, *ACS Appl. Energy Mater.* 6, 447-460, **2023**, DOI: https://doi.org/10.1021/acsaem.2c03421; Citations-2

125. Tamilselvi G, Nikhil George M, Ganapathi Rao K, Dhinesh Kumar M, Ramanathan S, Kothandaraman R, Mechanistic analysis of the dissociative reduction of nitrogen to ammonia by $ZnMn_2O_4$ catalyst derived from spent batteries, *Catalysis Today*, **2023**, 423, 113898. DOI: https://doi.org/10.1016/j.cattod.2022.09.004

124. Vivekananda Mahanta, Richa Gupta, Kothandaraman Ramanujam, Hydrobromide Salt of Tribromodopamine as a Positive Electroactive Species with a Three-Electron Redox Process for Redox Flow Battery Applications, *ACS Appl. Energy Mater.* 5, 15166−15174, **2022,** DOI: https://doi.org/10.1021/acsaem.2c02833

123. Harun Khan, M. Raja, N.V.Sarma, M. Nagarajan, J. Ramesh, G.A. Pathanjali , Damaraju Parvatalu, Saroj Chaudhary, R. Kothandaraman, Design, Development, and Demonstration of a 1kW/10kWh Vanadium Redox Flow Battery System Minimizing Shunt Current Losses, *J. Electrochem Soc. India*, 71, 45-50, **2022**.

122. D Mahato, Tamil Selvi G, SK Jain, K Ramanujam, P Haridoss, T Thomas, CuO modified ZnO on nitrogen-doped carbon: a durable and efficient electrocatalyst for oxygen reduction reaction, Mater. Today Chem., 26, 101167, **2022,** DOI: https://doi.org/10.1016/j.mtchem.2022.101167; Citations-3

121. LK Nivedha, Dhinesh Kumar M, Ganapathi Rao K, Raja M, Kothandaraman R, $ZnMn_2O_4$/Carbon Composite Recycled from Spent Zinc-Carbon Batteries for Zn-Air

Battery Applications, *J. Electrochem. Soc.* 169 , 100544, **2022,** DOI: 10.1149/1945-7111/ac9a7c

120. Venkatesan N, Kesavan T, Raja M, Kothandaraman R, Nishad Fathima N, Efficient electrochemical performance of nitrogen-doped porous activated carbon for high energy symmetric pouch cell supercapacitors**,** *J. Energy Storage,* 30, 105698, **2022,** DOI: https://doi.org/10.1016/j.est.2022.105698; Citations-2

119. T. Kesavan, M. Raja and R. Kothandaraman, Rationally designed N/P-dual doped ordered mesoporous carbon for supercapacitors, *J. Mater. Sci.,* 57 (36), 17380-17397, **2022**, DOI: https://doi.org/10.1007/s10853-022-07733-4

118. M. Debashis, G. Tamilselvi, R. Kothandaraman, P. Haridossa and TijuThomasac, Unravelling the role of interface of CuOx-TiO2 hybrid metal oxide in enhancement of oxygen reduction reaction performance, *Int. J. Hydrog. Energy, 47***,** 34048-34065, **2022,** DOI: http://doi.org/10.1016/j.ijhydene.2022.08.016; Citations-1

117. Ganapathi Rao Kandregula, R. J. Naik and Kothandaraman, R 3D Prussian Blue Decorated Porous Carbon Composite Electrode for Advanced Asymmetric Supercapacitor Applications, *J. Energy Storage,* 54, 105291, **2022**, DOI: https://doi.org/10.1016/j.est.2022.105291; Citations-1

116. Nandini J, Harun Khan, Kothandaraman R, The combined impact of trimethyloctadecylammonium chloride (TMOAC) and sodium fluoride on cycle life and energy efficiency of soluble lead-acid redox flow battery, *J. Energy Storage*, 54, 105243, **2022**, DOI: https://doi.org/10.1016/j.est.2022.105243; Citations-4

115. Chinmaya Mirle a nd Kothandaraman R, On capacity up-gradation and in-situ capacity rebalancing in anthrarufin based alkaline redox flow battery, *ACS. Appli. Energ. Mater*, 5, 9711–9721, **2022**, DOI: https://doi.org/10.1021/acsaem.2c01392; Citations-1

114. Anish Satpati, Ganapathi Rao Kandregula, and Kothandaraman R, Machine Learning enabled High-Throughput Screening of Inorganic Solid Electrolytes for Regulating Dendritic Growth in Lithium Metal Anodes, *New. J. Chem.,* 46, 14227-14238, **2022**. DOI: 10.1039/D2NJ01827F; Citations-4

113. Yaswanth P, Tamilselvi G, Sudip Mandal and Kothandaraman R, Copper-Based Non-Precious Metal Catalysts Derived from the In-Situ and Ex-Situ Loading of Copper-bipyridine Metal-Organic Framework on Activated Carbon for Oxygen Reduction Reaction, *J. Chem. Sci.,* 134, 75, **2022**, DOI: https://doi.org/10.1007/s12039-022-02067-9; Citations-1

112. Sumana. B, Kothandaraman. R and Ramesh Gardas, Nitrogen-Doped High Surface Area Porous Carbon Material Derived from Biomass and Ionic Liquid for High-Performance Supercapacitors, *Ind. Eng. Chem. Res*.,61, , 12073-12082, **2022**. DOI: https://doi.org/10.1021/acs.iecr.2c00195; Citations-1

111. Nagarani Sandhiran, Sasikala Ganapathy, Yuvaraj Manoharan, Dipsikha Ganguly, Mohan raj Kumar, Kothandaraman Ramanujam and Subramanian Balachandran, CuO–NiO binary transition metal oxide nanoparticle anchored on rGO nanosheets as high-performance electrocatalyst for the oxygen reduction reaction, *Environ. Res*., 211, **2022**, 112992, DOI: https://doi.org/10.1016/j.envres.2022.112992; Citations-14

110. Nandini Jaiswal, Harun Khan, and Kothandaraman R, Recent Developments and Challenges in Membrane-Less Soluble Lead Redox Flow Batteries, *J. Electrochem.Soc*., 169, , 040543, **2022,** DOI: https://doi.org/10.1149/1945-7111/ac662a

109. Dariusz M Niedzwiedzki, Divya Unny, Ganapathi Rao Kandregula and Kothandaraman R, Excited-state properties of newly sensitized imidazole-arylamine-based organic DSSC sensitizers insolvent and adsorbed on TiO2/FTO support, *Dyes Pigm*., 202, **2022**, 110273, DOI: https://doi.org/10.1016/j.dyepig.2022.110273

108. Vivekananda Mahanta and Kothandaraman R, Vanadium - Polydopamine Flow Battery, *J. Electrochem. Soc*., 169, **2022,** 030525**,** DOI: https://doi.org/10.1149/1945-7111/ac5ad3; Citations-1

107. Rajendran Rajaram, Tamilselvi Gurusamy, Kothandaraman Ramanujam, Lakshman Neelakantan, Electrochemical determination of paraquat using gold nanoparticle incorporated multiwalled carbon nanotubes, *J. Electrochem. Soc*., 169, **2022**, 047522, DOI: doi.org/10.1149/1945-7111/ac5bae; Citations-4

106. Ganapathi Rao Kandregula, M. Dhinesh Kumar, N. Arul Murugan, and R. Kothandaraman, Data-driven Approach Towards Identifying Dye-Sensitizer Molecules for Higher Power Conversion Efficiency in Solar Cells, *New. J. Chem*., 46, 4395-4405, **2022**, DOI: https://doi.org/10.1039/D1NJ05498H; Citations-4

105. Jagadeeswari S, Raja Murugan, Harun Khan, Indrapal Singh Aidhen and Kothandaraman Ramanujam, Investigation of alkyl amine substituted quinone derivatives for the redox flow battery applications in acidic medium, *J. Electrochem. Soc*., 169, 020533, **2022**, DOI: https://doi.org/10.1149/1945-7111/ac505f; Citations-2

104. B. Sumana and R. Kothandaraman, Combination of redox-active natural indigo dye and bio-derived carbon from ridge gourd fruit for high-performance asymmetric supercapacitors, *Ionics,* 28, 1427-1440, **2022,** DOI: https://doi.org/10.1007/s11581-021-04433-y; Citations-5

103. V. Priya, R. Kothandaraman and S. Sankararaman, A new 2,3-Dimethoxy-1,4-naphthoquinone redox anolyte for non-aqueous organic static redox battery, *Electrochimica Acta*, 407, 139889**, 2022,** DOI: 10.1016/j.electacta.2022.139889; Citations-4

102. M. Divyamahalakshmi, M. Raja, R. Pavul Raj, Ganapathi Rao Kandregula and R. Kothandaraman, Dual-role Magnesium Aluminate Ceramic Film as an Advanced Separator and Polysulfide Trapper in Li-S battery: Experimental and DFT investigations, *New. J. Chem.,* 46, 3185-3198, **2022**, DOI: 10.1039/D1NJ05347G; Citations-3

101. G. Tamilselvi, R. Rajaram, M. Raja and R. Kothandaraman, A web of poly bis(benzimidazolato)copper (II) around multiwalled carbon nanotubes for the electrochemical detection of hydrogen peroxide, *New. J. Chem.,* 46, 1222-1231, **2022**, DOI: 10.1039/D1NJ04903H; Citations-4

100. U. Divya, Ganapathi Rao Kandregula and R. Kothandaraman, Starburst configured imidazole-arylamine organic sensitizers for DSSC applications, *J. Photochem. Photobiol. A Chem.,* 426, 113735, **2022,** DOI: https://doi.org/10.1016/j.jphotochem.2021.113735; Citations-2

99. Harun Khan, M. Raja and R. Kothandaraman, Bilayer Micro-Mesoporous Membrane Assembly Offering Lower Pressure Drop to Realize High Energy Efficient Vanadium Redox Flow Battery, *J. Electrochem. Soc*., 168, 100542**, 2021**, DOI: https://doi.org/10.1149/1945-7111/ac3114; Citations-1

98. K. Ganapathi Rao, M. Sudip M. R. Chinmaya and R. Kothandaraman, A computational Approach on Engineering Short Spacer for Carbazole based Dyes for Dye-sensitized Solar Cells, *J. Photochem. Photobiol. A Chem*., 419, 113447, **2021,** DOI: https://doi.org/10.1016/j.jphotochem.2021.113447; Citations-5

97. P K. Yaswanth, G. Tamilselvi, M. Sudip and R. Kothandaraman, Activation of Oxygen Reduction Reaction on Carbon Supported Ni-Based Complexes, *Chemistryselect*, 6, 9101-9111, **2021,** DOI: https://doi.org/10.1002/slct.202101231; Citations-1

96. R. J. Naik, P. Sravani and R. Kothandaraman, Energy-dense aqueous carbon/carbon supercapacitor with a wide voltage window, *J. Electrochem. Soc*., 168, 70538, **2021**, DOI: https://doi.org/10.1149/1945-7111/ac1319; Citations-6

95. G. Dipsikha, R. Kothandaraman, S. Ramaprabhu, Platinum Nanoparticles Decorated Expired Drug-derived N-Doped Ketjenblack Carbon as Efficient Catalyst for PEM Fuel Cells*, J. Electrochem. Soc*., 168, 64517, **2021,** DOI: https://doi.org/10.1149/1945-7111/ac0bef; Citations-4

94. M. Debashis, P. K. Yashwant, R. Kothandaraman, H. Prathap and TijuThomas, S, N Co-Doped Graphene Quantum Dots Decorated TiO_2 and Supported with Carbon for Oxygen Reduction Reaction, *Int. J. Hydrog. Energy*, 16, 21549-21565, **2021**, DOI: https://doi.org/10.1016/j.ijhydene.2021.04.013; Citations-25

93. K. Ganapathi Rao, M. Sudip and R. Kothandaraman, Molecular engineering of near-infrared active boron dipyrromethene moiety with various donors and acceptors for tuning the absorption behavior and electron injection of the resultant dyes, *J. Photochem. Photobiol. A Chem,* 410, 113161, **2021**, DOI: https://doi.org/10.1016/j.jphotochem.2021.113161; Citations-8

92. M. Raja, Harun Khan, S Sankarasubramanian, D. Sonawat, V. K. Ramani and R. Kothandaraman, Binder-free thin graphite fiber mat sandwich electrode architectures for energy-efficient vanadium redox flow batteries*, Catalysis Today*, 370, 181-188**, 2021,** DOI: https://doi.org/10.1016/j.cattod.2021.02.012; Citations-7

91. Janraj Naik Ramavath, M. Raja, K. Balakumar and R. Kothandaraman, An Energy and Power Dense Aqueous Zinc-Ion Hybrid Supercapacitor with Low Leakage Current and Long Cycle Life, *J. Electrochem. Soc.,* 168, 010538, **2021**, DOI: https://doi.org/10.1149/1945-7111/abdc7a; Citations-13

90. M. R. Chinmaya, M. Veerababu and R. Kothandaraman, Electrode and conductive additive compatibility yielding excellent rate capability and long cycle life for sustainable organic aqueous Zn-ion batteries, *ACS Applied Energy Materials*, 4, 1218, **2021**, DOI: https://doi.org/10.1021/acsaem.0c02511; Citations-10

89. L. K. Nivedha, M. Raja, R. Kothandaraman, Interplay of the functional units of a binder in the oxygen reduction process of zinc-air battery, *Catalysis Today*, 370, 66-74, **2021**, DOI: https://doi.org/10.1016/j.cattod.2020.09.022; Citations-9

88. M. R. Chinmaya and M. Veerababu and R. Kothandaraman, Crossover-free hydroxy-substituted quinone anolyte and potassium ferrocyanide catholyte for aqueous alkaline organic redox flow battery, *Catalysis Today*, 370, 173-180, **2021,** DOI: https://doi.org/10.1016/j.cattod.2020.12.012; Citations-11

87. M. Vivekananda, M. Raja, Harun Khan, and Kothandaraman R, Drastic Improvement in Capacity-Retention and Polarization of Vanadium Redox Flow Battery with Hydrophilic Co_3O_4 Nanostructure Modified Activated Graphite Felt Electrodes, *J. Electrochem. Soc.,* 167, 160504, **2020**, DOI: https://doi.org/10.1149/1945-7111/abc90a; Citations-11

86. M. R. Chinmaya, M. Raja, Vasudevarao P, Kothandaraman R and Sankararaman S, Functionalised carbazole as a cathode for high voltage non-aqueous organic redox flow batteries, *New J. Chem.,* 44, 14401-14410**, 2020,** DOI: https://doi.org/10.1039/D0NJ02543G; Citations-7

85. Kharwar, Yashwant Pratap, Srinu Akula, Akhila Kumar Sahu, and Kothandaraman R, Highly Durable Pt-Based Catalyst Supported on Carbon Derived from Tamarind Seeds for Oxygen Reduction Reaction in PEM Fuel Cell*, J. Electrochem. Soc*., 167, 104515, **2020,** DOI: https://doi.org/10.1149/1945-7111/ab9c7c; Citations-12

84. D. Unny, G.R. Kandregula, J. Sivanadanam, K. Ramanujam, Molecular engineering of pyrene carbazole dyes with a single bond and double bond as the mode of linkage, *New J. Chem.*, 44, 16511-16525, **2020**, DOI: https://doi.org/10.1039/D0NJ03228J; Citations-9

83. G. Tamilselvi, M. Raja M, D. Akalya, R. Kothandaraman, Confinement Catalysis of Non-covalently Functionalized Carbon Nanotube in Ascorbic Acid Sensing, *Electroanalysis*, 32, 2481- 2492, **2020**, DOI: https://doi.org/10.1002/elan.202060119; Citations-3

82. A. Rajput, H. Khan, S.K. Raj, R. Kothandaraman and V. Kulshrestha, Styrene- co -DVB grafted PVDF proton exchange membranes for vanadium redox flow battery applications, *Mater. Adv*., 1, 1930, **2020,** DOI: 10.1039/D0MA00496K; Citations-9

81. S. Mandal, G.R. Kandregula, R. Kothandaraman, replacing aromatic π-system with cycloalkyl in triphenylamine dyes to impact intramolecular charge transfer in dyes pertaining to dye-sensitized solar cells application, *J. Photochem. Photobiol. A Chem*., 403, 112862, **2020**, DOI: https://doi.org/10.1016/j.jphotochem.2020.112862; Citations-13

80. P. Mani, A. Sheelam, P.E. Karthik, R. Sankar, R. Kothandaraman, S. Mandal, Nickel-Based Hybrid Material for Electrochemical Oxygen Redox Reactions in an Alkaline Medium, *ACS Appl. Energy Mater*., 3, 6415, **2020**, DOI: https://doi.org/10.1021/acsaem.0c00615, ; Citations-6

79. U. Naveen Kumar, Janraj Naik Ramavath, Sourav Ghosh, Tiju Thomas and R. Kothandaraman, Chromium oxynitride as durable electrode materials for symmetric supercapacitors, *Batteries & Supercaps*, 3, 780-788, **2020**, DOI: https://doi.org/10.1002/batt.201900225; Citations-15

78. J. Vanshika, G. Tamilselvi, P. Gayathri and R. Kothandaraman, Oxygen sensitive 1-amino-2-naphthol immobilized functionalized-carbon nanotube electrode, *New J. Chemistry*, 44, 8849-8858, **2020**, DOI: https://doi.org/10.1039/D0NJ00438C

77. Ganapathi Rao Kandregula, S. Jagadeeswari, and R. Kothandaraman, Drastic improvement in dye-sensitized solar cell efficiency by electrosorption based dye staining of Titania semiconductor photoanode, *Electrochimica Acta*, 349, 136344, **2020**, DOI: https://doi.org/10.1016/j.electacta.2020.136344; Citations-3

76. S. Jagadeeswari, Indrapal Singh Aidhen and R. Kothandaraman, New cyclic and acyclic imidazole-based sensitizers for achieving highly efficient photoanodes for dye-sensitized solar cells by potential assisted method, *New J. Chemistry,* 44, 10207-10219, **2020**, DOI: https://doi.org/10.1039/D0NJ00137F; Citations-10

75. V. Srinivasan, S. Jagadeeswari, R. Kothandaraman, and Mariadoss Asha Jhonsi, Delineating the enhanced efficiency of carbon nanomaterials including the hierarchical architecture of the photoanode of dye-sensitized solar cells, *Mater. Adv*., 1, 2964-2970, **2020**, DOI: 10.1039/D0MA00654H

74. D. M. Niedzwiedzki and G. R. Kandregula and S. Jagadeeswari and R. Kothandaraman, Excited State Properties of Metal-Free (D2d and T-SB-C) and Ru-Based (N719 and Z907) Dyes and Photoinduced Charge Transfer Processes in FTO/$TiCl_4$/TiO_2/Dye Photoanodes Fabricated by Conventional Staining and Potential-Assisted Adsorption, *J. Phys. Chem.*

A, 124, 22, 4333-4344, **2020,** DOI: https://doi.org/10.1021/acs.jpca.0c00653; Citations-3

73. Ganapathi Rao Kandregula, Sudip Mandal, Prince Gollapalli, Satyesh Yadav, and R. Kothandaraman, A computational study on boron dipyromethene ancillary acceptor-based dyes for dye-sensitized solar cells, *New J. Chem.,* 44, 4877-4886, **2020**, DOI: https://doi.org/10.1039/C9NJ05334D; Citations-17

72. J. Prerna, R. Vedarajan, S. Anjaiah, R. Kothandaraman, Bernard Malaman, and Noriyoshi Matsumi, An all solid-state Li-ion battery composed of low molecular weight crystalline electrolyte, *RSC Advances* 10, 8780-8789. **2020**, DOI: https://doi.org/10.1039/C9RA09559D; Citations-9

71. M. Prabu, D. Sharat, G. Tamilselvi, E. Karthik, B. P. Ratheesh, R. Kothandaraman and S. Mandal, Sodalite-type Cu-based Three-dimensional Metal-Organic Framework for Efficient Oxygen Reduction Reaction, *Chem. An Asian J.*, 14, 4814-4818, **2019**, DOI: https://doi.org/10.1002/asia.201901242; Citations-6

70. G. Tamilselvi, B. Abhishek, R. Kothandaraman, and N. Chandra Kumar, Electrochemical Sensors Using Liquid Filled Multiwalled Carbon Nanotubes: Enhanced Sensor Characteristics, and NMR Relaxometry Evidence of Liquid Confinement, *J. Electrochem. Soc.*, 166, B1186-B1195, **2019**, DOI: https://doi.org/10.1149/2.0831913jes ; Citations-6

69. P. Vasudeva rao, and R. Kothandaraman, Paper-Based Disposable Zinc-Vanadium Fuel Cell for Micropower Applications, *ChemistrySelect*, 4, 8398 - 8403, **2019**, DOI: https://doi.org/10.1002/slct.201802624; Citations-7

68. J. N. Ramavath, M. Raja, Sanjeet Kumar, and R. Kothandaraman, Mild acidic mixed electrolyte for high-performance electrical double layer capacitor, *Appl. Surf. Sci.*, 489, 867-874, **2019,** DOI: https://doi.org/10.1016/j.apsusc.2019.05.343; Citations-7

67. P. K. Yashwant, Sudip Mandal, and R. Kothandaraman, Carbon Supported and Nafion Stabilized Copper (II) Based 1D Coordination Polymer as an Electrocatalyst for Oxygen Reduction Reaction, *J. Electrochem. Soc.*, 166, F3193-F3201, **2019**, DOI: https://doi.org/10.1149/2.0221907jes; Citations-9

66. Vivekananda Mahanta, M. Raja, and R. Kothandaraman**,** Activated carbon from sugarcane bagasse as a potential positive electrode catalyst for vanadium redox flow battery*, Materials Letters*, 247, 63-66, **2019, DOI:** https://doi.org/10.1016/j.matlet.2019.03.045; Citations-22

65. M. Raja, B. Sadhasivam, R. Dhamodharan, R. Kothandaraman, A chitosan/poly (ethylene glycol)-ran-poly (propylene glycol) blend as an eco-benign separator and binder for quasi-solid-state supercapacitor applications, *Sustainable energy & fuels*, 3(3), 760-773, **2019**, DOI: https://doi.org/10.1039/C8SE00530C; Citations-28

64. G. Dipsikha, S. Ramprabhu, R. Kothandaraman, Chemical Vapor Deposition-Grown Nickel-Encapsulated N-Doped Carbon Nanotubes as a Highly Active Oxygen Reduction Reaction Catalyst without Direct Metal-Nitrogen Coordination, *ACS omega*, 3(10), 13609-13620**, 2018**, DOI: https://doi.org/10.1021/acsomega.8b01565; Citations-15

63. M. Veerababu, R. Kothandaraman, Glycination: A Simple Strategy to Enhance the Cycling Performance of Perylene Dianhydride for Secondary Li-Ion Battery Applications, *ChemistrySelect*, 3(38), 10657-10662, **2018**, DOI: https://doi.org/10.1002/slct.201801588; Citations-6

62. J. N. Ramavath, M. R. Chinmaya, R. Kothandaraman, Iron-Dicyano Dichloro Quinone Primary Battery, *Chemistry Select*, 3(37), 10281-10286, **2018**, DOI: https://doi.org/10.1002/slct.201801878; Citations-2

61. P. Vasudeva rao, M. R. Chinmaya, S. Shankararaman, R. Kothandaraman, A High Voltage Organic Redox Flow Battery with Redox Couples O_2/Tetrabutylammonium Complex and Tris (4-bromophenyl) amine as Redox Active Species*, J. Electrochem. Soc.,* 165(11), A2696, **2018,** DOI: https://doi.org/10.1149/2.0661811jes; Citations-8

60. P. Vasudeva rao, J. N. Ramavath, C. He, V. K. Ramani and R. Kothandaraman, N-and P-co-doped Graphite Felt Electrode for Improving Positive Electrode Chemistry of the Vanadium Redox Flow Battery, *ChemistrySelect,* 3(30), 8678-8687, **2018, DOI:** https://doi.org/10.1002/slct.201801446; Citations-19

59. S. Jagadeswari, M. Sudip, Aidhen, I. S and R. Kothandaraman, Design of Cone-Shaped Hole Transporting Material Organic Structures for Perovskite Solar Cells Applications, *ChemistrySelect,* 3(28), 8159-8166, **2018,** DOI: https://doi.org/10.1002/slct.201801824; Citations-6

58. G. Tamilselvi, P. Gayathri, M. Sudip and R. Kothandaraman, Redox-Active Copper-Benzotriazole Stacked Multiwalled Carbon Nanotubes for the Oxygen Reduction Reaction, *ChemElectroChem*, 5(14), 1837-1847, **2018**, DOI: https://doi.org/10.1002/celc.201800110 **(Invited Article)**

57. R. Kothandaraman, T. Thirupathi, Carbon supported g-C_3N_4 for electrochemical sensing of hydrazine, *Electrochemical Energy Technology*, 4(1), 21-31, **2018,** DOI: https://doi.org/10.1515/eetech-2018-0003 ; Citations-5

56. K. Rajavelu, M. Sudip, R. Kothandaraman and P. Rajakumar, Synthesis and DSSC application of triazole bridged dendrimers with benzoheterazole surface groups, *Solar Energy*, 166, 379-389, **2018,** DOI: https://doi.org/10.1016/j.solener.2018.03.071; Citations-4

55. M. Sudip, R. Vedarajan, Matsumi, N., and R. Kothandaraman, Computational Investigation of the Influence of π-Bridge Conjugation Order of Thiophene and Thiazole Units in Triphenylamine Based Dyes in Dye-Sensitized Solar Cells, *ChemistrySelect,* 3(13), 3582-3590, **2018,** DOI: https://doi.org/10.1002/slct.201702882; Citations-10

54. P. Mani, A. Sheelam, S. Das, G. Wang, V. K. Ramani, R. Kothandaraman and S. Mandal, Cobalt-based coordination polymer for oxygen reduction reaction, *ACS Omega,* 3(4), 3830-3834, **2018,** DOI: https://doi.org/10.1021/acsomega.8b00088; Citations-26

53. S. Jagadeswari, R. Mukkamala, M. Sudip, S. R Vedarajan, N. Matsumi, I. S. Aidhen, and R. Kothandaraman, Exploring the role of the spacers and acceptors on the triphenylamine-based dyes for dye-sensitized solar cells, *Int. J. Hydrog. Energy*, 43(9), 4691-4705, **2018,** DOI: https://doi.org/10.1016/j.ijhydene.2017.10.183; Citations-24

52. A. Sheelam, R. Kothandaraman, Iron (III) chloride-benzotriazole adduct for oxygen reduction reaction in alkaline medium, *Int. J. Hydrog. Energy*, 43(9), 4754-4762**, 2018**, DOI: https://doi.org/10.1016/j.ijhydene.2017.10.115; Citations-11

51. S. Mandal, S. Suriyanarayanan, I. A. Nicholls, and R. Kothandaraman, Selective Sensing of the Biotinyl Moiety Using Molecularly Imprinted Polyaniline Nanowires, *J. Electrochem. Soc.*, 165(14), B669-B678, **2018**, DOI: https://doi.org/10.1149/2.0401814jes; Citations-8

50. M. Veerababu, N. Kuanr and R. Kothandaraman, Sodium Naphthalene Dicarboxylate Anode Material for Inorganic-Organic Hybrid Rechargeable Sodium-Ion Batteries, *J.*

Electrochem. Soc., 165(2), A175-A180, **2018,** DOI: https://doi.org/10.1149/2.0731802jes; Citations-26

49. P. Gayathri and R. Kothandaraman, Redox Active Cobalt-Bipyridine Metal Organic Framework-Nafion Coated Carbon Nanotubes for Sensing Ascorbic Acid*, J. Electrochem. Soc*., 165(13), B603-B609, **2018**, DOI: https://doi.org/10.1149/2.0661813jes; Citations-18

48. U. Dhivya, S. Jagadeswari, M. Sudip, I. S. Aidhen, and R. Kothandaraman, Effect of Flexible, Rigid Planar and Non-Planar Donors on the Performance of Dye-Sensitized Solar Cells, *J. Electrochem. Soc.,* 165(13), H845-860, **2018**, DOI: https://doi.org/10.1149/2.0551813jes; Citations-17

47. R. Verma, C.J. Park, R. Kothandaraman and V. U. Varadaraju, Ternary lithium molybdenum oxide, $Li_2Mo_4O_{13}$: A new potential anode material for high-performance rechargeable lithium-ion batteries, *Electrochimica Acta,* 258, 1445-1452, **2017**, DOI: https://doi.org/10.1016/j.electacta.2017.12.008; Citations-15

46. S. Suriyanarayanan, M. Sudip, R. Kothandaraman, and I. A. Nicholls, Electrochemically synthesized molecularly imprinted polythiophene nanostructures as recognition elements for an aspirin-chemosensor, *Sensors and Actuators B: Chemical*, 253, 428-436, **2017**, DOI: https://doi.org/10.1016/j.snb.2017.05.076; Citations-29

45. M. Sudip, S. Rao and R. Kothandaraman, Understanding the photo-electrochemistry of metal-free di and tri substituted thiophene-based organic dyes in dye-sensitized solar cells using DFT/TD-DFT studies, *Ionics,* 23(12), 3545-3554, **2017,** DOI: https://doi.org/10.1007/s11581-017-2158-y; Citations-21

44. S. Kushwaha, M.P. Karthikayini, G. Wang, M. Sudip, A. P. Bhobe, V. K. Ramani, R. Kothandaraman, A non-platinum counter electrode, MnNx/C, for dye-sensitized solar cell applications, *Appl. Surf. Sci.,* 418, 179-185, **2017,** DOI: https://doi.org/10.1016/j.apsusc.2016.12.140; Citations-10

43. M. Veerababu, G. Wang, V. K. Ramani and R. Kothandaraman, Lithium salt of biphenyl tetracarboxylate as an anode material for Li/Na-ion batteries, *Appl. Surf. Sci.,* 418, 9-16, **2017**, DOI: https://doi.org/10.1016/j.apsusc.2016.12.041; Citations-17

42. R. Verma, R. Kothandaraman and U. V. Varadaraju, In-situ carbon coated $CuCo_2S_4$ anode material for Li-ion battery applications, *Appli. Surf. Sci.,* 418, 30-39, **2017**, DOI: https://doi.org/10.1016/j.apsusc.2016.11.165 ; Citations-35

41. B. Sathiya, S. Anjaiah, R. Kothandaraman, R. Dhamodharan, Green, Seed-Mediated Synthesis of Au Nanowires and Their Efficient Electrocatalytic Activity in Oxygen Reduction Reaction, *ACS Appli. Mater. Interfaces*, 9(34), 28876-28886, **2017**, DOI: https://doi.org/10.1021/acsami.7b07553; Citations-9

40. P. Vasudeva Rao and R. Kothandaraman, Flexible paper-based borohydride-vanadium fuel cell for powering micro-nanosystems, *Ionics*, 23(7), 1811-1817, **2017**, DOI: https://doi.org/10.1007/s11581-017-1987-z; Citations-12

39. M. Veerababu and R. Kothandaraman, Introduction of Carbonyl Groups: An Approach to Enhance Electrochemical Performance of Conjugated Dicarboxylate for Li-Ion Batteries, *J. Electrochem. Soc.*, 164 (7), A1720, **2017**, DOI: https://doi.org/10.1149/2.1581707jes; Citations-14

38. D. N. Joshi, M. Sudip, R. Kothandraman, R. A. Prasath, Efficient light harvesting in dye sensitized solar cells using broadband surface plasmon resonance of silver nanoparticles

with varied shapes and sizes, *Materials Letters,* 193, 288-291, **2017,** DOI: https://doi.org/10.1016/j.matlet.2017.02.008; Citations-13

37. M. Veerababu and R. Kothandaraman, Rational functionalization of perylene diimide for stable capacity and long-term cycling performance for Li-ion batteries, *Electrochimica Acta,* 232, 244-253, **2017**, DOI: https://doi.org/10.1016/j.electacta.2017.02.152; Citations-26

36. P. Vasudeva rao and R. Kothandaraman, On In–situ Redox Balancing of Vanadium Redox Flow Battery Using D-Fructose as Negative Electrolyte Additive, *ChemistrySelect*, 2(2), 720-727, **2017,** DOI: https://doi.org/10.1002/slct.201601417; Citations-15

35. M. Veerababu, N. Kuanr, R. Kothandaraman, Reversible Sodium Storage Behaviour of Aromatic Diimide Disodium Carboxylates, *J. Electrochem. Soc*., 164(1), A6147-A6153**, 2017,** DOI: https://doi.org/10.1149/2.0221701jes; Citations-13

34. N. Bhanumathi, K. Suman, E. Ramachandran, M. Sudip, R. Kothandaraman, and R. Dhaomodharan, Novel ethynyl-pyrene substituted phenothiazine-based metal free organic dyes in DSSC with 12% conversion efficiency, *J. Mater. Chem*. A, 5(21), 10289-10300, **2017**, DOI: https://doi.org/10.1039/C7TA01744H; Citations-101

33. S. Anjaiah, and R. Kothandaraman, Metal-Organic Complexes, [Co (bpy) $_3$] $(NO_3)_2$ and [Co (bpy) $2NO_3$] $NO_3 \cdot 5H_2O$, for Oxygen Reduction Reaction*, J. Electrochem. Soc*., 164(9), F1022-F1029, **2017,** DOI: https://doi.org/10.1149/2.0141712jes; Citations-12

32. P. Gayathri, and R. Kothandaraman, Aquotris (benzotriazole) sulfatocopper (II). benzotriazole Framework Assembled on Multiwalled Carbon Nanotubes through π-π Interaction for H_2O_2 Sensing in pH 7 Buffer Solution, *J. Electrochem. Soc.,*164 (12), 2017, B591-B601, **2017**, DOI: https://doi.org/10.1149/2.0011713jes; Citations-7

31. M. P. Karthikayini, G. Wang, P. A. Bhobe, S. Anjaiah, V. K. Ramani, K. R. Priolkar, and R. Kothandaraman, Effect of protonated amine molecules on the oxygen reduction reaction on metal-nitrogen-carbon-based catalysts, *Electrocatalysis,* 8(1), 74-85, **2017,** DOI: https://doi.org/10.1007/s12678-016-0341-y; Citations-8

30. K. Suman, M. Sudip, S. Subramanian, S. Aryasomayajul, and R. Kothandaraman, A DSSC with an Efficiency of∼ 10%: Fermi Level Manipulation Impacting the Electron Transport at the Photoelectrode-Electrolyte Interface, *ChemistrySelect*, 1(19), 6179-6187, **2016**, DOI: https://doi.org/10.1002/slct.201601461; Citations-9

29. M. Sudip and R. Kothandaraman, DFT/TD-DFT Studies of Metal-Free N-Annulated Perylene Based Organic Sensitizers for Dye-Sensitized Solar Cells: Is Thiophene Spacer Essential for Improving the DSSC Performance? *ChemistrySelect*, 1(18), 5854-5862, **2016**, DOI: https://doi.org/10.1002/slct.201600868; Citations-25

28. S. Anjaiah, M. Sudip, T. Thippani, V. Ramkumar and R. Kothandaraman, Carbon-supported Co (III) dimer for oxygen reduction reaction in alkaline medium*, Ionics,* 22(11), 2183-2194, **2016**, DOI: https://doi.org/10.1007/s11581-016-1730-1; Citations-9

27. Sheelam, A and R. Kothandaraman, Nitrogen functionalized few layer graphene derived from metal-organic compound: a catalyst for oxygen reduction reaction, *Electrochimica Acta,* 216, 457-466, **2016**, DOI: https://doi.org/10.1016/j.electacta.2016.09.006; Citations-13

26. Rakesh Verma, R. Kothandaraman, and U. V. Varadaraju, Nanocrystalline $Na_2Mo_2O_7$: A new high performance anode material, *Electrochimica Acta,* 215, 192-199, **2016**, DOI: https://doi.org/10.1016/j.electacta.2016.08.094; Citations-13

25. M. Suman, K. Suman, R. Mukkamala, V. K. Siripina, I. S. Aidhen, B. Rajakumar, Band R. Kothandaraman, Metal-free bipolar/octupolar organic dyes for DSSC application: A combined experimental and theoretical approach, *Organic Electronics*, 36, 177-184, **2016,** DOI: https://doi.org/10.1016/j.orgel.2016.06.009; Citations-26

24. Rakesh Verma, R. Kothandaraman and U. V. Varadaraju, Disodium dimolybdate: a potential high-performance anode material for rechargeable sodium ion battery applications, *J. Solid-State Electrochem*., 20(5), 1501-1505, **2016**, DOI 10.1007/s10008-016-3153-3; Citations-15

23. M. Veerababu, U. V. Varadaraju, and R. Kothandaraman, Reversible lithium storage behavior of aromatic diimidedilithium carboxylates, *Electrochimica Acta*, 193, 80-87, **2016,** DOI: https://doi.org/10.1016/j.electacta.2016.02.030; Citations-32

22. S. Debraj, Purna Chandra Rao, H. B. Aiyappa, ,S. Kurungot, M. Sudip, R. Kothandaraman and Sukhendu Mandal, Multifunctional copper dimer: structure, band gap energy, catalysis, magnetism, oxygen reduction reaction and proton conductivity, *RSC advances*, 6(44), 37515-37521, **2016,** DOI: 10.1039/C6RA05961A; Citations-10

21. K. Rajavelu, P. Rajakumar, M. Sudip, and R. Kothandaraman, Synthesis, photophysical, electrochemical, and DSSC application of novel donor–acceptor triazole bridged dendrimers with a triphenylamine core and benzoheterazole as a surface unit, *New J. Chem*., 40 (12), 10246-10258, **2016**, DOI: https://doi.org/10.1039/C6NJ02126C; Citations-14

20. T. Thippani, M. Sudip, G. Wang, V. K. Ramani, and R. Kothandaraman, Probing oxygen reduction and oxygen evolution reactions on bifunctional non-precious metal catalysts for metal-air batteries, *RSC advances*, 6 (75), 71122-71133, **2016,** DOI: 10.1039/C6RA13414A; Citations-27

19. M. P. Karthikayini, T. Thirupathi, G. Wang, V. K. Ramani, and R. Kothandaraman, Highly active and durable non-precious metal catalyst for the oxygen reduction reaction in acidic medium, *J. Electrochem. Soc*., 163(6), F539-F547, **2016**
DOI: https://doi.org/10.1149/2.1001606jes; Citations-33

18. M. Veerababu, U. V. Varadaraju, and R. Kothandaraman, Improved electrochemical performance of lithium/sodium perylene-3, 4, 9, 10-tetracarboxylate as an anode material for secondary rechargeable batteries, *Int. J. Hydrog. Energy*, 40(43), 14925-14931, **2015**, DOI: https://doi.org/10.1016/j.ijhydene.2015.09.001; Citations-42

17. K. M. Palanivelu, V. Prabhakaran, V. K. Ramani, and R. Kothandaraman, Controlling the nitrogen content of metal-nitrogen-carbon based non-precious-metal electrocatalysts via selenium addition, *J. Electrochem. Soc*., 162(6), F475- F482, **2015,** DOI: https://doi.org/10.1149/2.0101506jes; Citations-31

16. V. Nallathambi, N. R. Leonard, R. Kothandaraman and S. C. Barton, Nitrogen precursor effects in iron-nitrogen-carbon oxygen reduction catalysts, *Electrochem. Solid-State Lett*., 14(6), B55, **2011**, DOI: https://doi.org/10.1149/1.3566065 ; Citations-81

15. R. Kothandaraman, C. Bock, and Barry MacDougall, CH_3OH Oxidation Activities of an Unsupported PtxRuy Powder Catalyst before and after Different Electrochemical Treatments, *ECS Transactions* 28, 91**, 2010**, DOI: https://doi.org/10.1149/1.3505463; Citations-0

14. R. Kothandaraman, V. Nallathambi, K. Artyushkova, and S. C. Barton, Non-precious oxygen reduction catalysts prepared by high-pressure pyrolysis for low-temperature fuel

cells, *Applied Catalysis B: Environmental*, 92, 209-216, **2009,** DOI: https://doi.org/10.1016/j.apcatb.2009.07.005; Citations-153

13. R. Kothandaraman, W. Deng, M. Sorkin, A. Kaufman, H. Frank Gibbard, and S. C, Barton, Methanol anode modified by semipermeable membrane for mixed-feed direct methanol fuel cells, *J. Electrochem. Society,* 155, B865, **2008,** DOI: https://doi.org/10.1149/1.2943212; Citations-15

12. R. Kothandaraman and A. K. Shukla, A direct borohydride/hydrogen peroxide fuel cell with reduced alkali crossover, *Fuel Cells*, 7, no. 3, 225-231, **2007**, DOI: https://doi.org/10.1002/fuce.200600023; Citations-88

11. R. Kothandaraman, S. K. Prashant, and A. K. Shukla, A 28-W portable direct borohydride–hydrogen peroxide fuel-cell stack, *J. Power Sources*, 162, 1073-1076, **2006**, DOI: https://doi.org/10.1016/j.jpowsour.2006.07.059; Citations-118

10. R. Kothandaraman., A. K. Shukla, A. Gayen, M. S. Hegde, K. R. Priolkar, P. R. Sarode, and S. Emura, Tailoring a Pt–Ru catalyst for enhanced methanol electro-oxidation*, J. Power Source*s, 157, 45-55, **2006**, DOI: https://doi.org/10.1016/j.jpowsour.2005.06.031; Citations-90

9. A. K. Shukla, R. Kothandaraman and K. Scott, Advances in mixed-reactant fuel cells*, Fuel cells*, 5, 436-447, **2005**, DOI: https://doi.org/10.1002/fuce.200400075; Citations-77

8. NA Choudhury, RK Raman, S Sampath, AK Shukla, An alkaline direct borohydride fuel cell with hydrogen peroxide as oxidant, *J. Power Sources,* 143, 1-8, **2005,** DOI: https://doi.org/10.1016/j.jpowsour.2004.08.059; Citations-259

7. R. Kothandaraman, and A. K. Shukla, Electro-reduction of hydrogen peroxide on iron tetramethoxy phenyl porphyrin and lead sulfate electrodes with application in direct borohydride fuel cells, *J. Applied Electrochem.* 11, 1157-1161, **2005**, DOI 10.1007/s10800-005-9021-y; Citations-72

6. S. K. Mondal, R. Kothandaraman, A. K. Shukla, and N. Munichandraiah, Electrooxidation of ascorbic acid on polyaniline and its implications to fuel cells, *J. Power Sources*, 145, 16-20, **2005,** DOI: https://doi.org/10.1016/j.jpowsour.2005.01.001; Citations-55

5. R. Kothandaraman, Nurul A. Choudhury, and Ashok K. Shukla, A high output voltage direct borohydride fuel cell, *Electrochem. Solid-State Lett.,* 7, A488, **2005**, DOI: https://doi.org/10.1149/1.1817855; Citations-161

4. R. Kothandaraman, G. Murgia, and A. K. Shukla, A solid-polymer electrolyte direct methanol fuel cell with a methanol-tolerant cathode and its mathematical modelling, *J Appl. Electrochemistry,* 10, 1029-1038, **2004**, DOI: https://doi.org/10.1023/B:JACH.0000042674.78355.6c; Citations-19

3. A. K. Shukla, R. Kothandaraman, N. A. Choudhury, K. R. Priolkar, P. R. Sarode, S. Emura, and R. Kumashiro, Carbon-supported Pt–Fe alloy as a methanol-resistant oxygen-reduction catalyst for direct methanol fuel cells, *J. Electroanal. Chem*., 563, 181-190, **2004,** DOI: https://doi.org/10.1016/j.jelechem.2003.09.010; Citations-222

2. A. K. Shukla, and R. Kothandaraman, Methanol-resistant oxygen-reduction catalysts for direct methanol fuel cells, *Annu. Rev. Mater. Res.,* 33, 155-168, **2003**, DOI: https://doi.org/10.1146/annurev.matsci.33.072302.09351; Citations-206

1. A. K. Shukla, C. L. Jackson, K. Scott, and R. Kothandaraman, An improved-performance liquid-feed solid-polymer-electrolyte direct methanol fuel cell operating at near-

ambient conditions, *Electrochimica Acta*, 47, 3401-3407, **2002**, DOI: https://doi.org/10.1016/S0013-4686(02)00276-1; Citations-92

Journal Cover page details

- New cyclic and acyclic imidazole-based sensitizers for achieving highly efficient photoanodes for dye-sensitized solar cells by potential assisted method, S. Jagadeeswari, Indrapal Singh Aidhen, R. Kothandaraman, *New J. Chemistry,* 44, 10207-10219, 2020.
  DOI: https://doi.org/10.1039/D0NJ00137F

- Redox-Active Copper-Benzotriazole Stacked Multiwalled Carbon Nanotubes for the Oxygen Reduction Reaction, Tamilselvi Gurusamy, Prakasam Gayathri, Sudip Mandal, Kothandaraman Ramanujam, *ChemElectroChem*, 5, 1837-1847, 2018.
  DOI: https://doi.org/10.1002/celc.201800754

Membership in the professional bodies

- The Indian Thermodynamics Society
- The Electrochemical Society, New Jersey-USA
- Royal Society of Chemistry (RSC)
- Society for Advancement of Electrochemical Science and Technology (SAEST), Central Electrochemical Research Institute, Karaikudi, India
- Chemical Research Society of India (CRSI)
- Materials Research Society of India (MRSI), Indian Institute of Science, Bangalore
- Indian Society for Electro Analytical Chemistry (ISEAC), Bhabha Atomic Research Centre -Mumbai (BARC), India
- SACSE, Kalpakkam, India
- Society for Materials Chemistry (SMC), Bhabha Atomic Research Centre, Mumbai
- Electrochemical Society of India

Research Interest

Hydrogen storage by electrochemical reduction of nitrogen; Metal-ion batteries; Development of organic dyes and hole-transporting materials for dye-sensitized solar cells (DSSC) and perovskite solar cells; Electrode materials and novel redox couples for flow battery; Electrode materials for oxygen reduction reaction in alkaline and acidic medium (Zn-air and polymer electrolyte membrane fuel cells); High energy density supercapacitor materials; Sensors for biologically important molecules; photo rechargeable batteries; Electroorganic synthesis.

Contributions to the field (Energy Storage)

Technology Contribution / transferred:

- Developed 10kWh/1.4 kW Vanadium Redox Flow Battery Energy Storage System, which is under field trial at High Energy Batteries (I) Ltd. Trichy. The technology is transferred to ONGC.
- Catholyte ($DABr_3$.HBr with AQDS Anode) Material for Aqueous Acidic Flow Battery, Indian Patent Application No. :202241042107. Kothandaraman R and Vivekandanda M

Status: IP licensed to *Archean Chemical Industries Limited for 50 Lakhs + 2% Royalty.* Technology transfer ceremony can be viewed at: ***https://twitter.com/iitmadras/status/1631195298872840192?t=S36XIIWYi5nddJsp7n3AKw&s=08***

- Jointly Developing 10kWh Indigeneous Zinc-Bromine Redox Flow Battery with Archean Chemical Industries Limited.
- Our Technology for Repurposing Waste Battery Materials into Battery Electrodes Won Third Prize in New Generation Ideation Contest 2022 Conducted by Hindustan Petroleum Corporation Limited.
- On the process of transferring zinc recovery technology from the pharma effluent for Pfizer.

A photograph of 1.4kW/10kWh system developed with industrial partner for ONGC-Energy Trust Centre.

Supervision of Graduate Students, Post Docs, and M.Sc. Students

2011-Present PhDs: 16 completed + 13-pursuing; MScs: 13-completed + 03-pursuing

Postdoctoral fellows: 8- completed + 7 pursuing

Publications

Refereed Journal Publications – 144 since 2004

Book chapters – 02

Conference presentations – More than 100 (including students)

Patents granted

1. A new multilayer sandwich design of a redox flow battery cell, Kothandaraman R and Varadaraju U V (Indian Patent, Year: 2023, Patent No. 428259)
2. Solvent-filled multiwalled carbon nanotubes for enhanced electrochemical sensing applications, Kothandaraman R and Tamilselvi G. (Indian Patent, Year: 2022, Patent No. 400805)
3. Method for improving vanadium redox flow battery performance by suppressing H_2 evolution and balancing redox kinetics using organic molecules, Kothandaraman R and Vasudevarao P (Indian Patent, Year: 2022, No. 404775)
4. Effect of semi - labile multidentate ligands on oxygen reduction reaction performance of non-precious metal catalysts, Kothandaraman R and Karthikayini M P (Indian Patent, Year: 2019, Patent No. 324235)
5. Novel catalyst for oxygen reduction reaction in fuel cells, SAC Barton, R. Kothandaraman, V. Nallathambi (U.S. Patent, Year: 2011, Patent No. US20110287174A1)

Patents Pending

1. Organic materials capable of suppressing H2 evolution and oxidizable by V5+ (VO2+) for redox balancing in vanadium redox flow battery. Kothandaraman R and Vasudevarao P (Indian Patent, Year:2016, App. No. 201641030008).
2. Molecular and electrode engineering of pentacene-5,7,12,14-tetraone for sustainable organic aqueous zn-ion batteries, Kothandaraman R, Veerababu M, Chinamay R (Indian Patent, Year: 2019, IDF NO. 1945)
3. Organic catholyte materials for aqueous organic flow battery, Kothandaraman R, Indrapal Singh Aidhen, Raja M, and Jagadeeswari S (Indian Patent, Year: 2020, App. No. 202141000317)
4. Spinel derived from spent battery for electrochemical fixation of nitrogen into ammonia, Indian Patent, Kothandaraman R and Tamilselvi G, Indian Patent, Year: 2021, IDF NO. 2211
5. Catholyte material for aqueous acidic flow battery, Vivekananda Mahanta, Richa Gupta, and Kothandaraman R, Indian Patent, Year: 2022, IDF NO. 2384.

6. Influence of charging cut-off voltage on capacity/capacity balancing of 2,6-dihyroxanthraquinone – Ferro/Ferricyanide redox flow battery, Kothandaraman R and Abhilipsa Sahoo, Indian Patent, Year: 2022, IDF NO. 2476.
7. Metal oxynitride based photo-sensitive supercapacitor and photo supercapattery, Ramanujam, K.; Kandregula, G. R.; Naik, J., Indian Patent, Year: 2022, IDF NO. 2467.
8. Boosting the coulombic and energy efficiencies along with rate capability of SLRFB by using a BDD coated carbon felt electrode, Kothandaraman Ramanujam, Ramachandrarao M.S, Harun Khan, Nikhil C, Nandini Jaiswal, Year: 2023, Appl. No. 202341057222, IDF No. 2552.
9. Process for preparing functionalized and hydride inserted boron/borophene nanosheets, Kothandaraman Ramanujam, Anandhakumar Sukeri, Swati Panigrahi, Indian Patent, Year: 2023, Appl. No. 202341057548, IDF no. 2649.
10. Probe Sonication Converting Nitrates to Ammonia in water, Kothandaraman Ramanujam, Nikil George Mohan, Indian Patent, Year 2023, IDF 2692.

List of sponsored projects along with values

List of projects handled and the total cost of projects in currency under release is amounting to 2364 lakhs (23.64 Crores)

S. No.	Title	Sponsoring Agency	Period	Amount (Rupees in lakhs)
1	Development of boron-doped diamond coated corrosion-resistant carbon fabric for energy, and textile/organic effluent water cleaning applications	National Technical Textiles Mission, Ministry of Textiles (Under Release)	2023-2026	702
2	1kW/5kWh Redox Flow Battery with Anthraquinone Based Anolyte and Iron Catholyte: A Commercial Worthy India-Centric Solution for Grid-Scale Energy Storage	DST-TDP (under release)	2023-2025	246
3	Upscaling of the Zn-Chromium Oxynitride Photo Flow or Thin Film Supercapattery	ARCI-Hyderabad	April 2023-Oct 2024	15
4	Soluble Lead Acid Redox Flow Battery	ARCI-Hyderabad	April 2023-Oct 2024	15

5	Activation of zinc and exploring the catalytic amount of zinc for cycloaddition reaction	Pfizer Healthcare India Private Limited	Jan 2023-July 2023	38.16
6	Development of 1 kW/10 kWh Zinc-Bromine Redox Flow Battery	Archean Chemical Industries Limited	2023-2024	109
7	Energy Storage and Conversion Vertical of The Energy Consortium IIT Madras	MHRD-IITM	2023-2025	1500 (300 is our share)
8	Spent Battery Recycling into Electrocatalyst for Ammonia Production and Raw Materials for New Batteries Role: PI	Department of Science and Technology	3 Years (29 Sep 2021 to 28 Sep 2024)	77.93
9	Advanced Centre for Energy Storage and Conversion (PCoE) Role: PI	Ministry of Human Resource and Development	5 Years (04 Feb 2021 to Feb 2025)	225 (Feb 2021-Feb 2023) 250 (March 2023-March 2025)
10	Meso-microporous core-shell carbon-based materials and electroactive diluent for long cycle life and high energy density Li- S batteries Role: PI	Indian Space Research Organization	2 Years (29 Oct 2020 to 28 Oct 2022)	24.99
11	Tailoring of quinones as high energy density cathode materials for sustainable secondary aqueous Zn-ion batteries Role: PI	Indian Institute of Technology Madras	1 Year (24 Jan 2020 to 23 Jan 2021)	6.10
12	On the Reduction of iR-losses, Flow Optimization and Identifying Alternative Membranes to Nafion for 1kW -4kWh Vanadium Redox Flow Battery Suitable for Residential Use Role: PI	Ministry of Human Resource and Development	2 Years (30 Dec 2019 to 29 Dec 2022)	99.89
13	Energy Storage Platform on Supercapacitors Role: PI	Department of Science & Technology	5 Years (06 Nov 2019 to 05 Nov 2024)	95.62

14	Light induced process of hierarchical electron cascade system, materials and devices for solar energy conversion Role: Co-PI	Science and Engineering Research Board	3 Years (14 Nov 2018 to 13 Mar 2022)	10.00
15	Development of High Performance and Low-Cost Boron-Doped Diamond Electrodes for Waste Water Treatment Role: Co-PI	Impacting Research Innovation and Technology – IMPRINT	3 Years (09 Dec 2019 to 08 Dec 2022)	142.78
16	Ionogel Electrolyte Membrane Fuel Cell with Plasma Electrolytic Nitrided Metallic Bipolar Plate and Effective Flow Field Design Role: Co-PI	Department of Science & Technology	3 Years (02 Sep 2019 to 01 Sep 2022)	56.73
17	Investigation of Stable Organic and Organometallic Radical Ions and Ions as Electro-active Species in Organic Redox Flow Batteries (RFBs) in Non-aqueous Media Role: Co-PI	Science and Engineering Research Board	3 Years (24 Sep 2018 to 24 Feb 2022)	75.59
18	DST Solar Energy Harnessing Centre - Energy Storage Domain - Sub Project Role: Co-PI	Department of Science & Technology	3 years (28 Jun 2018 to 30 Jun 2022)	293.70
19	DST Solar Energy Harnessing Centre - PV Domain (RWP-PartA) - Sub Project Role: PI	Department of Science & Technology	3 years (28 Jun 2018 to 30 Jun 2022)	559.14
20	Development of 10 kW / 50 kWh Redox Flow Battery System for Solar PV Applications Role: PI	Impacting Research Innovation and Technology – IMPRINT	5 Years (16 Feb 2017 to 31 Mar 2022)	399.84
21	Development and Demonstration of 250W, 1kWh Vanadium Redox Flow Battery Systems Rechargeable by Renewable Energy such as Solar and Wind Energy Role: PI	Department of Science & Technology	3 Years (17 May 2017 to 16 Aug 2020)	81.37
22	Direct light to chemical energy conversion: A hybrid of solar cell and battery Role: PI	Indian Institute of Technology Madras	1 Year (01 May 2016 to 30 Jun 2017)	7.00

23	Rechargeable zinc-air battery with novel 3D zinc electrode structure and durable bipolar cathode Role: PI	Council of Scientific and Industrial Research	1 Year (01 Jan 2015 to 31 Dec 2016)	3.00
24	Polynuclear transition metal complexes for electrochemical reduction of oxygen Role: PI	Department of Science & Technology	3 Years (14 Aug 2014 to 13 Aug 2017)	25.00
25	Non-precious metal catalyst for oxygen reduction reaction in Polymer Electrolyte Membrane Fuel Cells (PEMFC) with improved durability and activity Role: PI	Indian Space Research Organization	3 Years (26 Sep 2011 to 25 Sep 2014)	31.40
26	Non-precious metal catalysts with increased active catalytic-site density for the electrochemical oxygen reduction reaction Role: PI	Nissan Research Support Program	3 Years (06 Jul 2011 to 05 Jul 2013)	8.80
27	Exploding type metal precursors for the synthesis of a non-precious metal catalyst with improved oxygen reduction activity Role: PI	Indian Institute of Technology Madras	3 Years (05 Jul 2011 to 04 Aug 2013)	20.70

Consultancy Projects:

S.No.	Title	Sponsoring Agency	Period	Amount (Rupees in lakhs)
1	Strategies towards the development of 10 kW/ 50 kWh Vanadium redox flow batteries for commercial applications	OECT (ONGC)	Dec 2023 – June 2025	829
2	Electrolyte Evaluation	D. J. Irvin Company LLC	4 months (Mar – Jun 2023)	4,00,000
3	Development of an efficient organic magnesiumborate-based (OMBB) electrolyte compatible with ordered mesoporous carbon (OMC) based sulfur cathode material for Mg-S battery technology	Tumpudi Innovations Private Limited	July 2023 – July 2024	32.34

4	Exploration on use of Efficient Phenazine Based Molecules as Redox-Active Materialin Redox Flow Battery (RFB) system, in both domain of Aqueous Organic RFB (AORFB) & NonAqueous RFB (NORFB) for Industrial Application.	NOCIL Limited	3 months (01 Oct 2022-31 Dec 2022)	5.46
5	Design, Development and Demonstration of 10 kWh/1kW Rechargeable Energy Storage System in Combination with Solar PV Charging: Vanadium Redox Flow Batteries (RBIC project)	ONGC Energy Centre Limited	2 Years (16 Aug 2019 to 15 June 2022) Technology is being transferred	388 (Completed)
6	Identifying the issues with the cycling of Al-S coin cell/pouch-cell (RBIC project)	Omega Farma	6 months (08 Dec 2021 to 08 Jun 2022)	21.00
7	Expert Scientific advise on battery fabrication (RC project)	Omega Farma	6 months (10 Dec 2021 to 09 Jun 2022)	13.80
8	Removal of Cl- from the sodium formate + sodium chloride solution (RBIC project)	Amber Chemicals and Pharmaceuticals Private Limited	6 months (01 Jun 2021 to 30 Nov 2021)	5.31
9	Development of High Performance and Low-Cost Boron-Doped Diamond Electrodes for Waste Water Treatment	Kapindra Precision Engineering Private Limited	2 Years (18th May 2020 to 08th Dec 2022)	3.0
10	Converting spent zinc-carbon and zinc based alkaline batteries into a source of nutrients in the manure	Tide Water Oil Company (India) Limited	3 Years (23 Mar 2020 to 22 Mar 2023)	20.82
11	Carbon materials development for battery	Labkarts	3 months (22 Mar 2021 to 21 Jun 2021)	2.00
12	Fuel cell reactor for H_2O_2 production	Research Supporters India	1 Year (01 Jul 2019 to 31 Dec 2019)	1.50

13	Development of oxygen sensor and gas purification system	Elixir Electronics	1 Year (04 Feb 2019 to 29 Feb 2020)	1.18
14	Specific Power Consumption of $KClO_3$ plant	Vaighai chemical industries limited	1 Year (01 May 2018 to 13 Oct 2018)	0.59
15	Colouring Project	Titan Company Ltd.	1 Year (01 Feb 2017 to 31 Dec 2017)	9.38
16	Novel method of directly converting rice husks (RH) to carbon-encapsulated, Nano-structured silicon (cnSi) for Li-ion Battery (LiB) Anodes	Maccaferri Environmental Solutions Private Limited	1 Year (01 Mar 2014 to 30 Sep 2015)	3.60

Whereabouts of Ph.D. students graduated

S. No	Name of the scholar	Title of the thesis	Current affiliation	Year of graduation
1	Dr. M. P Karthikayini	Metal-nitrogen-carbon (MNC) based non-precious metal catalysts for electrochemical reduction of oxygen in fuel cells	Chemist (Group B Gazetted Officer), Department of Industries and Commerce, Government of Tamilnadu, Guindy, Chennai	2016
2	Dr. Anjaiah Sheelam	Metal-organic complexes and carbon materials derived from metal-organic complexes for oxygen reduction reaction in alkaline medium	Postdoctoral fellow, Center for Condensed Matter Sciences, Department of Physics, National Taiwan University, Taiwan	2017
3	Dr. T. Thirupathi	Cobalt and nitrogen doped carbon materials for rechargeable zinc-air battery and carbon supported g-C_3N_4 for hydrazine sensor applications	Manager, Renewable energy systems limited, Hyderabad	2017

4	Dr. M. Veerababu (Co-guided)	Studies on certain aromatic diimides and conjugated carboxylates as electrode materials for secondary lithium/sodium-ion battery applications	Scientist of Energy Technology Division, Godi India Pvt. Ltd, Hyderabad	2017
5	Dr. Rakesh Verma (Co-guided)	Ternary Transition Metal Oxides and Sulphides as New Anode Materials for Rechargeable Alkali Metal Ion (Lithium and Sodium) Battery Applications	Assistant Professor, Central University of Allahabad- Uttar Pradesh 211002	2017
6	Dr. P Vasudevarao	Studies on new electroactive fluids and catalysts for redox flow batteries and membrane less fuel cells	Deputy Manager, R&D Li-ion Battery Technology, Amara Raja Batteries Limited, Karakambadi, Tirupati, Andhra Pradesh – 517520	2018
7	Dr. Sudip Mandal	Molecular Engineering for Dye-Sensitized Solar Cells and Chemosensors: An Experimental and Computational Approach	Assistant Professor, Division of Chemistry, Department of Sciences and Humanities, Vignan's Foundation for Science, Technology and Research (Deemed to be University), Guntur, Andhra Pradesh	2019
8	Divya Unny	Carbazole, phenothiazine and triphenylamine based organic dyes with different push-pull architecture for dye-sensitized solar cells	Offered Postdoc position at Bowling Green State University, USA	2022
9	Ramavath Janraj Naik	Boosting the energy density of aqueous supercapacitor through the multitude of approaches and development of eco-benign membrane/binder materials	Sri Venkateswara College, Delhi University	2022

10	Tamil Selvi G.	Electrochemical sensors and electrocatalytic production of ammonia.	The University of Texas at Austin, USA	2022
11	M. R. Chinmaya	Tweaking the redox-active organic material properties and electrode engineering for rechargeable battery applications	Postdoc at Ulm University, Germany	2022
12	Yashwant Pratap Kharwar	Nickel and Copper-based electrocatalysts and nitrogen-doped carbon support for platinum nanoparticles for the oxygen reduction reaction in the energy conversion systems	Postdoc at IIT Bombay	2022
13	Sumana B	Activated carbon-based electrode materials with iodine/iodide redox-active ionic liquid and solid-state electrolyte for the supercapacitor applications	Graduated, offered postdoc position at Brunel University London	2022
14	Dipsikha Ganguly	Development of electrode materials and technique for efficient energy storage and conversion devices	Volt14 Solutions, Singapore	2023
15	Vivekananda Mahanta	Electrode Engineering for Vanadium and Exploring Endurance of Alternative Redox-Active Materials for Aqueous Acidic Redox Flow Battery		2023
16	Kandregula Ganapathi Rao	Studies on light sensitive devices and aqueous asymmetric supercapacitors	Assistant manager at Amararaja batteries	2023

Research Guidance (Ph.D.) under progress:

S. No.	Roll No./Name	Tentative title/ Area of research	Status	Expected Year of Completion

1.	CY18D104/ Richa Gupta	Zn-ion batteries	4th Year	2023
2.	CY18D026/ Nivedha L. K.	Zinc-Air batteries	4th Year	2023
3.	CY18D088/ Harun Khan	Vanadium and Organic redox flow batteries	4th Year	2023
4.	CY18D131/ Potham Sravani	Supercapacitors	3rd year	2023
5.	CY18D106/ Priya V	Zn-ion batteries and organic redox flow batteries	3rd year	2023
6.	CY18D105/ Sandeep KM	Organic redox flow batteries	3rd year	2023
7.	CY20D045/ Mohana Priya	Li-S batteries	2nd Year	2025
8.	CY20D049/Swati Panigrahi	Li-S batteries and electrochemical reduction of nitrogen	2nd Year	2025
9.	CY21D048/ Nikhil G Mohan	Electrochemical reduction of nitrogen and theoretical work	1st Year	2026
10.	CY21D074/ Abhilipsa Sahoo	Al-S batteries and organic redox flow batteries	1st Year	2026
11.	Megha Bala/ CY22D053	Zinc-Air batteries	1st Year	2026
12.	Rubi/ CY22D013	Metal-Sulfur batteries	1st Year	2026
13.	Santhoshini/CY23D038	Mg ion batteries	1st Year	2027

Ph.D. Students Interned During Their Ph.D.

S. No.	Name of the student	Fellowship/Institute	Year	Research Advisor
1.	Dr. S. Anjaiah	JASSO*/Japan Advanced Institute of Science and Technology, Ishikawa Prefecture, Nomi, Japan	2015	Prof. Noriyoshi Matsumi
2.	Dr. M. Sudip	JASSO*/Japan Advanced Institute of Science and Technology, Ishikawa Prefecture, Nomi, Japan	2016	Prof. Noriyoshi Matsumi

3.	Dr. P Vasudeva Rao	Linnaeus University-Sweden	2017	Prof. Ian Nicholls
4.	Dr. Sumana Brahma	JASSO*/Japan Advanced Institute of Science and Technology, Ishikawa Prefecture, Nomi, Japan	2018	Prof. Noriyoshi Matsumi
5.	Ms. Swati Panigrahi	International Immersion Experience (IIE) Award by IIT Madras / Kyushu University (Chikushi Campus), Fukuoka Prefecture, Japan.	2023	Prof. Watanabe Ken (Shimanoe-Ken lab)
JASSO: Japan Student Services Organization				

Notable Achievements of Doctoral Students

Roll No/Name	Achievement
Ms. Priya V	Institute Research Award – 2023 (it carries a cash prize of Rs 20,000 and a citation from IIT Madras) for her outstanding PhD work
Mr. Kandregula Ganapathi Rao	Institute Research Award – 2022 (it carries a cash prize of Rs 20,000 and a citation from IIT Madras) for his outstanding PhD work
Ms. Dipsikha Ganguly	Keshav Rangnath Excellence in Research Award (it carries a cash prize of Rs 20,000 and a citation from IIT Madras) for her outstanding PhD work
Dr. Chinmay Mirle	Presented a oral presentation on invitation in Junior National Organic Chemistry Symposium (JNOST-22), School of Chemistry, University of Hyderabad, held between Jan 06-09, 2022 Best Ph.D thesis award in 2022
Ms. Sumana Brahma	Young Scientist award in the 40th Annual Conference Indian Council of Chemists, Hyderabad (Dec 2021)
Ms. Tamil Selvi G.	• DST Selected her to attend 13th HOPE Meeting (Meeting of Nobel Laureates) organized by the Japan Society for the Promotion of Science in March 2022 for her outstanding research work. She is one among 9 chosen for this honour. Young researchers selected from various countries to engage in interdisciplinary discussions with Nobel laureates and other distinguished scientists. • Institute Research Award - 2020
Dr. Jagadeeswari S	• SERB-NPDF poster competition award -2020 by DST-SERB

	• Best young women award by Genesis of Educational Impressions -2021
Ms. Vanshika Jain	Best M.Sc thesis award in 2018

NPDF projects hosted / other grant details

S.No	Title of the Project	Amount (Rs. In lakhs)	Scholar Name	Start date	Duration
1.	Rational Design and Development of Large-Area Perovskite Solar Cells	10.05	Dr. G Murugadoss	14-10-2022	3 Years (ongoing)
2.	Borophene: A novel two-dimensional graphene-like material for future energy storage applications	22.37	Dr. Anandhakumar Sukeri	01-03-2022	2 years (ongoing)
3.	Women Leading IITM 2022	2.1	Mis. Sumana B	01-03-2022	2 years (completed)
4.	Light induced process of Hierarchical electron cascade system, Materials and Devices for Solar energy conversion (Teachers Associateship For Research Excellence- TARE)	10.05	Dr. M. Asha Jhonsi	14-11-2018	3 Years (Completed)
5.	Enhanced photovoltaic performances of dye-sensitized solar cells sensitized with triphenylamine/phenothiazine-oxindole/dithienobenzotrizole based dyes	17.02	Dr. Selvam (NPDF)	21-06-2017	2 Years (completed)
6.	Permselective membrane and polymer/garnet electrolyte for Li-S batteries	19.2	Dr. M. Raja (NPDF)	21-09-2017	2 Years (completed)
7.	Novel porous 3D architectures of Nanocarbons for the Photo and Electrochemical Production of Green fuels from CO_2 and H_2O: A Better solution for the two global problems	19.2	Dr.Chiranjeevi Srinivasarao Vusa	25-10-2017	2 Years (completed)
8.	Electroorganic Modifications of Graphene into Redox-mediator-	19.2	Dr. P. Gayathri	08-06-2016	2016

	cum-Substrate to Immobilize Glucose Oxidase/Cholesterol Oxidase for Bio-sensor Applications				2 Years (completed)

Thesis reviewed/ Viva-Voce conducted

1.	Revitalizing fuel cells/electrolysers: Sustainable recycling of polymer membrane through effective degradation analysis, screening and reuse strategies, Mr. Sreeraj P, 2023
2.	Investigations on $Na_3Zr_2Si_2PO_{12}$ based solid electrolyte, $Na_3V_2(PO_4)_3$/C based cathode and biomass derived hard carbon anode materials for Na-ion batteries, Mr. Y. Bhaskara Rao, SRM University-AP, Andhra Pradesh, 2023
3.	Rechargeable zinc-air batteries with decoupled zinc anode and air cathode reactions, Mr. Kadam Nishad Shishir, IIT Bombay, 2023
4.	Self-standing three-dimensional flexible electrodes for energy conversion and biosensing applications, Mr. Alankar Kafle, IIT Ropar, 2023
5.	Development of Sustainable Electrode Materials for Energy and Power Balanced Lithium-ion Capacitors, Ms. Udita Bhattacharjee, IIT Hyderabad, 2023
6.	Investigation of Novel Magnesium Electrolytes for Magnesium-ion Batteries, Mr. Wenchuan Zhang, Newcastle University, UK, 2022
7.	Metal Oxide-Carbon Composite as Air-breathing Electrode For Rechargeable Lithium-Air Battery: Role of Metal Nanoparticles, Ms. M. Athika, Pondicherry University, INDIA, 2022
8.	Studies on Nanostructured Transition Metal Oxides and Related Composites for Supercapacitor Electrodes, Mr. Kumar, Indian Institute of Science, Bangalore, India, 2022
9.	Studies on the development and characterisation of carbon-based materials for energy applications, Ms. Shweta, CSIR-National Physical Laboratory, India, 2022
10.	Investigation into non-aqueous aluminium-ion battery electrolyte and cathode materials for enhanced power and capacity, Liam Plunkett, School of Engineering, Newcastle University, UK, 2021
11.	Novel approaches and design principles for interfacial engineering of double-layer based flexible energy storage devices, Mr. Mihir Kumar Jha, Indian Institute of Technology Bombay, 2021
12.	Carbonic and non-carbonic filler reinforced polymeric composites as electrode materials for supercapacitor application, Bela Purty, Indian Institute of Technology (Indian School of Mines) Dhanbad, 2021
13.	Development of phosphors for solar cell and LED applications, Akta Verma, Indian Institute of Technology (Indian School of Mines) Dhanbad, 2020
14.	Binary metal oxide nanostructures for energy conversion and storage application Gyan prakash sharma, Indian Institute of Technology Kanpur, 2019
15.	Studies on metal-free electrocatalysts for oxygen reduction reaction in polymer electrolyte membrane fuel cells, Srinu Akula, Academy of Scientific and Innovative Research (AcSIR), CSIR-Central Electrochemical Research Institute, Taramani, Chennai, 2019
16.	Microbial fuel cells for energy and environmental applications, M. Sindhuja, SRM Institute of Science and Technology, Chennai, 2019

17.	Nanoarchitectured materials for electrochemical applications S. Arulmani, National Institute of Technology -Trichy, 2019
18.	Development of nano/ultrafine structured silicon ball milling and spark plasma R Murugasami, National Institute of Technology -Trichy, 2018
19.	Heteroatom doped reduced graphene oxide for electrochemical supercapacitor application, S. Suresh Balaji, AcSIR (Academy of Scientific & Innovative Research) CSIR-CECRI (Council of Scientific & Industrial Research -Central Electrochemical Research Institute), Karaikudi, 2019
20.	Eco-benign electrodes and binders for energy storage applications K.R. Saravanan, AcSIR (Academy Of Scientific & Innovative Research) CSIR-CECRI (Council of Scientific & Industrial Research-Central Electrochemical Research Institute), Karaikudi, 2018
21.	Studies on electrode material for lithium-sulfur batteries and supercapacitors, R. Aswathy, AcSIR (Academy of Scientific & Innovative Research), CSIR-CECRI (Council of Scientific & Industrial Research-Central Electrochemical Research Institute), Karaikudi, 2018
22.	Efficient light harvesting using hybrid plasmonic nanoparticles for energy application, Dhavalkuma N. Joshi, Pondicherry University, Pondichery, 2018
23.	Investigation of polymer materials containing pendant-chromophore for improving the efficiency of dye sensitized solar cells, R. Selvam, Anna University, Chennai, 2018
24.	Kinetics and mechanism of oxidation of aniline and its substituents catalysed by iron (III) phthalocyanine chloride P. Tamilselvi, Anna University, Chennai, 2017

Invited lectures (workshop/conference/symposium/seminar)

1.	Invited speaker at the Indo-German Centre for Sustainability (IGCS) Summar School 2023, The Integration of Renewable Energies into a Power Grid – A Key Contribution towards a Carbon Neutral Society, organized by TU Berlin, Germany and IIT Madras, India July 24 - August 4, 2023. Title: High Energy and Power Density Redox Flow Battery Chemistries for Grid Storage
2.	Invited speaker at the 30th CRSI National Symposium in Chemistry (CRSI-NSC-30) organized by Jawaharlal Nehru University, New Delhi from February 3-5, 2023.
3.	Invited speaker at the International Conference on "Future of Energy with Science and Technology" (FEST 2022) organized by Department of Chemistry, University of Delhi, New Delhi from December 29-30, 2022.
4.	Invited speaker at the International Conference on "Recent Trends in Materials and Magnetism (RTMM-22)" organized by the Department of Chemistry, Loyola College (Autonomous), Chennai - 600034 from December 15-16, 2022.
5.	Invited speaker at the National Convention of Electrochemist (NCE) held at PSG Tech, Coimbatore between 26th to 27th July 2022
6.	Invited speaker at the symposium entitled “Chemistry and Materials for New Batteries Technology” organized by Canadian Chemistry Conference and Exhibition (CCCE 2022) to be held from June 13th – 17^{th,} 2022, in Calgary

7.	Invited speaker at the conference "Low-dimensional materials-2022" organized by IISER-Pune from 19th -20th May 2022
8.	Title: Sustainable Materials for Energy Storage Seminar Venue: National Centre for Nanoscience and Nanotechnology, University of Madras, Chennai, 16th March 2020 (this seminar is organized by the Director of National Centre for Nanoscience and Nanotechnology, the University of Madras for the postgraduate students)
9.	Title: Catalysis on the surface of nanotubes having confined solvent media Conference details: Asian Consortium for Computational Materials Science: International Conference on Materials Genome (ICMG-2020), SRM University, Amaravathi, 5-7th February 2020
10.	Title: Solvent Filled Multiwalled Carbon Nanotubes for Sensor and Battery Applications Conference details: Electrochemistry in Industry Health and Environment, BARC, Mumbai, 21-25th January 2020 (organized by Indian Society for Electroanalytical Chemistry)
11.	Title: Ultra high energy efficient redox flow battery, Conference details: Frontiers in Materials Processing Applications, Research and Technology (FiMPART, Endorsed by Materials Research Society Singapore), Convention Centre, Ahmedabad, 15-17th December 2019.
12.	Title: Low Field ^{1}H NMR Investigations of Solvent Filled Multiwalled Carbon Nanotubes for Sensor and Battery Applications Symposium details: Solid State and Structural Chemistry Unit, Alumni Symposium 2019, Indian Institute of Science, Bangalore, 13th December 2019.
13.	Title: Beyond Vanadium Redox Flow Battery: India Specific Solutions for Energy Storage Invited lecture details: Chemical Engineering seminar, Indian Institute of Technology Kanpur, 06th November 2019
14.	Title: Tuning overpotential and electrolyte structure to realize high energy efficient redox flow battery Conference details: International Conference on Recent Trends in Chemistry of Materials (NCRTCM-2019), Bannari Amman Institute of Technology, Sathyamangalam, 12th October 2019
15.	Title: Materials for Electrochemical Applications Faculty development program details: STC on 2D Materials, ICSR Hall 3, Indian Institute of Technology Madras, Chennai, 23rd September 2019
16.	Title: Tuning overpotential and electrolyte structure to realize high energy efficient redox flow battery Conference details: Recent Advances in Materials Science for Sustainable Development-2019 (RAMSSD-2019), VFSTR (Deemed to University), 1st September 2019
17.	Title: Enhanced Electrochemical Sensing of Endohedral Carbon Nanotubes, Symposium details: Chemistry in-House Symposium (CiHs), Indian Institute of Technology Madras, Chennai, 21st August 2019
18.	Title: A New Process for Quick Fabrication of Dye-Sensitized Solar Cells Invited lecture details: SSN College, Kalavakkam, Chennai, 16th March 2019

19.	Title: Strategic Partnership with IIT Madras and Joint Workshop Indian Institute of Technology Madras, Chennai 11-13th July 2018
20.	Title: Modification of Graphite Felt Electrodes for Vanadium Redox Flow Battery Application Workshop details: Indo-German Joint Scientific Workshop on Membranes for Water and Energy, CSIR- Central Salt and Marine Chemicals Research Institute (CSMCRI), 18th -20th February 2019
21.	Title: Recent Developments in Redox Flow Battery Chemistry Conference details: Advanced Nanomaterials for Energy, Environment and Healthcare Applications (ANEH – 2019), Bishop Heber College, Trichy, 05th February 2019
22.	Title: Stable Radical Ion Based Redox Flow Battery Seminar details: ChEMS Seminar, Chemical Engineering and Materials Science, Michigan State University, 15-16th October 2018
23.	Title: Metal-air batteries Seminar details: HP Green R&D Centre, Bangalore, 9th March 2018
24.	Title: Our Recent Experience with Redox Flow Batteries Invited lecture details: CSIR-CECRI (Council of Scientific & Industrial Research - Central Electrochemical Research Institute), Karaikudi, 20th September 2018
25.	Title: Organic Materials for Energy Science: DFT Guided Molecular Engineering Approach Materials Design and Energy Materials: Computational Approach Seminar details: SRM Institute of Science and Technology, Chennai, 5th February 2018
26.	Title: Synthetic and Bio-derived Nanostructures for Selective Sensing of Biotinyl Targets Symposium details: Symposium on Materials in Chemistry & Biology, Indian Institute of Technology Gandhinagar, Gujarat, 5th January 2018.
27.	Title: Metal Organic Framework and Organic Framework Built on Carbon Nanotubes by π-π Interaction for Electrochemical Applications Conference details: CEAMCR-2018, DAE Convention Centre, Anushaktinagar, Mumbai, 15-17th February-2018
28.	Title: A Strategy of Enhancing the Surface Plasmon Assisted Light Harvesting in Dye Sensitized Solar Cells Conference details, National Convention of Electrochemist (NCE-19), National Institute of Technology –Trichy, 28 - 29th March 2016
29.	Title: Non-precious metal catalysts for fuel cell application Conference details: INDO-US ECM-2013, Banaras Hindu University, Varanasi, 26 - 28th February 2013
30.	Title: Non-precious metal catalyst developed by freeze-dry method Conference details: Recent Advances in Electrochemical Energy Materials and Devices, Indian Institute of Science (IISc) Bangalore, 24-25th July 2012

Work presented in international conferences (2011-2023)

BY OUR GROUP

1. Sravani Potham and R. Kothandaraman, “A novel hierarchical porous activated carbon-organic composite cathode material for high performance aqueous zinc-ion hybrid supercapacitors” presented at the International Conference on Electrochemistry in Industry, Health & Environment (EIHE-2023) held from 7 to 11 February 2023 at Baba Atomic Research Centre (BARC) Mumbai, India.
2. Swati Panigrahi and R. Kothandaraman, “Eco friendly method of preparing sulfur cathode for Li-S battery” presented at the International Conference on Electrochemistry in Industry, Health & Environment (EIHE-2023) held from 7 to 11 February 2023 at Baba Atomic Research Centre (BARC), Mumbai, India.
3. Ganapathi Rao Kandregula and R. Kothandaraman, “ Machine Learning Assisted Asymmetric Supercapacitor via Prussian Blue (3D) nanostructured Embellish Porous Carbon" Emergent Materials for Energy and Environment (EMEE-2023)" held from March 04-05, 2023 by Department of Chemistry, IIT Roorkee.
4. Richa Gupta and R. Kothandaraman “A Phosphonate Anthrarufin-based Aqueous Organic Redox Flow Battery for Long-term Cyclic Performances” presented in the International Conference on Energy Conversion and Storage (IECS-2023) held from 18 to 20 January 2023 in IIT Madras, Chennai.
5. Ganapathi Rao Kandregula and R. Kothandaraman,“ Demonstrated “First Photo-Sensitive Supercapacitor and Photo Supercapattery" at International Conference on Energy Conversion and Storage (IECS-2023) held from 18 to 20 January 2023 in IIT Madras, Chennai.
6. Ganapathi Rao Kandregula and R. Kothandaraman,“ Machine Learning Assisted Asymmetric Supercapacitor via Prussian Blue (3D) nanostructured Embellish Porous Carbon" presented at the Asian Conference on Electrochemical Power Sources 11 (ACEPS’11) held from December 11-14, 2022 in University Town, National University Singapore, Singapore.
7. Ganapathi Rao Kandregula and R. Kothandaraman,“ 3D Prussian Blue Decorated Porous Carbon Composite Electrode for Advanced Asymmetric Supercapacitor Applications" presented at the 23rd International Conference on Photochemical Conversion and Storage of Solar Energy (IPS-23) thought from August 2-5, 2022 in Lausanne, Switzerland.
8. M. R. Chinmaya and R. Kothandaraman, Functional group manipulation of quinone derivatives for energy-dense rechargeable battery application, Junior National Organic Chemistry Symposium (JNOST-22), School of Chemistry, University of Hyderabad, January- 6-9, 2022.
9. M. R. Chinmaya and R. Kothandaraman, Functional group manipulation of quinone derivatives for energy-dense rechargeable battery application, Third Indian Materials Conclave (IndMac) and 32nd Annual General Meeting of MRSI, December 20-23, 2022.

10. G. Tamilselvi, and R. Kothandaraman, "1-Amino 2-Naphthol Modified Solvent Filled Carbon Nanotubes for Enhanced Electrochemical Sensing of Bioanalytes" 237th ECS Meeting with the 18th International Meeting on Chemical Sensors (IMCS 2020) (May 10-14, 2020). The Electrochemical Society, 2020.
11. Ramaprabhu Sundara, R. Kothandaraman and Dipsikha Ganguly, "Low Pt Loaded Nitrogen Doped Carbon as Efficient Catalyst Support for Proton Exchange Membrane Fuel Cells" 236th ECS Meeting October 13, 2019 - October 17, 2019, Atlanta, GA, Meeting Issue No. 35, Page. No. 1571, The Electrochemical Society, 2019.
12. Yashwant Pratap. K, Akula, S, Sahu, and R. Kothandaranam, "Synthesis of Pt/C Catalyst Using Carbon Support Derived from Tamarind Seeds through Hetroatom Doping for Oxygen Reduction Reaction" 235th ECS Meeting May 26, 2019 - May 30, 2019 Dallas, TX, Meeting Issue. No. 33, Page No. 1747, The Electrochemical Society, 2019.
13. R. Kothandaraman and Anjaiah Sheelam "A Simple and Inexpensive Organometallic Compound Catalyzing Oxygen Reduction Reaction" 230th ECS Meeting October 2, 2016 - October 7, 2016 Honolulu, HI, Meeting Abstract No. 2822, Issue No. 38, The Electrochemical Society, 2016.
14. M. Veerababu, U. V. Varadaraju, and R. Kothandaraman "Lithium Biphenyl-3, 3', 4, 4'-Tetracarboxylate Based Anode Material for Li and Na-Ion Battery Application" 229th ECS Meeting May 29, 2016 - June 2, 2016, San Diego, CA, Meeting Abstract No. 505, Issue No. 5, The Electrochemical Society, 2016.
15. S. Anjaiah, and R. Kothandaraman "Effect of oxidation states of vanadium in VNC based non-precious metal catalyst for fuel cells in acidic medium" 224th ECS Meeting October 27, 2013 - November 1, 2013, San Francisco, CA, Meeting Abstract No. 306, Issue No. 5, The Electrochemical Society, 2013.
16. R. Kothandaraman, and M. P. Karthikayini "Mn Based NPM Catalyst for Oxygen Reduction Reaction in Acidic Medium for PEMFSP" 224th ECS Meeting October 27, 2013 - November 1, 2013, San Francisco, CA, Meeting Abstract No. 308, Issue No. 5, The Electrochemical Society, 2013.
17. R. Kothandaraman "A Novel Approach for Effective ORR NPM Catalysts Development" 221st ECS Meeting May 6 - May 10, 2012, Seattle, Washington, Meeting Abstract No. 291, Issue No. 6, The Electrochemical Society, 2012.
18. R. Kothandaraman "Improving Oxygen Reduction Activity of the Iron-Nitrogen-Carbon Catalysts by Formation of Fruitful Active Sites" 220th ECS Meeting October 9 - October 14, 2011, Boston, MA, Meeting Abstract No. 322, Issue No. 7, The Electrochemical Society, 2011

Reviewer for Top Journals

Nature Communications, Advanced Materials, J. Materials Chemistry A, Electrochimica Acta, ACS Applied Materials & Interfaces, and J. Electrochemical Society