

The Institution of Engineers (India)

TAMILNADU STATE CENTRE



BULLETIN



Dr. V. KARTHIKEYAN, FIE.
Chairman

Er.D.GOKUL,MIE
Honorary Secretary

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From the Chairman's Desk.....



Dear Fellow Engineers,

It gives me immense delight to reconnect you all once again through this news desk.

I am delighted to share that the Institution of Engineers (India) Tamilnadu State Centre is organizing the 39th National Convention of Environmental Engineers and National Seminar on "Environment and Digital World for Sustainable Development" on 22-23 August 2025 at IE(I) TNSC Auditorium, Chennai. We request your goodself to kindly provide the financial support for the successful conduct of the above convention and I invite all corporate members to participate in the convention.

The Institution of Engineers (India) Tamilnadu State Centre and Sona Institutions jointly organize Industry Academia Meet 2025 on the theme "Shaping the Future of Higher Education and Skilled Workforce Development".

The IE(I), TNSC aims to enhance its membership strength, and I invite all committee and corporate members to actively engage in a robust membership drive across engineering colleges, academia, and industries, encouraging their faculty and engineers to enroll as members of IE(I). Additionally, I appeal to our corporate members to bring in new members and contribute to the significant growth of IE(I), TNSC by doubling its strength.

The lease on a property owned by IE(I), TNSC has expired, and numerous efforts have been made to renew it for an additional 30 years. Meanwhile, the committee has resolved to purchase own land or a building of approximately 5000 sq.ft for IE(I), TNSC. In this regard, I request all the Council and Committee Members, Former Chairmen and Former Hon. Secretaries to extend your fullest support for this noble cause.

I request all current corporate members to complete the "Know Your Membership (KYM)" form to assist us in updating and maintaining an accurate database. Your cooperation in this matter is vital for ensuring seamless communication and access to member benefits. Once completed, please submit the form to the IE(I) Tamil Nadu State Centre office in person, or email it to ieitamilnadu@gmail.com or tnsc@ieindia.org.

Dr.V.Karthikeyan,FIE.,
Chairman, IE(I) TNSC
Chairman, ENDB IE(I)



Dear Corporate Members,

I extend my warmest greetings to all my esteemed members!

It was an immense pleasure to be a Guest of Honour of Innovista'25 on the theme "Aspects of the Future Engineering" on 26th April 2025 organised by Institution of Engineers (India) and IEI Students Chapter of Dr M G R Educational and Research Institute. This event mainly focused on improving student participation in IEI and the start of IEI student chapter committee. By showcasing responsibility and taking various opportunity that is provided to them. The engaging session included students asking their questions and the guest providing informative answers which made the engagement lively. Participants were enthusiastic and actively participated, making the learning experience both informative and enjoyable. 600 students have become a member of IEI.

Overall, the event was a resounding success, fostering a sense of community and empowerment among participants. The knowledge and skills gained will undoubtedly contribute to their personal and professional development.

17th May 2025 World Telecommunication Day on the theme "Gender Equality in Digital Transformation" will be celebrated. I request all the corporate members to participate in the meetings.

All our technical lecture programs are conducted through Online / Offline Meeting and the lecture programs will be mailed to all corporate members.

All the meetings are available in our IEI TNSC You Tube Channel. I request all our corporate members to visit our IEI TNSC You Tube Channel and SUBSCRIBE for further notification of technical events and kindly visit our website (ieitnsc.org) for more information.

I appeal all corporate members to introduce IEI to all non members of IEI to avail the membership and get the benefits of our centenary year institution.

Thank you all for your continuous support and participation. I look forward to our continued journey of growth and success together.

Er. D. Gokul, MIE
Honorary Secretary
IE(I),TNSC

Know-Your-Member (KYM)

Is your mobile number & e-mail updated with us ? If not, then please forward your Know- Your-Member (KYM) form immediately for participating in IEI Election process.

You are requested to forward your KYM along with the self-attested copy of photo ID proof to the address given below:-

Deputy Director (Membership)
The Institution of Engineers (India)
8 Gokhale Road, Kolkata 700020
Email: datamemb@ieindia.org



The form is available on IEI Website or scan the code:

https://www.ieindia.org/WebUI/ajax/Downloads/WebUI_PDF/HIGHLIGHTS_DOCUMENT-3332.pdf

ALL INDIA SEMINAR ON “DESIGN AND DEVELOPMENT OF PUBLIC FAST CHARGING INFRASTRUCTURE FOR ELECTRIC AND HYBRID ELECTRIC VEHICLES” (28,29-03-2025)

The Institution of Engineers (India), Tamilnadu State Centre, under the aegis of Electrical Engineering Division Board, IE(I) organized All India Seminar on “Design and Development of Public Fast Charging Infrastructure for Electric and Hybrid Electric Vehicles” in association with Centre for E-Vehicles Technologies (CEVT), Anna University on 28 & 29 March 2025 at IE(I) TNSC Auditorium, Chennai.

The event commenced with the auspicious Tamizhthaai Vazhthu, followed by the lighting of the Kuthu Vilakku by dignitaries. **Mr Kannappan Chettiar**, Founder, Switching Battery Inc. was the Chief Guest and presided over the inauguration of the seminar. **Mr Kaushik Palicha**, Managing Director, Entity 2 Energy Storage Pvt. Ltd., was the Guest of Honour.



Lighting the Kuthu Villakku by dignitaries

Dr. V. Karthikeyan, Chairman, IE(I) TNSC and Chairman, IE(I) ENDB delivered the welcome address. **Dr. C. Sharmeela**, Professor and Head, Dept. of EEE, CEG, Anna University delivered the thematic address.



Releasing of Souvenir

Souvenir was released by the dignitaries. Dignitaries were honoured with shawl and memento by the Chairman.



Honoring the Chief Guest Mr Kannappan Chettiar, Founder, Switching Battery Inc. by Dr.V.Karthikeyan, Chairman, IE(I), TNSC



Honoring the Guest of Honor Mr Kaushik Palicha, Managing Director, Entity 2 Energy Storage Pvt. Ltd., by Dr.V.Karthikeyan, Chairman, IE(I), TNSC

Mr. Kaushik Palicha, Managing Director, Entity 2 Energy Storage Pvt. Ltd., narrated the importance of Energy Storage Systems in the country and he shared his wisdom on how the electric vehicle technology plays a vital role in reducing the carbon footprints. He also spoke about the need for centralised energy storage systems using new battery technologies like sodium sulphide based battery chemistry which is going to be established in a bigger scale in country like India by the GOI next to china and USA. His talk was thought provoking.



Inaugural Address by the Chief Guest

Mr. Kannappan Chettiar, Founder, Switching Battery Inc. gave an inspiring thought about replacing the conventional battery technology with his new product development on battery technology. He compared the science and technology with the correlation from thiruvilaiyadal puranam. He gave an analogy of the conventional battery system is like Lord Murugan searching for the divine fruit Mango whereas replacing with the improved prototype battery model is like getting the fruit by Lord Ganesh in a smarter way. He showcased his writing skills in publishing thought provoking books.



Address by the Guest of Honour

Er. D. Gokul, Honorary Secretary, IE(I) TNSC proposed the vote of thanks.

After the Inaugural Session, **Mr.Thiru Srinivasan**, CEO, Center of Excellence in Advanced Automotive Research(CAAR),IIT Madras delivered the keynote address on the topic “Technology needs in Charging for Electric Vehicles”. He discussed about the need for EV and the formulation of CAAR at IITM for promoting the EV research in the country. He narrated the different technology needs and made a detailed analysis of automotive industry and the available capabilities across the value chain in terms of design, materials, manufacture and safety. He discussed the necessity for Training and hand-holding

for Technology Adoption speed. He concluded with the positive remarks of the emerging EV technologies.



*Keynote Address by Mr.Thiru Srinivasan
CEO, Center of Excellence in Advanced Automotive
Research(CAAR),IIT Madras*

Invited Talk – 1

Dr. V. Gowri Sree, Professor and Head, Division of High Voltage Engineering, Dept of EEE, CEG, Anna University delivered on the theme “Insulation thickness optimization for Enhanced Electro Thermal Performance in EV DC Charging Stations”. The rapid adoption of EVs Technology have led to significant demand for efficient and reliable direct current (DC) fast-charging infrastructure. The design and performance of EV DC charging cables with high currents and voltages are critical aspects for maintaining safety and efficiency. The insulation materials used in these cables play a vital role in ensuring their electrothermal performance, affecting both their electrical insulation properties and their ability to dissipate heat generated during operation. Insulation materials in EV DC charging cables are subjected to a complex interplay of electrical and thermal stresses. The DC charging cable for electric vehicles serves as the critical link between the off-board charger and the charging plug at a charging station.



*Invited Talk – 1 by Dr. V. Gowri Sree
Professor and Head, Division of High Voltage Engineering, Dept
of EEE, CEG, Anna University*

Recent studies have highlighted the importance of optimizing insulation thickness and material composition to balance the electrical and thermal requirements of EV DC charging cables. Advanced polymeric materials have been developed to enhance both the dielectric strength and thermal conductivity of the insulation, providing improved performance under the demanding conditions of fast-charging applications. These advancements are crucial for the development of next-generation charging cables that can support higher charging rates while maintaining safety and reliability.

In India, electric vehicle sales increased by more than 50% in the first quarter of 2024. The most recent data from the ministry of power states that, 12,146 operational public EV charging stations throughout the country. This indicates that there is need for a safety of EV DC charging cable. This work focuses on a geometrical model of an EV DC charging cable, to examine the different thicknesses of the insulation material in DC charging cable by using COMSOL software.

The analysis indicates that increasing insulation thickness can enhance the electro thermal performance, with reduced current density and temperature gradients, is a key outcome for improving the efficiency and safety of EV charging systems. Additionally, the findings contribute to the development of industry cable manufacturing and the creation of innovative insulation materials tailored to the evolving needs of the EV sector.

Invited Talk-2

Dr. C. Sharmeela, Professor and Head , Division of Power Engineering and Management , Dept of EEE,

CEG, Anna University delivered on the theme “Power quality Issues and mitigation techniques due to EV Charging Infrastructure”. She narrated the need for Power Quality Assessment and the mitigation techniques due to EV charging Infrastructure. She started the session with the introduction to power quality and the importance of PQ assessment using Class A power quality analyser to capture major PQ issues such as Harmonics, Unbalance, Voltage Flicker, Voltage sag and Voltage Swell, Supraharmonics, etc. She also presented three case studies in the fast charging EV infrastructure. She concluded with the possible mitigation solution for the EV charging Infrastructure.

Invited Talk- 2 by Dr. C.Sharmeela, Professor and Head Division of Power Engineering and Management , Dept of EEE, CEG, Anna University



Paper Presentation - I

The first technical session paper presentation was presented by the presenters and the event was overseen by the jury members **Mr. J. Bino**, Professor, St. Joseph’s Institute of Technology, **Dr.V.Jamuna** , Prof & Head, Jerusalem College of Engineering and **Dr M R Swaminathan**, Prof & Head, Dept. of Mechanical Engg., Anna University.

Name & Organisation	Paper Theme
Mrs Geetha V , Professor, St. Peter’s Institute of Higher Education and Research, Avadi	Design of DC Nano- Grid with Fuel Cell- Solar cell Hybrid System for EV fast charging
Ms Gowthamapriya P, Department of EEE, College of Engineering, Anna University	A Study of Intra & Inter Electromagnetic Interference Environment on Electric Vehicle and its Charging Infrastructures
Mr Nakul S, Mr Harish M, Mr Dhanusk K, Students, Sri Sairam Engineering College	Advanced PWM-Based Motor Control for H-Bridge-Driven Electric Vehicle Power trains
Mr V. Adhimoorthy , Mr. I. Ashok Kumar , Associate Professor, Government College of Engineering, Bargur	Analyse the Impact of Electric Vehicles and Renewable Energy Sources in Unit Commitment Problem

On day 2 (29th March 2025) technical session II was started by the invited talk – 3 delivered by **Dr. K. Rathnakannan**, Professor and Director, Centre for E-Vehicle Technologies, CEG, Anna University, Chennai delivered on the theme “Advancing E-Mobility: Intelligent Ultra-Fast EV Charging Solutions”. The rapid adoption of electric vehicles (EVs) necessitates ultra-fast, intelligent charging solutions to minimize downtime and enhance user convenience. These advanced charging systems leverage AI-driven load management, bidirectional charging (V2G), and high-power DC fast chargers (350 kW+). They optimize grid interaction through smart scheduling, real-time demand response, and renewable energy integration. By reducing charging time to minutes while ensuring battery longevity, intelligent ultra-fast EV charging plays a crucial role in accelerating e-mobility and supporting sustainable transportation infrastructure.



**Invited Talk – 3 by Dr. K. Rathnakannan
Professor and Director, Centre for E-Vehicle
Technologies, CEG, Anna University**

Panel Discussion were held on the topic “**EV charging infrastructure opportunities and challenges**” . **Dr.P.Marish Kumar**, Associate Professor & Head, Easwari Engineering College was the moderator of the panel discussion and the panelists were **Dr. Naveenkumar Marati**, R&D Specialist Professional , Hitachi Energy, **Mr. G.Madhanasekar**, Cluster Manager Technical Services, Radisson GRT, **Dr .A. K. Parvathy**, Professor, SCOPE, Vellore Institute of Technology, Chennai. **Dr. T. Porselvi**, Professor , Department of EEE, Sri Sairam Engineering College and **Dr. Mahalakshmi Ganapathee**, Lead power system Engineer & Head- Training Team, Power Projects.

Dr. Naveenkumar Marati, R&D Specialist Professional, Hitachi Energy. This seminar on design and development of fast charges for EV and hybrid electric vehicle organised by IE(I) and Anna University was emphasized on the current market requirements, design and development aspects of electric vehicle fast chargers. Also the discussions focused towards the aspects like challenges, policies, standards, and practices for EVSE. These discussions diverged into future research aspects and focus which industry and academic researchers can work on.



Panel Discussion

Mr. G.Madhanasekar, Cluster Manager Technical Services, Radisson GRT, started his discussion that charging station in Tamilnadu current scenario , we have effectively 100 charging stations so far , Tamil Nadu needs to ramp up its EV charging infrastructure to support the growing demand for electric vehicles. Since EV vehicles are 24 percent growth compared to the last year. Influencers, automotive experts especially sellers and eco-warriors to promote EV adoption and charging infrastructure to install in a better way. Safety precautions for EV charging.

Dr.A. K. Parvathy, Professor, SCOPE, Vellore Institute of Technology, Chennai. Panel discussion focused on challenges and standards for fast charging infrastructure. The discussion was balanced with representatives from Academia and Industry. The industry standards of fast charging with the properties of battery requirements were discussed. The constraints and challenges of fast charging and their possible solutions were also discussed in detail. The real time problems were also discussed. The importance of specifications and data sheet for design engineer and consumers were discussed.

Dr. T. Porselvi, Professor , Department of EEE, Sri Sairam Engineering College. Various aspects of normal and fast EV charging station is an important topic to discuss in the current scenario of electric vehicles. The discussion covered almost all the important aspects of the fast and normal charging stations such as their current status, needs challenges, infrastructure, requirements, benefits, government schemes, etc. The discussion will definitely ignite some interest among the participants who can work on the challenges and can provide the solutions. I really appreciate the organising team for choosing such a nice topic for the discussion.

Dr. Mahalakshmi Ganapathée, Lead power system Engineer & Head- Training Team, Power Projects. Among all the international standards, India majorly follows the IEC standards. However, India has also developed its own standards to harmonize the EV related standards with the EV industry worldwide. The standards can be classified into charging, connectors, safety, and communication standards based on the application and functionality in the e-mobility ecosystem. With growing concern on climate change, widespread adoption of electric vehicles (EVs) is important. One of the main barriers to EV acceptance is range anxiety, which can be alleviated by fast charging (FC). The main technology constraints for enabling FC consist of high-charging-rate batteries, high-power-charging infrastructure, and grid impacts. Although these technical aspects have been studied in literature individually, there is no comprehensive review on FC involving all the perspectives. Moreover, the power quality (PQ) problem of fast charging stations (FCSs) and the mitigation of these problems. On the other hand, from a power system standpoint, the planning of EV charging stations presents unique characteristics, wherein these stations function both as loads and storage units, further entwined with various road and user constraints.

Dr.P.Marish Kumar, Associate Professor & Head, Easwari Engineering College I had the privilege of serving as the moderator for the “All India Seminar on ‘Design and Development of Public Fast Charging Infrastructure for Electric and Hybrid Electric

Vehicles.” The Panel discussion provided an excellent platform for industry experts, researchers, and academicians to deliberate on the latest advancements and challenges in electric vehicle (EV) charging technology.

The sessions were highly insightful, covering a diverse range of topics essential for the growth and sustainability of EV infrastructure. The discussion on technology needs in charging for electric vehicles highlighted the advancements required to enhance efficiency and accessibility. The session on insulation thickness optimization for enhanced electrothermal performance in EV DC charging stations shed light on the crucial role of insulation in ensuring safety and performance.

Furthermore, the session on power quality issues and mitigation techniques due to EV charging infrastructure addressed the challenges posed by EV integration into the grid and the solutions to maintain power stability. The discussion on advancing e-mobility with intelligent ultra-fast EV charging solutions explored innovative strategies to make charging faster and more efficient. Lastly, the session on solar PV systems and energy storage systems for EV fast charging emphasized the significance of renewable energy integration in achieving sustainable mobility.

Overall, the seminar was a remarkable opportunity to understand the evolving landscape of electric vehicle technology and infrastructure. I extend my gratitude to the organizers, speakers, and participants for making this seminar a productive and enlightening experience. I look forward to more such initiatives that contribute to the advancement of sustainable transportation.

Paper Presentation - II

The second technical session paper presentation was presented by the presenters and the event was overseen by the jury members **Dr. Rani Hemamalini** , Prof. & Head, St. Peter’s Institute of Higher Education and Research, **Dr. L. Kurinjimalar** , Associate Professor, Sri Sairam Engineering College and **Dr.T.Santhana Krishnan**, Professor, Rajalakshmi Engineering College.

Invited Talk – 4

Mr. P. Sivaraman, Power Plant Control Engineer , Schneider Electric Solar India Pvt.Ltd., delivered on the topic “Solar PV systems and energy storage systems for EV fast charging”. The solar PV systems are used to generate the green energy for EV fast charging stations and the solar PV panels can be installed on the rooftop. The major challenges are 1) Solar PV system output is not constant, 2) Solar power is not available during night, and 3) EV charging demand is always varies in a fast charging stations. Hence, Battery Energy Storage Systems are essential to overcome the above mentioned challenges. Fast charging stations with solar PV

systems and Battery Energy Storage Systems are essential for modern world.

The valedictory session was held on 29th March 2025 at IE(I) TNSC Auditorium, Chennai.

Mr. G. Madhanasekar, Cluster Manager Technical Services, Radisson GRT was the valedictory chief guest and appreciated the efforts taken by the team for the successful conduct of the seminar.

Dr. C. Sharmeela, Convener & Professor and Head , Division of Power Engineering and Management , Dept of EEE, CEG, Anna University presented the summary report of the seminar. Certificates were distributed to the participants and presenters. The programme concluded with vote of thanks and National Anthem.

Superannuation of Mrs K Lalitha, Assistant Grade I



Mrs K Lalitha (Assistant Grade - 1), Emp No. 492 She was joined in IE(I) Tamilnadu State Centre as librarian in 1998 and got permanent from 15.09.2017 as Assistant Grade – I. She rendered her service towards the Institution for a period of more than 25 years and superannuated from the services of IEI on 30, April 2025.

**The Institution of Engineers (India) ,TNSC wishes her a happy and healthy in retired life.
Best Wishes!**

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Bulletin

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