

8th International Electric Vehicle Conference (EVC 2023)

Editorial: A glimpse of EVC2023

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Abstract

The Editorial describes the main aim and results of the 8th International Electric Vehicle Conference (EVC2023) held in Edinburgh Napier University, Edinburgh, United Kingdom from 21 – 23 June 2023.

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1. Introduction

In the last decade, there have been millions of electric vehicles on the road all over the world, making them a more significant part of the transportation environment. The development of batteries, electric drivetrains, and charging infrastructure, as well as legislative efforts to lower greenhouse gas emissions and enhance air quality, have all contributed to this increase.

Historically, International Electric Vehicle Conference has been organised annually as a one-day seminar by Transport Research Institute (TRI), Edinburgh Napier University, Edinburgh, United Kingdom. The 8th International Electric Vehicle Conference (EVC2023) aims to explore the latest advancements, challenges, and opportunities in the field of electric vehicles, emphasising sustainable transportation and the transition to a cleaner, greener future. The EVC2023 was held at Edinburgh Napier University's Craiglockhart Campus. The conference's wide range of electric vehicle-related issues and subjects will promote interdisciplinary dialogue and collaboration. Among the noteworthy

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areas of attention are, but are not limited to:

- **Vehicle design:** Onboard generators and hybrid EVs, Electric motor, Vehicle types, Plug-in electric vehicle, Hybrid electric vehicles, On- and off-road EVs, Components, Chassis swapping, Other in-development technologies, Heating of electric vehicles, Energy efficiency.
- **Battery:** Onboard storage, Lithium-ion battery, Efficiency, Battery swapping, Range, Battery management and intermediate storage
- **Grid:** Electricity sources, Connection to generator plants, Grid reliability, Grid capacity, Stabilization of the grid
- **Aviation:** Propulsion system, Hybrid-electric aircraft, Space rover vehicles, Airborne electric vehicles, Electrically powered spacecraft
- **Charging Station:** Energy sources, Charging components, Smart charging, Vehicle-to-Grid (V2G), Power-to-X (P2X)
- **Policy, Economics and Social Acceptance of EV:** Standard, Safety, National/International Policies, Finance support for EV, Incentive and promotion, Social acceptance of EV, Electromagnetic radiation and health implication, Cost of recharge, Electric vehicles organizations, Regional/Country update on EV.

The Keynote Speakers of the Conference were: (i) Professor Phil Blythe, Professor of Intelligent Transport Systems at Newcastle University, UK who presented a presentation titled: “EV’s –It’s Now Time to Ask the Hard Questions!”; (ii) Professor Cristina Corchero Garcia, Serra Hunter Professor at Polytechnic University of Catalonia (UPC) and the Head of the Energy Systems Analytics Group at Catalonia Institute for Energy Research (IREC), Spain who showcased her work on “How to Optimally Integrate EVs in Our Energy Systems: From Smart Charge to V2G”; (iii) Professor Anna G. Stefanopoulou, a professor of Mechanical Engineering and William Clay Ford Professor of Technology at the University of Michigan who explained “The Value of Predicting Remaining Useful Life (RUL)”; (iv) Senior Professor Dr. Kashem Muttaqi at the University of Wollongong, Australia who shared his work on “Energy Technologies for Future Grids”; (v) Professor Andrew Cruden, a Professor of Energy Technology at University of Southampton who talked about “Developing Grid Independent Electric Vehicle Charging Stations”, and (vi) Professor Iryna Zenyuk, Associate Professor in Chemical and Biomolecular Engineering at University of California and Director of National Fuel Cell Research Center who shared her research on “Design of Polymer Electrolyte Fuel Cells for Heavy-Duty Electric Vehicles: From Fundamentals to System-Level Studies”.

EVC2023 is poised to stand out as an extraordinary assembly of specialists, nurturing cooperation and the exchange of knowledge within the realm of electric mobility. With a dedicated emphasis on sustainable transportation and the prospects of electric vehicles, the conference is unquestionably played a role in propelling the worldwide shift toward a more eco-conscious and sustainable transportation framework. Fig 1 shows some of the activities during the conference.

For the first time, the organiser decided to produce proceedings for the conference. These proceedings contain selected papers that was presented at EVC2023. Each paper was peer reviewed by at least two reviewers.

The conference organisers would like to take this opportunity to convey their sincere gratitude to all the authors, participants, and contributors who made this significant event a success. Additional thanks are due to the session chairs, reviewers, and other individuals for their contributions to the conference's high standard of scientific quality and interest in the papers, presentations, and discussions.



Fig 1: Activities during EVC2023

EVC2023 in numbers

74 presentations
 More than 100 Participants per Conference day
 6 keynote sessions
 18 parallel sessions

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More information about the conference can be found at: <https://8evconference.co.uk/>.

The Guest Editors

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