
Preface

Abdessamad Didi

National Energy Center of Nuclear Science and
Technology (CNESTEN),
BP 1382, RP 1000, Rabat, Morocco
Email: a.didi@ump.ac.ma

As the Editor-in-Chief of the *International Journal of Power and Energy Conversion (IJPEC)*, it is my distinct pleasure to present the contents of Volume 15, Issue 4, for the year 2024. This issue exemplifies the journal's commitment to publishing high-quality research that spans a diverse array of subjects within the power, energy, and conversion domains worldwide.

Firstly, I extend my heartfelt gratitude to the authors whose exceptional work is showcased in this issue. Their contributions not only advance our understanding but also push the boundaries of innovation in their respective fields. The articles featured in this issue cover a range of highly relevant and intriguing topics that reflect the cutting-edge developments in power and energy conversion.

I also wish to acknowledge the dedicated efforts of our editorial and management teams. Their unwavering commitment to maintaining the highest standards of publication quality ensures that *IJPEC* continues to be a leading platform for the dissemination of significant research findings. Additionally, my sincere thanks go to our team of expert reviewers. Their rigorous and insightful reviews are integral to the scholarly integrity of the journal, helping to enhance the quality and impact of the articles we publish.

In this issue, we present the following noteworthy articles:

- 'Modified T²-DAB converter with bidirectional power flow capability and reduced voltage stress suitable for DC microgrid integration': This paper introduces an innovative converter design that enhances bidirectional power flow and minimises voltage stress, making it highly suitable for integration into DC microgrids.
- 'Influence of performance and emission of diesel engine with alumina nano material-based catalyst biodiesel using IoT': This study explores the performance and emission impacts of a diesel engine using a novel alumina nano material-based catalyst biodiesel, monitored through IoT technologies.
- 'Power quality improvement in renewable energy integrated grid: a review': This comprehensive review addresses the challenges and solutions related to power quality improvement in grids integrated with renewable energy sources.
- 'Developing and simulating an inexpensive solar irradiance metre for photovoltaic utilisation': The authors of this paper present the development and simulation of a cost-effective solar irradiance metre aimed at optimising photovoltaic utilisation.
- 'A review paper on research advancement on analysis of substation grounding design': This review paper delves into the recent advancements in the analysis and

design of substation grounding systems, highlighting key research findings and methodologies.

- ‘Intelligent fault prediction method for traction transformers based on IGWO-SVM and QPSO-LSTM’: This paper proposes an intelligent method for predicting faults in traction transformers, employing a hybrid approach of IGWO-SVM and QPSO-LSTM techniques.

Each of these articles represents significant strides in their respective areas, contributing valuable insights and advancements to the field. I trust that you will find this issue both informative and inspiring.

Thank you for your continued support and engagement with *IJPEC*.