

# Special Issue

## Recent Advances in Electrical System Discharges

### Message from the Guest Editors

The study of disruptive electrical discharges dates back to the early 20th century, when John Townsend developed the theory of ionization-based electrical rupture of gaseous media. Later, scientists continued to show their curiosity in new territories, including but not limited to the breakdown of solids and liquids, vacuum flashovers, corona discharges, and internal and surface partial discharges. While some believe that research on electrical discharges has stagnated at the beginning of the 21st century, new challenges such as transportation electrification, high-frequency voltage stress (by wide bandgap-based converters), nanodielectrics, and field grading materials have not only proved them wrong, but reinvigorated the field. This Special Issue focuses on research exploring the modern challenges posed by electrical discharges. These challenges include those in electric aircraft, modern rotating machines, superconducting systems, sustainable energy resources, and many more. Additionally, we welcome submissions that use multiphysics modeling, artificial intelligence, and analytical approaches to deepen our understanding of partial or global electrical discharges.

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### Guest Editors

Dr. Moein Borghei

Avalanche Energy Designs Inc., Seattle, WA, USA

Dr. Athanasios Karlis

Department of Electrical and Computer Engineering, Democritus University of Thrace, 67100 Komotini, Greece

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### Deadline for manuscript submissions

closed (31 October 2023)



## Machines

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Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland  
Tel: +41 61 683 77 34  
[machines@mdpi.com](mailto:machines@mdpi.com)

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## About the Journal

### Message from the Editor-in-Chief

*Machines* is an international, peer reviewed journal on machinery and engineering. It publishes research articles, reviews and communications.

Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the length of the papers. Full experimental and/or methodical details must be provided.

There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

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### Editor-in-Chief

Prof. Dr. Antonio J. Marques Cardoso  
CISE–Electromechatronic Systems Research Centre, University of  
Beira Interior, Calçada Fonte do Lameiro, P-6201-001 Covilhã, Portugal

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