

The European Physical Journal

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Call for papers

Applied Physics

Special Issue on Advances in Renewable Energies, Materials and Technology

From:
Partial discharge localization
in power transformers based
on the sequential quadratic
programming genetic algorithm
adopting acoustic emission techniques

by H.-L. Liu and H.-D. Liu

Guest Editors

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- **Prof. Abdelkader Kara**, *University of Central Florida, USA*
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Background

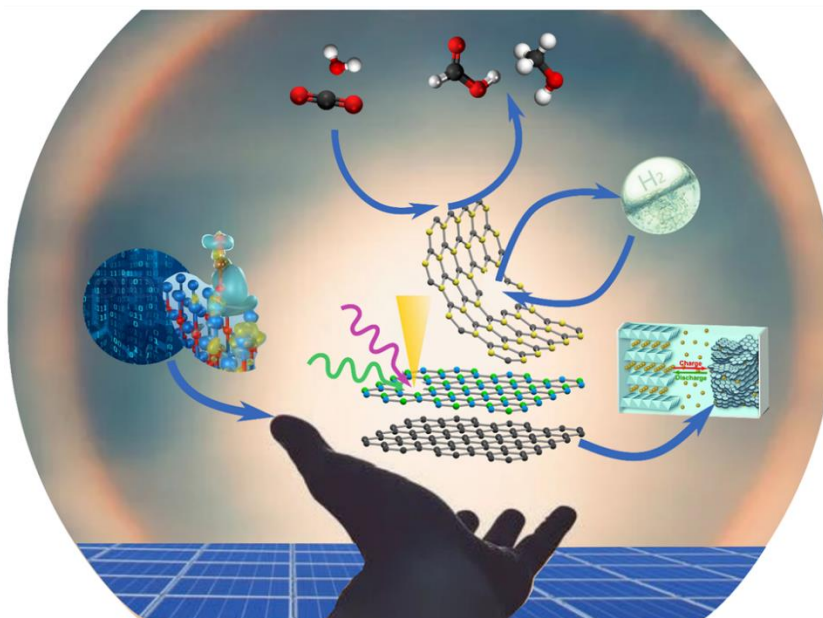
Major global challenges are strongly intertwined with advances in renewable energies, materials and technology. Harvesting energies from sustainable sources and transforming them for usage in user-end applications remains a challenging problem. Using solar energy to split water into hydrogen and oxygen or to crack methane into hydrogen and solid carbon constitute two examples of highly sought-after pathways to produce clean and sustainable

energy. Advances on these techniques are especially appealing due to the high energy density of hydrogen as an energy carrier, and the abundance of water and methane as reactants. Meanwhile, with increasing performances in solar energy or green hydrogen production, critical technology gaps emerge in energy storage.

Novel materials constitute a foundational pillar to boost the performance of all these processes. At the fundamental level, designing materials with local electronic states favorable for the capture and conversion of selected entities is driving the field of renewable energies and catalysis forward. Catalysts are rapidly evolving to mitigate greenhouse capture and conversion and to enhance reactions taking place in electrochemical devices. At a more applied level, the discovery of new materials and processes imposes high throughput screening of experimental conditions to optimize the design of new devices applicable to sustainability. Characterization tools for in situ and in operando analyses, from nanoscale to reactor scale, tie these studies together and allow for the field to evolved. Approaching the complex and challenging problems related to sustainability with an interdisciplinary mindset that considers the benefits of theoretical predictions working hand in hand with experimental discoveries is important, which we aim to highlight in this Special Issue.

Aim and Scope of the Themed Issue

The aim of this Special Issue on “Advances in Renewable Energies, Materials and Technology” is to provide a comprehensive account of current advances in materials engineering and the various approaches used to determine their fundamental properties, and the highlight the impact novel materials have on the performance of energy devices including for harvesting, conversion and storage. The Special issue also aims to capture the impact of advanced functional characterization to advance material discovering, guide the tailoring of their properties and assess their behavior in devices.



Submissions

All relevant papers (submitted in the categories ‘original paper’, ‘short communication’ and ‘review’ or ‘mini review’) will be carefully considered and peer-reviewed by a distinguished team of international experts, and published in accordance to the [Journal’s standard policies](#). Full research papers and comprehensive review articles can be submitted online via the journal’s [submission and peer review site](#) choosing, during the submission, the Special Issue on Advances in Renewable Energies, Materials and Technology.

Submission deadline – February 28th 2023

Charges

1. There is no submission charge in EPJAP.
2. For papers that have not chosen the Open Access Option (those papers will be read only by subscribers), there are **no publication charges**.

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