

Special Issue

Stability Analysis and Optimal Operation Strategy for Power Systems with High Renewable Energy Penetration

Message from the Guest Editors

The global transition toward low-carbon energy has led to a rapid increase in the penetration of renewable energy sources, such as wind and solar power, into power systems. These resources are typically interfaced to the grid through power electronic converters, which fundamentally alter the dynamic characteristics and operational behavior of modern power systems. As the proportion of power electronic-interfaced generation continues to grow, traditional assumptions regarding system inertia, damping, and stability no longer hold, posing significant challenges for secure and efficient power system operation. This Special Issue aims to provide a platform for researchers and practitioners to present the latest advances in the modeling, analysis, control, and optimization of power systems with high shares of power electronics. Topics of interest include both theoretical developments and practical implementations, covering small-signal and large-signal stability, frequency and voltage control, the coordinated operation of diverse converter-based resources, and grid-forming control strategies.

Guest Editors

Dr. Sunhua Huang

Dr. Yang Zhou

Dr. Jiapeng Li

Dr. Jian Wang

Deadline for manuscript submissions

15 December 2025



Electronics

an Open Access Journal
by MDPI

Impact Factor 2.6
CiteScore 6.1



mdpi.com/si/238201

Electronics
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
electronics@mdpi.com

[mdpi.com/journal/
electronics](https://mdpi.com/journal/electronics)





Electronics

an Open Access Journal
by MDPI

Impact Factor 2.6
CiteScore 6.1



[mdpi.com/journal/
electronics](https://mdpi.com/journal/electronics)



About the Journal

Message from the Editor-in-Chief

Electronics is a multidisciplinary journal designed to appeal to a diverse audience of research scientists, practitioners, and developers in academia and industry. The journal is devoted to fast publication of latest technological breakthroughs, cutting-edge developments, and timely reviews of current and emerging technologies related to the broad field of electronics. Experimental and theoretical results are published as regular peer-reviewed articles or as articles within Special Issues guest-edited by leading experts in selected topics of interest.

Editor-in-Chief

Prof. Dr. Flavio Canavero

Department of Electronics and Telecommunications, Politecnico di
Torino, 10129 Torino, Italy

Author Benefits

High Visibility:

indexed within Scopus, SCIE (Web of Science), CAPlus /
SciFinder, Inspec, Ei Compendex and other databases.

Journal Rank:

JCR - Q2 (Engineering, Electrical and Electronic) /
CiteScore - Q1 (Electrical and Electronic Engineering)

Rapid Publication:

manuscripts are peer-reviewed and a first decision is provided to authors approximately 16.8 days after submission; acceptance to publication is undertaken in 2.4 days (median values for papers published in this journal in the first half of 2025).