Special Issue

Fault Detection and Diagnosis Applications for Electric Vehicles and Power Electronics

Message from the Guest Editor

Currently, one of the basic requirements for modern electric drives used in industry and mobility applications is their reliability. Ensuring full control of the process by monitoring the status of individual components during their operation is now an inseparable part of automation systems. A key task of supervisory systems is the detection of drive system irregularities, combined with the concept of early fault detection. Defects that occur in drive systems with induction motors and permanent magnet synchronous motors first require detection and mitigation of the impact of the defect on drive operation. With the use of closed AC motor control structures, the effects of some defects can be partially reduced by changes in the control algorithm. However, it is still important to develop detection algorithms that ensure the detection of a defect at the earliest possible stage. The fault diagnosis of drive systems is implemented in three main directions: diagnosis based on mathematical modeling and estimation of object parameters, using analytical methods of signal processing, and systems based on artificial intelligence methods.

Guest Editor

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Deadline for manuscript submissions

closed (20 January 2026)

Energies

an Open Access Journal by MDPI

Impact Factor 3.2
CiteScore 8.3

mdpi.com/si/198708

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