



energies



Special Issue Reprint

Modeling, Control and Diagnosis of Electrical Machines and Devices

www.mdpi.com/books/reprint/9365

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ISBN 978-3-7258-1339-1 (Hardback)
ISBN 978-3-7258-1340-7 (PDF)



At present, the growing use of electric machines and drives in more critical applications has driven research on condition monitoring and fault tolerance. The condition monitoring of electrical machines has a very important impact in the field of electrical systems maintenance, mainly for its potential functions of failure prediction, fault identification, and dynamic reliability estimation. The fault diagnosis of electrical machines and drives has received a great deal of attention due to its benefits in maintenance cost reduction, unscheduled downtime prevention, and, in many cases, harm prevention and failure disruption. Fault-tolerant design provides a solution combining fault occurrence conditions, failure detection and location tools, and the reconfiguration of control features. On the other hand, recent advancements in smart technology using artificial intelligence and advanced machine learning capabilities provide new perspectives for meaningful fault diagnostics and fault-tolerant control. These outstanding advancements enhance the performance of condition monitoring and have significant potential for the fault detection of electrical machines and devices. This reprint collected research and technological achievements related to the following topics: robust control strategies; failure detection and diagnosis; fault-tolerant control; and artificial intelligence (AI) and machine learning techniques for control, fault diagnosis, and tolerant control of electrical machines and devices.



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