Special Issue

Mathematical Models for the Design of Electrical Machines

Message from the Guest Editors

Electrical machines are used in many electrical engineering applications, viz., transports (e.g., electric/hybrid/fuel cell vehicles, railway traction, aerospace, etc.), energy harvesting (e.g., flywheel, etc.), renewable energy (e.g., wind power turbine, hydroelectric power plant, etc.), magnetic refrigeration device, etc. For decades, numerical methods (i.e., the finite-element, finite-difference or boundary-element analysis) have been widely used in R&D departments for their accuracy as compared to measurements. Nevertheless, mainly in 3-D, these approaches are time-consuming and not suitable for the optimization problems. Nowadays, in order to reduce the computation time, R&D engineers must develop full computer-aided-design for electrical machines with accurate and fast models in simulations. Hence, the main objective of this Special Issue is to bring the latest advances and developments in mathematical modeling and design of electrical machines for different applications.

Guest Editors

Dr. Frédéric Dubas
Département ENERGIE, FEMTO-ST, CNRS, University Bourgogne Franche-Comté, F90000 Belfort, France

Prof. Dr. Kamel Boughrara
Laboratoire de Rcherche en Electrotechnique (LRE-ENP), 16200 Algiers, Algeria

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Prof. Dr. Oliver Schütze
Depto de Computacion, CINVESTAV, Mexico City 07360, Mexico

Prof. Dr. Gianluigi Rozza
SISSA mathLab, International School for Advanced Studies, Office A-435, Via Bonomea 265, 34136 Trieste, Italy

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