

Preface for the Special Issue

The Workshop on Optimization and Inverse Problems in Electromagnetism (OIPE), whose first edition was established in 1989, is a well-known international forum on Optimization techniques applied to design of electromagnetic devices and solution of inverse problem related to electrical engineering. Indeed, OIPE is an occasion for experts in electromagnetism and related areas of engineering, mathematics, physics, involved in research or industrial activities, to discuss the theoretical aspects and the technical relevance of optimization and inverse problems, in the general framework of the innovation in electromagnetism. The first Workshop took place in 1989, in Pavia, Italy, and was followed by a series of biannual events held in Warsaw, Poland (1992), Geneva, Switzerland (1994), Brno, Czech Republic (1996), Jyväskylä, Finland (1998), Torino, Italy (2000), Lodz, Poland (2002), Grenoble, France (2004), Sorrento, Italy (2006), Ilmenau, Germany (2008), Sofia, Bulgaria (2010), Ghent, Belgium (2012) and Delft, The Netherlands (2014). The 14th edition of this biennial meeting, IEEE OIPE 2016, was organized by Roma Tre University and is located at the Engineering Department, Rome, Italy, from September 13th to 15th with the scientific and technical support of IEEE and of CIRIAF (Centro Interuniversitario di Ricerca sull'Inquinamento e sull'Ambiente "Mauro Felli").

The Workshop emphasizes both theory and application of optimization techniques and inverse problems, not only in optimal design of traditional electromagnetic devices, but also in shape and/or topology optimization of electromagnetic devices, critical adoption of surrogate models, non-destructive diagnostic and management, and optimization of renewable energy systems and smart grids.

For IEEE OIPE 2016, more than 100 digests from Europe, America, Asia and Africa, were submitted. Of those, about 90 were selected for presentation by the Editorial Board. Seven plenary oral sessions and two poster sessions were scheduled, one of which entirely dedicated to young researchers among which a panel judgment board selected the best presentation.

All contributors of the papers presented at the Workshop were invited to submit full paper manuscripts for possible publication in a technical journal assigned by Editorial Board. In particular, 25 manuscripts were selected to be evaluated for publication on a Special Issue of International Journal of Applied Electromagnetics and Mechanics after a dedicated double blind peer-review process, which strictly followed the process used for regular articles submitted for publication in this journal. The present volume contains the 16 manuscripts that passed the review phase, which involved up to three reviewers per paper.

We are particularly grateful to the OIPE International Steering Committee (ISC) for its support during the organization and in the successive manuscript selection phase. We would like to give a special thanks to all the Reviewers, including the members of the OIPE ISC, and to all Session Chairs for their valuable assistance.

Finally, we would like to thank IEEE, CIRIAF and, above all, the local organizing committee for their effort during the IEEE OIPE 2016 organization.

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Guest Editors of the Special Issue of International Journal of Applied Electromagnetics and Mechanics