



“Gheorghe Asachi” Technical University of Iasi, Romania



EDITORIAL

Electromagnetic Compatibility and Engineering in Medicine and Biology

International Conference and Exposition on Electrical and Power Engineering – International Workshop in Electromagnetic Compatibility and Engineering in Medicine and Biology

This special issue of *Environmental Engineering and Management Journal* is a natural continuation of our previous endeavors to bridge two important domains: *Electromagnetic Compatibility (EMC)* and *Engineering in Medicine and Biology (EMB)*. The approached theme also constitutes the subject of the “*International Workshop in EMC and EMB*”, organized as part of the “*International Conference and Exposition on Electrical and Power Engineering – EPE*” at the Faculty of Electrical Engineering, “Gheorghe Asachi” Technical University of Iasi, which has been raising a real interest starting with its first edition in 2010.

This interdisciplinary domain (*EMC&EMB*) is very comprehensive and important due to the proliferation of the electromagnetic field sources with their various effects and applications, especially in biomedicine. Nevertheless, the papers presented in this special issue may be partitioned in three categories.

Some papers are related to the assessment of human exposure to the magnetic and electromagnetic fields with some experiments referring to the biologic effects of electromagnetic fields. A possible electromagnetic pollution due to the increase in the number, diversity and coverage of field sources together with the survey of electromagnetic environment (including automatic long term survey) in order to assess its biological and health effects are considered.

The implementation of energy saving and environmental protection policies in electrical and

electronic domain are tackled in the second group, which contains six papers. Some algorithms for numerical analysis and optimizations with applications in induction electric motors, spiral inductors, planar low-pass filters and electrochemical domain are presented. Other papers consider techniques for electromagnetic interference reduction in the case of DC-DC converters and a study of ionospheric propagation conditions for high frequency radio links.

Another group of papers is dedicated to systems for the development of some biomedical applications, considering the monitoring and supporting of the older persons, the interactive and smart rehabilitation methods, as well as processing and analyzing signals in order to diagnose or to detect risks. These papers are in accordance (amongst others) with: the spreading and diversification of the embedded systems which also allow rapid intervention in emergency medical situations (mobile health), new physical therapy or diagnose methods.

Finally, we would like to express our sincere thanks to Professor Maria Gavrilescu, Editor-in-Chief of *Environmental Engineering and Management Journal*, for her kindly support and interest in the subject of electromagnetic environment. We also thank all the reviewers for their unceasing efforts and availability, which have contributed to the improvement of the scientific level of the published papers.

We would like to express our special appreciation to all of the submitting authors for their contributions.



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Profesor Valeriu David is author/coauthor of 10 books and about 150 scientific papers in the following domains: electric and electronic measurements; measurement in biomedicine and ecology; survey of the electromagnetic environment; biological effects of electromagnetic fields; new materials and techniques for electromagnetic shielding.