

## CALL FOR PAPERS

### *International Journal of RF and Microwave Computer-Aided Engineering*

#### **SPECIAL ISSUE ON ADVANCES IN DESIGN OPTIMIZATION OF MICROWAVE/RF CIRCUITS AND SYSTEMS**

The art and the science of computer-aided modeling and design of RF and microwave circuits have flourished for many decades. Nowadays, an effective optimization capability is essential to any general purpose commercial CAD system for RF and microwave circuit design. Due to the requirement of increasing complexity of microwave devices and systems, electromagnetics-based design closure is ever more critical. At the same time, electromagnetics-validated solutions pose significant obstacles. In particular, traditional design optimization procedures that directly utilize full-wave electromagnetics-simulated responses typically fail or are impractical because of their exorbitant computational cost. As a consequence, there is a growing interest in alternative optimization and modelling methodologies, especially ones that exploit computationally cheap surrogate models.

This special issue focuses on the current state of the art and promotes important topics for the future that will be of interest to microwave designers. We plan to address surrogate- and knowledge-based optimization schemes including space mapping and tuning, software-based approaches exploiting farming, as well as optimization methodologies involving co-simulation, functional-approximation-based-modeling, electromagnetics-oriented adjoint sensitivity computation schemes, etc. Papers treating software engineering, implementational aspects and practical applications are encouraged. Suitable topics for this special issue include but are not limited to:

- Surrogate-based optimization methods
- Space mapping
- Knowledge-based design and tuning methodologies
- Adjoint-sensitivity for efficient gradient-based optimizers
- Optimization techniques for nonlinear circuits
- Software architectures for optimization-oriented design
- Automated design optimization using electromagnetic simulators
- Optimization techniques for diagnosis and testing
- Design with tolerances and yield-driven design
- Optimization for inverse electromagnetic problems
- Use of supercomputers, massively parallel and heterogeneous workstations
- Approaches to global optimization: evolutionary algorithms, particle swarm optimization, etc.
- Neural network approaches
- Optimization for discrete problems

This special issue will appear in September 2010. Manuscripts should conform to the requirements for regular papers to the journal. Authors wishing to have their contribution considered for this issue should submit their contribution in pdf format before December 1, 2009 to the Guest Editors:

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