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Surrogate-Based Optimization Methodologies for Computer-Aided Design of Microwave Circuits

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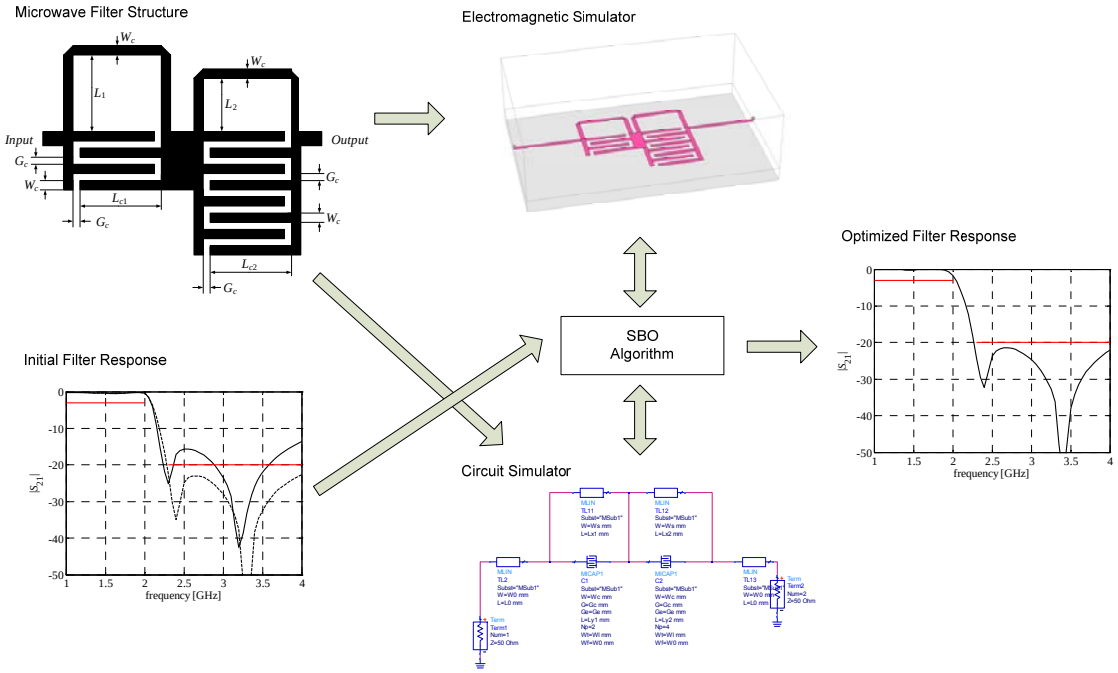
This research-oriented project aims at the development and numerical verification of computationally efficient methods of automated design optimization of microwave circuits. The starting point of the research will be existing techniques that exploit so-called surrogate-based optimization (SBO) principle, according to which the direct optimization of computationally expensive structures is replaced by dealing with a properly designed surrogate model: computationally fast and reasonably accurate representation of the original structure. The goal of the project is to develop, implement and test novel techniques that take into account specifics of microwave design and available numerical tools (e.g., electromagnetic field solvers).



The project will be substantially based on numerical experiments involving commercial electromagnetic and circuit simulators (CST Microwave Studio, Sonnet ***em***, FEKO, ADS) as well as the development and implementation of numerical algorithms using Matlab and Visual Basic.