

Model order reduction for simulation and optimization in the electronics industry

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Model order reduction has become a key ingredient for the simulation and optimization of electric circuits and semiconductor structures. The benefits are often clear, but it is not always clear how one can apply model order reduction in the most effective way: to understand this, one has to carefully define when a model can be called reduced. In this presentation we will discuss various problem classes of model order reduction in the electronics industry. We will give an overview of the state-of-the-art methods and how well they meet the requirements for the problem classes. With practical examples, we will show that not only different methods, and different definitions of reduced, may be needed for different applications, but also that for one application one may have to combine various methods. Each of the topics will be introduced by questions that, as shown by illustrating examples, may not (yet) have clear answers.