

OPTIMIZATION TECHNIQUES AND APPLICATIONS USING ELECTROMAGNETIC SIMULATORS

John W. Bandler and ShaoHua Chen

A two-day intensive course

Gerhard-Mercator-Universität-GH-Duisburg

Dept. of Electromagnetic Theory and Engineering, Duisburg, Germany

April 17-18, 1997

This course covers practical aspects of state-of-the-art techniques for nonlinear optimization with applications in computer-aided engineering. It is designed principally for engineers and scientists faced with applying serious optimization techniques to small, medium and large-scale modelling, simulation and mathematically-based design of engineering devices, circuits and systems. The course is supported by a laboratory of workstations.

Participants will be introduced to performance-driven, yield-driven, cost-driven and worst-case design with emphasis on predictable performance and low computation cost. Using the open architecture optimization system OSA90/hope™, participants will learn how to utilize their own code, compose expressions on-screen, functionally interconnect their modules, pre-, inter- and post-process variables passed to or returned from the modules.

Practical implementation of least squares, least p th, minimax and Huber objectives will be covered. We will focus upon statistical modelling, statistical design centering, yield optimization and parameter extraction. State-of-the-art applications to linear and nonlinear circuits, including filters, amplifiers, oscillators, mixers, as well as device modeling are discussed.

An intensive tutorial and laboratory exposition will present recent advances in integrating electromagnetic simulations directly into the design process. In particular, we expect to employ Empipe™, which drives Sonnet Software's *em*™, and the new Empipe3D™. Empipe3D drives the 3D full-wave EM simulators Maxwell® Eminence from Ansoft Corporation and HFSS offered by Hewlett-Packard. Empipe and Empipe3D employ OSA's exclusive Geometry Capture™ technology to facilitate user-defined optimizable parameters. We will also highlight Space Mapping™, a fundamental new theory linking empirical, circuit-theoretic or coarse models with electromagnetic/fine models in the circuit design process.

If you are interested in attending, please send your name, title, company, address, telephone, fax and email numbers plus a fee of DM 500,-- (university) or DM 750,-- (other) to

Prof. Dr. Ing. Adalbert Beyer

c/o Gerhard-Mercator-Universität-GH-Duisburg

Dept. of Electromagnetic Theory and Engineering

Bismarckstraße 81, 47048 Duisburg, Germany

Tel: +49 203 3789 217

Fax: +49 203 379 3218

Email a.beyer@uni-duisburg.de

The fee can be deposited directly to the Universität bank account (account no. 529 664) at the Sparda Bank Essem eG (bank code 360 305 91) or enclose an official purchase order or cheque made payable to the Department of Electromagnetic Theory and Engineering.

The fee includes course notes, tutorial material and refreshments.