FEATURES

CONTACT

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FRAUNHOFER INSTITUTE FOR INDUSTRIAL
MATHEMATICS – KAISERSLAUTERN

- Netlist-based input of electronic circuits and control systems

- Hierarchical netlist entry and device modeling by means of subcircuits and behavioral model definitions

- Predefined symbolic model library containing common linear and nonlinear devices

- Enhances modeling language: netlist-based and equation-based modeling

- Automatic circuit equation setup

- Design formula extraction

- Nonlinear simplification techniques for automatic behavioral model generation

- Numerical analyses: AC, noise, pole/zero, DC, DC-transfer, transient analysis

- Graphics functions for common electrical engineering analyses

- Import/Export filters: PSpice™, Eldo™ import, Saber™, VHDL-AMS export, Saber™ MAST model templates, schematics from DXF

- High performance MathLink binaries

**Fraunhofer-Institut für Techno- und
Wirtschaftsmathematik ITWM**

Fraunhofer-Platz 1
67663 Kaiserslautern
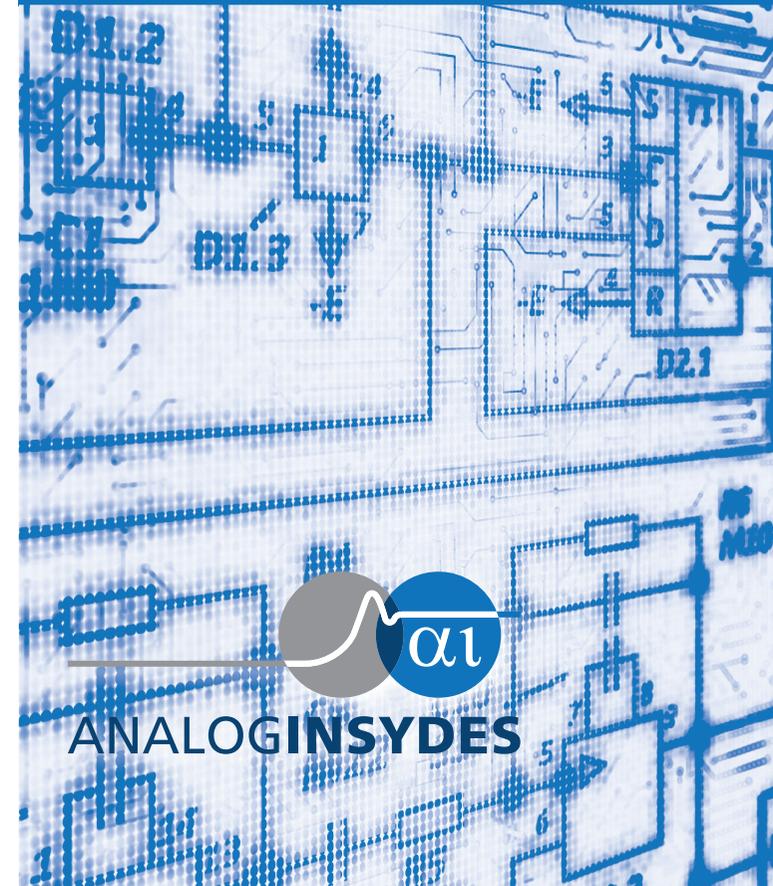Germany

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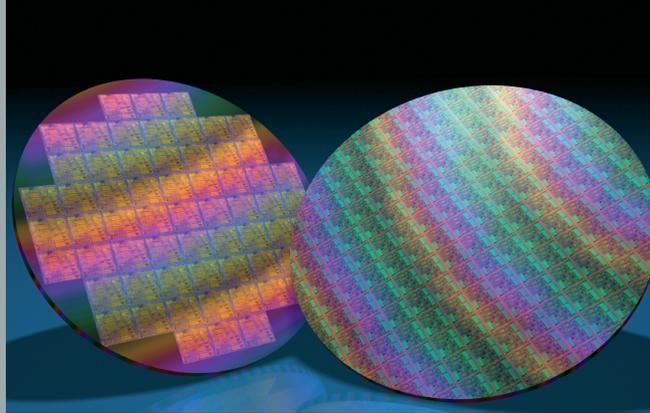"System Analysis, Prognosis and Control"
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INTELLIGENT SYMBOLIC DESIGN SYSTEM FOR ANALOG CIRCUITS

ANALOG**INSYDES**

ADDITIVE
SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT

ANALOG INSYDES

Intelligent symbolic design system for analog circuits

Analog Insydes is a Mathematica® application package for modeling, analysis, and design of analog electronic circuits, tailored specifically for industrial applications. Analog Insydes and Mathematica® integrates the following in one environment:

- describe linear and nonlinear circuits and control systems by means of hierarchical netlists
- set up circuit equations from netlists in the frequency and time domain
- compute symbolic transfer functions
- extract approximated symbolic design formulas
- simulate transient responses of nonlinear dynamic circuits
- use powerful reduction methods generating interpretable symbolic expressions
- analyse symbolically and numerically
- visualize your analysis results with custom graphics functions
- import and export netlists and data to commercial circuit simulators
- document your work with text, formulas, and circuit schematics

With its capability to compute approximated symbolic formulas for circuit characteristics, Analog Insydes is the perfect tool to assist designing complex circuits.
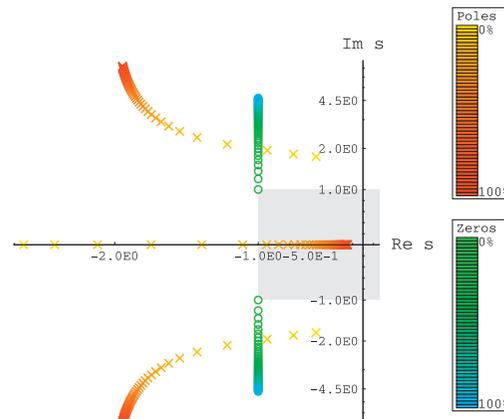
Download a fully functional 30 days demo version at
www.analog-insydes.de

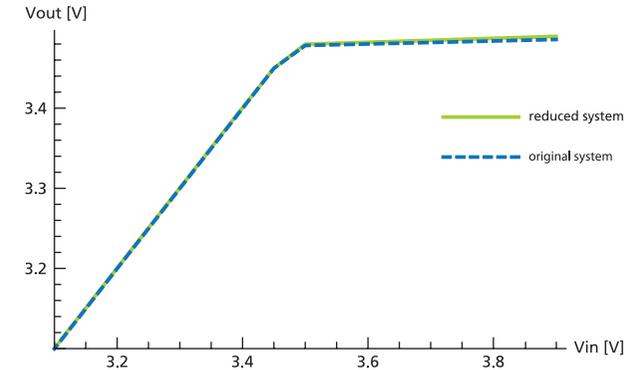## Setup, analysis and model order reduction

Netlist import and automatic equation setup
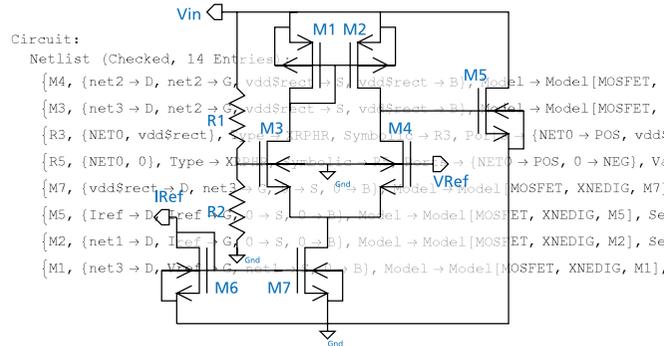
Various numerical analyses and result plots

Model order reduction keeping the most significant parameters

Reducing the simulation time

	number of equations	simulation time	absolute error [V]
original system	254	100 %	0.
reduced system	86	6,51 %	0.02

Design formula extraction yields insights into the circuit behavior

$$vth\$M1 \rightarrow VTH0\$M1 + \frac{1.\text{'}\ K1\$M1\ SqrtPhiS\$M1\ S\$BE\$M1\ S\$Vth\$M1\ TOX\$M1}{TOXM\$M1}$$