



NIC Seminar

Topic: **Stability Issues for Transient Simulations for
Electronic Circuit Design**

Speaker: Prof. Dr. Caren Tischendorf,
Mathematical Institute, University of Cologne

Contents: In electronic circuit design, circuits with several million transistors have to be tested by numerical simulations. Industrial circuit simulation packages are based on model equations that lead to a system of differential-algebraic equations. Nowadays, several effects have to be taken into account that arise by use of higher frequencies (more than 10 GHz) and lower gate lengths (< 40 nm). Therefore, refined circuit models for sensitive circuit parts are needed. Such models lead to coupled systems of partial differential equations and differential-algebraic equations. Here, we present a numerical solution approach to solve such systems. In particular, we demonstrate the influence of the formulation of the model onto the stability behavior of the numerical solution. Finally, we explain how circuit simulation systems can be formulated such that one avoids numerical instabilities.

Time: Wednesday, 22 April 2009, 10:30

Venue: Besprechungsraum 1, Jülich Supercomputing Centre

Anyone interested is cordially invited to participate.

sgd Dr. Sabine Höfler-Thierfeldt