



SECOND INTERNATIONAL NANOTECHNOLOGY CONFERENCE ON COMMUNICATIONS AND COOPERATION

Abstract

Nanoelectronics - Prospects and Challenges

By Rainer Waser, *CNI – Center of Nanoelectronic Systems for Information Technology,
IFF / FZ Jülich & RWTH Aachen University*

Starting from fundamental aspects of information processing and storage, the challenges and implications for the future development of logic and memory devices will be sketched. Scaling trends based on the predictions of the ITRS will be outlined for future CMOS and beyond-CMOS logic devices as well as for charge-based and resistance-based memory concepts. As a specific example, our research on the resistance hysteresis of oxide thin films as a basis of a new memory concept will be presented. The chances of utilizing this effect for future non-volatile memory devices are discussed.