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ABSTRACT DEADLINE: NOVEMBER 1, 2005

REMINDER: *In fairness to all potential authors, late abstracts will not be accepted.*

MRS Symposium D: Transistor Scaling—Methods, Materials, and Modeling

This symposium is targeted at state-of-the-art for MOSFET transistors: methods, materials and modeling. For the past four decades, geometric scaling of silicon CMOS transistors has enabled not only an exponential increase in circuit integration density—Moore's Law—but also a corresponding enhancement in the transistor performance. Simple MOSFET geometric scaling has driven the industry to date; but, as the transistor gate length drops to 35nm and the gate oxide thickness to 1nm, physical limitations such as off-state leakage current and power density make geometric scaling an increasingly challenging task, impeding the pace of performance enhancements. In order to continue CMOS device scaling and trends, innovations, both in device structures and materials, are now required and the industry needs a new scaling vector. Starting at the 90- and 65nm-technology generation, *strained silicon* has emerged as one such innovation. Other device structures such as multigate FETs may be introduced to meet the scaling challenge. This symposium aims to bring together materials scientists, silicon technologists, and TCAD researchers to share experimental results and physical models related to state-of-the-art MOSFETs.

Papers are solicited in, but not limited to, the following areas:

- Process-induced strained Si development
- Different channel orientation or hybrid orientation
- SOI, ultrathin body SOI
- Multiple-gate technologies
- Characterization of the new materials and structures
- Modeling of process elements for transistor scaling including strain measurements, SOI, and multigate device characterization

Invited speakers include: **Serge Biesemans** (IMEC, Belgium), **Ken-Ichi Goto** (TSMC, Taiwan), **Tsu-Jae King** (Synopsys, Inc., and Univ. of California-Berkeley), **Kelin Kuhn** (Intel Corp.), **Arkadii Samoilov** (Applied Materials, Inc.), and **Lee Smith** (Synopsys, Inc.).

Symposium Organizers

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