SAN FRANCISCO, CA 2006 MRS SPRING MEETING APRIL17 - APRIL 21

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CALL FOR PAPERS

ABSTRACT DEADLINE: NOVEMBER 1, 2005

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

MRS Symposium G: Science and Technology of Nonvolatile Memories

The development of the next generation of nonvolatile memories (NVM) will require a new paradigm in materials, materials integration, device architecture, and device physics. In addition, the development of new fabrication processes to produce nanostructures using either top-down (advanced conventional lithography) or bottom-up (self-assembly) approaches will be necessary. The new materials required for the next generation of NVM will go beyond silicon, which has been the cornerstone of the microelectronics revolution of the 20th Century. Materials that might find application in this new generation of NVM include complex oxides (e.g., perovskite ferroelectrics and high-*k* dielectrics), magnetic thin films, chalcogenides, organics, carbon nanotubes, and others not yet identified. The synthesis of the new generation of materials and integration strategies will require a combination of synthesis methods and *in situ* characterization techniques capable of providing valuable information at the atomic scale. The aim of this symposium is to provide a forum in order to stimulate new ideas toward fundamental and applied science, as well as device design and fabrication of nanostructures, which will be necessary to understand the nanoscale structure-property relationships of the thin films and their novel hybrid combinations that will be used in the fabrication of future NVM.

Topics of interest include, but are not limited to:

- Thin-film synthesis and characterization relevant to nonvolatile memories
- Materials integration and processing
- Device architecture and electrical characterization
- NVM: FLASH, FeRAM, MRAM, phase change chalcogenide, organic thin film, molecular, nanoscale nonvolatile Si memory, MEMS/NEMS, CNT-based memories, and new concepts

A tutorial complementing this symposium is tentatively planned. Further information will be included in the program that will be available in January.

Invited speakers include: **Carlos Paz de Araujo** (Univ. of Colorado-Colorado Springs and Symetrix), **Evangelos Eleftheriou** (IBM Zürich Lab, Switzerland), **Al Fazio** (Intel Corp.), **Kinam Kim** (Samsung Electronics, Korea), **S. Parkin** (IBM Almaden Research Ctr.), **Ramamoorthy Ramesh** (Univ. of California-Berkeley), **Tom Rueckes** (Nantero Inc.), **Georg Tempel** (Infineon, Germany), **Yang Yang** (Univ. of California-Los Angeles), and **I.K. Yoo** (Samsung Advanced Inst. of Technology, Korea).

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