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Materials and Technology for Nonvolatile Memories

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Materials and Technology for Nonvolatile Memories

Symposium held November 30-December 5, 2014, Boston, Massachusetts. U.S.A.

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FERROELECTRIC RANDOM ACCESS MEMORIES (FeRAM)

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PREFACE

Symposium M, "Materials and Technology for Nonvolatile Memories," was held Nov. 30–Dec. 5 at the 2014 MRS Fall Meeting in Boston, Massachusetts, which was a follow up of previous symposia on nonvolatile memories. The first symposium on nonvolatile memories was organized in 2004 at the MRS Fall Meeting in Boston, entitled "Materials and Processes for Nonvolatile Memories". Since then, a series of symposia on nonvolatile memories have been held during the MRS Spring Meetings in San Francisco:

- "Science and Technology of Nonvolatile Memories" in 2006
- "Materials and Processes for Nonvolatile Memories" in 2007
- "Materials Science and Technology of Nonvolatile Memories" in 2008
- "Materials and Physics for Nonvolatile Memories" in 2009 and 2010
- "New Functional Materials and Emerging Device Architectures for Nonvolatile Memories" in 2011
- "Materials and Physics of Emerging Nonvolatile Memories" in 2012
- "Emerging Materials and Devices for Future Nonvolatile Memories" in 2013

In 2014, the symposium was returned to Boston. One hundred nineteen papers were presented in 12 sessions, including 10 invited talks. A large number of paper submissions and high attendance in the symposium indicate continuous strong interest and worldwide research efforts in the field of nonvolatile memories. Main research areas featured in Symposium M were advanced Flash memories, organic memories, resistive switching memories (ReRAM), magnetoresistive random access memories (MRAM), ferroelectric random access memories (FeRAM), phase-change memories, as well as emerging materials and technologies for nonvolatile memories. In addition, a highly successful one-day tutorial session, "Emerging Materials and Devices for Nonvolatile Memories," was conducted and included tutorials on ReRAM, polymer/organic materials, MRAM, and Flash memories.

This symposium proceedings volume represents the recent advances and related material issues on various kinds of nonvolatile memory technologies. The papers in this volume are categorized according to each type of memory technology and are not in the order of the symposium presentations.

The editors would like to thank the authors of the manuscripts and all of the speakers and participants for their valuable contributions toward making this symposium successful.

Panagiotis Dimitrakis
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