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PREFACE

This volume contains papers from Symposium NN, "Chemical Processing of Dielectrics, Insulators and Electronic Ceramics," held November 29-December 1 at the 1999 MRS Fall Meeting in Boston, Massachusetts. This symposium continues the theme of a previous symposium (Mater. Res. Soc. Symp. Proc. 495 (1998)) on the creative use of chemistry in the fabrication of advanced electronic ceramics. The symposium focused on the chemical fabrication of a variety of oxide and non-oxide materials which are likely to play a crucial role in the development of the next generation of microelectronics devices.

The symposium consisted of eight oral and four poster sessions with a total of 68 papers being presented, 44 of which are included in this volume. These clearly demonstrate the multidisciplinary nature of the field, involving inorganic precursor chemistry, gas-phase and solid state chemistry, materials science, chemical physics, and chemical engineering.

A number of particularly "hot" areas of research were featured in the symposium, including the deposition of high-k dielectric gate oxides, ferroelectric oxide films for infrared and memory applications, low-k dielectrics, TiN and TaN diffusion barriers, and new precursors for III-V nitrides.

The emphasis throughout is on chemical methods for the controlled deposition of thin films, for which chemical vapor deposition (CVD) has proven to be a useful and versatile technique. A particularly noteworthy development is the use of liquid injection MOCVD for the deposition of oxide multilayers and superlattices. Despite the increasing use of CVD, solution deposition techniques such as sol-gel, metalorganic decomposition (MOD), hydrothermal processing, and chemical bath techniques were also prominently featured.

These proceedings overlap to some extent with a number of other symposia in the 1999 MRS Fall Meeting, including "Ferroelectric Thin Films VIII," "GaN and Related Alloys," and "Structure and Properties of Ultrathin Dielectric Thin Films on Silicon and Related Materials." It is intended that the current volume complements and forms a valuable supplement to these related symposia.

It is the sincere hope of the symposium organizers that this volume will prove to be a useful overview of current research trends in a dynamic and exciting area of solid state technology.

Anthony C. Jones
Janice Veteran
Donald Mullin
Reid Cooper
Sanjeev Kaushal

January 2000
ACKNOWLEDGMENTS

The success of the symposium is due to the efforts of many people to whom we are very grateful. We are grateful to all of the speakers, poster presenters, and authors whose contributions are represented in these proceedings. We thank the MRS staff and the Meeting Chairs whose patience and efforts made our tasks much easier. We are also very grateful to the organizations who provided generous financial support.

Invited Speakers and Session Chairs

William S. Rees Jr., Georgia Tech, Atlanta, Georgia
Yoshihide Senzaki, Schumacher Inc., Carlsbad, California
S.A. Campbell, University of Minnesota, Minneapolis, Minnesota
Jean-Pierre Senateur, LMGP, ENS de Physique de Grenoble, France
M. Yoshimura, Tokyo Institute of Technology, Japan
R.P. Raffaele, Rochester Institute of Technology, New York, New York
Roy Gordon, Harvard University, Boston, Massachusetts
Paul O'Brien, University of Manchester, UK
Janice Veteran, Advanced Micro Devices, Austin, Texas
Anthony C. Jones, Inorgtech Ltd. and Liverpool University, UK

Financial Support

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<td>Molecular Electronics, S.T. Pantelides, M.A. Reed, J. Murday, A. Aviram, 2000</td>
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