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Introduction

This volume contains selected papers from those presented at the International Conference on Micro- and Nanoelectronics 2007 (ICMNE-2007), held in Zvenigirod, Moscow region, 1–5 October 2007. The conference is a regular forum with international status and continues the series of biannual conferences on physical and technological problems in microelectronics. Since 1992, the Institute of Physics and Technology of the Russian Academy of Sciences (FTIAN) has been a permanent organizer of the ICMNE conferences. Since 2003, the ICMNE has been a SPIE-affiliated conference. ICMNE-2007 was supported by the Russian Academy of Sciences, Russian Foundation of Basic Research, and Russian Ministry of Education and Sciences, with the help of SPIE Russia Chapter.

The goals of the conference are threefold: anticipating new concepts and technologies of integrated devices, understanding their potential for nanoelectronics development, and joining the efforts of scientists in meeting the challenges of industry scaling down ICs to nanometer design rules. ICMNE-2007 featured a wide scope of presented papers in the fields of the physics of micro- and nanostructures, techniques for its characterization, and bottleneck points in the technologies of micro- and nanoscale devices.

The Conference focused on topical problems that were highlighted in the following sessions:

- Lithography and Nanolithography
- Plasma and Beam Processing
- Materials and Devices for Optoelectronics
- Nanostructures and Nanodevices
- Magnetic Micro- and Nanostructures
- Thin Films Technologies
- Micro- and Nanostructures Characterization
- Device Structures and ICs
- MEMS and NEMS, and
- Simulation and Modeling.

The scientific program comprised a strong collection of invited and contributed papers from scientists employed at European and Siberian Regions of Russia, Eastern and Western Europe, and Asia. The invited lectures on urgent microelectronic problems delivered by the scientists from France, Belgium, USA, United Kingdom, Japan, and Russia at the Plenary Session aroused significant interest of the audience. The contributions came from academic institutions, universities, and industry. More than 90 papers were discussed as oral presentations; the others were presented as posters.

We hope that discussion of these papers both during the sessions of the Conference and during personal contacts outside the sessions will promote further research activity in the microelectronic community.

Additional information about ICMNE can be found at the conference website http://www. icmne.ftian.ru

Konstantin V. Rudenko
Scientific Secretary of ICMNE-2007