Proceedings of the 13th International Symposium
ULTRAFAST PHENOMENA
IN SEMICONDUCTORS (13-UFPS)
Vilnius, Lithuania, August 26-29, 2007

Editor of the Proceedings
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Foreword

The XIII International Symposium on Ultrafast Phenomena in Semiconductors (13-UFPS) continues the series of forums which are held in Vilnius every third year since 1971. This symposium was organized by the Semiconductor Physics Institute, the Institute of Physics of Polish Academy of Sciences, and Physikalisches Institut der Johann Wolfgang Goethe-Universität. The scientific program of the 13-UFPS was divided into four main sections:
— High-speed optoelectronics,
— Nanostructures and quantum phenomena,
— Terahertz technology,
— Hot electrons and noise in microdevices, materials for high-speed electronics.
The participants of the Symposium have presented 96 scientific communications, including 18 invited talks, 24 oral and 54 poster presentations.

I would like to express my sincere gratitude to all members of the International Advisory Committee and the International Program Committee for their active participation and sincere support in preparing the Program of the Symposium. I am very grateful to the enthusiastic team of the Local Organizing Committee for all the efforts in making this event possible. On behalf of the Organizing Committee, the Chairman of the Symposium also wishes to thank the sponsors for their contribution to the success of this Symposium:
— European Office of Aerospace Research and Development,
— Air Force Office of Scientific Research, United States Air Force Research Laboratory,
— Lithuanian Ministry of Education and Science,
— Lithuanian State Science and Studies Foundation,
— Science and Technology Park.

This volume contains a selection of the works presented at the Symposium. I do believe that the reader will find interesting this material for his/her investigation.

Prof. Steponas Ašmontas
Chairman of the Symposium

INVITED REPORTS

1. **J.A. Dayton**, Jr. (Cleveland), G.T. Mearini, C.L. Kory — *Compact, Efficient Diamond-Based Sub mm Signal Sources*
2. **M. Godlewski** (Warsaw), S. Yatsunenko — *Time-Resolved PL Investigations of Doped Semiconductor Nanoparticles*
3. **M. Grinberg** (Gdańsk) — *RE Impurity Trapped Excitons: Experimental Evidences and Theoretical Concept*
4. **E.L. Ivchenko** (St.-Petersburg) — *Electron Spin Decoherence in Semiconductor Nanostructures*
5. **S. Juršėnas** (Vilnius) — *Carrier Dynamics in GaN Crystals for Surface and Bulk Photoexcitation*
6. M. Kress, T. Löffler, M.D. Thomson, R. Dörner, H. Gimpel, K. Zrost, T. Ergler, R. Moshammer, U. Morgner, J. Ullrich, **H.G. Roskos** (Frankfurt/M) — *Few-Cycle Laser Pulses: the Carrier-Envelope Phase, Its Role in the THz Emission from Laser-Generated Plasmas and a New Way to Measure It*
7. **D.I. Kuritsyn** (Nizhny Novgorod), V.Y. Aleshkin, N.V. Vostokov, D.M. Gaponova, V.M. Daniltsev, A.A. Dubinov, Z.F. Krasilnik, A.I. Korytin, D.A. Pryakhin, V.I. Shashkin — *Picosecond Kinetics of Photocarriers in Gallium Arsenide with Aluminium Nanoclusters*
8. **E.H. Linfield** (Leeds), A.G. Davies — *Recent Developments in Terahertz Quantum Cascade Lasers*
9. **S. Marcinkevičius** (Kista), A. Pinos, T. Aggerstam, S. Lourdudoss — *Dynamics of Carrier Capture to Deep Fe Centres in GaN:Fe*
10. M. Mycielski, M. Witkowska-Baran, A. Szadkowski, D. Kochanowska, B. Witkowska, W. Kaliszek, L. Kowalczyk, R.R. Gałązka, D. Wang, A. Cross, G. Guarino, **R. Sobolewski** (Rochester) — *Applications of II–VI Semimagnetic Semiconductors: Femtosecond Giant Faraday Effect and Radiation Detection*
11. T. Müller, T. Moldaschl, **W. Parz** (Vienna), S. Golka, G. Strasser, K. Unterrainer — *Femtosecond Spectral Hole Burning Spectroscopy as a Probe of Exciton Dynamics in Quantum Dots*
12. **M.F. Pereira** (Sheffield) — *Intersubband Antipolaritons in Quantum Cascade Laser Structures*
13. **G. Scamarcio** (Bari), M.S. Vitiello, V. Spagnolo — *Experimental Investigation of Hot Carriers in Terahertz Quantum Cascade Lasers*
14. P. Shiktorov, **E. Starikov** (Vilnius), V. Gružinskis, L. Varani, L. Reggiani — *Coherent Terahertz Radiation Generation Assisted by Low-Temperature Optical Phonon Emission: Achievements and Perspectives*
15. S. Wu, **R. Sobolewski** (Rochester), P. Geiser, J. Jun, J. Karpinski — *Femtosecond Time-Resolved Characterization of Carrier and Coherent Phonon Dynamics in Bulk GaN Semiconductors*
16. **A.Sužiedėlis** (Vilnius), S. Ašmontas, J. Požela, J. Kundrotas, E. Širmulis, J. Gradauskas, A. Kozič, V. Kazlauskaitė, T. Anbinderis — *Mesoscopic Structures for Microwave-THz Detection*
17. **M. Tabe** (Hamamatsu), R. Nuryadi, D. Moraru, Z.A. Burhanudin, K. Yokoi, H. Ikeda — *Si Multidot FETs for Single-Electron Transfer and Single-Photon Detection*
18. **F. Teppe** (Montpellier), A. El Fatimy, S. Boubanga, D. Seliuta, G. Valušis, B. Chenaud, W. Knap — *Terahertz Resonant Detection by Plasma Waves in Nanometric Transistors*
19. **I.N. Yassievich** (St.-Petersburg) — *Effects of Spin-Dependent Tunnelling in III-V Semiconductor Heterostructures*