

Resume of ISMTII-2009 Symposium and statistics

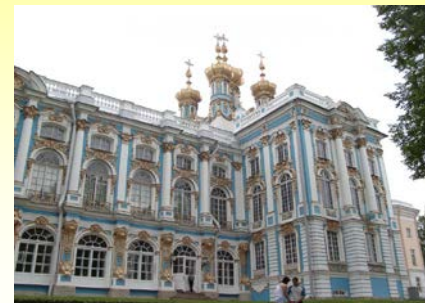


Symposium Homepage: www.tdisie.nsc.ru/ismtii2009

The 9-th International Symposium on Measurement Technology and Intelligent Instruments - ISMTII-2009

Saint-Petersburg, Russia

29 June – 2 July 2009



Organized by:

International Committee on Measurements and Instrumentation (ICMI)



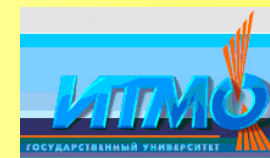
Russian Academy of Sciences, Siberian Branch (SB RAS), Technological Design Institute of Scientific Instrument Engineering (TDI SIE)



D.I. Mendeleev Institute for Metrology (VNIIM)



Saint-Petersburg State University of Information Technologies, Mechanics and Optics (SPbSU ITMO)



Scientific and Industrial Corporation "Vavilov State Optical Institute"



Saint-Petersburg State Polytechnical University (SPbSPTU), Russia



D.S. Rozhdestvensky Optical Society, Russia



[Symposium Homepage:](http://tdisie.nsc.ru/ismtii2009) tdisie.nsc.ru/ismtii2009

In cooperation with:

- **Russian Corporation of Nanotechnologies**
- **International Scientific-Technical Society of Instrument Engineers and Metrologists (ISTS IEM), Russia**
- **The International Science and Technology Center (ISTC)**
- **Federal Agency on Technical Regulating and Metrology, Russia**
- **Laser Association, International Scientific-Technical Organization, Russia**
- **Metrological Academy of Russia**
- **A.M. Prokhorov Academy of Engineering Sciences, Siberian Branch, Russia**
- **Instrumentation, Systems and Automation Society (ISA), Russian Section**

At the assistance of:

- ***Presidium of Siberian Branch of the Russian Academy of Sciences***
 - **Russian Foundation for Basic Research (RFBR)**
 - **National Natural Science Foundation of China (NSFC)**
 - **Saint-Petersburg Government**
 - **Federal Agency for Science and Innovation**
 - **Intertech Corporation**

Endorsed by:

**The Chairmen of Technical Committees TC2, TC7 and TC14
of IMEKO (International Measurement Confederation)**

<http://www.imeko.org/>



Sponsored by

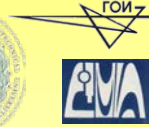
- ✓ **West-Siberian Railroad of the Russian Federation**
- ✓ **Russian Corporation of Nanotechnologies**
- ✓ **The International Science and Technology Center (ISTC)**
- ✓ **Sartorius Company, Germany**
- ✓ **SIOS Company, Germany**
- ✓ **Joint Stock Company TVEL, Russia**
- ✓ **Inversion Fiber Ltd, Russia**
- ✓ **SIBECOPRIBOR – Production-Ecological Enterprise, Ltd, Russia**
- ✓ **VMK Optoelektronika Ltd, Russia**
- ✓ **JSC SoftLab-NSK, Russia**
- ✓ **Information Technologies Center, Russia**





The 9th International Symposium on Measurement Technology and Intelligent Instruments (ISMTII-2009)

Welcome to Saint-Petersburg !



June 29 – July 2, 2009

Venue – Saint-Petersburg, Russia, Pulkovskaya Hotel, Rossiya Hotel

Program of ISMTII-2009

- **Keynote Plenary Sessions (11 Keynote Speakers)**
- **Invited Sessions (27 Invited Speakers)**
- **Ordinary Sessions**
- **Two Poster Sessions**
- **The Round Table I “Concept of Measurements: Past, Present, and Future”, Prof. R. Taymanov**
- **The Round Table II “Technologies for Micro/Nano-CMM Development”, Prof. K.-C. Fan**
- **Two Technical Tours (July 2, 2009):**
 - **D.I. Mendeleev Institute for Metrology (VNIIM)**
 - **St.-Petersburg State University of Information Technologies, Mechanics and Optics**
(Institute “OPTOINFORMATIKA” + Optical Museum)
- **Youth Competition**
- **Social Program**
- **Optional Program**
- **Accompanying Persons Program (FAVORIT DMC Company)**

Resume of ISMTII-2009 Symposium and statistic

Contribution Statistics



- **410 abstracts** were submitted from **30 countries and regions**
- **296 papers** have been accepted from a total of **345 contributions** after reviews

Participant Statistics on 1 July, 2009



313 registered participants from **28** countries and regions, including **34** accompanying persons:

Russia – **112+3*=115**

Germany – **29+7*=36**

Japan – **12**

USA – **6+6*=12**

Italy – **5**

Korea – **4**

Hungary – **3+1*=4**

India – **3**

Mexico – **2+1*=3**

Egypt – **2**

Sweden – **2**

Qatar – **2**

Romania – **1+1*=2**

Israel – **1**

China – **40+2*=42**

Taiwan – **20+2*=22**

The Netherlands – **8+2*=10**

UK – **6+1*=7**

Hong Kong – **4+2*=6**

Austria – **3+3*=6**

Finland – **3**

Iran – **2+2*=4**

Ukraine – **2**

Brazil – **2**

Spain – **2**

Poland – **1+1*=2**

France – **1**

Ireland – **1**

* – accompanying person

Keynote Plenary Speakers

- **Corresp. member of RAS Alexander V. Latyshev, Institute of Semiconductor Physics, SB RAS, *Russia***
Precision Measuring in Nanoscale Range
- **Prof. Boris A. Knyazev, Budker Institute of Nuclear Physics, SB RAS, *Russia***
High-Power Terahertz Novosibirsk Free Electron Laser: Instrumentation Development and Experimental Achievements
- **Prof. Wei Gao, Tohoku University, *Japan***
Fast Measuring Technologies for Ultra-Precision Manufacturing
- **Prof. Albert Weckenmann, University Erlangen-Nuremberg, *Germany***
Computed Tomography for Application in Manufacturing Metrology
- **Prof. Kuang-Chao Fan, National Taiwan University, *Taiwan, ROC***
A Scanning Contact Probe for Micro CMM
- **Prof. Xiangqian (Jane) Jiang, University of Huddersfield, *UK***
The Evolution of Surfaces and their Measurement
- **Prof. Shulian Zhang, Tsinghua University, *China***
Orthogonally Polarized Dual Frequency Lasers and Applications in Self-Sensing Metrology
- **Prof. Peter Rolfe, Oxford BioHorizons Ltd, *UK***
The Impact of Micro and Nano Sensors in Biomedical Measurement
- **Prof. Vladimir M. Petrov, State Institute for Art Studies, *Russia***
In Search for New Paradigm for Humanitarian Measurements: Informational Path Between Scylla of Subjectivism and Harybdis of Operationalism
- **Prof. Harald Bosse, Physikalisch-Technische Bundesanstalt, *Germany***
Nano-and Micrometrology in PTB-State-of the-Art and Future Challenges
- **Prof. Valery S. Alexandrov, Prof. Roald E. Taymanov, Prof. Anna G. Chunovkina, VNIIM, *Russia***
Topical Tasks of Metrology due to Measuring Instruments Computerization

Invited Session Speakers

- Prof. Tilo Pfeifer, RWTH Aachen University, *Germany* THz-Imaging on its Way to Industrial Application
- Prof. Mitsuo Takeda, The University of Electro-Communications, *Japan* Optical Vortex Metrology
- Prof. Ahmed Abou-Zeid, Physikalisch-Technische Bundesanstalt, *Germany* Application of Diode Lasers in Interferometrical Length Measurements
- Prof. Robert Schmitt, Fraunhofer-Institute for Production Technology, *Germany* Visual Inspection using X-Ray Computer Tomography - Non-destructive 3D-Quality Assurance
- Dr. Roman Kiyon, Laser Zentrum Hannover e.V., *Germany* 3D Micro- and Nanofabrication Using Femtosecond Lasers
- Prof. Richard Leach, National Physical Laboratory, *UK* Traceability for Areal Surface Texture Measurement
- Dr. Sergey Peltek, Institute of Cytology and Genetics, SB RAS, *Russia* Micro-Nano Fluid Bio-Analytical Systems: Medical, Bio-Technological and Ecological Applications
- Prof. Hartmut Bartelt, Institute of Photonic Technology, *Germany* Trends in Bragg Grating Technology for Optical Fiber Sensor Applications
- Dr. Andrew Yacoot, National Physical Laboratory, *UK* Nanotrace: the Investigation of Non-Linearity in Optical Interferometers Using X-Ray Interferometry
- Prof. Vladimir Lukin, Institute of Atmospheric Optics, SB RAS, *Russia* Wave-Front Sensors for Adaptive Optics Application
- Dr. Michael Krystek, Physikalisch-Technische Bundesanstalt, *Germany* Principles of Bayesian Methods in Data Analysis
- Dr. Jürgen Kompenhans, Institute of Aerodynamics and Flow Technology, *Germany* Industrial Applications of Image Based Measurement Techniques in Aerodynamics – Problems, Progress and Future Needs
- Dr. Ivan S. Shelemba, Institute of Automation and Electrometry, SB RAS, *Russia* Fiber-Optic Sensor Systems and Their Applications
- Prof. Junfeng Song, National Institute of Standards and Technology, *USA* Three Steps Towards Metrological Traceability for Ballistics Measurements
- Prof. Seung-Woo Kim, KAIST, *South Korea* Multi-Channel Optical Frequency Generator for Absolute Distance Metrology
- Prof. Liang-Chia Chen, National Taipei University of Technology, *Taiwan* Dynamic 3-D Surface Profilometry Using a Novel Color Pattern Encoded with a Multiple Triangular Model
- Prof. Ksenia Sapozhnikova, Prof. Roald Taymanov, VNIIM, *Russia* Improvement of Traceability of Widely-Defined Measurements in the Field of Humanities
- Prof. Yasuhiro Takaya, Osaka University, *Japan* New Probing System for the Nano-CMM Using Radiation Pressure Controlled Microsphere
- Dr. Mike Berg, Hysitron, Inc., *Germany* Transients of Deformation at Nanoscale Observed in Displacement Controlled Nanoindentation Testing
- Prof. Kiyoshi Takamasu, University of Tokyo, *Japan* Uncertainty Evaluation for Coordinate Metrology by Intelligent Measurement
- Dr. Konrad Herrmann, Physikalisch-Technische Bundesanstalt, *Germany* A Microelectromechanical Nanoindentation Instrument with the Force Resolution of 1 nN
- Prof. Wolfgang Osten, Universität Stuttgart, *Germany* Testing Aspheric Lenses: Some New Approaches with Increased Flexibility
- Prof. Hidenori Mimura, Shizuoka University, *Japan* Novel X-Ray Imaging Using a CdTe Sensor
- Prof. Victor Bykov, Research-and-Production Group of Enterprises “NT-MDT”, *Russia* NT-MDT for Innovations Instruments Engineering
- Prof. Wen-Yuh Jywe, National Formosa University, *Taiwan, ROC* Development of the Equipments for Nano Photonic Crystal
- Prof. Lev B. Zuev, Institute of Strength Physics and Materials Science, SB RAS, *Russia* Alternative Speckle Photography Techniques for Plastic Deformation Investigation
- Prof. Sergey V. Muravyov, Tomsk Polytechnic University, *Russia* Preference Aggregation: Measurement Theoretic Aspects, Algorithms and Present Applications

Participation of young scientists



China	27
Russia	22
Europe	11
Japan	3

The results of young participants' competition

The competitive Commission of Prof. Hartmut Bartelt, Prof. Liang-Chia Chen, Prof. Shulian Zhang, Prof. Irina Palchikova, and Prof. Mauricio Frota have carefully revised the presented papers and posters by young participants and nominated the following:



PS02-08 (ismtii404)

Differential Confocal Microscopy with Center Shaded Filter Based on Polychromatic Illumination

Jian Liu, Jiu-Bin Tan, Yu-Hang Wang

PS04-09 (ismtii134)

Investigation of an Optical Sensor for Small Angle Detection

Yusuke Saito, Yoshikazu Arai and Wei Gao

PS08-05 (ismtii165)

Mental Imagery Scale: an Application in the Field of Art Didactics

Paolo Castelli, Martina D'Ercole, Anna Maria Giannini, Antonella Sbrilli

PS06-37 (ismtii319)

Laser Beam Deflection Sensor in a Planar Optical Waveguide Based in the Mirage Effect

C. Sanchez-Perez and A. García-Valenzuela

PS06-01 (ismtii015)

Glass Microlens Arrays for Shack-Hartmann Wavefront Sensors

Mikhail M. Vekshin, Anton S. Levchenko, Alexander V. Nikitin, Valery A. Nikitin, Nikolay A. Yakovenko

OS10-02 (ismtii050)

Computer-Assisted Generation of Individual Training Concepts for Advanced Education in Manufacturing Metrology

Teresa Werner, Albert Weckenmann

OS10-05 (ismtii391)

MRI-Systems Designing and Application Specialists Development

Anna O. Kaznacheeva

PS07-14 (ismtii313)

SLS-Process Monitoring and Temperature Control

Yu. Chivel, M. Doubenskaia

OS06-13 (ismtii227)

Metrological Aspects of Enzyme Production

Tatiana de Mattos Kerber, Gisela Maria Dellamora-Ortiz, Fatima Ventura Pereira-Meirelles

OS03-05 (ismtii079)

Measurement of Period Difference in Grating Pair Based on Analysis of Grating Phase Shift

Chao Guo, Lijiang Zeng

The results of young participants' competition

PS04-03 (ismtii048)

A Method for Laser Measurement of Disperse Composition and Concentration of Aerosol Particles

Olga B. Kudryashova, Igor R. Akhmadeev, Anatoly A. Pavlenko,
Vladimir A. Arkhipov, Sergey S. Bondarchuk

PS10-03 (ismtii383)

The Torsion Magnetic Variometer with Kevlar-Hanger-Based Sensor

Pavel A. Sergushin, Anna D. Perechesova, Maksim S. Petrishchev

OS07-09 (ismtii051)

Automatic, Task-Sensitive and Simulation-Based Optimization of Fringe Projection Measurements

Johannes Weickmann, Albert Weckenmann, Peter-Frederik Brenner

PS07-12 (ismtii276)

Factorial and Preliminary Parameter Tests for the Water Beam Assisted form Error in-Process Optical Measurement

Y. Zhang, Y. Gao, Y.H. Lai And J.X. Wang

PS06-28 (ismtii111)

Polymer Based Micro Sensors Arrays for Ph and Glucose Monitoring

O. Korostynska, K. Arshak, A. Arshak, E. Gill, P. Creedon, S. Fitzpatrick

PS06-20 (ismtii405)

Asymmetric Thermal Structure for Frequency Stabilized Two-Mode Lasers

Hu Pengcheng, Tan Jiubin, Wang Qi, Zhang Pei

PS06-06 (ismtii153)

Precision Measurement of the Low-Frequency Noise of Highly-Stable Capacitance-to-Digital Converter

Xiaodong Guo, Stoyan Nihtianov

PS06-36 (ismtii316)

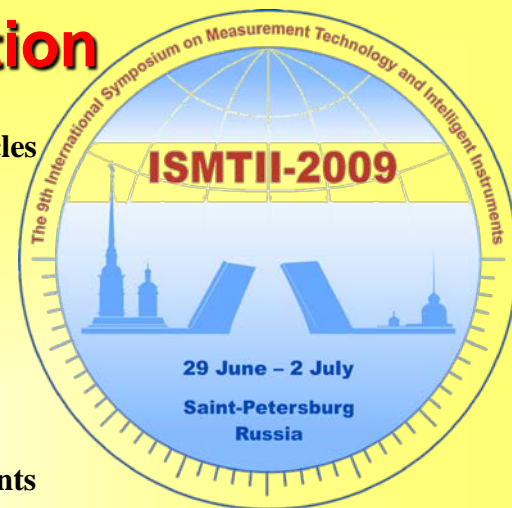
U-Shaped Waveguide with Nanofilms for Medical Application

Sergey A. Krutovertsev, Alexander G. Borisov, Maxim V. Chuprin, Maya G. Rubtsova, Olga M. Ivanova

OS06-06 (ismtii033)

Interferometric Fiber-Optic Electric Current Sensor for Industrial Application Nikolay I. Starostin, Maksim V. Ryabko,

Yurii K. Chamorovskii, Vladimir P. Gubin, Aleksandr I. Sazonov, Sergey K. Morshnev, Nikita M. Korotkov



The results of questionnaires review and comments after Symposium (on July 20, 2009)



During Symposium the questionnaires have been distributed among participants.

The summary is the following:

- 1. The Program was completed**
- 2. The schedule was kept**
- 3. The speakers were of high level**
- 4. The selection of papers was perfect**
- 5. The social program was highly appreciated**
- 6. The Round Tables were informative**
- 7. The Technical Tours were within the Symposium schedule**
- 8. The Poster Sessions were informative and good organized**
- 9. The work of Organizing Committee and procedure of Registration were excellent**
- 10. The Symposium ISMTII-2009 bulletin is very useful from informative point of view and this first experience may recommend for future Symposia**
- 11. The participants have learnt the culture and customs of Russia**
- 12. The transfer between hotels is desired to be better**
- 13. There will be better to hold the Symposium in one Hotel or Congress center**
- 14. Too many parallel working Sessions**



The 9th International Symposium on Measurement Technology
and Intelligent Instruments

Proceedings of ISMTII-2009

29 June – 2 July, 2009 Saint-Petersburg, Russia

Volume 1



Proc. of ISMTII-2009

4 volumes / 1530 pages

(200 copies) +

CD-disc with

the Proceedings



**We have concluded
the agreements for publishing
the recommended papers in following Journals:**

- **Measurement Science and Technology (MST) (30 papers)**
In 2008 Impact Factor has increased for 15% up to 1.493
- **Key Engineering Materials (KEM) (70 papers)**
- **Measurement Science Review (15 – 20 papers)**
- **Nanotechnology and Precision Engineering
is under discussion**
- **Advanced Materials Research (AMR) is under discussion**

Publication Committee

Prof. Yuri Chugui, *Russia*

Prof. Yongsheng Gao, *Hong Kong, China*

Prof. Kuang-Chao Fan, *Taiwan, China*

Prof. Irina G. Palchikova, *Russia*

Prof. Nikolay Nikonorov, *Russia*

Dr. Vladimir Arpishkin, *Russia*

Prof. Wei Gao, *Japan*

Prof. Volker H. Hans, *Germany*

Prof. Geny Kavalero, *Russia*

Prof. Vladimir Kneller, *Russia*

Prof. Sergey Muravyov, *Russia*

Prof. Ksenia Sapozhnikova, *Russia*

Dr. Mikhail Stupak, *Russia*

Prof. Roald Taymanov, *Russia*

Prof. Sergei Yurish, *Spain*

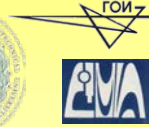
Prof. Hartmut Bartelt, *Germany*





The 9th International Symposium on Measurement Technology and Intelligent Instruments (ISMTII-2009)

Welcome to Saint-Petersburg !



We would like to thank all members of Steering and International Program Committees (IPC), especially Keynote speakers, Invited Session speakers, and all authors for their great contributions and support

A lot of thanks for constructive real assistance:

- Prof. Yongsheng Gao, General Secretary of ICMI,***
- Prof. Wei Gao, The Past Chairman of ISMTII,***
- Prof. Gerd Jäger, Member of IPC,***
- Prof. Peter Rolfe, Member of IPC,***
- Prof. Kuang-Chao Fan, Member of Steering Committee.***



A lot of thanks
for your participation
from Chairman



Welcome

to Saint-Petersburg

once more !