



**International Symposium on Terrestrial Gravimetry:
Static and Mobile Measurements (TG-SMM2007)
20-23 August 2007
Saint Petersburg, Russia**

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PROGRAM

MONDAY, 20 August 2007

8.00 – 9.30 REGISTRATION OF THE SYMPOSIUM PARTICIPANTS
9.30 – 9.50 OPENING CEREMONY

Introductory Session

Chairman V.G. Peshekhonov, Russia

PLENARY PAPERS

- 9.50 – 10.20** 1. **Andrew John Wallard (*Bureau International des Poids et Mesures - BIPM, Sèvres, France*)**
International Confidence in, and Recognition of, Measurement Capabilities through the Work of the BIPM and the Metre Convention
- 10.20 – 10.40** 2. **Felicitas Arias (*BIPM, Sèvres, France*)**
A Successful Example of International Coordination for Metrology: the International Time Scales
- 10.40 – 11.00** 3. **Juergen Kusche, Ch. Förste, R. Schmidt, F. Flechtner, J. Neumeyer, F. Barthelmes, R. Stubenvoll (*Germany*)**
What is Needed from Terrestrial Gravimetry in View of Contemporary and Future Global Gravity Modelling?
- 11.00 – 11.20 COFFEE BREAK**

Session 1. TERRESTRIAL, MARINE AND AIRBORNE GRAVIMETRY

*Chairmen: M. Becker, Germany,
Ch. Jekeli, USA,
V.A. Lygin, Russia*

PLENARY PAPERS

- 11.20 – 11.40** 4. **A.A. Krasnov, L.P. Nesenjuk, V.G. Peshekhonov, A.V. Sokolov, L.S. Elinson (*Russia*)**
Marine Gravimeter of New Generation
- 11.40 – 12.00** 5. **Gerhard Jentzsch (*Germany*)**
The Automated Burris Gravity Meter – a New Gravimeter Using an Old Principle
- 12.00 – 12.20** 6. **I.V. Belyaev, N.M. Ivanova, A.N. Prudnikov (*Russia*)**
Integrated Seismic-Gravity-Magnetic 3D Inversion for Identifying Prospective Hydrocarbon Areas in the Ob and Taz Shallow Waters

- 12.20 – 12.40 7. **Yu.E. Rozhkov, V.N. Koneshov, N.V. Drobyshv, V.N. Soloviov (Russia)**
The Complex Method of the Gravitational Field of the Earth Anomalies Data Survey in the High Latitudes, Received by the Use of Aerogravimetry, On-Board Sea Gravimetry and Satellite Altimetry
- 12.40 – 13.00 8. **S.A. Pavlov, V.E. Mogilevsky, D.V.Kaplun, N.A. Fokin, B.S. Lokshin (Russia)**
High-Accuracy Airborne Gravity over Shelf Zone
- 13.00 – 14.00 **LUNCH**
- 14.00 – 14.20 9. **V.A. Lygin, V.Ya. Piankov (Russia)**
The Relation between the Gravity Field Structure and the Geologic Structure of the Azov and the Black Seas
- 14.20 – 14.40 10. **A.A. Golovan, O.N. Bogdanov (Russia)**
On Possibility of Making Aerogravimetry More Accurate by Means of Using More Precise Information of Navigation Satellites Ephemeris and of Ionosphere State
- 14.40 – 15.00 11. **Christopher Jekeli, Xiaopeng Li (USA)**
Ground-Vehicle INS/GPS Gravimetry
- 15.00 – 15.30 **COFFEE BREAK**
- 15.30 – 15.50 12. **Henri Duquenne, José Cali, Jérôme Verdun, Bertrand de Saint-Jean, Jean-Pierre Barriot (France)**
Kalman Smoothing Filter Algorithm Design for Moving Vector Gravimetry: First Results of Field Experiments Using the LIMOG System
- 15.50 – 16.10 13. **Madjid Abbasi (Iran), Jean-Pierre Barriot, Michel Sarrailh, Richard Biancale, Sylvain Bonvalot (France)**
AIRGRAV: a New Software for Processing of the Aerogravimetric Data
- 16.10 – 16.30 14. **Gerd Boedecker (Germany)**
Coping with Ionospheric Effects in GPS Kinematic Positioning for Airborne Gravimetry
- 16.30 – 16.50 15. **Valerio Iafolla (Italy), V.K. Milyukov (Russia), S. Nozzoli, E. Fiorenza, C. Lefevre, D. Lucchesi, F. Santoli, R. Peron, M. Persichini (Italy)**
Sea-Floor Gravity-Meter to be Used on Board a Multiparameter Sea Bottom Observatory for Long Time Acquisition
- 16.50 – 17.20 **COFFEE BREAK**

POSTER PAPERS*

17.20 – 18.50

16. **A.A. Krasnov, L.P.Nesenyuk, A.V. Sokolov (Russia), T.H. Stelkens-Kobsch, R. Heyen (Germany)**
The Results of the New Airborne Gravimeter Tests
17. **O.A. Stepanov (Russia)**
Optimal Filtering and Smoothing Algorithms for the Airborne Gravimetry Problem
18. **H. Richard Schulz (Germany)**
Improvement of the Evaluation of Micro-Gravity Data with the Help of an Integrated Software Solution with the Focus on the Improved Terrain Correction
19. **Yu.V. Bolotin (Russia)**
Methods of Data Quality Control during Airborne Gravity Surveys
20. **Juergen Neumeier, Uwe Schaefer, Hartmut Pflug, Guochang Xu (Germany)**
Evaluation of an Airborne Gravity Test Campaign in Germany and Comparison with Ground-Based Gravity Data
21. **N.A.Parusnikov, Yu.V. Bolotin, A.A. Golovan (Russia)**
Experience in Post Processing Software Elaboration for Russian Airborne Gravimetry Systems GT1A and Graviton-M
22. **A.A. Golovan, N.B. Vavilova (Russia)**
GPS Raw Data Processing in Airborne Gravimetry

19.00 – 20.30

FOURCHETTE

* The authors of poster papers present 1-2 slides within 3 minutes at the plenary session; the discussion will be continued at the posters.

Session 2. ABSOLUTE GRAVIMETRY

Chairmen: **O. Francis**, Luxembourg,
L.F. Vitushkin, BIPM, Sèvres, France

PLENARY PAPERS

- 9.30 – 9.50** 23. **L.F. Vitushkin** (*BIPM, Sèvres, France*)
Measurement Standards in Gravimetry
- 9.50 - 10.10** 24. **E.N. Kalish, Yu.F. Stus, M.G. Smirnov** (*Russia*)
New Measuring-Computing Unit for a Laser Ballistic Gravimeter
- 10.10 – 10.30** 25. **Sergiy M. Svitlov, Christian Rothleitner, Lijun Wang** (*Germany*)
The MPG Free-Fall Absolute Gravimeters
- 10.30 – 10.50** 26. **James E. Faller, Artyom Vitushkin** (*USA*)
The FGC-1 Absolute Gravimeter
- 10.50 – 11.20** **COFFEE BREAK**
- 11.20 – 11.40** 27. **Giancarlo D'Agostino, Alessandro Germak** (*Italy*), **L.F. Vitushkin** (*BIPM, Sèvres, France*)
International Comparison of Absolute Gravimeters: Technical Protocol and Estimate of the Reference Value and Its Uncertainty
- 11.40 – 12.00** 28. **Giancarlo D'Agostino, Alessandro Germak, Claudio Origlia, Danilo Quagliotti** (*Italy*)
Perturbations in Absolute Gravimetry: a Quantitative Estimate of Some of the Most Overriding Influence Factors
- 12.00 – 12.20** 29. **Lennart Robertsson** (*BIPM, Sèvres, France*)
Diffraction Effects in Laser Interferometers Used in Absolute Gravimetry
- 12.20 – 12.40** 30. **Jaakko Mäkinen, Mirjam Bilker-Koivula, Hannu Ruotsalainen** (*Finland*), **V.I. Kaftan, N.A. Gusev, N. Korolev, V.D. Yushkin** (*Russia*), **Reinhard Falk, Walter Hoppe, Olga Gitlein** (*Germany*)
Comparison of Absolute Gravimeters in Metsähovi in 2004 and in Zvenigorod in 2005
- 12.40 – 13.00** 31. **Reinhard Falk, Hartmut Wziontek, Herbert Wilmes** (*Germany*)
Comparison of Absolute Gravimeters at the Regional Comparison Site Bad Homburg / Germany between 2003 and 2006
- 13.00 – 14.00** **LUNCH**

PLENARY PAPERS

- 14.00 – 14.20 32. **Henri Francois Baumann, P. Richard, E.E. Klingelé (Switzerland)**
3D Gravity Maps Applied in Metrology : Watt Balance
- 14.20 - 14.40 33. **Sebastien Merlet (France), A.V. Kopaev (Russia), F. Pereira Dos Santos, M. Diament (France)**
Micro-Gravity Characterization in the Laboratory of the LNE Watt Balance Project
- 14.40 – 15.00 34. **Yu.P. Machekhin (Ukraine)**
Dynamic System Chaotic Behaviour and Uncertainty Measurement
- 15.00 - 15.20 35. **Reinhard Falk, Nina Lux, Herbert Wilmes (Germany)**
Experience with Two Field Absolute Gravimeters A10 under Laboratory and Outdoor Conditions
- 15.20 – 15.40 36. **Olivier Francis (Luxembourg), Michel Van Camp (Belgium), Simon D.P. Williams (UK)**
On the Drift of a Superconducting Gravimeter and the Noise of an Absolute Gravimeter
- 15.40 - 16.00 **COFFEE BREAK**

POSTER PAPERS*

16.00 – 17.20

37. **L.F. Vitushkin (BIPM, Sèvres, France), O.A. Orlov, V.V. Nalivaev (Russia)**
Test Measurements of Free-Fall Acceleration Using the FG5-108 Gravimeter with a Compact Diode-Pumped Solid-State Nd:YVO₄/KTP/I₂ Laser at the Wavelength of 532 nm
38. **Mirjam Bilker-Koivula, Jaakko Mäkinen (Finland), Ludger Timmen, Olga Gitlein (Germany), Fred Klopping (USA), Reinhard Falk (Germany)**
Repeated Absolute Gravity Measurements in Finland
39. **Zhiheng Jiang (BIPM, Sèvres, France)**
The Local Gravity Field at BIPM
40. **A.A. Yankovsky, E.P. Krivtsov (Russia), L.F. Vitushkin (BIPM, Sèvres, France), Olivier Francis (Luxembourg)**
Investigations of Characteristics of Gravimetric Sites Intended for High-Accuracy Measurements
41. **Vojtech Pálinkás (Czech Republic)**
Gravimetry at the Pecný Station/RIGTC

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42. **Vojtech Pálinkás, Martin Lederer (Czech Republic)**
Thorough Vertical Gravity Gradient Determination at the Czech Absolute Stations
43. **Sebastien Merlet (France), O. Francis (Luxembourg), V. Palinkas, J. Kostelecky (Czech Republic), N. Le Moigne, T. Jacob, G. Genevès (France)**
Absolute Gravity Measurements at LNE
44. **Olga Gitlein, L. Timmen, J. Müller, H. Denker (Germany), J. Mäkinen, M. Bilker-Koivula (Finland), B.R. Pettersen, D.I. Lysaker, J.G.G. Svendsen (Norway), H. Wilmes, R. Falk, A. Reinhold, W. Hoppe (Germany), H.-G. Scherneck (Sweden), B. Engen, O.C.D. Omang (Norway), A. Engfeldt, M. Lilje, M. Lidberg (Sweden), G. Strykowski, R. Forsberg (Denmark)**
Observing Absolute Gravity Acceleration in the Fennoscandian Land Uplift Area
45. **Chiung-Wu Lee, Miao-Hsiang Peng (China)**
Calibration and Uncertainty Evaluation of the Superconducting Gravimeter SG048 in Taiwan

17.20 – 18.30

ROUND – TABLE DISCUSSION

Current and Future Needs for the Instrumentation in Gravimetry

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WEDNESDAY, 22 August 2007

Session 3. GRAVIMETRIC NETWORKS

*Chairmen: G.V. Demianov, Russia,
M. Becker, Germany*

PLENARY PAPERS

- 9.00 – 9.20 46. **V.I. Kaftan (Russia)**
Frames and Systems in Gravimetry and Geodesy: Chaos and Order in Terminology
- 9.20 – 9.40 47. **A.V. Kopaev, V.D. Yushkin (Russia), G. Jentzsch (Germany), S. Merlet, F. Pereira Dos Santos (France)**
Laboratory and Field Experiences with Sodin, ZLS Burris and Scintrex CG5 Gravimeters
- 9.40 - 10.00 48. **S.P. Dmitriev, L.P. Nesenyuk, A.P. Kolevato (Russia)**
A Stochastic Approach to the Problem of Constructing a Map of the Vertical Deviation by the Data of Gravity Survey

10.00 – 10.30

COFFEE BREAK

10.30 – 12.00

49. **G.B. Volfson, M.E. Yevstifeyev, T.V. Paderina, A.G. Scherback (Russia)**
Using a Gravity Variometer for Prediction of Earthquakes
50. **Bojan Barišić, Marija Repanić, Ilija Grgić, Mihajla Liker, Maro Lučić, Tomislav Bašić, Danko Markovinović (Croatia)**
Gravity Measurements on the Territory of the Republic of Croatia – Past, Current and Future Gravity Networks
51. **Tõnis Oja (Estonia)**
Calibration of LaCoste-Romberg G and Scintrex CG-5 Spring Gravimeters in the Estonian and Finnish Calibration Lines
52. **Tõnis Oja (Estonia)**
Adjustment of National Gravity Network of Estonia
53. **Giovanna Berrino, Gennaro Corrado (Italy)**
1981-2007 Gravity Monitoring of Italian Active Volcanoes
54. **Sylvain Bonvalot, J. Hinderer, G.Gabalda, B. Luck, F. Bondoux (France)**
Measuring Crustal Deformation Using Absolute Gravity: Field Experiments and Results from Chile
55. **Corinna Kroner, M. Naujoks, A. Weise , T. Jahr (Germany)**
Repeated Gravity Measurements – a Method Suitable for Hydrological Studies
56. **Danko Markovinović, Tomislav Bašić (Croatia)**
Establishment of Gravimetric Network for the Area of Zagreb Metro
57. **J. Walo, M. Barlik, A. Pachuta, R. Szpunar, T. Olszak, D. Próchniewicz (Poland)**
Project of Unification Gravimetric Reference Frame for Polish GNSS Stations and Geodynamic Test Fields
58. **Jan Mrlina (Czech Republic)**
Special Processing Technique for High Accuracy Gravity Data of Gravity Networks and Microgravity
59. **S.V. Behterev, N.B. Kalinnikov, A.B. Manukin, V.I. Rebrov (Russia)**
Method of detection of potentially dangerous zones at engineering object and in Earth Crust

12.00 – 13.50

**VISIT TO THE EXHIBITIONS OF NEW EQUIPMENT DEVELOPED
BY CSRI ELEKTROPRIBOR OR THE COMPANY MUSEUM
(at the participant option)**

12.00 – 14.00

LUNCH

* The authors of poster papers present 1-2 slides within 3 minutes at the plenary session; the discussion will be continued at the posters.

Session 4. GRAVITATIONAL CONSTANT

Chairmen: **V.N. Melnikov**, *Russia*,
V.K. Milyukov, *Russia*

PLENARY PAPERS

- 14.00 – 14.20** 60. **V.N. Melnikov** (*Russia*)
Gravitational Constant: Absolute Measurements and Possible Variations
- 14.20 – 14.40** 61. **V.K. Milyukov** (*Russia*), **Jun Luo** (*China*)
New Experiment on Measurement of the Newtonian Gravitational Constant: Modern Status and Perspectives
- 14.40 – 15.00** 62. **N.I. Kolosnitsyn** (*Russia*)
A Novel Method for Measurement of the Gravitational Constant
- 15.00 – 15.20** 63. **V.N. Koneshov**, **A.B. Manukin**, **I.I. Kalinnikov**, **V.P. Matyunin**, **G.B. Volfson** (*Russia*)
Measuring Second Derivatives of the Gravity Potential. The State of the Art and Prospects

POSTER PAPERS *

15.20 – 16.00

64. **V.K. Milyukov** (*Russia*), **Chen Tao** (*China*)
Torsion Balance in the Experiment on Measurement of the Newtonian Gravitational Constant
65. **N.I. Kolosnitsyn**, **V.N. Melnikov** (*Russia*)
Laboratory Experiment Project to Test New Forces
66. **L.F. Vitushkin** (*BIPM, Sèvres, France*), **Peter Wolf** (*France*), **Artyom Vitushkin** (*USA*)
A Proposal of Experiment for the Measurement of the Gravitational Constant Using the Attraction between Two Freely Moving Discs

16.00 – 16.20

C O F F E E B R E A K

* The authors of poster papers present 1-2 slides within 3 minutes at the plenary session; the discussion will be continued at the posters.

Session 5. ATOM INTERFEROMETRIC GRAVIMETRY

Chairman: V.L. Velichansky, *Russia*

PLENARY PAPERS

- 16.20 – 16.50 67. **G. W. Biedermann, K. Takase, X. Wu, C. S. Roy, C. Mahadeswaraswamy, L. Deslauriers, M.A. Kasevich (USA)**
Atom Interferometry-Based Gravity Sensors
- 16.50 – 17.10 68. **Sebastien Merlet, J. Le Gouët, T. Mehlstäubler, D. Holleville, A. Clairon, A. Landragin, F. Pereira Dos Santos (France)**
Atom Interferometry at LNE-SYRTE for Accurate Measurement of Gravity
- 17.10 – 17.30 69. **Wangxi Ji, Jinyi Xu, Shuqing Wu, Duowu Su, Dalun Liu (China)**
Ongoing to Gravimeter with Atom Interferometry in NIM
- 17.30 – 17.50 **CLOSING CEREMONY**
- 18.00 **Bus to the banquet venue**
- 18.30 – 21.00 **BANQUET**

THURSDAY, 23 August 2007

- 11.00 – 18.30 **CULTURAL PROGRAM**
- 11.00 – 1530 City tour with the excursion to the Hermitage Museum
- 15.30 – 18.30 Lunch at the restaurant Literature café (*Nevskiy av., 18*) and boat trip Saint Petersburg Rivers and Channels