



13th Saint Petersburg International Conference
on Integrated Navigation Systems
29 – 31 May 2006, Russia

PROGRAM

MONDAY, 29 MAY 2006

8.00 – 9.50 REGISTRATION OF CONFERENCE PARTICIPANTS

10.00 – 10.15 OPENING CEREMONY

SESSION I – INTEGRATED SYSTEMS

Chairmen: **Dr. B. Rivkin**, Russia
Prof. J. Sinkiewicz, USA

PLENARY PAPERS

- 10.15 – 10.35 1. **V.N. Branets, M.V. Mikhailov, A.V. Korostelev** (*Korolev Rocket Space Corporation Energia, Korolev, Moscow Region, **Russia***)
Phase Method of Solving the Task of Relative Navigation on Spacecraft Rendezvous with the International Space Station by Signals of GPS and GLONASS Satellite Navigation Systems
- 10.35 – 10.55 2. **W.C. Lu** (*ENAC, LAAS du CNRS, Toulouse, **France***), **L. Duan** (*ENAC, UT2, Toulouse, **France***), **F. Mora-Camino** (*ENAC, LAAS du CNRS, Toulouse, **France***), **B.O. Ouattara** (*EAMAC/ASECNA, Niamey, **République du Niger***)
Evaluation of a New Approach for the Design of Generic 4D Guidance Systems

10.55 – 11.25 COFFEE BREAK

- 11.25 – 11.45 3. **V.A. Udaloj, N.L. Sokolov, V.K. Zhuravlev** (*Mission Control Center of Central Scientific Research Institute of Machine Building, Korolev, Moscow Region, **Russia***)
Meteor-3M S/C Operational Control
- 11.45 – 12.05 4. **V.B. Larin** (*Institute of Mechanics of National Academy of Sciences of Ukraine, Kiev, **Ukraine***), **A.A. Tunik** (*National Aviation University, Kiev, **Ukraine***)
Flight Stabilization and Exogenous Uncertain Disturbance Suppression via Static and Dynamic Output Feedback

POSTER PAPERS *

- 12.05 – 13.00
5. **D.N. Rulev** (*Korolev Rocket Space Corporation Energia, Korolev, Moscow Region, **Russia***)
Method to Optimize the Planning of Ground Objects Observations with Account for Spacecraft Orbit Forecast Deviations
 6. **V.V. Abol**, **A.A. Bermishev** (*Mission Control Center of Central Scientific Research Institute of Machine Building, Korolev, Moscow Region, **Russia***), **V.L. Lapshin**, **A.V. Syusin** (*Scientific-Production Enterprise Termoteh, Korolev, Moscow Region, **Russia***)
Results of Use of Mobile Test-Diagnostic Laboratory for Testing GLONASS/GPS Receivers and Correction of Electronic Maps of Territories
 7. **V.N. Bukov** (*Research Institute of Aeronautical Equipment, Zhukovsky, Moscow Region, **Russia***), **A.S. Bocharov**, **N.I. Selvesyuk** (*Zhukovsky Air Force Engineering Academy, Moscow, **Russia***)
Synthesis of the Aircraft Control Loops with Guaranteed Accuracy
 8. **V.N. Bukov** (*Research Institute of the Aeronautical Equipment, Zhukovsky, Moscow Region, **Russia***), **A.M. Bronnikov**, **A.Yu. Chekin** (*Zhukovsky Air Force Engineering Academy, Moscow, **Russia***)
System of Automatic Compensation of Disturbances in the Control Channel of Helicopter Flight Altitude at Arbitrary Horizontal Maneuvering
 9. **V.A. Dzenzersky**, **S.V. Plaksin**, **Yu. V. Shkil** (*Transmag Institute of Conveying Systems and Technologies of Ukraine National Academy of Sciences, Dnepropetrovsk, **Ukraine***)
Navigation System of Magnetolevitative Vehicle
 10. **Virginia Camara Ferro** (*EMBRAER, Sao Jose dos Campos, **Brazil***), **Henri Leblond** (*THALES Instruments, Vendôme, **France***)
Civil A/C Standby Instrumentation Evolution Since the Last Twenty Years. Consequences on Low Cost IMU Technology
 11. **V.N. Azarskov**, **L.N. Blokhin**, **O.V. Ermolaeva**, **O.V. Litvinova**, **A.N. Yurchenko** (*National Aviation University, Kiev, **Ukraine***)
Methodological Fundamentals of Navigational Systems Modernization by the Results of their Dynamical Attestation at Flight Scaled-Down Simulation Complex
- 13.00 – 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.

Chairmen: **Prof. L. Nesenjuk**, Russia
Mr. L. Camberlein, France

PLENARY PAPERS

- 14.00 – 14.20 12. **V.D. Dishel, A.K. Bykov, V.G. Sulimov, N.V. Sokolova, A.V. Fedorov** (*Pylyugin Scientific-Production Center of Automatics and Instrument-Making (PSPC), Moscow, Russia*)
Perfection of the Onboard Software for the First Integrated INS/(GLONASS & GPS) System of Navigation and Attitude of the Launcher. System Flight Tests Outcomes
- 14.20 – 14.40 13. **V.S. Lobanov, N.V. Tarasenko, D.N. Shulga, V.N. Zboroshenko** (*FSUE Central Scientific Research Institute of Machine Building, Korolev, Moscow Region, Russia*), **V.P. Fedotov** (*Lavochkin Scientific Production Association, Khimki, Moscow Region, Russia*)
Use of Corrected Strapdown Inertial Navigation System Based on Fiber-Optic Gyroscopes and Quartz Accelerometers for Interplanetary Spacecrafts Motion Control
- 14.40 – 15.00 14. **Damien Kubrak, Christophe Macabiau** (*ENAC, Toulouse, France*), **Michel Monnerat** (*Alcatel Space, Toulouse, France*)
Low-Cost MEMS Sensors for Aided-GNSS Processing Enhancement

POSTER PAPERS*

- 15.00 – 15.30 15. **L.N. Blokhin, N.V. Bilak** (*National Aviation University, Kiev, Ukraine*)
Problem of the Efficient Modernization of the Airplane Stabilizing Complexes
16. **L.N. Blokhin, S.I. Osadchiy, I.Yu. Safronova** (*National Aviation University, Kiev, Ukraine*)
Stochastic State Estimation of an Unmanned Vehicle in Cruising Movement by the Full-Scale Experimental Data
17. **E.G. Kharin, V.G. Polikarpov, I.A. Kopylov, V.A. Kopelovich, V.R. Kozhurin** (*Gromov Flight Research Institute, Zhukovskiy, Moscow Region, Russia*)
Usage of Onboard Trajectory Measurement Complex to Estimate Characteristics of Onboard Equipment Systems and Complexes at Flight Tests
18. **Milos Sotak, František Kmec** (*Academy of Armed Forces, Liptovský Mikuláš, Slovakia*), **Milan Sopata** (*Technical University, Kosice, Slovakia*)
Comparison of Kalman Filtering and Particle Filtering for INS/GPS Navigation

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

19. **Jamshaid Ali, Fang Jiancheng** (*Beijing University of Aeronautics and Astronautics, Beijing, China*)
Autonomous Integrated Suite of SINS/ANS Realized through an Unscented Particle Filtering Algorithm
20. **V.D. Kuskov, E.L. Novikova** (*FSUE Central Scientific Research Institute of Machine Building, Korolev, Moscow Region, Russia*)
Integrated Navigation-Communication Information System with High Precision Autonomous Star Navigation

15.30 – 16.00 COFFEE BREAK

PLENARY PAPERS

- 16.00 – 16.20 21. **L.B. Rapoport** (*Javad GNSS, Institute of Control Sciences, RAS, Moscow, Russia*), **M.Ya. Tkachenko, V.G. Mogilnitskiy, A.A. Khvalkov, A.V. Pesterev** (*Javad GNSS, Moscow, Russia*)
GNSS / INS Integrated System: Experimental Results and Applications in Mobile Robots Control
- 16.20 – 16.40 22. **A.A. Fomichev, A.B. Kolchev, P.V. Larionov, R.V. Pugachev, V.B. Uspensky** (*JSC Lasex, Dolgoprudny, Moscow Region, Russia*)
Data Integration in the Integrated Navigation System at Incomplete Satellites Constellation
- 17.00 – 21.00 **SIGHT-SEEING GUIDED BUS TOUR OF ST. PETERSBURG**

TUESDAY, 30 MAY 2006

SESSION I – INTEGRATED SYSTEMS
(Continued)

Chairmen: **Dr. Yu. Litmanovich**, Russia
Dr. J. Mark, USA

PLENARY PAPERS

- 9.00 – 9.20 23. **N.A. Atamanov, V.A. Troitsky** (*Navteco Ltd, Moscow, Russia*), **I.V. Gusev, V.A. Korotin, P.N. Kuleshov** (*PIC Progress AG, Moscow, Russia*)
Test Results of Strapdown Inertial Navigation System BINS-N incorporated in the Measuring Complex of Railway Track Inspection Station TSNII-4
- 9.20 – 9.40 24. **A.V. Chernodarov, A.P. Patrikeev, S.M. Gladkin** (*Zhukovsky Air Force Engineering Academy, Moscow, Russia*), **S.L. Bulgakov, Yu.P. Mikheenkov** (*Laser Service, Moscow, Russia*), **Yu.D. Golyaev, Yu.Yu. Kolbas** (*FSUE R&D Institute Polyus, Moscow, Russia*)
Improvement of the Operational Characteristics of Integrated Navigation Systems on the Basis of Tightly-Coupled Schemes for the Sensor Errors Damping

- 9.40 – 10.00 25. **G.V. Antsev, V.A. Sarychev, V.A. Tupikov, L.S. Turnetsky** (*Joint-Stock Company Radar MMS, St.Petersburg, **Russia***)
Navigation and Surveillance - Similarities and Differences
- 10.00 – 10.20 26. **J. Metzger, A. Maier, G.F. Trommer** (*Institute of Systems Optimization, University of Karlsruhe, Karlsruhe, **Germany***)
Comparison of Modular and Central Terrain Referenced Navigation Filters
- 10.20 – 10.40 27. **E.A. Mikrin, M.V. Mikhailov, M.Yu. Belyaev, D.N.Rulev, E.S. Medvedev** (*Rocket and Space Corporation Energia, Korolev, Moscow Region, **Russia***),
V.V. Sazonov (*Keldysh Institute of Applied Mathematics, Moscow, **Russia***),
V.N. Zhukov, R.A. Dzesov (*FSUE Central Scientific Research Institute of Machine Building, Korolev, Moscow Region, **Russia***), **Emilio de Pasquale** (*ESA, Toulouse, **France***)
Using of Satellite Navigation for Navigational Support for European Automated Transfer Vehicle Flight to Rendezvous with International Space Station
- 10.40 – 11.00 28. **R. Katoch** (*CABS, Bangalore, **India***), **P.R. Mahapatra** (*Indian Institute of Science, Bangalore, **India***)
GPS Based Attitude Estimation of Aircraft Using Neural Network Aided Kalman Filter
- 11.00 – 11.30 COFFEE BREAK**

Chairmen: **Prof. A. Nebylov**, Russia
Prof. I. Okon, Russia

PLENARY PAPERS

- 11.30 – 11.50 29. **Jozef Sofka, Victor Skormin** (*State University of New York at Binghamton, Binghamton, NY, **USA***)
Optical Platform Stabilization Using the Omni-Wrist Robotic Manipulator
- 11.50 – 12.10 30. **I.B. Bedrin, V.S. Zholnerov, I.K. Konarzhevsky** (*Russian Institute of Radionavigation and Time, St.Petersburg, **Russia***), **Yu.A. Soloviev, V.M. Tsarev** (*RTC Internavigation, Moscow, **Russia***)
Combined Application of Satellite and Pulse-Phase Radionavigation Systems Using Integrated GLONASS/GPS/Chayka/Loran-C Equipment

POSTER PAPERS*

- 12.10 – 13.00 31. **M.B. Bogdanov, A.V. Prohortsov, V.V. Savelyev** (*Tula State University, Tula, **Russia***)
On Efficiency of Various Types of Correction of Strapdown Inertial Navigation System Indications by Global Navigation Satellite System Signals

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32. **S.N. Podkorytov** (*PC NIIREK H/C Leninetz, St.Petersburg, **Russia***)
Optimal Real-Time Integration of Satellite and Inertial Systems Data
33. **S.N. Podkorytov, A.I. Pyshkin, L.I. Surovtzeva** (*PC NIIREK H/C Leninetz, St.Petersburg, **Russia***), **P. V. Urbanas** (*PC NPP Mir H/C Leninetz, Pushkin, St.Petersburg, **Russia***)
Polarization-Phase Corrections in Precision Inertial-Satellite Systems
34. **Darko Mušicki, Robin J. Evans** (*University of Melbourne, Victoria, **Australia***), **A.L. Fradkov, B.R. Andrievsky** (*Institute for Problems of Mechanical Engineering of RAS, St.Petersburg, **Russia***)
Minimum Data Rate Required to Transmit Position Information
35. **S.B. Berkovich, N.I. Kotov, A.V. Sholokhov** (*Serpukhov Military Academy, Serpukhov, Moscow Region, **Russia***), **L.P. Kamensky, V.M. Rudakov** (*FSUE Moscow Institute of Heating Engineering, Moscow, **Russia***), **A.I. Sdvizhkov** (*FSUE RSRI Signal, Moscow, **Russia***)
Correction of Autonomous Terrain Navigation Systems during Movement Using Distinctive Points of Road Digital Map
36. **V.V. Insarov** (*FSUE State Research Institute of Aviation Systems, Moscow, **Russia***)
Algorithms of Complex Estimation in the Integrated Guidance System Using Several Sources of Information
37. **V.L. Volkov, N.V. Zhidkova** (*Nizhniy Novgorod State Technical University, Arzamas, **Russia***)
The Robust Algorithm for Identification and Compensation of Navigation System Information Failures
38. **I.Yu. Filatov, I.Yu. Kashirin, M.A. Syomkin** (*Ryazan State Radioengineering Academy, Ryazan, **Russia***)
Positioning and Classification of Objects by Combining Radar and Cartographic Information Using Methods of Artificial Intelligence for Autonomous Navigation Systems
39. **Chingiz Hajiyev** (*Istanbul Technical University, Istanbul, **Turkey***)
Development of Fault Tolerant Integrated INS/Radar Altimeter Using Adaptive Filtration Algorithm with the Filter Gain Correction
40. **Guo-Shing Huang, Chiou-Kou Tung** (*Institute of Information and Electrical Energy, National Chin-Yi Institute of Technology, Taiping, Taichung, Taiwan, **China***)
Application of the Navigation on the Vehicle with Inertial Sensors
41. **Farid Gul, Fang Jiancheng** (*School of Instrumentation & Optoelectronics Engineering, Beijing University of Aeronautics and Astronautics, Beijing, **China***)
Strapdown INS Sensors' Calibration by Celestial Observations and Distinctiveness of Free Phase Trajectory

13.00 – 14.00

LUNCH

PLENARY PAPERS

- 14.00 – 14.20 42. **Christina Schneebauer** (*Robert Bosch GmbH, Hildesheim, Germany*),
Maylin Wartenberg (*Blaupunkt GmbH, Hildesheim, Germany*)
From TMC Tables to On-the-Fly Location Referencing - Methods for
Establishing Traffic Information Services
- 14.20 – 14.40 43. **E.I. Druzhinin, S.N. Vassilyev, V.A. Voronov** (*Institute for System Dynamics
and Control Theory of SB RAS, Irkutsk, Russia*)
A New Computational Technology of Program Controls Forming in Nonlinear
Systems
- 14.40 – 15.00 44. **Abilio Azenha, Adriano Carvalho** (*Institute for Systems and Robotics,
University of Porto, Porto, Portugal*)
Indoor Localization Systematical Errors Analysis for AGVs

POSTER PAPERS*

- 15.00 – 15.20 45. **S.N. Podkorytov, M.A. Smirnova** (*PC NIIREK H/C Leninetz,
St. Petersburg, Russia*)
Iterative Linear Filters for Smooth Signals Selection Through Noise
46. **O.A. Stepanov** (*State Research Center of Russia - CSRI Elektropribor,
St. Petersburg, Russia*), **O.S. Amosov** (*State Technical University, Komsomolsk-
on Amour, Russia*)
Application of Neural Networks to Nonlinear of Navigation Problems
47. **V.I. Kulakova, A.V. Nebylov** (*State University of Aerospace Instrumentation,
St. Petersburg, Russia*), **O.A. Stepanov** (*State Research Center of Russia - CSRI
Elektropribor, St. Petersburg, Russia*)
Application of an H_2/H_∞ Optimization to the Airborne Gravimetry Problem

SESSION II – SATELLITE SYSTEMS

Chairmen: **Dr. O. Stepanov**, Russia
Prof. A. Zbrutsky, Ukraine

PLENARY PAPERS

- 15.20 – 15.40 48. **G.P. Anshakov, A.I. Manturov, Ya.A. Mostovoy, V.I. Rublev, Yu.M. Ustalov**
(*State Research and Production Space-Rocket Center TsSKB-Progress, Samara,
Russia*)
Onboard Navigation Support of Spacecraft RESURS-DK for Remote Sensing of
the Earth

15.40 – 16.10 COFFEE BREAK

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

POSTER PAPERS*

- 16.10 – 16.30 49. **A.Yu. Feoktistov, K.G. Shupen** (*Russian Institute of Radionavigation and Time, St.Petersburg, Russia*)
Application of a Learning Method to Synthesizing an Algorithm for Monitoring the Satellite Navigation System Status
50. **A. Banachowicz** (*Gdynia Maritime Academy, Gdynia, Poland*), **R. Bober, A. Wolski, G. Banachowicz** (*Maritime University of Szczecin, Szczecin, Poland*)
Research into GPS and DGPS Measurements in West Pomerania (Poland)
51. **V.I. Baburov, N.V. Ivantsevich, E.A. Panov, N.V. Vasileva** (*Branch Office AUSRIRE AUSRIRE-Navigator, St.Petersburg, Russia*)
Analysis of Pseudolite Carrier Time-Coordinate Reference Accuracy Effects on GNSS+PL Navigation Field Performances
52. **L.P. Barabanova** (*Kovrov State Technological Academy, Kovrov, Vladimir Region, Russia*)
On the Geometric Factor in the Problem of Difference Range Positioning
53. **E.I. Ignatovich, A.F. Schekutiev** (*FSUE Central Scientific Research Institute of Machine Building, Korolev, Moscow Region, Russia*)
Research-Analysis of Opportunities of GNSS GLONASS Ephemerides-Time Maintenance Modernization Using Intersatellite Measurement System

SESSION III – INERTIAL SYSTEMS AND SENSORS

Chairmen: **Prof. D. Lukianov**, Russia
Prof. G. Trommer, Germany

PLENARY PAPERS

- 16.30 – 16.50 54. **Yu.N. Korkishko, V.A. Fedorov, V.E. Prilutsky, V.G. Ponomarev, V.G. Marchuk, I.V. Morev, E.M. Paderin, S.M. Kostritsky** (*RPC Optolink Ltd., Zelenograd, Moscow, Russia*), **V.N. Branets, V.S. Ryzhkov** (*Korolev Rocket Space Corporation Energia, Korolev, Moscow Region, Russia*)
Three-Axis Fiber Optical Gyroscope for Rocket and Space Applications
- 16.50 – 17.10 55. **V.I. Grebennikov, L.V. Eryomina, B.A. Mishin, S.F. Nahov, R.V. Ermakov** (*FSUE PC Korpus, Saratov, Russia*)
Miniature Three-Component Fiber-Optic Angle Measuring Gyro of Medium Accuracy

POSTER PAPERS*

- 17.10 – 18.00 56. **V.N. Branets, D.N. Dibrov, V.C. Ryzhkov** (*Korolev Rocket Space Corporation Energia, Korolev, Moscow Region, Russia*), **L.Ya. Kalihman, D.M. Kalihman, A.V. Polushkin, S.F. Nahov** (*FSUE PC Korpus, Saratov, Russia*)
Certification Technique for the Linear Acceleration Measuring Unit with Non-Orthogonal Orientation of Sensitive Axes of Six Quartz Pendular Accelerometers and Certification Technique for Workplaces for the Unit and Accelerometers Control
57. **V.E. Dzhashitov, V.M. Pankratov** (*Precision Mechanics and Control Institute, RAS, Saratov, Russia*)
Choice of Parameters of Elastic Curvilinear Conductors for Aerospace Sensors on the Basis of Definition of Their Natural Oscillations Frequency
58. **V.Ya. Raspopov, Yu.V. Ivanov, R.V. Alaluev** (*Tula State University, Tula, Russia*), **S.V. Akulinin, A.V. Korolev** (*JSC Tulazheldormash, Tula, Russia*)
Experience of Development and Exploitation of Level Measuring Instruments for Railway Machines on the Basis of Accelerometers with Silicon Sensing Element
59. **Yu.K. Zhbanov** (*Institute for Problems in Mechanics of RAS, Moscow, Russia*)
Self-Tuning Control Loop for Suppression of Quadrature in a Hemispherical Resonator Gyro
60. **A.S. Donnik, I.V. Merkuriev, V.V. Podalkov** (*Moscow Power Engineering Institute, Moscow, Russia*)
Influence of Linear Vibration of the Basis on Dynamics of the Hemispherical Resonator Gyroscope
61. **A.V. Molchanov** (*Moscow Institute of Electromechanics and Automatics, Moscow, Russia*), **A.Yu. Stepanov, M.V. Chirkin** (*Ryazan State Pedagogical University, Ryazan, Russia*)
Technological Aspects of Minimizing Errors in Laser Gyros
62. **A.B. Kolchev, P.V. Larionov, A.A. Fomichev** (*JSC Lasex, Dolgoprudny, Moscow Region, Russia*)
Methods of Zeeman Laser Gyro Zero Drift Correction
63. **V.P. Gubko** (*Elektromechanics Scientific Production Association, Miass, Russia*)
Miniature Sensitive Elements of Elektromechanics Scientific Production Association: Characteristics and Design Features; Approaches to Measurement Range Extension
- 18.30 – 22.00 **BANQUET**

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WEDNESDAY, 31 MAY 2006

SESSION III – INERTIAL SYSTEMS AND SENSORS

(Continued)

Chairmen: **Prof. D. Lukianov**, Russia
Prof. G. Trommer, Germany

PLENARY PAPERS

- 9.00 – 9.20 64. **V.N. Branets, D.N. Dibrov, V.C. Rizhkov** (*Rocket Space Corporation Energia, Korolev, Moscow Region, Russia*), **L.Ya. Kalihman, D.M. Kalihman, A.V. Polushkin, S.F. Nahov** (*FSUE PC Korpus, Saratov, Russia*)
Measuring Instrument of Apparent Linear Acceleration Vector – BILU
KX 69-042 Device for Control System of Soyuz -TMA Spacecraft Capsule
- 9.20 – 9.40 65. **E.V. Babkin, M.Yu. Belyaev, D.A. Zavalishin, V.M. Stazhkov** (*Rocket Space Corporation Energia, Korolev, Moscow Region, Russia*), **V.V. Sazonov** (*Keldysh Institute of Applied Mathematics of RAS, Moscow, Russia*)
Use of Apparent Acceleration Measurements Onboard ISS
- 9.40 – 10.00 66. **V.D. Dudka, V.V. Kirilin, A.V. Morozov, A.V. Yudaev** (*KBP Instrument Design Bureau, Tula, Russia*), **V.Ya. Raspopov, D.M. Malyutin**, (*Tula State University, Tula, Russia*)
Experience of Development and Complex Design Automation of Onboard Gyro Devices
- 10.00 – 10.20 67. **V.B. Nikishin, A.I. Sinev, P.K. Plotnikov, P.G. Chigirev, A.V. Ulyanov** (*JSC Gazpriboravtomatikaservis, Saratov, Russia*)
Technology of Positioning the Pipelines and Defective Places Using the Inline Navigation and Topographic Complexes

POSTER PAPERS*

- 10.20 – 11.00 68. **Yu.Yu. Broslavets, T.E. Zaitseva, A.B. Kolchev, A.A. Fomitchev** (*Moscow Institute of Physics and Technology, JSC Lasex, Dolgoprudny, Moscow Region, Russia*)
Formation of the Mode Structures of Field in a Laser Gyro with the Non-Planar Cavity with Field Rotation and Gaussian Diaphragm
69. **A.A. Konovtchenko, L.Z. Novikov, L.A. Dudko, A.Ya. Artemiev, A.D. Bogatov, A.A. Ignatiev, V.S. Slavin** (*Kuznetsov RIAM, Moscow, Russia*)
Technical Decisions Providing Reliability and Increased Lifetime of Small-Sized Dynamically Tuned Gyroscopes
70. **T.G. Nesterenko, I.V. Plotnikova, O.M. Pankina** (*Tomsk Polytechnical University, Tomsk, Russia*)
Analysis of Two-Component Micromechanical Gyroscope Cross-Sensitivity

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71. **B.V. Gryazev, S.V. Scherbakov** (*KBP Instruments Design Bureau, Tula, Russia*), **V.V. Savelyev, V.A. Smirnov** (*Tula State University, Tula, Russia*)
Technique for Assurance of Gyro Angle Sensors Operational Integrity at Off-Design Subbase Deviation
72. **V.M. Slyusar** (*National Technical University of Ukraine KPI, Kiev, Ukraine*)
On Effect of Instrumental Factors on Strapdown Attitude Drift Rate
73. **G. Eduardo Sandoval-Romero** (*Centro de Ciencias Aplicadas y Desarrollo Tecnológico, Universidad Nacional Autónoma de México, México*), **V.A. Nikolaev** (*Bonch-Bruyevich State University of Telecommunications, St.Petersburg, Russia*)
Comparison Between Two Basic Schemes in Function of the True Earth's North Detection: Method: the Dynamic Method and the Static Method
74. **N.N. Kokoshkin, Ye.I. Verzunov, D.A. Burov** (*FSUE All-Russian Scientific Research Institute Signal, Kovrov, Vladimir Region, Russia*)
High Accuracy Self-Orienting Gyro Course-Roll Indicating System with Analytical Gyrocompassing Channel
75. **V.M. Nikiforov** (*Pilyugin Scientific-Production Center of Automatics and Instrument-Making, Moscow, Russia*)
Combined Terminal-Programmed Compensatory Control Regulator of Gyrostabilized Platform Movement
76. **Junxiang Lian, Yuanxin Wu, Wenqi Wu, Meiping Wu, Dewen Hu, Xiaoping Hu** (*National University of Defense Technology, Changsha, Hunan, China*)
A Novel Strapdown INS Alignment Method for Swaying Vehicles
77. **Michael Shatalov** (*Sensor Science and Technology of CSIR Material Science and Manufacturing, Pretoria, South Africa*), **Igor Fedotov, Stephan Joubert** (*Tshwane University of Technology, Pretoria, South Africa*)
On Dynamics and Control of Vibratory Gyroscopes with Spherical Symmetry

11.00 – 11.30

COFFEE BREAK

Chairmen: **Prof. V. Gusinsky**, Russia
Dr. D. Lynch, USA

PLENARY PAPERS

- 11.30 – 11.50 78. **Ya.I. Binder, A.E. Eliseenkov, T.V. Paderina, V.G. Rozentsvein** (*FSUE State Research Center of Russia - CSRI Elektropribor, St.Petersburg, Russia*)
Small-Sized Gyro Inclometers: Problems, Development Concept, Results of Development and Implementation
- 11.50 – 12.10 79. **P.K. Plotnikov, Yu.V. Chebotarevsky, V.B. Nikishin, A.I. Sinev, V.Yu. Chebotarevsky** (*Saratov State Technical University, Saratov, Russia*)
Development of the Method for Solving Problems in Underground Navigation

12.10 – 12.30 80. **A.P. Kolevatov, S.G. Nikolaev** (*Perm State Technical University, Perm, Russia*), **A.G. Andreev, V.S. Ermakov, D.A. Dunayev, O.L. Kel, N.V. Malgin** (*Perm Scientific-Industrial Instrument Making Company, Perm, Russia*)
Development of a Dual Mode Attitude and Heading Reference System on Fiber Optic Gyros for Land Vehicles

12.30 – 12.50 81. **Victor Fedossov, Milan Chvojka** (*Aeronautical Research and Test Institute, Prague, Czech Republic*)
The High Sensitive Microaccelerometer MAC (Development and Application)

12.50 – 13.00 CLOSING CEREMONY

13.00 – 14.00 LUNCH

14.00 – 15.00 **VISIT TO THE EXHIBITION OF SPECIMENS OF NEW EQUIPMENT DEVELOPED BY CSRI ELEKTROPRIBOR AND RECONSTRUCTED MUSEUM OF THE ENTERPRISE**
(*for conferee's choice*)