



Symposium Gyro Technology

Inertial Components and Integrated Systems



Karlsruhe, 16 - 17 September 2008

PROGRAMME

Symposium Gyro Technology 2008

Programme Committee: W. Bernard (Chairman), W. Auch, W. Geiger, B. Stieler, E. von Hinüber

PROGRAMME

Tuesday, September 16th, 2008

08:00 Registration

09:00 Welcome

Session 1: (CHAIRMAN: W. Geiger)

MEMS Gyro Technology

09:20 **Inertial Units on Micromechanical Sensors. Development and Test Results**
V.G Peshekhonov, L.P. Nesenjuk, D.G. Gryazin, Ya.A. Nekrasov, M.I. Yevstifeyev, B.A. Blazhnov, V.D. Aksenenko (CSRI Elektropribor, Saint Petersburg, RUSSIA)

09:50 **Reliable Vacuum Packaging and Technologies for High Performance Custom-MEMS Gyros**
A. Filipe, J. Collet, J. Bon, S. Nicolas, C. Pisella
(Tronics Microsystems, Crolles, FRANCE)

Design of Vibrating Sensors

10:20 **Compensated Differential CVG**
V.V. Chikovani, E.O. Umakhanov, P.I. Marusyk
(INNALABS Holding Inc, Kiev, UKRAINE)

10:50 **Quapason: A Low Vibration Sensitivity Vibrating Rate Gyro**
J. Beitia, J.-M. Caron, V. Paredes (Sagem Avionics Division, Paris, FRANCE)

11:20 Break

Session 2: MEMS-Based-Systems (CHAIRMAN: J.-M. Caron)

11:50 **Test and Trim Systems of MMG Using Amplitude Modulated Quadrature Torque**
Ya. A. Nekrasov (CSRI Elektropribor, Saint Petersburg, RUSSIA)

12:20 **Prototype of a MEMS IMU for AHRS Applications**
S. Zimmermann, J. Bartholomeyczik, U. Breng, W. Gutmann, M Hafen, E. Handrich, M. Huber, A. Jäckle, U. Kempfer, H. Kopmann, J. Kunz, P. Leinfelder, R. Ohmberger, U. Probst, M. Ruf, G. Spahlinger, A. Rasch, J. Straub-Kalthoff, M. Stroda, K. Stumpf, C. Weber, M. Zimmermann, W. Geiger (LITEF GmbH, Freiburg, GERMANY)

12:50 Lunch Break

Session 3: FOG Design (CHAIRMAN: M. Perlmutter)

14:00 **Digital Fiber-Optic Gyros with Piezoelectric Modulator in Close-Loop Feedback**
A.A. Dovbesko, A.V. Zbrutsky, I.V. Maksymov, I.V. Rassokha
(National Technical University of Ukraine, Kiev, UKRAINE)

14:30 **Design, and Assembly of an Integrated Optic Gyroscopes**
J. Xia, G. Zheng, Y. Xu, W. Wang
(China Aerospace Times Electronics Corporation, Beijing, CHINA)

15:00 Break

Session 4: FOG Improvements (CHAIRMAN: W. Auch)

15:30 **Al Cielo's New FOG Based Tactical IMU**
A. Arbel (Al Cielo Ltd, Jerusalem, ISRAEL)

16:00 **Recent Investigations on FOG Technology Under Vibration, the Way Forward to Inertial Navigation System**
J. Honthaas, T. Buret, F. Napolitano
(IXSEA, Marly-le-Roi, FRANCE)

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Session 5: Aiding Methods (CHAIRMAN: W. Bernard)

08:30 **Gyro / Star Tracker Integration for Satellite High-Accuracy Attitude Determination Considering Relative Sensor Kinematics**
S. Winkler, G. Wiedermann, W. Gockel
(EADS-Astrium, Friedrichshafen, GERMANY)

09:00 **Comparison of Different SAR / INS Integration Techniques**
A. Maier, S. Kiesel, G. F. Trommer
(Institute of Systems Optimization, University of Karlsruhe, Karlsruhe, GERMANY)

09:30 **Integrated INS / GPS / Optical Camera for UAV Control**
V. Kortunov, O. Kravchuk, I. Dybska
(National Aerospace University, Kharkiv, UKRAINE)

10:00 **Navigation System of a UGV Based on Inertial Sensors and Image Data of a VTOL-UAV**
O. Meister, N. Frietsch, C. Schlaile, J. Seibold, G. F. Trommer
(Institute of Systems Optimization, University of Karlsruhe, Karlsruhe, GERMANY)

10:30 Break

Session 6: Navigation Systems (CHAIRMAN: E. von Hinüber)

11:00 **SINS with Rotating Fiber Optic Gyro**
L. Yong, C. Tijing
(Sichuan Institute of Piezoelectric and Acousto-Optic Technology, Chongqing, CHINA)
(School of Instrument Science and Engineering, Southeast University, Nanjing, CHINA)

11:30 **GPS-Denied Navigation Error Budget Factors**
V. Varavva, B. Reid
(Applanix Corporation, Ontario, CANADA)

12:00 Lunch Break

Session 7: Distributed Sensors (CHAIRMAN: D. Loukianov)

14:00 **An Extended Kalman Filter for Improving Angular Motion Knowledge in a Multiple Distributed IMU Set**
E. Edwan, S. Knedlik, O. Loffeld
(Center for Sensorsystems (ZESS), University of Siegen, Siegen, GERMANY)

14:30 **Ship Hull Deformation Gage Based on Gyro Technologies**
V.V. Pchelina, A.V. Uskov, B.L. Sharygin
(CSRI Elektropribor, Saint Petersburg, RUSSIA)

15:00 Break

Session 8: Direction Finding (CHAIRMAN: B. Stieler)

15:30 **Extended Bearing-Only Algorithm for Target Motion Analysis**
C.E.C. Szendrodi, A. G. Evsukoff, J.V. Calvano
(Federal University of Rio de Janeiro, Rio de Janeiro, BRAZIL)
(Brazilian Navy, Rio de Janeiro, BRAZIL)

16:00 **A Nongyroscopic North Finding System**
T. Pöthig, G. Lappus
(Brandenburgische Technische Universität Cottbus, Cottbus, GERMANY)