

Symposium Gyro Technology 2007

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

PROGRAMME

Tuesday, September 18th, 2007

08:00 Registration

09:00 Welcome

Session 1: MEMS Inertial Sensors (CHAIRMAN: W. Auch)

09:30 **Single-Chip, Three-Axis Gyroscope Using SOI-Technology**
M. Trächtler, T. Link, J. Auber, P. Nommensen, Y. Manoli
(HSG-IMIT, Villingen-Schwenningen, GERMANY)
(Micro Mountains Applications AG, Villingen-Schwenningen, GERMANY)
(IMTEK, Institute of Microsystem Technology, Freiburg, GERMANY)

10:00 **Quadrature Error Reducing Methods in RR-type Micromechanical Gyroscope**
T.A. Belyaeva, Ya.V. Belyaev, Ya.A. Nekrasov
(CSRI Elektropribor, St. Petersburg, RUSSIA)

10:30 **IMU Prototype Based on Micromechanical Sensors**
W. Geiger, J. Bartholomeyczik, U. Breng, O. Deppe-Reibold, W. Fuchs, W. Gutmann
(LITEF GmbH, Freiburg, GERMANY)

11:00 Break

Session 2: MEMS Fabrication Aspects (CHAIRMAN: W. Geiger)

11:30 **MEMS-Foundry Technology for High-Performance Gyroscopes**
R. Knechtel, K. Freywald, G. Hölzer
(X-FAB Semiconductor Foundries AG, Erfurt, GERMANY)

12:00 **Evolution and Revolution in MEMS Accelerometers**
J. Thureau
(VTI Technologies, Frankfurt, GERMANY)

12:30 Lunch Break

Session 3: Building Blocks for Fiber Optic Gyros (CHAIRMAN: M. Perlmutter)

14:00 **15 Years LiNbO₃-Based Integrated Optics Facility at LITEF**
S. Voigt, G. Dörner, G. Spahlinger, A. Rasch
(LITEF GmbH, Freiburg, GERMANY)

14:30 **Modular Design Approach for a FOG Family Concept**
W. Auch, W. Flassak, M. Oswald
(SAGEM Navigation GmbH, Murr, GERMANY)

15:00 Break

Session 4: Resonator Gyros (CHAIRMAN: W. Bernard)

15:30 **REGYS20 a HRG Gyrometer for Space Applications**
O. Girard, J-M. Caron
(Sagem Défense & Sécurité, Paris, FRANCE)

16:00 **Towards a Solid-State Ring Laser Gyroscope**
S. Schwartz, G. Feugnet, F. Guty, J-P. Pocholle
(Thales Research and Technology, Thales Avionics, Palaiseau Cedex, FRANCE)

16:30 **Modeling and Design of a Novel Resonance Integrated Optic Gyro Using Single Polarization Waveguide**
J. Wang, W. Wang, Y. Xu
(China Aerospace Times Electronics Corporation, CHINA)

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Session 5: Aided Inertial Measurement Systems (CHAIRMAN: J. Wagner)

08:30 **Performance Analysis of a Deeply Coupled GPS/INS System with Different IMU Grades**
S. Kiesel, M-M. Held, A. Maier, G. Trommer
(University of Karlsruhe, Karlsruhe, GERMANY)

09:00 **Sensor Data Fusion for Pedestrian Navigation Using WLAN and INS**
J. Seitz, L. Patino-Studencka, B-D. Schindler, J. Gutiérrez Boronat, S. Meyer, J. Thielecke
(University of Erlangen (LIKE), Erlangen, Fraunhofer IIS-NOP, Nürnberg, GERMANY)

09:30 **Combined GPS/TRN/INS Navigation System Using Directional Distance Measurements within a Kalman Filter**
J. Metzger, T. Löffler, (Diehl BGT Defence, Überlingen, GERMANY)

10:00 **Accuracy Improvement of Low-Cost MEMS/GNSS Inertial Navigation Systems by Means of Smoothing**
R. Mönikes, O. Meister, A. Teltschik, G. Trommer, (University of Karlsruhe, GERMANY)

10:30 Break

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

11:00 **Integrated Navigation System Filter Algorithms Based on Evolutionary Artificial Neural Networks**
X-S. Xu, J-J. Liu
(Southeast University, Nanjing, Henan University for Technology, Zhengzhou, CHINA)

11:30 **Development and Test Results of Compact and Accurate Attitude and Heading Reference Systems**
O. Nesterenko, V. Tsisarzh, N. Chernyak, S. Sharov, (INNALABS Holding Inc, Kiev, UKRAINE)

12:00 Lunch Break

Session 7: Geodetic Applications (CHAIRMAN: D. Loukianov)

14:00 **Performance Evaluation of IMU for Surveying and Mapping Applications**
V. Varavva, B. Reid, (Applanix Corporation, Ontario, CANADA)

14:30 **Inertial Azimuth Estimation Using a Fluid Rotor Angular Accelerometer**
M. Naroditzky, (Rafael – Missile Division, ISRAEL)

15:00 Break

Session 8: Performance Enhancement by Complementary Measurements (CHAIRMAN: B. Stieler)

15:30 **On Multiple Distributed IMUs for Improved Navigation**
E. Edwan, S. Knedlik, P. Uboldkosold, O. Loffeld
(Center for Sensor Systems (ZESS), University of Siegen, Siegen, GERMANY)

16:00 **Measurement of Angle Movement Parameters by Means of Ring Laser Goniometer**
M. Agapov, E-D. Bohkmann, M. Bournachev, Y. Filatov, D. Loukianov, P. Pavlov
(St. Petersburg State Electrotechnical University, St. Petersburg, RUSSIA)

16:30 **Postdeadline Paper**

Operational Measurement Angles in Flight (LOLA Project)
V. Rumoroso, L. Vaillon
(IXSES SAS, Marly le Roi, EADS Astrium, Toulouse, FRANCE)