

# Inertial Sensors and Systems – Symposium Gyro Technology 2013

Programme Committee: W. Bernard (Chairman), W. Auch, W. Geiger, E. von Hinüber, J.-F. Wagner, S. Zimmermann

## PROGRAMME

---

### Tuesday, September 17, 2013

08:00 Registration

09:00 Welcome

09:10 **History of the Sagnac Effect: From Aether to Relativity**  
*H. Lefèvre*  
(iXBlue, Marly le Roi, FRANCE)

#### Session 1: MEMS Gyroscopes (CHAIRMAN: W. Geiger)

09:40 **Compensation of MEMS Gyroscope Drift Based on Amplitude Primary Oscillation Measurement**  
*Ya.A. Nekrasov, N.V. Moiseev, R.G. Liukshonkov, A.A. Belogurov*  
(State Research Center of the Russian Federation, Concern CSRI Elektropribor, Saint Petersburg, RUSSIA)

10:10 **Toward Tactical MEMS Gyros**  
*A. Filipe, J. Chinal, G. Dumas, M. Vincent, R. Signoretti, L. Ribetto, C. Kergeris*  
(Tronics Group, Crolles, FRANCE)

10:40 Break

#### Session 2: FOG Components (CHAIRMAN: W. Auch)

11:10 **Optimisation of Coating Package Design for PM Fibers Used in High Performance Fiber Optic Gyroscopes**  
*C. Emslie*  
(Fibercore Limited, Southampton, UNITED KINGDOM)

11:40 **Developments of Truly Radiation-Hardened Fiber Light Sources, and Highly Reliable Sensing Modules for Space-Grade FOGs**  
*R. Liu*  
(National Space Organization (NSPO), Hsinchu, TAIWAN)

12:10 **Design and Validation of Photonic Crystal Fiber for Fiber-Optic Gyroscopes**  
*Z. Feng, J. Li, W. Wang, Z. Zhang, X. Yang*  
(Beijing Aerospace Times Optical-Electronic Technology Co. Ltd., Beijing, CHINA)

12:40 Lunch Break

#### Session 3: Nuclear Spin and Coriolis Effect Gyros (CHAIRMAN: D. Lukianov)

14:00 **Nuclear Magnetic Resonance Gyroscope for Inertial Navigation**  
*D. Meyer, Dr. M. Larsen*  
(Northrop Grumman, Woodland Hills, UNITED STATES)

14:30 **High-Grade CVG for Stabilization Control Systems and Tactical Grade Systems**  
*J. Beitia, C. Fell, A. Barabashov*  
(Innalabs Ltd. Dublin, IRELAND)

15:00 Break

#### Session 4: Inertial Measurement Units (CHAIRMAN: M. Perlmutter)

15:30 **Selecting the Optimum Inertial Sensor for each Specific Application - a Comprehensive Guide Based on Analytic Criteria and Experimental Data across Several Sensors and Technologies**  
*R. Senatore, A. Pizzarulli, E. Quatraro, L. de Luca, F. D'Angelo, M. Perfetti, M. Perlmutter, M. Catasta*  
(Civitanavi Systems S.r.l, Civitanova Marche (MC), ITALY)

16:00 **Half-Liter, North-Finding-Grade, IMU**  
*<sup>1)</sup>F. Guattari, <sup>2)</sup>T. Robin, <sup>3)</sup>N. Grossard, <sup>1)</sup>H. Lefèvre*  
(<sup>1)</sup>iXBlue, Marly le Roi; <sup>2)</sup>iXFiber, Lannion; <sup>3)</sup>Photline Technologies, Bescancon, FRANCE)

**Alternate:** **Bandwidth Improved Closed-Loop Thermal Accelerometer**  
*<sup>1),2)</sup>A. Deblonde, <sup>1)</sup>A. Giani, <sup>3)</sup>M. Basarab, <sup>1)</sup>P. Compette, <sup>1)</sup>A. Garraud, <sup>1)</sup>B. Sorli*  
(<sup>1)</sup>Université Montpellier 2, Montpellier, FRANCE; <sup>2)</sup>Sagem Defense & Sécurité, Argenteuil, FRANCE; <sup>3)</sup>Bauman Moscow State Technical University, Moscow, RUSSIA)

# Inertial Sensors and Systems – Symposium Gyro Technology 2013

Programme Committee: W. Bernard (Chairman), W. Auch, W. Geiger, E. von Hinüber, J.-F. Wagner, S. Zimmermann

## PROGRAMME

---

### Wednesday, September 18, 2013

- Session 5: Integrated Systems (CHAIRMAN: S. Zimmermann)**
- 09:00 **PNT-Data Generation as Basis for Guidance Systems in Inland Water Traffic**  
<sup>1</sup>A. Born, <sup>1</sup>P. Zachhuber, <sup>1</sup>Z. Dai, <sup>1</sup>I.D. Herrera Pinzón, <sup>2</sup>M. Hoppe, <sup>2</sup>L. Burmisova, <sup>3</sup>J. Zimmermann, <sup>3</sup>A. Heidrich, <sup>3</sup>F. Richter, <sup>3</sup>O. Michler  
(<sup>1</sup>German Aerospace Center (DLR), Neustrelitz, GERMANY; <sup>2</sup>Traffic Technologies Centre, Koblenz, GERMANY; <sup>3</sup>Dresden University of Technology, Dresden, GERMANY)
- 09:30 **Performance of a Tightly-Coupled GNSS/INS System Using the Latest Generation MEMS Sensors**  
R. Dixon, J. Houghton, K. Bahan  
(NovAtel Inc, Calgary, CANADA)
- 10:00 **HRG and Land Navigation**  
V. Cournou, T. Serriere, Y. Follope  
(Sagem Défense Sécurité, Paris-Cedex, FRANCE)
- 10:30 Break
- Session 6: Pedestrian and Indoor Navigation (CHAIRMAN: W. Bernard)**
- 11:00 **DCM Based Attitude Estimation with INS/Visual-Gyroscope Integration for Indoor Navigation**  
W. Chai, C. Chen, E. Edwan, Y. Zhang, O. Loffeld  
(Center of Sensorsysteme (ZESS), University of Siegen, Siegen, GERMANY)
- 11:30 **Research on Integrated Navigation Technology of the Pedestrian Navigation System Based on MIMU/Magnetometer**  
F. Yu, C. Yu, Y. Ge, S. Yuan  
(College of Automation, Harbin Engineering University, Harbin, CHINA)
- 12:00 Lunch Break
- Session 7: Algorithms and Integration Methods (CHAIRMAN: J.-F. Wagner)**
- 14:00 **Aspects of IMU Signal Processing and its Impact on Tracking Performance in COTS Inertial Navigation Sensors**  
A. Vydhyanathan, G. Bellusci, K. Velt, B. Kooi  
(Xsens Technologies B.V., Enschede, NETHERLANDS)
- 14:30 **A New GNSS/INS Integration for Challenging Environments**  
<sup>1</sup>J.B. Lacambre, <sup>1</sup>J.M. Louge, <sup>1</sup>Y. Paturel, <sup>2</sup>F. Boon, <sup>2</sup>R. Deurloo  
(<sup>1</sup>iXBlue, Marly le Roi, FRANCE; <sup>2</sup>Septentrio Satellite Navigation, Leuven, BELGIUM)
- 15:00 **Integrity of GNSS / Inertial Navigation System**  
B. Deleaux, M. Destelle, C. Chaligne  
(Sagem Défense Sécurité, Paris-Cedex, FRANCE)
- 15:30 Break
- Session 8: Surveying Applications (CHAIRMAN: von Hinueber)**
- 16:00 **The Hybrid Inclinometer Using the Fiber Optical Gyroscopes**  
K.O. Baryshnikov, A.I. Balandin, M.I. Koptenkov  
(Branch of the Center for Ground-Based Space Infrastructure Facilities Operation “Scientific & Research Institute for Applied Mechanics, Moscow, RUSSIA)
- 16:30 **Measurement -While-Drilling System Based on Inertial Sensors for Guided Drilling and Resurveying Applications**  
<sup>1</sup>U. Probst, <sup>1</sup>Dr. A. Dahlhoff, <sup>1</sup>Dr. H. Fischer, <sup>1</sup>Dr. C. Lenski, <sup>2</sup>N. Jaskulski, <sup>3</sup>Dr. H. Krenn, <sup>3</sup>M Schmidt  
(<sup>1</sup>Northrop Grumman LITEF GmbH, Freiburg, GERMANY; <sup>2</sup>Karlsruher Institute for Technology, Karlsruhe, GERMANY; <sup>3</sup>Züblin Spezialtiefbau GmbH, Vienna, AUSTRIA)
- Alternate:** **Research on the Irradiation Characteristic of Erbium-Doped Fiber Source for High Precision Fiber-Optic Gyroscope**  
B. Zhang, W. Wei, W. Xuefeng, L. Jing  
(Beijing Aerospace Times Optical-Electronic Technology Co Ltd, Beijing, CHINA)