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WORKSHOP PROGRAM

Wednesday, June 22nd

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Chairs: *Alfonso Farina, LFIEEE, BoG AESS*

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Luca Timmoneri, Finmeccanica S.p.A., Italy
- 6 Finmeccanica hyperspectral airborne system for real-time target detection and identification**
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Francesco Butera, Finmeccanica S.p.A., Italy
Aldo Riccobono, Finmeccanica S.p.A., Italy
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Emanuele Vacca, Leonardo, Italy

SS2: Special Session on Measurement for Improving Quality, Reliability And Safety in Aerospace Applications

Room: Room 5, University of Florence, Via G. Capponi 9

Chairs: *Lorenzo Ciani, University of Florence, Italy*
Sergio Rapuano, University of Sannio, Italy

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P. Steigmeier, Institute for Aerosol and Sensor Technology, Switzerland
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Chairs: *Marcantonio Catelani, University of Florence, Italy*

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Chairs: *Alfonso Farina, LFIEEE, BoG AEES*

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Jader Monari, IRA - National Institute of Astrophysics, Italy
Marco Schiaffino, IRA - National Institute of Astrophysics, Italy
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Simone Rusticelli, IRA - National Institute of Astrophysics, Italy
Pietro Bolli, OAA - National Institute of Astrophysics, Italy
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Paola Mercogliano, Euro-Mediterranean Centre on Climate Change, REMHI Division, Italian Aerospace Research Center, Italy

SS4: Special Session on Complex Systems Operational Availability: Measurements, Methodologies and Requirements

Room: Room 8, University of Florence, Via G. Capponi 9

Chairs: *Fabio Leccese, University of Rome 'Roma Tre', Italy*

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Ruggero De Francesco, Se.Te.L s.r.l., Italy

Fabio Leccese, University of Rome 'Roma Tre', Italy

Marco Cagnetti, University of Rome 'Roma Tre', Italy

Thursday, June 23rd

SS5: Special Session on Statistical Methods for Complex Electromagnetic Media and Wireless Environments

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Chairs: *Olivier Legrand, Université Nice-Sophia Antipolis, France*

Gabriele Gradoni, University of Nottingham, United Kingdom

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Fabrizio Ricci, University of Naples Federico II, Italy
Nicola Pasquino, University of Naples Federico II, Italy

SS7 (Part 1): Special Session on Measurement and Instrumentation for Aerospace Application

Room: Room 8, University of Florence, Via G. Capponi 9

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Room: Room 7, University of Florence, Via G. Capponi 9

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Maria Guglielmina Pelizzo, INFN Padova, CNR-IFN Padova, Italy
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Alberto Porzio, CNR-SPIN, INFN Napoli, Italy
Angelo Tartaglia, Politecnico di Torino, Italy

Poster Session

Room: University of Florence, Via G. Capponi 9

Chairs: *Maria Riccio, Dept. of Engineering, University of Sannio, Italy*
Gianluca Mazzilli, Dept. of Engineering, University of Sannio, Italy

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Marta Albano, 'Sapienza' University of Rome, Italy
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Giorgio Giannini, National Interuniversity Consortium of Materials Science and Technology, Italy
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Ettore De Francesco, Se.Te.L s.r.l., Italy
Ruggero De Francesco, Se.Te.L s.r.l., Italy
Fabio Leccese, University of Rome 'Roma Tre', Italy
Marco Cagnetti, University of Rome 'Roma Tre', Italy
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Mattia Mazzucato, Center of Studies and Activities for Space (CISAS), Italy
Andrea Valmorbida, Center of Studies and Activities for Space (CISAS), Italy
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Marco Costantini, University of Padova, Italy
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Diego Galar, University of Skövde, Sweden
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Torgny Almgren, GKN Aerospace Engine Systems, Sweden
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- 408 Improving a sounding rocket technology demonstrator for experimental measurements**
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Alberto Madonna, Italian National Institute for Astrophysics, Italy
Mattia Pezzato, University of Padova, Italy
Filippo Trevisi, University of Padova, Italy
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Carlo Bettanini, Center of Studies and Activities for Space (CISAS), Italy
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Wenfeng Tan, National University of Defense Technology, China
Xingshu Wang, National University of Defense Technology, China
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Francesco Santoli, Istituto di Astrofisica e Planetologia Spaziali, Italy
Roberto Peron, Istituto di Astrofisica e Planetologia Spaziali, Italy
Emiliano Fiorenza, Istituto di Astrofisica e Planetologia Spaziali, Italy
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Carmelo Magnafico, Istituto di Astrofisica e Planetologia Spaziali, Italy
Valerio A. Iafolla, Assist in Gravitation and Instrumentation
Maciej Kalarus, Polish Academy of Sciences, Poland
Janusz Zielinski, Polish Academy of Sciences, Poland
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Detian Li, Lanzhou Institute of Space Technology and Physics, China
Yongjun Cheng, Lanzhou Institute of Space Technology and Physics, China

SS9: Special Session on In-flight Verification and Tuning of the GNC systems for Satellites and Aerospace Vehicles

Room: Room 4, University of Florence, Via G. Capponi 9

Chairs: *Yevgeny Somov, Samara State Technical University, Russia*
Klaus Schilling, University of Würzburg, Germany

- 439 **Autonomous Re-Entry System Technology Demonstrator for Sounding Rockets**
Matteo Poli, *Nimbus Project, Italy*
Alberto Madonna, *Nimbus Project, Italy*
Tihol Donchev, *Nimbus Project, Italy*
Diego Martignago, *Nimbus Project, Italy*
Mattia Pezzato, *Nimbus Project, Italy*
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Davide Scalzi, *Nimbus Project, Italy*
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Andrea Stanco, *Nimbus Project, Italy*
Stefano Debei, *Center of Studies and Activities for Space (CISAS), Italy*
Carlo Bettanini, *Center of Studies and Activities for Space (CISAS), Italy*
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Houria Siguerdidjane, *Centrale Supelec University, France*
Sergey Butyrin, *Samara State Technical University, Russian Academy of Sciences, Russia*
Sergey Somov, *Samara State Technical University, Russian Academy of Sciences, Russia*
Tatyana Somova, *Samara State Technical University, Russia*
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S. Dombrowski, *University of Würzburg, Germany*
S. Busch, *University of Würzburg, Germany*
K. Schilling, *University of Würzburg, Germany*
K. Zakšek, *University of Hamburg, Germany*
M. Hort, *University of Hamburg, Germany*
- 456 **Autonomous on-orbit calibration of a Star Tracker**
Emanuele Medaglia, *Sapienza University of Rome, Italy*
- 462 **Integrated NRM/EKF for LEO Satellite GPS Based Orbit Determination**
Murat Bagci, *Turkish Air Force Academy, Turkey*
Chingiz Hajiye, *Istanbul Technical University, Turkey*

SS10 (Part 1): Special Session on Global Navigation Satellite System Technologies and Applications

Room: Room 5, University of Florence, Via G. Capponi 9

Chairs: Patrizia Tavella, *National Institute for Metrological Research, Italy*

Sabrina Ugazio, *Politecnico di Torino, Italy*

- 468 **GPS Ambiguity Filter Sensitivity to the Precision of the Prior Knowledge of the Baseline Length**
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José Sanguino, *University of Lisbon, Portugal*
- 473 **Optimizing carrier smoothing parameters considering a cycle slip probabilistic model**
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Monica Visintin, *Politecnico di Torino, Italy*
- 479 **Monitoring the Earth's ground surface movements using satellite observations**
Gregorio Farolfi, *Italian Military Geographic Institute, University of Florence, Italy*
Chiara Del Ventisette, *University of Florence, Italy*

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Daniele Cretoni, Thales Alenia Space Italia S.p.A, Italy
Giulia Putorti, Thales Alenia Space Italia S.p.A, Italy
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Anas Tajdine Aouad, Thales Alenia Space France S.A., France
Marco Siccardi, SKK Electronics, Italy
Alexander Mudrack, ESA/ESTEC, Netherlands
Bernhard Schlarmann, ESA/ESTEC, Netherlands

SS7 (Part 2): Special Session on Measurement and Instrumentation for Aerospace Application

Room: Room 8, University of Florence, Via G. Capponi 9

Chairs: *Stefano Debei, Center of Studies and Activities for Space (CISAS), Italy*

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Carlo Ferrero, National Institute of Metrological Research, Italy

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Milena Astrua, National Institute of Metrological Research, Italy
Valerio Iafolla, Institute for Space Astrophysics and Planetology, Italy
Franco Santoli, Institute for Space Astrophysics and Planetology, Italy
David Lucchesi, Institute for Space Astrophysics and Planetology, Italy
Carlo Lefevre, Institute for Space Astrophysics and Planetology, Italy
Marco Lucente, Institute for Space Astrophysics and Planetology, Italy

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Bartosz Brzozowski, Military University of Technology, Poland
Zdzisław Rochala, Military University of Technology, Poland
Konrad Wojtowicz, Military University of Technology, Poland
Bartosz Gawęda, Air Force Institute of Technology, Poland
Krzysztof Kazmierczak, Polish Academy of Sciences, Poland

506 Electrical Measurement of Free Space Electric Field Sensors

Wu Kang, Beijing Orient Institute of Measurement and Test, China
Cui Yang, Lanzhou Institute of Physics, China
Song Jiayun, Beijing Orient Institute of Measurement and Test, China
Liu Min, Beijing Orient Institute of Measurement and Test, China

511 Absolute distance interferometric measurement for on board satellite metrology

Marco Pisani, National Institute of Metrological Research, Italy
Massimo Zucco, National Institute of Metrological Research, Italy
Sergio Mottini, Thales Alenia Space Italy, Italy

SS8 (Part 2): Special Session on Relativistic Metrology

Room: Room 7, University of Florence, Via G. Capponi 9

Chairs: *Roberto Peron, Istituto di Astrofisica e Planetologia Spaziali, Italy*
Enrico Lorenzini, University of Padova, Italy

516 LARES Satellite Thermal Forces and a Test of General Relativity

Richard Matzner, University of Texas at Austin, USA

Phuc Nguyen, University of Texas at Austin, USA

Jason Brooks, University of Texas at Austin, USA

Ignazio Ciufolini, University of Salento, Museo Storico della Fisica e Centro Studi e Ricerche, Italy

Antonio Paolozzi, Museo Storico della Fisica e Centro Studi e Ricerche, 'Sapienza' University of Rome, Italy

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Giampiero Sindoni, 'Sapienza' University of Rome, Italy

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Harutyun Khachatryan, Alikhanian National Laboratory and Yerevan State University, Armenia

Sergey Mirzoyan, Alikhanian National Laboratory and Yerevan State University, Armenia

522 Measurements of General Relativity precessions in the field of the Earth with laser-ranged satellites and the LARASE program

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Carmelo Magnafico, Istituto di Astrofisica e Planetologia Spaziali, Italy

Roberto Peron, Istituto di Astrofisica e Planetologia Spaziali, Italy

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Carmen Pardini, ISTI-CNR, Italy

Massimo Bassan, University of Rome 'Tor Vergata', INFN, Italy

Giuseppe Pucacco, University of Rome 'Tor Vergata', INFN, Italy

530 High-Accuracy Gravity Acceleration Measurements at the Moon from the GRAIL Mission

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Maria T. Zuber, MIT, USA

533 Sensitivity study of systematic errors in the BepiColombo relativity experiment

Giulia Schettino, University of Pisa, Italy

Luigi Imperi, 'Sapienza' University of Rome, Italy

Luciano Iess, 'Sapienza' University of Rome, Italy

Giacomo Tommei, University of Pisa, Italy

538 The BepiColombo ISA accelerometer: ready for launch

Valerio Iafolla, Istituto di Astrofisica e Planetologia Spaziali, Italy

Emiliano Fiorenza, Istituto di Astrofisica e Planetologia Spaziali, Italy

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Francesco Santoli, Istituto di Astrofisica e Planetologia Spaziali, Italy

SS11: Special Session on Quality Measurement Techniques for Critical Software Systems

Room: Room 4, University of Florence, Via G. Capponi 9

Chairs: Massimo Tipaldi, OHB System AG/CGS SpA

Bernhard Bruenjes, OHB System AG, Germany

545 Measurement and analysis of schedulability of spacecraft on-board software

Nunzio Cecere, Intelligenza s.r.l., Italy

Massimo Tipaldi, Compagnia Generale per lo Spazio, University of Sannio, Italy

Ralf Wenker, OHB System AG, Germany

Umberto Villano, University of Sannio, Italy

551 Test Automation for Critical Space Software

Ignacio Fernandez, GTD Sistemas de informacion SA, Spain

Antonio Di Cerbo, Intelligentia s.r.l., Italy

Erik Dehnhardt, OHB System AG, Germany

Massimo Tipaldi, Compagnia Generale per lo Spazio, University of Sannio, Italy

556 Probabilistic Model Checking applied to Autonomous Spacecraft Reconfiguration

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Antonella Santone, University of Sannio, Italy

Massimo Tipaldi, Compagnia Generale per lo Spazio, University of Sannio, Italy

Luigi Glielmo, University of Sannio, Italy

561 Space Payload Test System

Leonardo Amoroso, Planetek Italia srl, Italy

Cristoforo Abbattista, Planetek Italia srl, Italy

Luca Cinquepalmi, Planetek Italia srl, Italy

Luigi Agrimano, Planetek Italia srl, Italy

SS10 (Part 2): Special Session on Global navigation satellite system technologies and applications

Room: Room 5, University of Florence, Via G. Capponi 9

Chairs: *Letizia Lo Presti, Politecnico di Torino, Italy*

Sabrina Ugazio, Politecnico di Torino, Italy

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Paolo Tortora, University of Bologna, Italy

Alessandro Avanzi, SITAE S.p.A, Italy

573 Multi-scale volumetric soil moisture detection from GNSS SNR data

Nicolas Roussel, GET, CNRS, OMP, France

José Darrozes, GET, CNRS, OMP, France

Cuong Ha Minh, GET, CNRS, OMP, France

Karen Boniface, GET, UPS, OMP, France

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Michel Gavart, AJS UAS, France

Laura Van de Vyvere, M3 Systems, Belgium

Olivier Desenfans, M3 Systems, Belgium

Frederic Baup, CESBIO, UPS –IUT A, France

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585 The European Project DEMETRA: Timing services based on European GNSS, First experimental results

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Elena Cantoni, National Institute of Metrological Research, Italy
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Vincenzina Leone, ANTARES, Italy
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591 Time and frequency at LNE-SYRTE related to Global Navigation Satellite Systems

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SS7 (Part 3): Special Session on Measurement and Instrumentation for Aerospace Application

Room: Room 8, University of Florence, Via G. Capponi 9

Chairs: *Stefano Debei, Center of Studies and Activities for Space (CISAS), Italy*

593 Progress in the realization of the INRIM centrifugal balance for mass measurements in space

Andrea Malengo, National Institute of Metrological Research, Italy

Gaetano La Piana, National Institute of Metrological Research, Italy

Giovanni Martini, National Institute of Metrological Research, Italy

Antonio Rivetti, National Institute of Metrological Research, Italy

598 Effect of rolling shutter on visual odometry systems suitable for planetary exploration

Marco Pertile, Center of Studies and Activities for Space (CISAS), Italy

Sebastiano Chiodini, Center of Studies and Activities for Space (CISAS), Italy

Riccardo Giubilato, Center of Studies and Activities for Space (CISAS), Italy

Stefano Debei, Center of Studies and Activities for Space (CISAS), Italy

604 Preliminary design of the inlet duct of a dust analyzer for Mars

Gianandrea Vittorio Messa, Politecnico di Milano, Italy

Stefano Malavasi, Politecnico di Milano, Italy

Diego Scaccabarozzi, Politecnico di Milano, Italy

Bortolino Saggini, Politecnico di Milano, Italy

Marco Tarabini, Politecnico di Milano, Italy

Francesca Esposito, INAF - Osservatorio Astronomico di Capodimonte, Italy

Cesare Molfese, INAF - Osservatorio Astronomico di Capodimonte, Italy

609 Innovative Configuration for a Far Infrared Space Interferometer

Valerio Antonio Iafolla, AGI, INAF - IAPS, Italy

Emiliano Fiorenza, AGI, INAF - IAPS, Italy

Lorenzo Iafolla, AGI, Italy

Carlo Lefevre, AGI, INAF - IAPS, Italy

Carmelo Magnafico, INAF - IAPS, Italy

Francesco Santoli, AGI, INAF - IAPS, Italy

Giorgio Savini, University College London, United Kingdom

614 Characterization of thermally controlled quartz crystal microbalances

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Bortolino Saggin, Politecnico di Milano, Italy
Marianna Magni, Politecnico di Milano, Italy
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Ernesto Palomba, Institute for Space Astrophysics and Planetology, Italy
Jorge Alves, European Space Research and Technology Centre, Netherlands
Adrian Tighe, European Space Research and Technology Centre, Netherlands

Session on Advanced Measurement Systems and Sensors for Aerospace (Part 3)

Room: Room 7, University of Florence, Via G. Capponi 9

Chairs: *Ada Fort, University of Siena, Italy*

619 X-Ray Attenuation Properties of Carbon Nanotubes Filled Composite Materials

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Davide Micheli, 'Sapienza' University of Rome, Italy
Mario Marchetti, 'Sapienza' University of Rome, Italy
Emma Angelini, Politecnico di Torino, Italy

624 Sensor Fusion Approach for Aircraft State Estimation using Inertial and Air-Data Systems

F. Schettini, University of Pisa, Italy
G. Di Rito, University of Pisa, Italy
R. Galatolo, University of Pisa, Italy
E. Denti, University of Pisa, Italy

630 Effects of PRBS Jitter on Random Demodulation Analog-to-Information Converters

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Luca De Vito, University of Sannio, Italy
Grazia Iadarola, University of Sannio, Italy
Sergio Rapuano, University of Sannio, Italy

636 A concept of UAV indoor navigation system based on magnetic field measurements

Bartosz Brzozowski, Military University of Technology, Poland
Krzysztof Kazmierczak, Military University of Technology, Poland
Zdzisław Rochala, Military University of Technology, Poland
Marta Wojda, Military University of Technology, Poland
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