

**Report on the 6th IEEE AESS Workshop on Metrology for
AeroSpace
MetroAeroSpace 2019
June 19-21, 2019, Turin, Italy**

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Since the first edition, *MetroAeroSpace* represents the international meeting place in the world of research in the field of measurement and instrumentation for aerospace involving institutions and academia in a discussion on the state-of-the-art concerning issues that require a joint approach by experts of measurement, instrumentation and industrial testing, typically professional engineers, and experts in innovation metrology, typically academics. The increasing number of scientists attending *MetroAeroSpace* and coming from fields that can be very far from engineering, led to a positive hybridization of the conference.

In this framework the sixth edition of the *IEEE International Workshop on Metrology for Aerospace* (www.metroaerospace.org), was proposed as an international meeting place in the world of research in the field of metrology for aerospace.

MetroAeroSpace 2019 was jointly organized by Pasquale Daponte, University of Sannio, Italy, Stefano Debei, University of Padua, and Robert Rassa, Raytheon, US, acting as executive co-chairs. Technical Program Chairs were Stephen Dyer, Kansas State University, US, Marco Pertile, University of Padua, Italy, while Luca De Vito, University of Sannio, Italy and Cosimo Stallo, University of Rome "Tor Vergata", Italy, served as a Publicity Chair and Treasury Chair, respectively. Honorary Chair was Marina Ruggieri, University of Rome "Tor Vergata", Italy.

The Workshop was organized in Turin, at ALTEC S.p.A. (Aerospace Logistics Technology Engineering Company), as is well known, the public-private company is a center of

excellence for the provision of engineering and logistic services to support operations and use of the International Space Station and to support the development and implementation of planetary exploration missions. Special thanks goes to ALTEC and Thales Alenia Space for their hospitality and support to the MetroAeroSpace organization. It is worth to note a technical visit offered to all attendees to the main ALTEC facilities including the ExoMars 2020 Rover Operations Control Center (ROCC). The ROCC is the center that will receive daily from Mars the telemetry data of the Rover and will send the sequences of commands to indicate to the Rover which activities to carry out day by day (or better, sol by sol) on the Red Planet, once landed and the exit phase from the landing platform is completed.



Static exhibition of rovers developed by ALTEC and Thales Alenia Space.



*A Special Track on Military Metrology for AeroSpace was organized by AFCEA Naples Chapter with patronage of AFCEA Europe, more information are available at;
<http://www.metroaerospace.org/military/>*

The technical program of the 6th IEEE International Workshop on Metrology for AeroSpace was particularly difficult to be arranged since we received 197 abstracts from all over the world. Due to high demand only 149 papers could be selected after competitive review. Authors from 15 countries attended the Workshop. All papers submitted to *MetroAeroSpace 2019* that have been accepted in a peer-reviewed process are published in the proceedings of the Workshop and the proceedings have been submitted for indexing in the IEEE Xplore Digital Library.

The technical program included several events and activities. The keynote speeches were held by experts in the field of metrology for aerospace:

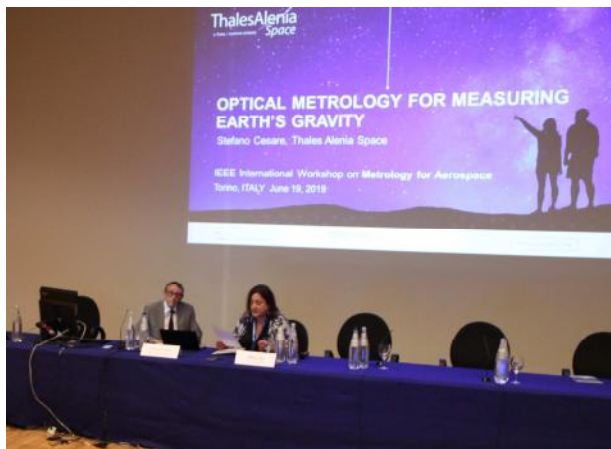
- Yonina Eldar, Weizmann Institute of Science, Rechovot, Israel spoke about *Recovering lost information in analog-to-digital conversion*,



- Dr Roberto Orosei, National Institute of Astrophysics, Institute for Radio Astronomy, Italy dealt with *Radar evidence of subglacial liquid water on Mars*.

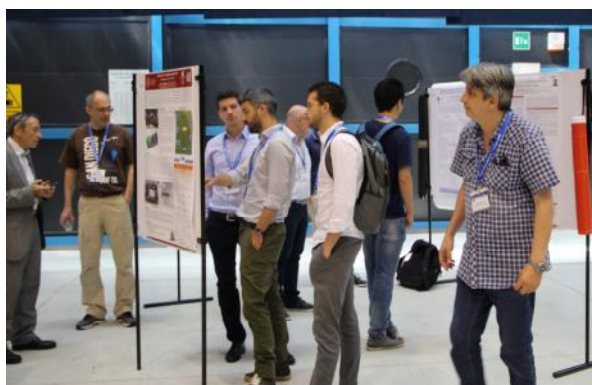
The Workshop included a half day of tutorials;

- *Optical metrology for measuring Earth's gravity*, Stefano Cesare, THALES ALENIA SPACE, Italy
- *Probabilistic-Risk-Analysis in Aerospace Human-in-the-Loop Problems*, Ephraim Suhir Portland State University, USA



It is worth to note the traditional Special Session on *Metrology for Radar Systems* organized by Alfonso Farina, *LFIEEE*, *Distinguished Lecturer of AESS* and Silvia Ullo, *University of Sannio, Italy*. This session is attracting every year more and more scientists in this engaging research field.

MetroAeroSpace 2019 included Demo Sessions where conference delegates were invited to experience the demonstrations directly, to interact with, play with, and challenge them. Presenters had the opportunity to show direct proof of their working systems and to create a lasting impression.



To encourage the attendance in particular of young researchers, some awards were offered:

Best paper of the 6th IEEE International Workshop on Metrology for AeroSpace;

Exploitation of GNSS signals as illuminators of opportunity in Passive Coherent Location (PCL) systems

Edoardo Detoma, LJT & Associates, USA.

Best paper of the poster session, awarded with a certificate offered by THALES ALENIA SPACE;

New Precise Point Positioning Software for Upgrade of the Time Monitoring and Steering Service of the H2020 DEMETRA Project

Weu Huang, Giovanna Signorile, Ilaria Sesia, INRiM, Italy, Pascale Defraigne, Observatoire Royal de Belgique, Belgium.

Best paper authored and presented by a woman;

Wireless Local Positioning System for Controlled UAV Landing in GNSS-Denied Environment

Tatiana Pavlenko et Al., Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

Best paper authored and presented by a young researcher, awarded with a plaque offered by ALTEC;

A multi-channel system for on-line structural health monitoring using guided waves

Vittorio Memmolo et Al., University of Naples Federico II, Italy

Best demo, awarded with an exclusive certificate offered by AFCEA Chapter of Naples;

EXOMARS & ROXY ROVERS

C.Napolitano, C.Nocerino, C.Legnani, D.Paltro, F.D'Amico, F.Bonfitto, THALES ALENIA SPACE.

Best Presentation for the *Special Track on Future Science Objectives and Technologies for Planetary Exploration*, organized by Armando Tempesta and Federico Tosi
“Government – Industry Collaboration Creating Commercial Opportunities”
Silvano Casini, President of 2064 OUTERSPACE Club, Italy



Award Ceremony.



The social events included a Welcome Party and the Gala Dinner with music entertainment.

The 7th IEEE International Workshop on Metrology for AeroSpace will be held in Pisa, Italy, June 22-24, 2020. Take note about these dates;

- January 31, 2020 – Submission of Extended Abstract
- March 30, 2020 – Notification of Acceptance
- April 30, 2020 – Submission of Final Paper

The 7th Workshop is organized by University of Pisa, University of Padua and University of Sannio.

We are pleased to invite you to contribute to the *7th International IEEE Workshop on Metrology for Aerospace*. The event includes, but it is not limited to, new technology for metrology-assisted production in aerospace industry, aircraft component measurement, sensors and associated signal conditioning for aerospace, calibration methods for electronic test and measurement for aerospace.

Special Sessions have the main aim of creating a mini-workshop on a specific topic, where researchers working on the same argument can make knowledge, familiarize, exchange ideas, create cooperation. You may find more how to submit a Special Session proposal at;

www.metroaerospace.org/index.php/program/special-session

For more information, please contact: Pasquale Daponte, email: daponte@unisannio.it