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Welcome to 4th IEEE International Workshop on Metrology for AeroSpace

On behalf of the organizing committee, we cordially welcome you to the 4th IEEE Workshop on Metrology for AeroSpace (MetroAeroSpace).

The fourth edition of MetroAeroSpace will be held in Padua, one of the oldest cities in Italy. The Botanic Garden of Padua, a UNESCO World Heritage Site, is the oldest Botanic Garden in the world, founded in 1545, and has collected numerous exotic and local species in the same location continuously through the centuries. With one of the oldest universities in the world officially founded on 1222, Padua was always an intellectual and artistic centre, which brought many art treasures to the city and made it a hotbed of revolutionary ideas.

We are sure that the universally recognized historical beauty of Padua will be a perfect frame for this prestigious conference. It is, in fact, a further occasion, not only to meet old friends and new people from all over the world, but, moreover, to engage with them a continuous comparison directed to make wider the views on the technological progress of Metrology for AeroSpace.

The MetroAeroSpace organization was a complex task due to the large and increasing interest of our research and application areas. Efforts from many people were required to shape the technical program, arrange accommodation, manage the administrative aspects, and set up the social functions. We like to take this opportunity to thank all and each of them. We like also to thank the public and private organizations that supported the meeting in different ways.

A special thanks to Italian Army, Navy, Air Force and Arm of Carabinieri for supporting with several actions the Workshop. This year during the Workshop, static exhibition of civil and military systems will be offered:

- GOCE Satellite - Thales Alenia Space Italy site of Turin;
- SARAD - Automatic Data Analysis and Recording, organized by Italian Navy;
- PACKBOT 510, iRobot 110 FIRSTLOOK, tEODor, rovers employed by Italian Army.

The MetroAeroSpace Technical Program consists of 19 oral and poster sessions scheduled over three days. With the wide range of technical sessions covering the many fields of metrology for aerospace we are happy to welcome you to the variety of technical presentations that await you this year. Thanks to all of the Technical Program Committee members and the reviewers who have contributed to make this outstanding program possible.



The technical program was particularly difficult to be arranged since we received, for this fourth Workshop 135 abstracts from all over the world. Due to the time limits of the conference only 114 papers have been selected after a painstaking activity of the program committee and additional reviewers. We like to thank all people who contributed to this process with opinions, comments, and suggestions to choose the best papers and even improve their quality.

The technical program encompasses several events and activities. The keynote speeches will be held by experts in the field of metrology for aerospace; Dr. Franco Ongaro, ESA, Director of Technical and Quality Management (D/TEC), and Head of ESTEC, Netherlands, will describe *The technology support of the European Space Research and Technology Centre laboratories to space missions*, Dr. Kelly Chance, Senior Physicist at the Smithsonian Astrophysical Observatory and the Principal Investigator for the NASA/Smithsonian Tropospheric Emissions, will present *From TOMS to TEMPO: Monitoring of atmospheric pollution from space*.

We are honored to have them as plenary speakers and thank them in advance for coming to our conference to share their knowledge and experiences with us.

This edition of the Workshop includes;

- *“Military Metrology for AeroSpace”*, organized in cooperation with AFCEA Chapter of Naples, at Palazzo Zacco *“Circolo Unificato dell'Esercito”*, Padua (Italy), June 21st, 2017.
- a half day of tutorials offering three subjects:
 - Communication and Control for quadrotor-UAVs, Naïma Ait Oufroukh, *University of Évry, France*;
 - New Generation Data Recorder & Monitoring in Aircraft Maintenance, Fabio Grandi, *Flight Test Engineer, Army Aviation Test Centre Chief*;
 - Introduction to quantum communications: challenges and perspectives for Space, Giuseppe Vallone, *University of Padua, Italy*;
 - Radiation effects on electronics in space, Alessandro Paccagnella, *Vice Rector for International Relations, University of Padua, Italy*.

These events give more opportunities to contact Institutions and experts operating in different fields of Metrology for AeroSpace.

For the second time MetroAeroSpace will include Demo Session, organized as "Live Demonstration" track to allow an interactive and tangible form of presentation, which is quite different from the oral and poster sessions. Conference delegates are invited to experience the demonstrations directly, to interact with, play with, and challenge them. For this edition, we received four *live demonstration* proposals, during which



presenters will have the opportunity to show direct proof of their working systems and to create a lasting impression.

With the aim of providing a common ground for researchers to share their findings about the metrology for aerospace, the Workshop this year was improved by adding a significant number of Special Sessions. A first reason is that so many are the application fields of the metrology for aerospace that a single track could have been too much dispersive. A second reason is that, in spite of a centralized research address definition, a spontaneous aggregation of well-focused themes has been gathered, with specific aim of providing a forum of specific debate very close to the single research field. Therefore, several application-oriented Special Sessions have been organized this year. We wish to thank the organizers of these Special Sessions for their cooperation and support to the Workshop organization.

Several Awards offered by International Institution and Companies will be assigned, in particular to young researchers. In particular, the best contributions will be awarded, including the “*Best Paper Award*”, the “*Best Paper Presented by a Young Researcher*” offered by LEONARDO Company, the “*Best Paper Authored and Presented by a Woman*” offered by Promex, and the “*Best Demonstration Award*” offered by AFCEA Chapter of Naples.

The Workshop is about to begin. You are now in a position to enjoy the fellowship of colleagues and experts and to pass free time in natural and artistic beauties. It is up to you to appreciate the Workshop worth! Be critical! We, metrologists, colleagues, and friends, we know that this is the best way to improve quality, and to achieve lasting excellences.



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University of Sannio, Italy



General Co-Chair
Robert RASSA
Raytheon, United States of America



Technical Program Co-Chair
Stefano DEBEL
University of Padua, Italy



Technical Program Co-Chair
Stephen DYER
Kansas State University, United States of America



MetroAeroSpace 2017 Committee

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Xiyuan Chen, *Southeast University, China*

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Satoshi Ikezawa, *Waseda University, Japan*

Stephen Johnson, *ARAMIS Engineering, US*

Marian K Kazimierczuk, *Wright State University, US*

Karel Kudela, *Institute for Experimental Physics, Slovak Rep.*

Chin E. Lin, *National Cheng Kung University, Taiwan*

Walter Matta, *Vitrociset, Italy*

Daniele Mortari, *Texas A&M University, US*

Aldo Napoli, *Centre de reserche sur les Risques et les Crises, France*

Pavel Paces, *Czech Technical University, Czech*

William Prosser, *NASA, US*

Jacek Pieniżek, *Rzeszow University of Technology, Poland*



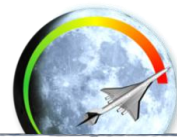
Marco Pisani, *INRIM, Italy*
Vasily Popovich, *Russian Academy of Science, Russia*
Helena G. Ramos, *Universidade de Lisboa, Portugal*
Artur L. Ribeiro, *Universidade de Lisboa, Portugal*
Roberto Sabatini, *RMIT University, Australia*
Nicolas Sklavos, *University of Patras, Greece*
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Fabrizio Francesco Vinaccia, *MDBA Italia, Italy*
Graham Wild, *RMIT University, Australia*
Ruqiang Yan, *P.R. China*
Ho-Soon Yang, *KRISS, Republic of Korea*
Mark Yeary, *University of Oklahoma, US*
David Zucconi, *SAB Aerospace, Italy*

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Enrico Lorenzini, *University of Padova, Italy*
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Carlo Bettanini, *University of Padova, Italy*
Maria Riccio, *University of Sannio, Italy*
Judy Scharmann (*IEEE AESS Executive Assistant*)

LOCAL ARRANGEMENTS





MetroAeroSpace 2017 Keynote Speakers

Keynote Thursday, June 22nd, 2017

The technology support of the European Space Research and Technology Centre laboratories to space missions

Dr. Franco Ongaro

ESA, Director of Technical and Quality Management (D/TEC),

Head of ESTEC

Noordwijk, the Netherlands



Dr. Ongaro graduated as a Doctor of Aeronautical Engineering from the University Politecnico of Milan. In 1987 he joined ESA, working at ESA HQ in Paris on the Columbus project. In 1988, he moved to ESTEC in the Netherlands as Head of the Columbus Payload Interfaces Unit. He was shortlisted as candidate in the European astronaut selection of 1991.

In 1994, Franco Ongaro moved back to HQ, to join the ESA Strategy Directorate as General Studies Programme Manager. In 2001, he initiated and managed the start of the Aurora exploration programme until 2005, when he became head of the ESA Advanced Concepts and Technology Planning Department, issuing the first ESA Technology Long Term Plan and creating the Advanced Concepts Team.

From 2007, he led the preparation and implementation of the Iris programme to develop a 'satcom' component for air traffic management. In 2009 he became Head of the Telecom Technologies, Products and Systems Department in the Telecommunications and Integrated Applications Directorate at ESTEC. From 1994 until 2009, he taught a one-semester graduate course in spacecraft design at the University Politecnico of Milan.



Keynote Friday, June 23rd, 2017

From TOMS to TEMPO: Monitoring of atmospheric pollution from space

Dr. Kelly Chance

*Senior Physicist at the Smithsonian Astrophysical Observatory,
the Principal Investigator for the NASA/Smithsonian Tropospheric Emissions
NASA, USA*



Kelly Chance is a Senior Physicist at the Smithsonian Astrophysical Observatory and the Principal Investigator for the NASA/Smithsonian Tropospheric Emissions: Monitoring of Pollution (TEMPO) satellite instrument that is currently being built to measure North American air pollution hourly from geostationary orbit (tempo.si.edu). He has been measuring Earth's atmosphere from balloons, aircraft, the ground and, especially, from satellites since receiving his Ph.D. from Harvard in 1977.

Measurements include the physics and chemistry of the stratospheric ozone layer, climate-altering greenhouse gases, and atmospheric pollution.

The first measurement of atmospheric pollution from space was likely that of SO₂, measured by the NASA Total Ozone Mapping Spectrometer on the Nimbus 7 satellite in 1982. Since that time a large array of satellite instruments for pollution monitoring has been developed internationally. Measurements are made from the infrared to the ultraviolet, capturing distributions of a minimally-redundant set of gaseous pollutants (at least one from each polluting chemical family), as well as aerosols. The measurement capability has culminated, for now, in a constellation of geostationary pollution monitors for Europe (Sentinel 4), Asia (the Geostationary Environment Monitoring Spectrometer, GEMS), and North America (Tropospheric Emissions: Monitoring of Pollution, TEMPO).



Awards and Distinctions

BEST CONFERENCE PAPER AWARD

Description: To recognize the most outstanding paper presented at the annual IEEE International Workshop on Metrology for AeroSpace.

Basis for Judging: Technical merit, originality, potential impact on the field, clarity of the written paper, and quality of the oral or other presentation.

BEST PAPER PRESENTED BY A YOUNG RESEARCHER

Description: An exclusive plaque will be given for the best paper authored and presented by a researcher younger than 35 years in age.



BEST PAPER PRESENTED BY A WOMAN

Description: An exclusive plaque will be given for the best paper authored and presented by a woman.



BEST PAPER OF THE POSTER SESSION

Description: An exclusive plaque will be given for the best poster presented.

BEST DEMO

Description: To highlight the importance of the Demo Session, AFCEA Chapter of Naples offers an exclusive plaque that will be given for the best demo.





Social Functions

WELCOME PARTY

Time: Wednesday, June 21st, 19:30 - 22:00

Location: *The Pedrocchi Café*, Via VIII Febbraio, 15 - Padua

The Welcome Party will be in *The Pedrocchi Café*. It is a café founded in the 18th century in central Padua. A buffet with traditional and regional cuisine will be offered to all MetroAeroSpace 2017 attendees.



GALA DINNER

Time: Thursday, June 22nd, 20:30 - 23:00

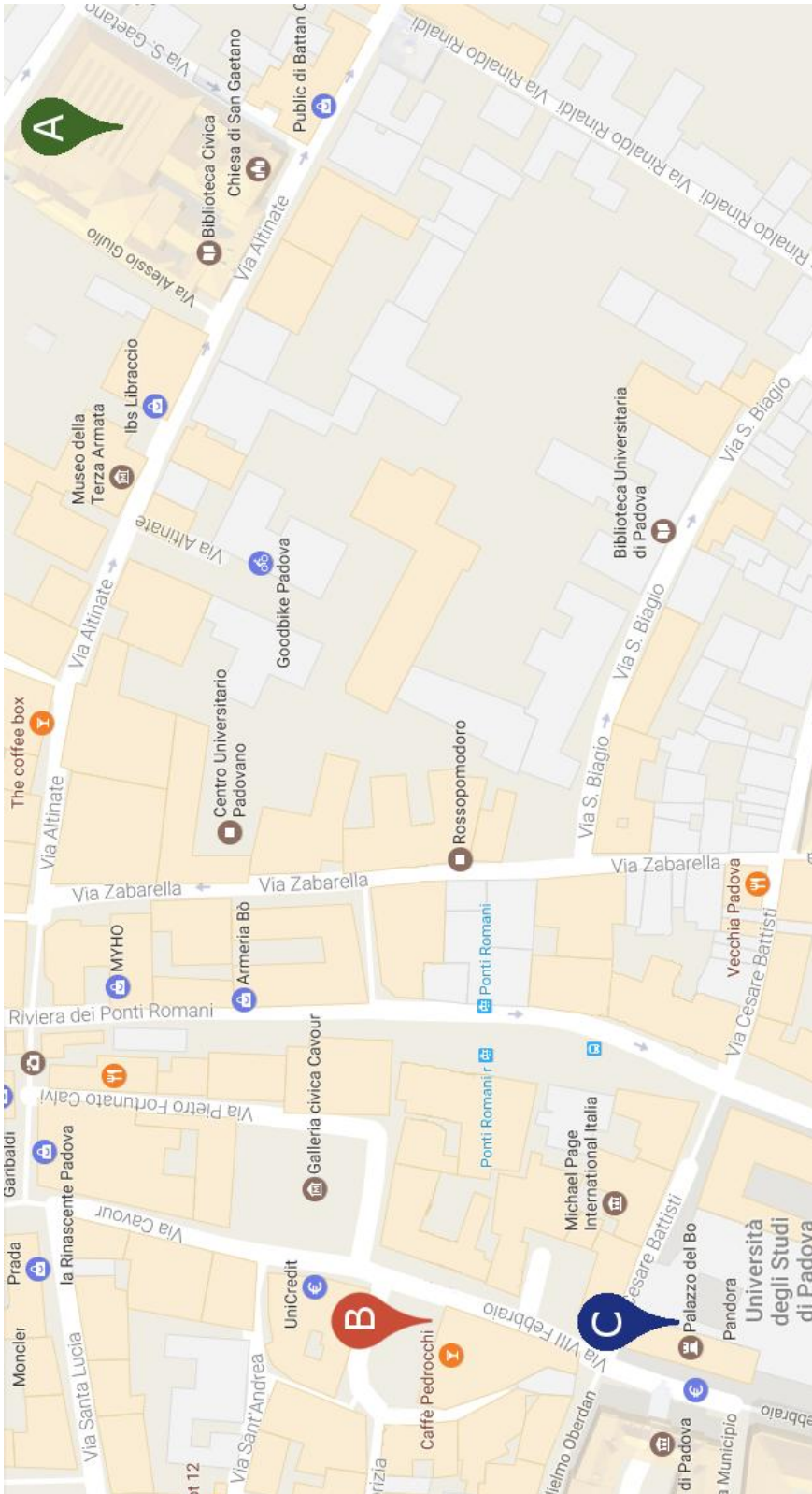
Location: *Tavern di Villa Cornè*, Via Orti 7, Monselice (Padua)

The Gala Dinner will be in "*Tavern di Villa Cornè*" restaurant, a combination of the fine art dated 1500. Entertainment will be offered Classic Venetian music.





Maps



- A** **CONFERENCE HALLS**
 - B** **Centro Culturale San Gaetano**
Via Altinate, 17
 - C** **Palazzo del Bo**
Via VIII Febbraio, 2
- WELCOME PARTY**
- B** **The Pedrocchi Café**
Via VIII Febbraio, 15
- 2nd PLENARY SESSION**

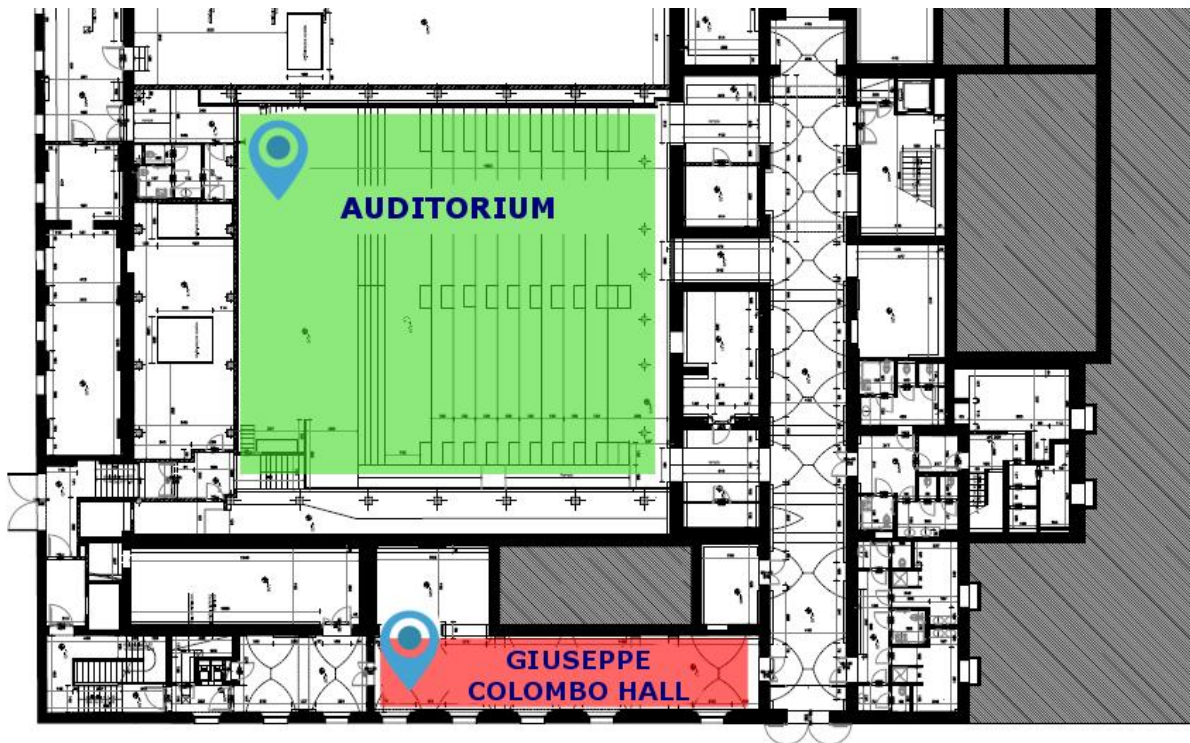


Centro Culturale S. Gaetano - Planimetry

GROUND FLOOR



BASEMENT FLOOR





Program Schedule - Wednesday, June 21st, 2017

Military Metrology for AeroSpace <i>Palazzo Zacco "Circolo Unificato dell'Esercito" - Prato della Valle, 82, Padua, Italy</i>	
9:00 - 9:20	Welcome Addresses B. Gen. (a) Dario NICOLELLA, <i>President of AFCEA Chapter of Naples, Italy</i> Prof. Stefano DEBELI, <i>University of Padova, Italy</i> Prof. Pasquale DAPONTE, <i>University of Sannio, Italy</i> Prof. Silvia ULLO, <i>University of Sannio, Italy</i> Prof. Pasqualino BOSCHETTO, <i>President of Engineers Association</i>
9:20 - 9:40	Metrology for Weapon Systems Testing and R&D Activity in Army Experimentation Centre (CEPOLISPE) Cap. Daniele FERRANTE, <i>Italian Army</i>
9:40 - 10:00	Space and Aerospace at the Flight Test Wing Cap. Jacopo PAOLI <i>Aero-Space System Engineering Group Italian Air Force – Flight Test Wing</i> <i>Aeroporto "M. De Bernardi" Pratica di Mare (RM)</i>
10:00 - 10:30	Defence of Telecommunication Network in Carabinieri Army Monitoring System and Intervention Plan D.Gen. (a) Dr. Pasquale LAVACCA, <i>Major Staff of the Carabinieri Army Command, Rome</i>
10:30 - 11:00	The communication infrastructure of Italian Air Force: Network Monitoring & Control Col. GArn Ing. Pompeo PIEDIMONTE, <i>Italian Air Force Logistic Command, Rome</i>
11:00 - 11:20	COFFEE BREAK
11:20 - 11:50	Critical Infrastructures under NATO control Lt.Col. CC Dr. Felice DE LUCIA, <i>Intelligence and Security Office, NATO JFC Lago Patria (Naples)</i>
11:50 - 12:15	Raven system Lt.Col. Fabio GRANDI, <i>Flight Test Engineer, ArmyAviation Test Centre Chief</i>
12:15 - 12:40	Military Metrology Service in Polish Armed Forces Capt. Dr. Konrad WOJTOWICZ, <i>Military University of Technology, Warsaw, Poland</i>
12:40 - 13:00	CONCLUSIONS



METROLOGY FOR AEROSPACE - TUTORIALS	
14:30 - 16:45	REGISTRATION - <i>Centro Culturale S. Gaetano, Via Altinate, 71</i>
14:30 - 15:15	SESSION 1 Communication and Control for quadrotor-UAVs <i>Naïma Ait Oufroukh, University of Évry, France</i> <i>Centro Culturale S. Gaetano - Auditorium</i>
15:15 - 16:00	SESSION 2 New Generation Data Recorder & Monitoring in Aircraft Maintenance <i>Fabio Grandi, Flight Test Engineer, Army Aviation Test Centre Chief</i> <i>Centro Culturale S. Gaetano - Auditorium</i>
16:00 - 16:45	SESSION 3 Introduction to quantum communications: challenges and perspectives for Space <i>Giuseppe Vallone, University of Padua, Italy</i> <i>Centro Culturale S. Gaetano - Auditorium</i>
16:45 - 17:30	SESSION 4 Radiation effects on electronics in space <i>Alessandro Paccagnella, Vice Rector for International Relations, University of Padua, Italy</i> <i>Centro Culturale S. Gaetano - Auditorium</i>
19:30 - 22:00	WELCOME PARTY <i>"The Pedrocchi Café"</i> <i>Via VIII Febbraio, 15 - Padua</i>



Program Schedule - Thursday, June 22nd, 2017

8:30 - 17:30	REGISTRATION - <i>Centro Culturale S. Gaetano, via Altinate, 71</i>			
9:00 - 9:30	Welcome Addresses - <i>Centro Culturale S. Gaetano - Auditorium</i>			
9:30 - 10:30	Invited Speech - Dr. Franco Ongaro <i>Centro Culturale S. Gaetano - Auditorium</i>			
10:30 - 11:00	COFFEE BREAK - <i>Centro Culturale S. Gaetano</i>			
	<i>Centro Culturale S. Gaetano</i> "Galileo Galilei" Hall	<i>Centro Culturale S. Gaetano</i> "Giuseppe Colombo" Hall	<i>Centro Culturale S. Gaetano</i> Auditorium	<i>Centro Culturale S. Gaetano</i> Spazio 35
11:00 - 12:40	Quality Measurement Techniques for Critical Software Systems	Metrology for Radar Systems	Measurement and Instrumentation for Aerospace Application PART I	Poster
12:40 - 14:00	LUNCH - <i>Centro Culturale S. Gaetano</i>			
14:00 - 15:40	Meteorological Sensors and Sensor Systems for Flight Support	Relativistic Metrology	Measurement and Instrumentation for Aerospace Application PART II	Demo Session
15:40 - 16:00	COFFEE BREAK - <i>Centro Culturale S. Gaetano</i>			Exhibitors
16:00 - 17:40	General Session PART I	Non Destructive Testing and Evaluation for Aerospace	Measurement and Instrumentation for Aerospace Application PART III	
20:30 - 23:00	GALA DINNER <i>"Tavern di Villa Cornè"</i> Via Orti, 7 - Monselice (Padua)			



Program Schedule - Friday, June 23rd, 2017

8:30 - 16:00	REGISTRATION - <i>Centro Culturale S. Gaetano, via Altinate, 71</i>			
9:00 - 9:50	Invited Speech - Dr. Kelly Chance <i>Palazzo del Bo, Via VIII Febbraio, 2</i>			
	<i>Centro Culturale S. Gaetano</i> "Galileo Galilei" Hall	<i>Centro Culturale S. Gaetano</i> "Giuseppe Colombo" Hall	<i>Centro Culturale S. Gaetano</i> Auditorium	<i>Centro Culturale S. Gaetano</i> Spazio 35
10:00 - 11:40	Instruments and Technology for Exploration	Complex Systems Operational Availability: Measurements, Methodologies and Requirements PART I	Terrestrial and In-Flight Verification of the GNC Systems for Satellites and Aerospace Vehicles	Poster
11:40 -13:15	COFFEE BREAK - POSTER SESSION - <i>Centro Culturale S. Gaetano</i>			
13:15 - 14:30	LUNCH - <i>Centro Culturale S. Gaetano</i>			
14:30 - 16:10	Smart Materials and Structures for Actuators and Sensors in Aerospace and Space	General Session PART II	Measurement for Improving Quality, Reliability and Safety in Aerospace Applications	Demo Session
16:10 - 16:30	COFFEE BREAK - <i>Centro Culturale S. Gaetano</i>			Exhibitors
16:30 - 18:10	Interferometric and Optical Systems for Accelerometers and Attitude Sensors	Measurement and Instrumentation for Aerospace Application PART IV	Measurement and Instrumentation for Unmanned Aerial Vehicle	
18:15 - 18:30	CLOSING AND AWARD CEREMONY - <i>Centro Culturale S. Gaetano - Auditorium</i>			



Wednesday, June 21st - Military Metrology for AeroSpace

Palazzo Zacco "Circolo Unificato dell'Esercito"

Prato della Valle, 82, Padua, Italy

9:00 Welcome Addresses

B. Gen. (a) Dario NICOLELLA, *President of AFCEA Chapter of Naples, Italy*
Prof. Stefano DEBELI, *University of Padova, Italy*
Prof. Pasquale DAPONTE, *University of Sannio, Italy*
Prof. Silvia ULLO, *University of Sannio, Italy*
Prof. Pasqualino BOSCHETTO, *President of Engineers Association*

9.20 Metrology for Weapon Systems Testing and R&D Activity in Army Experimentation Centre (CEPOLISPE)

Cap. Daniele FERRANTE, *Italian Army*

9.40 Space and Aerospace at the Flight Test Wing

Cap. Jacopo PAOLI, *Aero-Space System Engineering Group Italian Air Force - Flight Test Wing, Aeroporto "M. De Bernardi" Pratica di Mare*

10.00 Defence of Telecommunication Network in Carabinieri Army. Monitoring System and Intervention Plan

D.Gen. (a) Dr. Pasquale LAVACCA, *Major Staff of the Carabinieri Army Command, Rome*

10.30 The communication infrastructure of Italian Air Force: Network Monitoring & Control

Col. GArn Ing. Pompeo PIEDIMONTE, *Italian Air Force Logistic Command, Rome*

11.00 COFFEE BREAK

11.20 Critical Infrastructures under NATO control.

Lt.Col. CC Dr. Felice DE LUCIA, *Intelligence and Security Office, NATO JFC Lago Patria (Naples)*

11.50 Raven system

Lt.Col. Fabio GRANDI, *Flight Test Engineer, Army Aviation Test Centre Chief*

12.15 Military Metrology Service in Polish Armed Forces

Capt. Dr. Konrad WOJTOWICZ, *Military University of Technology, Warsaw, Poland*

12.40 Conclusions

13.00 Lunch



Wednesday, June 21st - Tutorials

14:30 - 16:45

REGISTRATION

Place: *Centro Culturale S. Gaetano, Via Altinate, 71*

14:30 - 15:15

SESSION 1

Room: *Auditorium, Centro Culturale S. Gaetano*

Communication and Control for quadrotor-UAVs

Naïma Ait Oufroukh, University of Évry, France

15:15 - 16:00

SESSION 2

Room: *Auditorium, Centro Culturale S. Gaetano*

New Generation Data Recorder & Monitoring in Aircraft Maintenance

Fabio Grandi, Flight Test Engineer, Army Aviation Test Centre Chief

16:00 - 16:45

SESSION 3

Room: *Auditorium, Centro Culturale S. Gaetano*

Introduction to quantum communications: challenges and perspectives for Space

Giuseppe Vallone, University of Padua, Italy

16:45 - 17:30

SESSION 4

Room: *Auditorium, Centro Culturale S. Gaetano*

Radiation effects on electronics in space

Alessandro Paccagnella, Vice Rector for International Relations, University of Padua, Italy

19:30 - 22:00

WELCOME PARTY

Place: *The Pedrotti Cafè
Via VIII Febbraio, 15 - Padua*



Thursday, June 22nd - Technical Sessions

8:30 - 17:30

REGISTRATION

Place: *Centro Culturale S. Gaetano, Via Altinate, 71*

9:00 - 9:30

Welcome Addresses

Room: *Centro Culturale S. Gaetano, Auditorium*

9:30 - 10:30

Plenary Opening Session

Chair: *Stefano Debei, University of Padova, CISAS "G. Colombo", Italy*

Room: *Centro Culturale S. Gaetano, Auditorium*

Applications of Advanced Nondestructive Measurement Techniques to Address Safety of Flight Issues on NASA Spacecraft

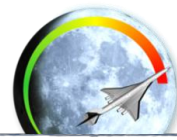
Dr. Franco Ongaro

*NASA Technical Fellow for NDE
NASA Engineering and Safety Center
Langley Research Center*

10:30 - 11:00

Coffee Break

Place: *Centro Culturale S. Gaetano*



11:00 - 12:40

Session on Quality Measurement Techniques for Critical Software Systems

Chairs: Massimo Tipaldi, *OHB System AG/OHB Italia SpA, Italy*

Bernhard Bruenjes, *OHB System AG, Germany*

Room: *Centro Culturale S. Gaetano, "Galileo Galilei" Hall*

11:00 Functional-based Verification for Spacecraft SW: the Electrical Power Subsystem

Maurizio Zoppi, *Intelligentia S.r.l., Benevento, Italy*

Antonio Di Cerbo, *OHB System AG, Bremen, Germany*

Massimo Tipaldi, *University of Sannio, Italy*

11:20 The unused power of SW Safety & Dependability analyses

Patricia Rodríguez-Dapena, *Softwcare SL, Vigo, Spain*

11:40 How small organizations could participate in Space projects

Patricia Rodríguez-Dapena, *Softwcare SL, Vigo, Spain*

Philippe Lohier, *Softwcare SL, Vigo, Spain*

12:00 Bounded Model Checking and Abstract Interpretation of Large C Codebases

Maurizio Martignano, *Spazio IT – Soluzioni Informatiche s.a.s., Italy*

12:20 Twinkle Twinkle Little DroidDream, How I Wonder What You Are?

Fabio Martinelli, *National Research Council of Italy (CNR), Pisa, Italy*

Francesco Mercaldo, *National Research Council of Italy (CNR), Pisa, Italy*

Vittoria Nardone, *University of Sannio, Benevento, Italy*

Antonella Santone, *University of Sannio, Benevento, Italy*

11:00 - 12:40

Session on Metrology for Radar System

Chair: Alfonso Farina, *LFIEEE, Distinguished Lecturer of AESS*

Room: *Centro Culturale S. Gaetano, "Giuseppe Colombo" Hall*

11:00 AESA RADAR Transmit-Receive Modules (TRM) Measurements in development and production

Juergen Kausche, *Rohde & Schwarz, Germany*

**11:15 Acceptance test procedures for a national wider radar coastal surveillance system
The ZSRN experience**

Michele Fiorini, *Leonardo S.p.A., Rome, Italy*

11:30 Experimental Validation of a Frustum of Cone Antenna Radiation Patterns

Stefania Franco, *SEASTEMA S.p.A, Rome, Italy*

Sonia Quattrociochi, *SEASTEMA S.p.A, Rome, Italy*



11:45 Experimental validation of a frustum of cone antenna applied to Omega 360 ubiquitous 2D radar

Marco Massardo, *SEASTEMA S.p.A, Rome, Italy*

Rossella Stallone, *SEASTEMA S.p.A, Rome, Italy*

12:00 Mini-Radar System for Flying Platforms

Dario Tarchi, *European Commission, Joint Research Centre (JRC)*

Giorgio Guglieri, *Politecnico of Torino, Italy*

Michele Vespe, *European Commission, Joint Research Centre (JRC)*

Ciro Gioia, *European Commission, Joint Research Centre (JRC)*

Francesco Sermi, *European Commission, Joint Research Centre (JRC)*

Vladimir Kyovtorov, *European Commission, Joint Research Centre (JRC)*

12:20 Fourier Independent Component Analysis of Radar Micro-Doppler features

P. Addabbo, *Università Telematica Giustino Fortunato, Benevento, Italy*

C. Clemente, *University of Strathclyde, Glasgow, United Kingdom*

S.L. Ullo, *Università degli Studi del Sannio, Benevento, Italy*

11:00 - 12:40

Session on Measurement and Instrumentation for Aerospace Application - PART 1

Chair: Stefano Debei, *University of Padova, CISAS "G. Colombo", Italy*

Room: *Centro Culturale S. Gaetano, Auditorium*

11:00 Kinematic registration and shape analysis for locating center of mass in large passive spacecraft

Gabriele Biondi, *Politecnico of Torino, Italy*

Stefano Mauro, *Politecnico of Torino, Italy*

Stefano Pastorelli, *Politecnico of Torino, Italy*

11:20 Ionosphere-gradient based filtering approach for precise relative navigation in LEO

Flavia Causa, *University of Naples "FEDERICO II", Naples, Italy*

Alfredo Renga, *University of Naples "FEDERICO II", Naples, Italy*

Michele Grassi, *University of Naples "FEDERICO II", Naples, Italy*

11:40 A Survey of Calibration Algorithms for Small Satellite Magnetometers

Halil Ersin Soken, *Japan Aerospace Exploration Agency (JAXA); Institute of Space and Astronautical Science (ISAS), Sagami-hara, Japan*



12:00 An Innovative EGSE Approach For Satellite RF System Characterization Based On Real-Time Monitoring And Space Environment Oriented Analysis

V. Centonze, *Space instrument & Avionic Division Sitael S.p.A., Italy*

A. Lovascio, *Polytechnic of Bari, Italy*

A. D'Orazio, *Polytechnic of Bari, Italy*

12:20 A low temperature 0.35m CMOS technology BSIM3.3 model for space instrumentation: application to a voltage reference design

Laurent Varizat, *Pierre and Marie Curie University*

Gerard Sou, *Pierre and Marie Curie University*

Malik Mansour, *Univ. Paris Sud, Observatoire de Paris, France*

Dominique Alison, *Univ. Paris Sud, Observatoire de Paris*

Amine Rhouni, *Univ. Paris Sud, Observatoire de Paris*

12:40 - 14:00

Lunch

Place: *Centro Culturale S. Gaetano*

14:00 - 15:40

Session on Meteorological Sensors and Sensor Systems for Flight Support

Chair: Paola Mercogliano, *Italian Aerospace Research Center - C.I.R.A., Italy*

Room: *Centro Culturale S. Gaetano, "Galileo Galilei" Hall*

14:00 The Thermal Infrared Sensor (TIRS) of the Mars Environmental Dynamics Analyzer (MEDA) Instrument onboard Mars 2020

Joel Pérez-Izquierdo, *Centro de Astrobiología (INTA-CSIC) Torrejón de Ardoz, Spain*

Eduardo Sebastián, *Centro de Astrobiología (INTA-CSIC) Torrejón de Ardoz, Spain*

Andrés Bravo, *Centro de Astrobiología (INTA-CSIC) Torrejón de Ardoz, Spain*

Antonio Molina, *Centro de Astrobiología (INTA-CSIC) Torrejón de Ardoz, Spain*

Ricardo Ferrándiz, *Centro de Astrobiología (INTA-CSIC) Torrejón de Ardoz, Spain*

Maite Fernández, *Centro de Astrobiología (INTA-CSIC) Torrejón de Ardoz, Spain*

Gema Jiménez, *Centro de Astrobiología (INTA-CSIC) Torrejón de Ardoz, Spain*

Jose A. Rodríguez Manfredi, *Centro de Astrobiología (INTA-CSIC) Torrejón de Ardoz, Spain*

Germán M. Martínez, *University of Michigan, United States*

Francisco J. Meca-Meca, *Universidad de Alcalá, Madrid, Spain*

Miguel Ramos, *Universidad de Alcalá, Madrid, Spain*

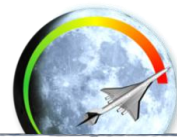
Frank Hänschke, *Institute of Photonic Technology Jena, Germany*

Ernst Kessler, *Institute of Photonic Technology Jena, Germany*

Antonio Peña, *Computadoras, Redes e Ingeniería S.A.U (CRISA) Tres Cantos, Spain*

David González, *Computadoras, Redes e Ingeniería S.A.U (CRISA) Tres Cantos, Spain*

Jose Moreno, *Computadoras, Redes e Ingeniería S.A.U (CRISA) Tres Cantos, Spain*



14:20 Performance analysis of the MEDA's Thermal InfraRed Sensor (TIRS) on board the Mars 2020

Eduardo Sebastián, *Centro de Astrobiología (CSIC-INTA) Torrejón de Ardoz, Spain*

Joel Pérez, *Centro de Astrobiología (CSIC-INTA) Torrejón de Ardoz, Spain*

Andrés Bravo, *Centro de Astrobiología (CSIC-INTA) Torrejón de Ardoz, Spain*

Ricardo Ferrándiz, *Centro de Astrobiología (CSIC-INTA) Torrejón de Ardoz, Spain*

Maite Fernández, *Centro de Astrobiología (CSIC-INTA) Torrejón de Ardoz, Spain*

J.A. Rodríguez Manfredi, *Centro de Astrobiología (CSIC-INTA) Torrejón de Ardoz, Spain*

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David González, *Computadoras, Redes e Ingeniería S.A.U (CRISA) Tres Cantos, Spain*

Jose Moreno, *Computadoras, Redes e Ingeniería S.A.U (CRISA) Tres Cantos, Spain*

Isabel Pérez-Grande, *Universidad Politécnica de Madrid. IUM "Ignacio Da Riva", Spain*

Adrián Chamorro, *Universidad Politécnica de Madrid. IUM "Ignacio Da Riva", Spain*

Germán Martínez, *University of Michigan, Atmospheric, United States*

Javier de Lucas, *Centro de Metrología y Calibración (INTA) Torrejón de Ardoz, Spain*

Pedro Hernandez, *Centro de Metrología y Calibración (INTA) Torrejón de Ardoz, Spain*

Miguel Ramos, *Universidad de Alcalá, Spain*

14:40 A Microwave Interferometer Sensor for Ice Cloud Detection and Measurement

Buford Randall Jean, *Baylor University, Texas*

Stephen McClain, *Baylor University, Texas*

Tanner Trapp, *Baylor University, Texas*

Brandon Herrera, *Baylor University, Texas*

Tim Shannon, *Baylor University, Texas*

George Toby, *Baylor University, Texas*

15:00 Wind identification via Kalman filter for Aircraft Flow Angles Calibration

Schettini F., *Università di Pisa, Italy*

Di Rito G., *Università di Pisa, Italy*

Galatolo R., *Università di Pisa, Italy*

Denti E., *Università di Pisa, Italy*

15:20 QCM-based sensor for volatile organic compounds characterization

Fabrizio Dirri, *Istituto di Astrofisica e Planetologia Spaziale INAF-IAPS, Italy*

Ernesto Palomba, *Istituto di Astrofisica e Planetologia Spaziale INAF-IAPS, Italy*

Andrea Longobardo, *Istituto di Astrofisica e Planetologia Spaziale INAF-IAPS, Italy*

David Biondi, *Istituto di Astrofisica e Planetologia Spaziale INAF-IAPS, Italy*

Angelo Boccaccini, *Istituto di Astrofisica e Planetologia Spaziale INAF-IAPS, Italy*

Bortolino Saggin, *Politecnico di Milano, Italy*

Diego Scaccabarozzi, *Politecnico di Milano, Italy*

Emiliano Zampetti, *Consiglio Nazionale delle Ricerche CNR, IIA-CNR, Istituto sull'inquinamento atmosferico Roma, Italy*



14:00 - 15:40

Session on Relativistic Metrology

Chairs: Roberto Peron, *Istituto di Astrofisica e Planetologia Spaziali, Italy*

Enrico Lorenzini, *University of Padova, Italy*

Room: *Centro Culturale S. Gaetano, "Giuseppe Colombo" Hall*

14:00 LAGRANGE: an Experiment for Testing General Relativity in the Inner Solar System

Angelo Tartaglia, *Politecnico di Torino, Torino, Italy*

David Lucchesi, *INAF/IASP and INFN, Rome, Italy*

Matteo Luca Ruggiero, *Politecnico di Torino and INFN, Torino, Italy*

Pavol Valko, *Slovak University of Technology in Bratislava, Slovakia*

14:20 The Relativistic Geoid

Dennis Philipp, *ZARM, University of Bremen, Germany*

Volker Perlick, *ZARM, University of Bremen, Germany*

Dirk Puetzfeld, *ZARM, University of Bremen, Germany*

Eva Hackmann, *ZARM, University of Bremen, Germany*

Claus Lammerzahl, *ZARM, University of Bremen, Germany*

14:40 The ARIEL ESA mission on-board metrology

Carles Sierra-Roig, *ICE – Institut de Ciències de l’Espai, Barcelon, Spain*

Vania Da Deppo, *CNR – Istituto di Fotonica e Nanotecnologie, Padova, Italy*

Josep Colomé Ferrer, *ICE – Institut de Ciències de l’Espai, Barcelon, Spain*

Mauro Focardi, *INAF – OsservatorioAstrofisico di Arcetri, Firenze, Arcetri*

Gianluca Morgante, *INAF - IASF Bologna, Italy*

15:00 Metrology on-board PROBA-3: the Shadow Position Sensors (SPS) subsystem

Vladimiro Noce, *INAF, Florence, Italy*

Mauro Focardi, *INAF, Florence, Italy*

Steven Buckley, *SensL Technologies Ltd, Ireland*

Silvano Fineschi, *INAF, PinoTorinese, Italy*

Davide Loreggia, *INAF, PinoTorinese, Italy*

François Denis, *Centre Spatial de Liège (CSL), Belgium*

Philippe Ledent, *Centre Spatial de Liège (CSL), Belgium*

15:20 Low coherence interferometry-based meter-distance range finder

Claudio Pernechele, *INAF - National Institute for Astrophysics, Padova, Italy*

Daniela Fantinel, *INAF - National Institute for Astrophysics, Padova, Italy*

Demetrio Magrin, *INAF - National Institute for Astrophysics, Padova, Italy*

Luigi Lessio, *INAF - National Institute for Astrophysics, Padova, Italy*

Gabriele Rodeghiero, *MPIA - Max Planck Institute for Astronomy, Germany*



14:00 - 15:40

Session on Measurement and Instrumentation for Aerospace Application - PART 2

Chair: Stefano Debei, *University of Padova, CISAS "G. Colombo", Italy*

Room: *Centro Culturale S. Gaetano, Auditorium*

14:00 Laser Illuminated Feature Position Determination and Calibration Approach for PIXL

John Y. Liu, *California Institute of Technology, USA*

14:20 Development of a Counterbalanced Pendulum Thrust Stand for Electric Propulsion

F. Trezzolani, *CISAS, Padova, Italy*
M. Magarotto, *CISAS, Padova, Italy*
M. Manente, *CISAS, Padova, Italy*
D. Moretto, *CISAS, Padova, Italy*
F. J. Bosi, *CISAS, Padova, Italy*
G. Gallina, *CISAS, Padova, Italy*
P. de Carlo, *CISAS, Padova, Italy*
D. Melazzi, *CISAS, Padova, Italy*
D. Pavarin, *CISAS, Padova, Italy*
M. Pessana, *Thales Alenia Space, Italy*

14:40 Stereo Visual Odometry Failure Recovery Using Monocular Techniques

Riccardo Giubilato, *CISAS G. Colombo, University of Padova, Italy*
Sebastiano Chiodini, *CISAS G. Colombo, University of Padova, Italy*
Marco Pertile, *CISAS G. Colombo, University of Padova, Italy*
Stefano Debei, *CISAS G. Colombo, University of Padova, Italy*

15:00 Wireless Differential Pressure Measurement for Aircraft

Juliana P. Leitzke, *Alpen-Adria-Universitat Klagenfurt*
Hubert Zangl, *Alpen-Adria-Universitat Klagenfurt*

15:20 Laboratory Test of Pose Determination Algorithms for Uncooperative Spacecraft

Roberto Opromolla, *University of Naples "FEDERICO II", Naples, Italy*
Marco Zaccaria Di Fraia, *University of Naples "FEDERICO II", Naples, Italy*
Giancarmine Fasano, *University of Naples "FEDERICO II", Naples, Italy*
Giancarlo Rufino, *University of Naples "FEDERICO II", Naples, Italy*
Michele Grassi, *University of Naples "FEDERICO II", Naples, Italy*

15:40 - 16:00

Coffee Break

Place: *Centro Culturale S. Gaetano*



16:00 - 17:40

General Session - PART 1

Chairs: Luca De Vito, *University of Sannio, Italy*

Gianluca Mazzilli, *University of Sannio, Italy*

Room: *Centro Culturale S. Gaetano, "Galileo Galilei" Hall*

16:00 Landing on Europa, Part 1: Mission Proposal

Kim R. Fowler, *Kansas State University, USA*

Stephen A. Dyer, *Kansas State University, USA*

Landing on Europa, Part 2: Proposed Instruments

Kim R. Fowler, *Kansas State University, USA*

Stephen A. Dyer, *Kansas State University, USA*

Landing on Europa, Part 3: Proposed Configuration with Provisions for Radiation Shielding and Planetary Protection

Kim R. Fowler, *Kansas State University, USA*

Stephen A. Dyer, *Kansas State University, USA*

16:40 Growth of NCCO superconducting ultra-ti films for photon detectors

P. Romano, *University of Sannio, Italy*

A. Nigro, *University of Salerno, Italy*

M. Riccio, *University of Sannio, Italy*

A. Guarino, *CNR-SPIN Salerno, University of Salerno, Italy*

N. Martucciello, *CNR-SPIN Salerno, University of Salerno, Italy*

G. Grimaldi, *CNR-SPIN Salerno, University of Salerno, Italy*

17:00 Amplifier Characterization Using Non-CW Stimulus

Florian Ramian, *Rohde & Schwarz, Germany*

17:20 Error estimation of airborne Strapdown Inertial Navigation System based on neural network

Rui Song, *Southeast University, China*

Xiyuan Chen, *Southeast University, China*



16:00 - 17:40

Session on Non Destructive Testing and Evaluation for Aerospace

Chairs: Marco Laracca, *University of Cassino and Southern Lazio, Italy*

Helena G. Ramos, *University of Lisbon, Portugal*

Room: *Centro Culturale S. Gaetano, "Giuseppe Colombo" Hall*

16:00 Flying laser spot Thermography for the inspection of aerospace grade Fibre Metal Laminates

N. Montinaro, *Università degli Studi di Palermo, Italy*

D. Cerniglia, *Università degli Studi di Palermo, Italy*

G. Pitarresi, *Università degli Studi di Palermo, Italy*

16:20 Artificial neural networks for impact force reconstruction on composite plates

Giulia Sarego, *University of Padova, Italy*

Mirco Zaccariotto, *University of Padova, Italy*

Ugo Galvanetto, *University of Padova, Italy*

16:40 Interaction of Lamb Waves with the Edges of A Delamination in CFRP Composites

Bo Feng, *Instituto Superior Técnico, Universidade de Lisbon, Portugal*

Artur L. Ribeiro, *Instituto Superior Técnico, Universidade de Lisbon, Portugal*

Helena G. Ramos, *Instituto Superior Técnico, Universidade de Lisbon, Portugal*

17:00 Ultrasonic Non Destructive Testing on Aluminium Forged Bars

A. Bernieri, *DIEI, University of Cassino and Southern Lazio, Italy*

L. Ferrigno, *DIEI, University of Cassino and Southern Lazio, Italy*

M. Laracca, *DIEI, University of Cassino and Southern Lazio, Italy*

A. Rasile, *DIEI, University of Cassino and Southern Lazio, Italy*

M. Ricci, *University of Calabria, Italy*

17:20 Qualification tests of optical coatings in space environment

Maria G. Pelizzo, *National Research Council of Italy (CNR-IFN), University of Padova*

Alain Jody Corso, *National Research Council of Italy (CNR-IFN)*

Enrico Tessarolo, *National Research Council of Italy (CNR-IFN), Center of Studies and Activities for Space (UNIPD-CISAS)*

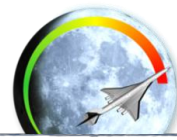
Alessandro Martucci, *National Research Council of Italy (CNR-IFN), University of Padova*

Alberto Donazzan, *National Research Council of Italy (CNR-IFN), University of Padova*

Roman Böttger, *Institute of Ion Beam Physics and Materials Research, Germany*

Rene Hübner, *Institute of Ion Beam Physics and Materials Research, Germany*

Enrico Napolitani, *University of Padova, Italy*



16:00 - 17:40

Session on Measurement and Instrumentation for Aerospace Application - PART 3

Chair: Stefano Debei, *University of Padova, CISAS "G. Colombo", Italy*

Room: *Centro Culturale S. Gaetano, Auditorium*

16:00 Thermo-mechanical design of a particle analyzer for Mars

Diego Scaccabarozzi, *Politecnico di Milano, Lecco, Italy*

Bortolino Saggin, *Politecnico di Milano, Lecco, Italy*

Christian Pagliara, *Politecnico di Milano, Lecco, Italy*

Marianna Magni, *Politecnico di Milano, Lecco, Italy*

Marco Tarabini, *Politecnico di Milano, Lecco, Italy*

Francesca Esposito, *INAF - Osservatorio Astronomico di Capodimonte, Naples, Italy*

Cesare Molfese, *INAF - Osservatorio Astronomico di Capodimonte, Naples, Italy*

Fausto Cortecchia, *INAF - Osservatorio Astronomico di Capodimonte, Naples, Italy*

Fabio Cozzolino, *INAF - Osservatorio Astronomico di Capodimonte, Naples, Italy*

Gennady Dolnikov, *IKI RAN Space Research Institute of the Russian Academy of Sciences, Moscow, Russia*

Ilya Kuznetsov, *IKI RAN Space Research Institute of the Russian Academy of Sciences, Moscow, Russia*

Andrew Lyash, *IKI RAN Space Research Institute of the Russian Academy of Sciences, Moscow, Russia*

Alexander Zakharov, *IKI RAN Space Research Institute of the Russian Academy of Sciences, Moscow, Russia*

16:20 Monocular Visual Odometry aided by a low resolution Time of Flight camera

Sebastiano Chiodini, *CISAS "Giuseppe Colombo", Università degli studi di Padova*

Riccardo Giubilato, *CISAS "Giuseppe Colombo", Università degli studi di Padova*

Marco Pertile, *CISAS "Giuseppe Colombo", Università degli studi di Padova*

Stefano Debei, *CISAS "Giuseppe Colombo", Università degli studi di Padova*

16:40 Development of Vacuum Metrology Technology for Aerospace in China

Li Detian, *Lanzhou Institute of Physics, Lanzhou, China*

Cheng Yongjun, *Lanzhou Institute of Physics, Lanzhou, China*

SunWenjun, *Lanzhou Institute of Physics, Lanzhou, China*

WangYongjun, *Lanzhou Institute of Physics, Lanzhou, China*

17:00 The DREAMS experiment flown on the ExoMars 2016 mission for the study of Martian environment during the dust storm season

C. Bettanini, *CISAS - Università degli Studi di Padova, Padova, Italy*

F. Esposito, *INAF - Osservatorio Astronomico di Capodimonte, Napoli, Italy*

S. Debei, *CISAS - Università degli Studi di Padova, Padova, Italy*

C. Molfese, *INAF - Osservatorio Astronomico di Capodimonte, Napoli, Italy*
et al.



17:20 Vision System for Tether Tip-Mass Detection during Deployment on High-Eccentricity Orbit

Mattia Mazzucato, *CISAS G. Colombo, University of Padova*

Guido Pastore, *CISAS G. Colombo, University of Padova*

Marco Pertile, *CISAS G. Colombo, University of Padova*

Enrico Lorenzini, *CISAS G. Colombo, University of Padova*

20:30 - 23:00

GALA DINNER

"Tavern di Villa Cornèr"

Via Orti, 7 - Monselice (Padua)



Friday, June 23rd - Technical Sessions

08:30 - 16:00

REGISTRATION

Place: *Centro Culturale S. Gaetano, Via Altinate, 71*

09:00 - 09:50

Plenary Opening Session

Chair: Stephen Dyer, *Kansas State University, USA*

Room: *Great Hall - Palazzo Del Bò, Via VIII Febbraio, 2*

From TOMS to TEMPO: Monitoring of atmospheric pollution from space

Dr. Kelly Chance

Senior Physicist at the Smithsonian Astrophysical Observatory and the Principal Investigator for the NASA/Smithsonian Tropospheric Emissions

10:00 - 11:40

Session on Instruments and Technology for Exploration

Chairs: Marcello Coradini, *ASI/JPL*

Enrico Flamini, *ASI - Italian Space Agency, Italy*

Room: *Centro Culturale S. Gaetano, "Galileo Galilei" Hall*

10:00 Atmospheric Mars Entry and Landing Investigations & Analysis (AMELIA) by ExoMars 2016 Schiaparelli Entry Descent Module.

The ExoMars Entry, Descent and Landing Science

F. Ferri, *Università degli Studi di Padova, CISAS "Giuseppe Colombo", Italy*

A. Aboudan, *Università degli Studi di Padova, CISAS "Giuseppe Colombo", Italy*

G. Colombatti, *Università degli Studi di Padova, CISAS "Giuseppe Colombo", Italy*

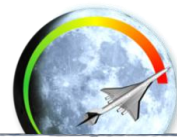
C. Bettanini, *Università degli Studi di Padova, CISAS "Giuseppe Colombo", Italy*

S. Debei, *Università degli Studi di Padova, CISAS "Giuseppe Colombo", Italy*

O. Karatekin, *Royal Observatory of Belgium (ROB), Brussels, Belgium*

B. Van Hove, *Royal Observatory of Belgium (ROB), Brussels, Belgium*

N. Gerbal, *Royal Observatory of Belgium (ROB), Brussels, Belgium*



S. Asmar, *Jet Propulsion Laboratory, California Institute of Technology - NASA, USA*
S. Lewis, *School of Physical Sciences, The Open University, UK*
F. Forget, *Laboratoire de Météorologie Dynamique, Paris, France*

10:20 Next-generation lunar and Martian laser retroreflectors for space science and solar system exploration

Simone Dell'Agnello, *INFN-Frascati, Italy*

10:40 Future planetary geophysics laboratory tests and measurements

Elena Pettinelli, *Università degli studi Roma Tre, Italy*
Barbara Cosciotti, *Università degli studi Roma Tre, Italy*
Federico Di Paolo, *Università degli studi Roma Tre, Italy*
Sebastian Emanuel Lauro, *Università degli studi Roma Tre, Italy*
Elisabetta Mattei, *Università degli studi Roma Tre, Italy*

11:00 The future of VIS-IR hyperspectral remote sensing for the exploration of the solar system

Gianrico Filacchione, *IAPS Institute for Space Astrophysics and Planetology, Italy*

11:20 TASI Metrology Solutions for Scientific Satellite Applications and the Bifocal Metrology System for the Athena needs

L. Bonino, *Thales Alenia Space*
F. Bresciani, *Thales Alenia Space*

10:00 - 11:40

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

Chair: *Fabio Leccese, University of "Roma Tre", Department of Science, Italy*
Luca Maiolo, IMM - CNR, Italy

Room: *Centro Culturale S. Gaetano, "Giuseppe Colombo" Hall*

10:00 Reliability Assessment of UAV Systems

Enrico Petritoli, *Università degli Studi "Roma Tre", Italy*
Fabio Leccese, *Università degli Studi "Roma Tre", Italy*
Lorenzo Ciani, *University of Florence, Italy*

10:20 Highly wearable wireless wristband for monitoring pilot cardiac activity and muscle fine movements

Luca Maiolo, *IMM - Istituto per la Microelettronica e i Microsistemi, CNR- Consiglio Nazionale delle Ricerche*
Francesco Maita, *IMM - Istituto per la Microelettronica e i Microsistemi, CNR- Consiglio Nazionale delle Ricerche*



Andrea Castiello, *IMM - Istituto per la Microelettronica e i Microsistemi, CNR- Consiglio Nazionale delle Ricerche*

Antonio Minotti, *IMM - Istituto per la Microelettronica e i Microsistemi, CNR- Consiglio Nazionale delle Ricerche*

Alessandro Pecora, *IMM - Istituto per la Microelettronica e i Microsistemi, CNR- Consiglio Nazionale delle Ricerche*

10:40 Prediction by Means Hazard Rate Occurrence is a Deeply Wrong Approach

Anna Paggi, *ItalConsul s.r.l., Roma, Italy*

Gian Luca Mariotti, *ItalConsul s.r.l., Roma, Italy*

Roberto Paggi, *ItalConsul s.r.l., Roma, Italy*

Andrea Calogero, *Università degli Studi "Roma Tre", Italy*

Fabio Leccese, *Università degli Studi "Roma Tre", Italy*

11:00 Obsolescence of the MIL-HDBK-217: A Critical Review

Eduardo De Francesco, *SeTeL s.r.l., Rome, Italy*

Ruggero De Francesco, *SeTeL s.r.l., Rome, Italy*

Enrico Petritoli, *Università degli Studi "Roma Tre", Italy*

11:20 A New Reliability Approach for Additive Layers manufactured components: a preliminary investigation

Francesca Nanni, *University of Rome Tor Vergata, Italy*

Simona Nacamulli, *Unoano Srl, Roma, Italy*

Ruggero De Francesco, *SeTeL s.r.l., Rome, Italy*

Enrico Petritoli, *Università degli Studi "Roma Tre", Roma, Italy*

10:00 - 11:40

Session on Terrestrial and In-Flight Verification of the GNC Systems for Satellites and Aerospace Vehicles

Chairs: Yevgeny Somov, *Samara State Technical University, Russia*

Houria Siguerdidjane, *Centrale Supelec University, France*

Klaus Schilling, *Universität Würzburg, Germany*

Matteo Poli, *University of Padova, Italy*

Room: *Centro Culturale S. Gaetano, Auditorium*

10:00 In-flight Verification of Attitude Control System for a Space Land-survey Telescope by Analysis of an Image Motion at a Scanning Observation

Yevgeny Somov, *Samara State Technical University, Samara Scientific Centre, Russian Academy of Sciences, Russia*

Sergey Butyrin, *Samara State Technical University, Samara Scientific Centre, Russian Academy of Sciences, Russia*

Sergey Somov, *Samara State Technical University, Samara Scientific Centre, Russian Academy of Sciences, Russia*

Tatyana Somova, *Samara State Technical University, Russia*



10:20 Simulation of a sounding rocket flight's dynamic

Filippo Trevisi, *University of Padova, Italy*

Matteo Poli, *Airbus DS*

Mattia Pezzato, *University of Padova, Italy*

Eugenio Di Iorio, *University of Padova, Italy*

Alberto Madonna, *CSCS*

Nicola Bressanin, *University of Padova, Italy*

Stefano Debei, *University of Padova, Italy*

10:40 Disturbance Rejection in the Tracking Problem for Robot-Manipulators

Sergey Kochetkov, *Trapeznikov's Institute of Control Sciences of Russian Academy of Sciences, Russia*

Yury Rassadin, *Trapeznikov's Institute of Control Sciences of Russian Academy of Sciences, Russia*

Victor Utkin, *Trapeznikov's Institute of Control Sciences of Russian Academy of Sciences, Russia*

11:00 Methods for Signal Processing and Motion Control of Ground Effect Vehicle

Alexander Knyazhskiy, *Saint-Petersburg State University of Aerospace Instrumentation (SUAI), Saint-Petersburg, Russia*

Vladimir Nebylov, *International Institute for Advanced Aerospace, Technologies (IIAAT), Saint-Petersburg, Russia*

Alexander Nebylov, *International Institute for Advanced Aerospace Technologies (IIAAT), Saint-Petersburg, Russia*

11:20 Analytical Reservation of Aircraft Measuring Systems via Disturbances and State Observers

Sergey A. Kochetkov, *V.A. Trapeznikov Institute of Control Sciences RAS Moscow, Russia*

Svetlana A. Krasnova, *V.A. Trapeznikov Institute of Control Sciences RAS Moscow, Russia*

Anton V. Utkin, *V.A. Trapeznikov Institute of Control Sciences RAS Moscow, Russia*

11:40

Coffee Break

Place: *Centro Culturale S. Gaetano*



11:40 - 13:15

POSTER SESSION

Chairs: Gregorio Andria, *Politecnico di Bari, Italy*

Anna M. Lanzolla, *Politecnico di Bari, Italy*

Place: *Centro Culturale S. Gaetano, Spazio 35*

PS1 On-Board Software Architecture in MTG Satellite

Ralf Wenker, *OHB System AG, Bremen, Germany*

Cedric Legendre, *OHB System AG, Bremen, Germany*

Massimo Ferraguto, *Space Systems Finland*

Massimo Tipaldi, *OHB Italia SpA; University of Sannio, Italy*

Andreas Wortmann, *OHB System AG, Bremen, Germany*

Christian Moellmann, *OHB System AG, Bremen, Germany*

Dirk Roskamp, *OHB System AG, Bremen, Germany*

PS2 Spacecraft Autonomy modeled via Markov Decision Process and Associative Rule-based Machine Learning

Gianni D'Angelo, *University of Sannio, Italy*

Massimo Tipaldi, *OHB Italia SpA; University of Sannio, Italy*

Luigi Glielmo, *University of Sannio, Italy*

Salvatore Rampone, *University of Sannio, Italy*

PS3 A Novel Three-Sensors Electrostatic Measurement Setup for Charged Particles Detection

T. Addabbo, *University of Siena, Italy*

A. Fort, *University of Siena, Italy*

M. Mugnaini, *University of Siena, Italy*

E. Panzardi, *University of Siena, Italy*

S. Rocchi, *University of Siena, Italy*

V. Vignoli, *University of Siena, Italy*

PS4 Condition-based Maintenance and Markov Modelling for avionics devices

Marcantonio Catelani, *University of Florence, Italy*

Lorenzo Ciani, *University of Florence, Italy*

Matteo Venzi, *University of Florence, Italy*

PS5 Voltage stability under current bias in superconducting microbridges

Antonio Leo, *University of Salerno, Italy*

Angela Nigro, *University of Salerno, Italy*

Giovanni Carapella, *University of Salerno, Italy*

Sandro Pace, *University of Salerno, Italy*

Paola Romano, *University of Sannio, Italy*

Gaia Grimaldi, *CNR-SPIN Salerno, Italy*

Pasquale Daponte, *University of Sannio, Italy*



PS6 A UAV Infrared Measurement Approach for Defect Detection in Photovoltaic Plants

Pia Addabbo, *Giustino Fortunato University, Benevento, Italy*
Antonio Angrisano, *Giustino Fortunato University, Benevento, Italy*
Mario Luca Bernardi, *Giustino Fortunato University, Benevento, Italy*
Graziano Gagliarde, *TopView S.r.l., Caserta, Italy*
Alberto Mennella, *TopView S.r.l., Caserta, Italy*
Marco Nisi, *Sistematica S.p.a., Terni, Italy*
Silvia Ullo, *University of Sannio, Benevento, Italy*

PS7 Accurate Cylindrical Near-Field Measurements on Large Size Conformal Antennas

Leopoldo Infante, *Leonardo Company S.p.A, Rome, Italy*
Giulio Pellegrini, *Leonardo Company S.p.A, Rome, Italy*
Massimo Angelilli, *Leonardo Company S.p.A, Rome, Italy*
Flavio Auteri, *Leonardo Company S.p.A, Rome, Italy*
Germano Reffo, *WENZEL Italia S.r.L.*

PS8 Development and characterization of a measurement instrumentation system for UAV components testing

Francesco Adamo, *Polytechnic of Bari, Italy*
Gregorio Andria, *Polytechnic of Bari, Italy*
Attilio Di Nisio, *Polytechnic of Bari, Italy*
Carlo Guarnieri Calò Carducci, *Polytechnic of Bari, Italy*
Anna M. L. Lanzolla, *Polytechnic of Bari, Italy*
Giuseppe Mattencini, *Polytechnic of Bari, Italy*

PS9 Verification of the Precise Orbital Holding of Small Satellite Formation for Remote Control of Robots on a Planet Surface

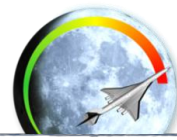
A. Medina Padron, *State University of Aerospace Instrumentation, Russia*
Alexander Nebylov, *State University of Aerospace Instrumentation, Russia*
Alexander Knyazhsky, *State University of Aerospace Instrumentation, Russia*

PS10 An Overview of a New Sensor Calibration Platform

Philipp Clausen, *Ecole Polytechnique Fédérale de Lausanne, Switzerland*
Jan Skaloud, *Ecole Polytechnique Fédérale de Lausanne, Switzerland*
Roberto Molinari, *University of California, USA*
James Balamuta, *University of Illinois at Urbana-Champaign, USA*
Stéphane Guerrier, *University of Illinois at Urbana-Champaign, USA*

PS11 Ultraviolet-Sensing Surfaces Based on Hybrid Nanocomposites for Radiation Monitoring Systems

Elisa Toto, *Sapienza University of Rome, Italy*
M. Gabriella Santonicola, *Sapienza University of Rome, Italy*
Maria Cecilia Mancini, *Sapienza University of Rome, Italy*
Susanna Laurenzi, *Sapienza University of Rome, Italy*



PS12 Mars Rovers Localization by Matching Local Horizon to Surface Digital Elevation Models

Sebastiano Chiodini, *CISAS "Giuseppe Colombo", Università degli studi di Padova*

Marco Pertile, *CISAS "Giuseppe Colombo", Università degli studi di Padova*

Stefano Debei, *CISAS "Giuseppe Colombo", Università degli studi di Padova*

Lorenzo Bramante, *ALTEC S.p.A.*

Enrico Ferrentino, *ALTEC S.p.A.*

Alfredo Giovanni Villa, *ALTEC S.p.A.*

Ivano Musso, *ALTEC S.p.A.*

Marco Barrera, *ALTEC S.p.A.*

PS13 Design and Test in Microgravity of a Space Tether Length and Length Rate Measurement Device

Gilberto Grassi, *University of Padua, Italy*

Mattia Pezzato, *University of Padua, Italy*

Alessia Gloder, *University of Padua, Italy*

Riccardo Mantellato, *University of Padua, Italy*

Alessandro Francesconi, *University of Padua, Italy*

Enrico Lorenzini, *University of Padua, Italy*

PS 14 A novel hyperspectral camera concept for SWIR-MWIR applications

Massimo Zucco, *Istituto Nazionale di Ricerca Metrologica, INRIM, Italy*

Marco Pisani, *Istituto Nazionale di Ricerca Metrologica, INRIM, Italy*

Domenico Mari, *Istituto Nazionale di Ricerca Metrologica, INRIM, Italy*

PS 15 Calibration of extrinsic parameters of a hybrid vision system for navigation comprising a very low resolution Time-of-Flight camera

Marco Pertile, *CISAS "G.Colombo", University of Padova, Italy*

Sebastiano Chiodini, *CISAS "G.Colombo", University of Padova, Italy*

Riccardo Giubilato, *CISAS "G.Colombo", University of Padova, Italy*

Stefano Debei, *CISAS "G.Colombo", University of Padova, Italy*

PS16 A measurement system for testing light remotely piloted aircraft

Pasquale Daponte, *University of Sannio, Italy*

Francesco Lamonaca, *University of Sannio, Italy*

Francesco Picariello, *University of Sannio, Italy*

Maria Riccio, *University of Sannio, Italy*

Luca Pompetti, *DPM Elettronica S.r.l, Italy*

Mauro Pompetti, *DPM Elettronica S.r.l, Italy*

PS17 Electronic Nose for Pesticides Detection: a First Realization

Fabio Leccese, *Università degli Studi "Roma Tre"*

Marco Cagnetti, *Università degli Studi "Roma Tre"*

Sabino Giarnetti, *Università degli Studi "Roma Tre"*



Simonetta Tuti, *Università degli Studi "Roma Tre"*
Igor Luisetto, *Università degli Studi "Roma Tre"*
Enrico Petritoli, *Università degli Studi "Roma Tre"*
Alessandro Pecora, *IMM – CNR, Italy*
Luca Maiolo, *IMM – CNR, Italy*
Rada Đurović-Pejčev, *Institute of Pesticides and Environmental Protection, Serbia*
Tijana Đorđević, *Institute of Pesticides and Environmental Protection, Serbia*
Anđelka Tomašević, *Institute of Pesticides and Environmental Protection, Serbia*
Vojislava Bursić, *Institute of Pesticides and Environmental Protection, Serbia*
Vittorio Arenella, *Fonderie Digitali s.r.l., Italy*
Pietro Gabriele, *Fonderie Digitali s.r.l., Italy*
Eduardo De Francesco, *SeTeL s.r.l., Italy*

PS18 Vision-based Pointing Analysis of a Space Laser System

Victor Ertl, *Airbus Defence and Space*
Jasper Krauser, *Airbus Defence and Space*
Sven Hahn, *Airbus Defence and Space*

PS19 High-Resolution Optical Rangefinder based on 2 GHz Telecom Transceiver

M. Norgia, *Politecnico di Milano, Italy*
F. Cavedo, *Politecnico di Milano, Italy*
A. Pesatori, *Politecnico di Milano, Italy*
S. Merlo, *Università di Pisa, Italy*

PS20 Optimization In Performance-Based Logistics Contracts

Julio C. O. Lopes, *Luleå University of Technology, Sweden*
Rodrigo Scarpel, *Technological Institute of Aeronautics, Brazil*
Fernando T. M. Abrahão, *Technological Institute of Aeronautics, Brazil*
Diego Galar, *Luleå University of Technology, Sweden & TECNALIA, Spain*
Lorenzo Ciani, *University of Florence, Italy*

PS21 Inter-Network Bias: impact on Multi-Network TDOA

Ciro Gioia, *European Commission, Joint Research Centre*
Francesco Sermi, *European Commission, Joint Research Centre*
Dario Tarchi, *European Commission, Joint Research Centre*
Michele Vespe, *European Commission, Joint Research Centre*
Vladimir Kyovtorov, *European Commission, Joint Research Centre*

PS22 Vision based airplane localization for automatic approach

Jacek Pieniazek, *Rzeszow University of Technology, Poland*



11:40 - 13:15

DEMO SESSION

Place: *Centro Culturale S. Gaetano, Spazio 35*

DEMO1 **Measurement data fusion in the display system for hang-glider and paraglider**

Bartosz Adam Brzozowski, Zdzisław Rochala, Konrad Wojtowicz, Piotr Wieczorek

DEMO2 **A Computationally Efficient Framework for Automatic Inertial Sensor Calibration**

James Joseph Balamuta, Stephane Guerrier, Roberto Molinari, Wenchao Yang

DEMO3 **Launch Simulation of the Sagitta Sounding Rocket**

Matteo Poli

DEMO4 **A measurement system for testing light remotely piloted aircraft**

Pasquale Daponte, Francesco Lamonaca, Francesco Picariello, Maria Riccio, Luca Pompetti, Mauro Pompetti

13:15 - 14:30

LUNCH

Place: *Centro Culturale S. Gaetano*

14:30 - 16:10

Session on Smart Materials and Structures for Actuators and Sensors in Aerospace and Space

Chairs: Bortolino Saggin, *Politecnico of Milano, Italy*

Diego Scaccabarozzi, *Politecnico of Milano, Italy*

Room: *Centro Culturale S. Gaetano, "Galileo Galilei" Hall*

14:30 A Preliminary Study on Self Sensing Composite Structures with Carbon Nanotubes

Diego Scaccabarozzi, *Politecnico of Milano, Italy*

Simone Cinquemani, *Politecnico of Milano, Italy*

Claudio Sbarufatti, *Politecnico of Milano, Italy*

Alberto Jiménez-Suárez, *Universidad Rey Juan, Spain*

Maria Sanchez, *Universidad Rey Juan, Spain*

Alejandro Ureña, *Universidad Rey Juan, Spain*

14:50 Feasibility design of an interfacedamper for a space bornemicrobalance

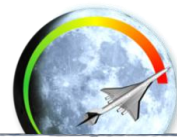
Diego Scaccabarozzi, *Politecnico di Milano, Polo Territoriale di Lecco*

Bortolino Saggin, *Politecnico di Milano, Polo Territoriale di Lecco*

Arash Valiesfahani, *Politecnico di Milano, Polo Territoriale di Lecco*

Carlo Alberto Biffi, *CNR, National Research Council, Italy*

Ausonio Tuissi, *CNR, National Research Council, Italy*



15:10 Performance Analysis of a Microthruster for Satellite Applications

Pier Giorgio Spazzini, *INRIM Torino, Italy*
Leonardo Fallerini, *Leonardo Spa, Italy*

15:30 Development of shape memory alloy actuator for concentrator lens sustain positioning

Ausonio Tuisi, *National Research Council, Italy*
Carlo Alberto Biffi, *National Research Council, Italy*
Riccardo Casati, *National Research Council, Italy*
Giulia Damonte
Romano Romani, *Leonardo SpA, Italy*
Emanuele Ferrando, *Leonardo SpA, Italy*

15:50 Assessment of TEC suitability for a low temperature QCM

Bortolino Saggin, *Politecnico di Milano, Italy*
Diego Scaccabarozzi, *Politecnico di Milano, Italy*
Marianna Magni, *Politecnico di Milano, Italy*
Marco Tarabini, *Politecnico di Milano, Italy*
Ernesto Palomba, *Istituto di Astrofisica e Planetologia Spaziale INAF-IAPS, Italy*
Andrea Longobardo, *Istituto di Astrofisica e Planetologia Spaziale INAF-IAPS, Italy*
Fabrizio Dirri, *Istituto di Astrofisica e Planetologia Spaziale INAF-IAPS, Italy*
Emiliano Zampetti, *Consiglio Nazionale delle Ricerche CNR, IIA-CNR, Istituto sull'inquinamento atmosferico, Italy*

14:30 - 16:10

General Session - PART2

Chairs: Yevgeny Somov, *Samara State Technical University, Samara Scientific Centre, Russian Academy of Sciences, Russia*

Alexander Knyazhsky, *State University of Aerospace Instrumentation, Russia*

Room: *Centro Culturale S. Gaetano, "Giuseppe Colombo" Hall*

14:30 Long term trajectory prediction based on advanced guidance law recognition

Du Runle, *National Key Laboratory of Science and Technology on Test Physics and Numerical Mathematics, China*

Liu Jiaqi, *National Key Laboratory of Science and Technology on Test Physics and Numerical Mathematics, China*

Gao Lu, *National Key Laboratory of Science and Technology on Test Physics and Numerical Mathematics, China*

Li Zhifeng, *National Key Laboratory of Science and Technology on Test Physics and Numerical Mathematics, China*

Zhang Li, *National Key Laboratory of Science and Technology on Test Physics and Numerical Mathematics, China*



14:50 Application of FBG sensors to temperature measurement on board of the REXUS 22 sounding rocket in the framework of the U-PHOS project

Pietro Nannipieri, *University of Pisa, Italy*
Gabriele Meoni, *University of Pisa, Italy*
Federico Nesti, *University of Pisa, Italy*
Edoardo Mancini, *University of Pisa, Italy*
Federico Celi, *University of Pisa, Italy*
Lorenzo Quadrelli, *University of Pisa, Italy*
Eugenio Ferrato, *University of Pisa, Italy*
Pietro Guardati, *University of Pisa, Italy*
Federico Baronti, *University of Pisa, Italy*
Luca Fanucci, *University of Pisa, Italy*

15:10 Design of a ground-based facility to reproduce satellite relative motions

Andrea Valmorbida, *CISAS "Giuseppe Colombo", University of Padova, Italy*
Mattia Mazzucato, *CISAS "Giuseppe Colombo", University of Padova, Italy*
Sergio Tronco, *CISAS "Giuseppe Colombo", University of Padova, Italy*
Marco Pertile, *CISAS "Giuseppe Colombo", University of Padova, Italy*
Enrico Lorenzini, *CISAS "Giuseppe Colombo", University of Padova, Italy*

15:30 Aerial Surveillance for Coast Safety by Image Identification Shark Detection

Teiki Claveau, *National Cheng Kung University Tainan, Taiwan*
Chin E. Lin, *National Cheng Kung University Tainan, Taiwan*

15:50 In-flight Calibration, Alignment and Verification of an Astroinertial Attitude Determination System for Free-flying Robots and Land-survey Satellites

Yevgeny Somov, *Samara State Technical University, Samara Scientific Centre, Russian Academy of Sciences, Russia*
Sergey Butyrin, *Samara State Technical University, Samara Scientific Centre, Russian Academy of Sciences, Russia*
Sergey Somov, *Samara State Technical University, Samara Scientific Centre, Russian Academy of Sciences, Russia*
Tatyana Somova, *Samara State Technical University, Russia*

14:30 - 16:10

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

Chairs: Marcantonio Catelani, *University of Florence, Italy*
Lorenzo Ciani, *University of Florence, Italy*

Room: *Centro Culturale S. Gaetano, Auditorium*

14:30 System-Level Architecture for Mixed Criticality Applications on MPSoC: A Space Application

Stefano Esposito, *Politecnico of Torino, Italy*
Massimo Violante, *Politecnico of Torino, Italy*



14:50 88-Inch Cyclotron: The One-Stop Facility for Electronics Radiation Testing

Michel Kireeff Covo, *88- Inch Cyclotron, California*
Robert A. Albright, *88- Inch Cyclotron, California*
Brien F. Ninemire, *88- Inch Cyclotron, California*
Michael B. Johnson, *88- Inch Cyclotron, California*
Adrian Hodgkinson, *88- Inch Cyclotron, California*
Tim Loew, *88- Inch Cyclotron, California*
Janilee Y. Benitez, *88- Inch Cyclotron, California*
Damon S. Todd, *88- Inch Cyclotron, California*
Daniel Z. Xie, *88- Inch Cyclotron, California*
Thomas Perry, *88- Inch Cyclotron, California*
Larry Phair, *88- Inch Cyclotron, California*
D. L. Bleuel, *Lawrence Livermore National Laboratory*
K. P. Harrig, *University of California, USA*
B. L. Goldblum, *University of California, USA*
J. A. Brown, *University of California, USA*
T. Laplace, *University of California, USA*
J. Bevins, *University of California, USA*
M. Harasty, *University of California, USA*
E. F. Matthews, *University of California, USA*
L. A. Bernstein, *University of California, USA*
Adam Bushmaker, *Physical Sciences Laboratories, USA*

15:10 A calibration technique for non contact measurement systems of jet engine blades vibration during operation

Roberto Marsili, *University of Perugia, Italy*
Roberto Tomassini, *University of Perugia, Italy*
Gianluca Rossi, *University of Perugia, Italy*

15:30 Environmental Impacts on Antennas for Wireless Sensors on Outer Aircraft Surfaces

Wolfgang Stocksreiter, *FH JOANNEUM Gesellschaft mbH, Austria*
Hubert Zangl, *Alpen-Adria Universität, Austria*
Michael Moser, *eologix sensor technology gmbh, Austria*

15:50 Model-based health-monitoring of an electro-mechanical actuator for unmanned aerial system flight controls

G. Di Rito, *Università di Pisa, Italy*
F. Schettini, *Università di Pisa, Italy*
R. Galatolo, *Università di Pisa, Italy*

16:10 - 16:30

Coffee Break

Place: Centro Culturale S. Gaetano



16:30 - 18:10

Session on Interferometric and Optical Systems for Accelerometers and Attitude Sensors

Chairs: Carlo Ferrero, *INRIM, Past Chair of IMEKO TC8 on TRACEABILITY*

Marco Pisani, *INRIM, Italy*

Room: *Centro Culturale S. Gaetano, "Galileo Galilei" Hall*

16:30 Thermal and magnetic correlation in apparent strain down to 4.2 K and up TO 6 T on strain gauges

Carlo Ferrero, *INRIM Torino, Italy*

16:50 Infrared structured light generation by optical MEMS and application to depth perception

Sabina Merlo, *University of Pavia, Italy*

Francesca Carpignano, *University of Pavia, Italy*

Domenico Riccardi, *University of Pavia, Italy*

Giulia Rigamonti, *University of Pavia, Italy*

Michele Norgia, *Politecnico di Milano, Italy*

17:10 Runways Ground Monitoring System by Phase-Sensitive Optical-Fiber OTDR

Sabina Merlo, *Università di Pavia, Italy*

Piero Malcovati, *Università di Pavia, Italy*

Alexey Pniov, *Bauman Moscow State Technical University (BMSTU), Russia*

Andrey Zhirnov, *Bauman Moscow State Technical University (BMSTU), Russia*

Evgeniy Nesterov, *Bauman Moscow State Technical University (BMSTU), Russia*

Valery Karassik, *Bauman Moscow State Technical University (BMSTU), Russia*

Michele Norgia, *Politecnico di Milano, Italy*

Alessandro Pesatori, *Politecnico di Milano, Italy*

Cesare Svelto, *Politecnico di Milano, Italy*

17:30 An accelerometer for spaceborne application with interferometric readout

Marco Pisani, *INRIM, Italy*

Massimo Zucco, *INRIM, Italy*

Anna M. Nobili, *University of Pisa, INFN, Italy*

17:50 Quantitative Defect Size Estimation in Shearography Inspection by Wavelet Transform and Shear Correction

Gian Marco Revel, *Università Politecnica delle Marche, Italy*

Giuseppe Pandarese, *Università Politecnica delle Marche, Italy*

Gloria Allevi, *University of Padova, Italy*



16:30 - 18:10

Session on Measurement and Instrumentation for Aerospace Application - PART 4

Chair: Stefano Debei, *University of Padova, CISAS "G. Colombo", Italy*

Room: *Centro Culturale S. Gaetano, "Giuseppe Colombo" Hall*

16:30 MarsTEM sensor simulations in Martian dust environment

Giacomo Colombatti, *CISAS "Giuseppe Colombo", Università degli Studi di Padova*

Carlo Bettanini, *CISAS "Giuseppe Colombo", Università degli Studi di Padova*

Alessio Aboudan, *CISAS "Giuseppe Colombo", Università degli Studi di Padova*

Stefano Debei, *CISAS "Giuseppe Colombo", Università degli Studi di Padova*

Francesca Esposito, *INAF - OAC*

Cesare Molfese, *INAF - OAC*

Anselmo Cecere, *Università di Napoli "Federico II", Naples, Italy*

16:50 Study on Calibration Technology of Port Quick Leak Detector for Spacecraft

Lan Zhao, *Lanzhou Institute of Physics, Lanzhou, China*

Yongjun Cheng, *Lanzhou Institute of Physics, Lanzhou, China*

Wenjun Sun, *Lanzhou Institute of Physics, Lanzhou, China*

Yongjun Wang, *Lanzhou Institute of Physics, Lanzhou, China*

Yanwu Li, *Lanzhou Institute of Physics, Lanzhou, China*

17:10 A Relative Navigation Sensor for Cubesats Based on Retro-reflective Markers

Francesco Sansone, *Project Srl Venice, Italy*

Francesco Branz, *University of Padua, Italy*

Alessandro Francesconi, *University of Padua, Italy*

17:30 Development of Vacuum Calibration Apparatus For Deep Space Exploration

Yuan Zhengnan, *Lanzhou Institute of Physics*

Sun Wenjun, *Lanzhou Institute of Physics*

Cheng Yongjun, *Lanzhou Institute of Physics*

Xi Zhenhua, *Lanzhou Institute of Physics*

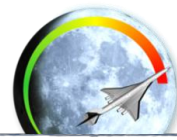
17:50 Design and Testing of a Low-Cost Extended-Range Pressure Measurement System for Aerospace Applications

Arthur Provost, *Institut Universitaire Technologique, France*

Guillaume Bonneric, *SAE-ENSMA, France*

Michele Ferlauto, *Politecnico di Torino, Italy*

Gaetano M. Di Cicca, *Politecnico di Torino, Italy*



16:30 - 18:10

Session on Metrology and Instrumentation for Unmanned Aerial Vehicles

Chair: Bartosz Brzozowski, *Military University of Technology, Poland*

Room: *Centro Culturale S. Gaetano, Auditorium*

16:30 Overview of the research on state-of-the-art measurement sensors for UAV navigation

Bartosz Brzozowski, *Military University of Technology*

Zdzisław Rochala, *Military University of Technology*

Konrad Wojtowicz, *Military University of Technology*

16:50 Obstacle Detection and Ranging Sensor Integration for a Small Unmanned Aircraft System

Umberto Papa, *University of Naples "Parthenope", Naples, Italy*

Giuseppe Del Core, *University of Naples "Parthenope", Naples, Italy*

Giovanna Giordano, *University of Studies of Campania "Luigi Vanvitelli" Aversa (CE), Italy*

Salvatore Ponte, *University of Studies of Campania "Luigi Vanvitelli" Aversa (CE), Italy*

17:10 An On-orbit Calibration Method for Aerospace Hall Current Sensor

You Li, *Beijing Orient Institute of Measurement and Test, Beijing, China*

Liu Min, *Beijing Orient Institute of Measurement and Test, Beijing, China*

Wen Yan, *Beijing Orient Institute of Measurement and Test, Beijing, China*

17:30 Magnetic field mapping as a support for UAV indoor navigation system

Bartosz Brzozowski, *Military University of Technology, Warsaw, Poland*

Krzysztof Kazmierczak, *Military University of Technology, Warsaw, Poland*

17:50 Horus – a drone project for visual and IR imaging

G. Colombatti, *CISAS "Giuseppe Colombo", Italy*

A. Aboudan, *CISAS "Giuseppe Colombo", Italy*

C. Bettanini, *CISAS "Giuseppe Colombo", Italy*

L. Magnini, *University of Padua, Italy*

C. Bettineschi, *University of Padua, Italy*

G. Deotto, *University of Padua, Italy*

L. Toninello, *University of Padua, Italy*

S. Debei, *CISAS "Giuseppe Colombo", Italy*

A. De Guio, *University of Padua, Italy*

P. Zanovello, *University of Padua, Italy*

A. Menegazzi, *University of Padua, Italy*

18:15 - 18:30

CLOSING AND AWARD CEREMONY

Room: *Centro Culturale S. Gaetano, Auditorium*

