2018 5th IEEE International Workshop on Metrology for AeroSpace (MetroAeroSpace 2018)

Rome, Italy
20-22 June 2018

IEEE Catalog Number: CFP1832W-POD
ISBN: 978-1-5386-2475-3

Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1832W-POD
ISBN (Print-On-Demand):	978-1-5386-2475-3
ISBN (Online):	978-1-5386-2474-6
ISSN:	2575-7482

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

WORKSHOP PROGRAM

Thursday, June 21

General Session - PART I

Room: CNR Headquarter, Auditorium
Chairs: *Lorenzo Ciani, University of Florence, Italy*
Ephraim Suhir, Portland State University, USA

1 **Differential GNSS and double difference approaches comparison for high integrity railway Location Determination System**
Pietro Salvatori, RadioLabs, Italy
Cosimo Stallo, RadioLabs, Italy
Andrea Coluccia, RadioLabs, Italy
Francesco Rispoli, Ansaldo STS, Italy
Alessandro Neri, Università degli Studi Roma TRE, Italy

6 **Rice Coding-Based Lite Compression Algorithm with Controlled Error for Sensor Data**
Serhiy Avramenko, Politecnico di Torino, Italy
Stefano Esposito, Politecnico di Torino, Italy
Massimo Violante, Politecnico di Torino, Italy

11 **Preliminary design of an innovative aircraft weight & balance measurement system based on fiber optic sensors**
Angela Brindisi, CIRA Italian Aerospace Research Centre, Italy
Salvatore Ameduri, CIRA Italian Aerospace Research Centre, Italy
Antonio Concilio, CIRA Italian Aerospace Research Centre, Italy
Monica Ciminello, CIRA Italian Aerospace Research Centre, Italy
Marco Leone, University of Sannio, Italy
Antonio Iele, University of Sannio, Italy
Marco Consales, University of Sannio, Italy
Andrea Cusano, University of Sannio, Italy

15 **An Optimization Method for The Monopole Antenna Placement of a Low-Orbit Small Satellite**
Davide Cinarelli, Sitael S.p.A., Italy
Gilles Mariotti, Sitael S.p.A., Italy
Vito Centonze, Sitael S.p.A., Italy
Antonio Lovascio, Politecnico di Bari, Italy
Antonella D'Orazio, Politecnico di Bari, Italy

21 **CubeSat-Life ground test facility**
Paolo Marzioli, Sapienza University of Rome, Italy
Andrea Delfini, Sapienza University of Rome, Italy
Luca Gugliermetti, Sapienza University of Rome, Italy
Fabio Santoni, Sapienza University of Rome, Italy
Fabio Bisegna, Sapienza University of Rome, Italy
Luca Nardi, ENEA, Italy
Eugenio Benvenuto, ENEA, Italy
Silvia Massa, ENEA, Italy
Elisabetta Bennici, ENEA, Italy

Special Session on Future Techniques for Extra-Solar Planets Exploration

Room: CNR Headquarter, Marconi Hall
Chairs: *Marcello Coradini, FRAS, IAA Academician, ASI Associate*
Enrico Flamini, ASI, Italy

26 **The CHEOPS Mission**
Andrea Fortier, Physikalisches Institut and CSH, University of Bern, Switzerland
Willy Benz, Physikalisches Institut and CSH, University of Bern, Switzerland
Christopher Broeg, Physikalisches Institut and CSH, University of Bern, Switzerland

31 **The ARIEL Space Mission**
Enzo Pascale, Sapienza University of Rome, Italy
Paul Eccleston, RAL Space, UK
Giovanna Tinetti, University College London, UK

36 **Micro-pixel Metrology for Precision Astrometry Detection on Nearby Exoplanets**
Anthony Ding Chen, Chinese Academy of Space Technology, China
Haitao Wang, Chinese Academy of Space Technology, China
Yao Zhang, Chinese Academy of Space Technology, China

40 **The PLATO Mission**
H. Michaelis, Deutsches Zentrum fur Luft- und Raumfahrt, Germany
H. Rauer, Berlin University of Technology, Germany
D. Pollacco, University of Warwick, UK
J. Cabrera, Deutsches Zentrum fur Luft- und Raumfahrt, Germany

---

Special Session on Non Destructive Testing and Evaluation for Aerospace

Room: CNR Headquarter, Giacomello Hall
Chairs: *Marco Laracca, University of Cassino and Southern Lazio, Italy*
Marco Ricci, University of Calabria, Italy

45 **Probe localization by Magnetic Measurements in Eddy-Current Nondestructive Testing Environment**
Gianni Cerro, University of Cassino and Southern Lazio, Italy
Luigi Ferrigno, University of Cassino and Southern Lazio, Italy
Marco Laracca, University of Cassino and Southern Lazio, University of Molise, Italy
Filippo Milano, University of Cassino and Southern Lazio, Italy
Paolo Carbone, University of Perugia, Italy
Antonella Comuniello, University of Perugia, Italy
Alessio De Angelis, University of Perugia, Italy
Antonio Moschitta, University of Perugia, Italy

50 **Testing an electronic nose for pre-bond NDT in realistic CFRP parts assembly and repair**
S. De Vito, ENEA, Italy
M. Salvato, ENEA, Italy
E. Massera, ENEA, Italy
F. Formisano, ENEA, Italy
M. L. Miglietta, ENEA, Italy
E. Esposito, ENEA, Italy
G. Di Francia, ENEA, Italy

56 **Inspection of Aircraft Wing Panels Using Unmanned Aerial Vehicles**
Konstantinos Malandrakis, Cranfield University, UK
Al Savvaris, Cranfield University, UK
Jose Angel Gonzalez Domingo, Cranfield University, UK
Nick Avdelidis, Cranfield University, UK
Panagiotis Tsilivis, Cranfield University, UK
Florence Plumacker, Cranfield University, UK
Luca Zanotti Fragonara, Cranfield University, UK
Antonios Tsourdos, Cranfield University, UK

62 **Auto Regressive Exogenous modeling of pseudonoise thermography for the nondestructive evaluation of aerospace materials**
S. Laureti, University of Perugia, Italy
P. Burrascano, University of Perugia, Italy
H. Malekhommadi, University of Perugia, Italy
M. Ricci, University of Calabria, Italy
S. Sfarra, University of L'Aquila, Italy

68 **Shimming analysis of Carbon-Fiber Composite Materials with Eddy Current Testing**
Gianni D'Angelo, University of Sannio, Italy
Giovanni Cavaccini, DARES Srls, Italy
Salvatore Rampone, University of Sannio, Italy

Special Session on GARFIELD - Green, Accessible and Safe Grassy Airfields

Room: CNR Headquarter, Bisogno Hall
Chairs: *Jarosław Pytka, Lublin University of Technology, Poland*
Jerzy Józwik, Lublin University of Technology, Poland

74 **Embedded Wheel Force Sensor For Aircraft Landing Gear Testing**
Jarosław Pytka, Lublin University of Technology, Poland
Jerzy Józwik, Lublin University of Technology, Poland
Tomasz Łyszczyk, Lublin University of Technology, Poland
Ernest Gnapowski, University College of Enterprise and Administration, Poland

79 **Method for Determination of Airplane Takeoff and Landing Distance**
Jarosław Pytka, Lublin University of Technology, Poland
Jerzy Józwik, Lublin University of Technology, Poland
Tomasz Łyszczyk, Lublin University of Technology, Poland
Ernest Gnapowski, University College of Enterprise and Administration, Poland

85 **Monitoring Grass Airfield Conditions for the GARFIELD System**
Jarosław Pytka, Lublin University of Technology, Poland
Tomasz Łyszczyk, Lublin University of Technology, Poland
Ernest Gnapowski, University College of Enterprise and Administration, Poland

91 **Influence of the Gas Medium on the Metrological Characteristics of Shock Tubes**
Chenchen Wang, Changcheng Institute of Metrology and Measurement, China
Hongbo Wang, Changcheng Institute of Metrology and Measurement, China
Bo Shi, Changcheng Institute of Metrology and Measurement, China

96 **Experimental Identification of Grassy Airfield Surface Geometry for the GARFIELD Database**
Jerzy Józwik, Lublin University of Technology, Poland
Jarosław Pytka, Lublin University of Technology, Poland
Arkadiusz Tofil, The Institute of Technical Sciences and Aviation, Poland

---

Special Session on Metrology and Instrumentation for Unmanned Aerial Vehicles - PART I

Room: CNR Headquarter, Auditorium
Chairs: *Bartosz Brzozowski, Military University of Technology, Poland*
Graham Wild, RMIT University, Australia

101 **Safe avoidance path detection using multi sensor integration for small Unmanned Aerial Vehicle**
Muhammad Faiz Bin Ramli, Universiti Tun Hussein Onn, Malaysia
Syariful Syafiq Shamsudin, Universiti Tun Hussein Onn, Malaysia
Ari Legowo, International Islamic University, Malaysia

107 **A Secondary Surveillance Radar with Miniaturized Transponders for Localization of Small-Sized UAVs in Controlled Air Space**
Martin Schütz, Friedrich-Alexander-University Erlangen-Nuremberg, Germany
Yassen Dobrev, Symeo GmbH, Germany
Tatiana Pavlenko, Friedrich-Alexander-University Erlangen-Nuremberg, Germany
Martin Vossiek, Friedrich-Alexander-University Erlangen-Nuremberg, Germany

112 **UAV Intelligent Chemical Multisensor payload for Networked and Impromptu Gas monitoring tasks**
M. Carrozzo, ENEA, Italy
S. De Vito, ENEA, Italy
E. Esposito, ENEA, Italy
M. Salvato, ENEA, Italy
F. Formisano, ENEA, Italy
E. Massera, ENEA, Italy
G. Di Francia, ENEA, Italy
P. Delli Veneri, ENEA, Italy
M. Iadaresta, TOPVIEW s.r.l., Italy
A. Mennella, TOPVIEW s.r.l., Italy

117 **Assessment of the tracking accuracy for the air Vehicle Tracking System supporting the CIRA Optionally Piloted Aircraft**
Vittorio Castrillo, C.I.R.A. (Italian Aerospace Research Center), Italy
Francesco Fusco, C.I.R.A. (Italian Aerospace Research Center), Italy
Michele Inverno, C.I.R.A. (Italian Aerospace Research Center), Italy
Roberto V. Montaquila, C.I.R.A. (Italian Aerospace Research Center), Italy
Gianpiero Buzzo, C.I.R.A. (Italian Aerospace Research Center), Italy

123 **Comparative Performance of Simultaneous Localization and Mapping Algorithms for Unmanned Aircraft Based Navigation Systems**
Graham Wild, RMIT University, Australia
Lance Fang, RMIT University, Australia
Thomas Newnham, RMIT University, Australia
Alex Fisher, RMIT University, Australia
Jennifer Palmer, Defense Science and Technology Group, Australia
Chatura Nagahawatt, Defense Science and Technology Group, Australia

---

Special Session on In-situ Instruments and Devices

Room: CNR Headquarter, Marconi Hall
Chairs: *Elisabetta Mattei, "Roma Tre" University, Italy*
Gianrico Filacchione, INAF-IAPS, Italy

128 **MaMISS flight model calibration target: spectral characterization**
Paola Tinivelli, IAPS INAF, Italy
Simone De Angelis, IAPS INAF, Italy
Marco Ferrari, IAPS INAF, Italy
Maria Cristina De Sanctis, IAPS INAF, Italy
Francesca Altieri, IAPS INAF, Italy
Eleonora Ammannito, Italian Space Agency, Italy
Raffaele Mugnuolo, Italian Space Agency, Italy
Simone Pirrotta, Italian Space Agency, Italy
Samuele Novi, Leonardo Company, Italy
Francesco Antonacci, Leonardo Company, Italy
Francesco Villa, Leonardo Company, Italy
Giuseppe Mondello, Leonardo Company, Italy
Riccardo Paolinetti, Leonardo Company, Italy

134 **Optimization of the fluid dynamic design of the Dust Suite-MicroMED sensor for the ExoMars 2020 mission**
Giuseppe Mongelluzzo, INAF - Osservatorio Astronomico di Capodimonte, Italy
Francesca Esposito, INAF - Osservatorio Astronomico di Capodimonte, Italy
Fabio Cozzolino, INAF - Osservatorio Astronomico di Capodimonte, Italy
Cesare Molfese, INAF - Osservatorio Astronomico di Capodimonte, Italy
Simone Silvestro, INAF - Osservatorio Astronomico di Capodimonte, Italy
Ciprian Ionut Popa, INAF - Osservatorio Astronomico di Capodimonte, Italy
Massimo Dall'Ora, INAF - Osservatorio Astronomico di Capodimonte, Italy
Marek Lubieniecki, Delft University of Technology, The Netherlands
Fausto Cortecchia, INAF - Osservatorio Astronomico di Bologna, Italy
Bortolino Saggin, Politecnico di Milano, Italy
Diego Scaccabarozzi, Politecnico di Milano, Italy
Alexander Zakharov, IKI, Russia

140 **Synthetic plagioclases as support for future "in-situ" missions: iron's influence on VNIR reflectance**
Cristian Carli, INAF-IAPS, Italy
Andrea Orlando, IGG-CNR, Italy
Daniele Borrini, University of Florence, Italy
Giovanna Serventi, University of Parma, Italy
Giovanni Pratesi, University of Florence, Italy
Maria Sgavetti, University of Parma, Italy

145 **Dielectric spectroscopy measurements of saline aqueous solutions in the VHF-UHF bands: toward a dielectric model of icy satellite water reservoirs**
Yann Brouet, Physics Institute, University of Bern, Switzerland
Luisa Neves, Multiwave Innovation, France
Pierre Sabouroux, Aix-Marseille Univ., CNRS, France
Romain Cerubini, Physics Institute, University of Bern, Switzerland
Patricio Becerra, Physics Institute, University of Bern, Switzerland
Cyril Grima, University of Texas at Austin, USA
Kristian Chan, University of Texas at Austin, USA
Antoine Pommerol, Physics Institute, University of Bern, Switzerland
Nicolas Thomas, Physics Institute, University of Bern, Switzerland

150 **VISTA instrument: a PCM-based sensor for organics and volatiles characterization by using Thermogravimetric technique**
Fabrizio Dirri, IAPS-INAF, Italy
Ernesto Palomba, IAPS-INAF, Italy
Andrea Longobardo, IAPS-INAF, Italy
David Biondi, IAPS-INAF, Italy
Angelo Boccaccini, IAPS-INAF, Italy
Anna Galiano, IAPS-INAF, Italy
Emiliano Zampetti, IIA-CNR, Italy
Bortolino Saggin, Politecnico di Milano, Italy
Diego Scaccabarozzi, Politecnico di Milano, Italy
J. Martin-Torres, Luleà University of Technology, Sweden, CSIC-UGR, Spain

155 **Relative pointing error verification of the Telescope Mount Assembly subsystem for the Large Synoptic Survey Telescope**
Unai Mutilba, IK4-TEKNIKER, Spain
Gorka Kortaberria, IK4-TEKNIKER, Spain
Fernando Egaña, IK4-TEKNIKER, Spain
José A. Yagüe-Fabra, Universidad de Zaragoza, Spain

Special Session on Terrestial and In-flight Verification of GNC Systems for Aerospace Vehicle

Room: CNR Headquarter, Giacomello Hall

Chairs: *Yevgeny Somov, Samara State Technical University, Russia*
Alexander Nebylov, State University of Aerospace Instrumentation, Russia

161 **Guidance and Control of a Free-flying Robot at Rendezvous with Noncooperative Space Vehicle**
Yevgeny Somov, Samara State Technical University, Russian Academy of Sciences, Russia
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

166 **Active Fault Tolerant Gyromoment Control of Information Satellites and Free-flying Robots**
Yevgeny Somov, Samara State Technical University, Russia
Nikolay Rodnishchev, Kazan National Research Technical University, Russia

171 **Control Optimization in Aerospace Engineering at Stochastic Perturbations and Stream of Faults**
Nikolay Rodnishchev, Kazan National Research Technical University, Russia
Yevgeny Somov, Samara State Technical University, Russia

176 **Alignment Verification of a Star Tracker Cluster and a Space Telescope for Land-survey Satellite**
Yevgeny Somov, Samara State Technical University, Russian Academy of Sciences, Russia
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

181 **Algorithm for relative navigation and control systems for closely spaced satellite in a group**
Alexander I. Panferov, State University of Aerospace Instrumentation, Russia
Alexander V. Nebylov, International Institute for Advanced Aerospace Technologies, State University of Aerospace Instrumentation, Russia
Sergey A. Brodsky, International Institute for Advanced Aerospace Technologies, Russia

187 **Concept of high-precision relative navigation of micro-satellites in their formation**
Alexander V. Nebylov, International Institute for Advanced Aerospace Technologies, State University of Aerospace Instrumentation, Russia
Vladimir Nebylov, State University of Aerospace Instrumentation, Russia
Alexander I. Panferov, State University of Aerospace Instrumentation, Russia

---

Special Session on Relativistic Metrology

Room: CNR Headquarter, Bisogno Hall

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

192 **METRIC: a dedicated Earth-orbiting spacecraft for fundamental physics and geophysics**
Enrico C. Lorenzini, University of Padua, Italy
Roberto Peron, Istituto di Astrofisica e Planetologia Spaziali, Italy

198 **Using Galileo for detecting the gravito-magnetic field of the earth**
Angelo Tartaglia, Politecnico di Torino, Italy
David Lucchesi, IAPS-INAF, Italy
Enrico C. Lorenzini, University of Padua, Italy
Giuseppe Pucacco, University of Rome Tor Vergata, Italy
Matteo Luca Ruggiero, Politecnico di Torino, Italy

203 **Covariance analysis applied to the MESSENGER and BepiColombo Relativity experiments**
Fabrizio De Marchi, Sapienza University of Rome, Italy
Luciano Iess, Sapienza University of Rome, Italy

209 **New Measurements of Gravitation in the Field of the Earth and the LARASE Experiment**
David M. Lucchesi, Istituto di Astrofisica e Planetologia Spaziali, INFN, Italy
Carmelo Magnafico, Istituto di Astrofisica e Planetologia Spaziali, INFN, Italy
Roberto Peron, Istituto di Astrofisica e Planetologia Spaziali, INFN, Italy
Massimo Visco, Istituto di Astrofisica e Planetologia Spaziali, INFN, Italy
Luciano Anselmo, ISTI-CNR, Italy
Carmen Pardini, ISTI-CNR, Italy
Massimo Bassan, University of Rome Tor Vergata, Italy
Giuseppe Pucacco, University of Rome Tor Vergata, Italy
Ruggero Stanga, University of Florence, INFN, Italy

216 **The ISA accelerometer for BepiColombo: data processing and operations**
Francesco Santoli, IAPS-INAF, Italy
Valerio Iafolla, IAPS-INAF, Italy
Emiliano Fiorenza, IAPS-INAF, Italy
Carlo Lefevre, IAPS-INAF, Italy
David M. Lucchesi, IAPS-INAF, Italy
Marco Lucente, IAPS-INAF, Italy
Carmelo Magnafico, IAPS-INAF, Italy
Roberto Peron, IAPS-INAF, Italy

Special Session on Metrology and Instrumentation for Unmanned Aerial Vehicles - PART II

Room: CNR Headquarter, Auditorium
Chairs: *Bartosz Brzozowski, Military University of Technology, Poland*
Graham Wild, RMIT University, Australia

222 **Upstream Wind Sensing for Small Unmanned Aerial Vehicles**
Simon Watkins, RMIT University, Australia
Mohamed Abdulghani, RMIT University, Australia
Sam Prudden, RMIT University, Australia
David Tennent, RMIT University, Australia
Matthew Marino, RMIT University, Australia
Alex Fisher, RMIT University, Australia

225 **ARIA: Air Pollutants Monitoring Using UAVs**
Gian Marco Bolla, University of Padova, Italy
Marco Casagrande, University of Padova, Italy
Antonio Comazzetto, University of Padova, Italy
Riccardo Dal Moro, University of Padova, Italy
Matteo Destro, University of Padova, Italy
Edoardo Fantin, University of Padova, Italy
Giacomo Colombatti, University of Padova, Italy
Alessio Aboudan, University of Padova, Italy
Enrico C. Lorenzini, University of Padova, Italy

230 **Detection of moving heat-emitting object using single IR camera**
Igor Morawski, Military University of Technology, Poland
Zdzisław Rochala, Military University of Technology, Poland
Konrad Wojtowicz, Military University of Technology, Poland

236 **A Passive Cloud Detection System for UAV: Analysis of Issues, Impacts and Solutions**
Franziska Funk, University of the Bundeswehr Munich, Germany
Peter Stütz, University of the Bundeswehr Munich, Germany

Special Session on Advanced Remote Sensing for Exploration

Room: CNR Headquarter, Marconi Hall
Chairs: *Gianrico Filacchione, INAF-IAPS, Italy*
Sebastian E. Lauro, Università degli Studi Roma Tre, Italy

242 **Super Resolution and Interferences Suppression Technique applied to SHARAD Data**
Maria Carmela Raguso, Sapienza University of Rome, Italy
Marco Mastrogiuseppe, Sapienza University of Rome, Italy
Roberto Seu, Sapienza University of Rome, Italy
Lorenzo Piazzo, Sapienza University of Rome, Italy

247 **The advanced optical and thermomechanical design of the JUICE/MAJIS spectrometer**
Leonardo Tommasi, Leonardo SpA, Italy
Giulio Bugetti, Leonardo SpA, Italy
Anna Fabbri, Leonardo SpA, Italy
Irene Guerri, Leonardo SpA, Italy
Nazzareno Tonetti, Leonardo SpA, Italy
Marilena Amoroso, ASI Italian Space Agency, Italy
Raffaele Mugnuolo, ASI Italian Space Agency, Italy
Giuseppe Piccioni, INAF-IAPS, Italy
Gianrico Filacchione, INAF-IAPS, Italy
Sergio Fonti, Università del Salento, Italy
Bortolino Saggin, Politecnico di Milano, Italy
Federico Tosi, INAF-IAPS, Italy
Massimo Zambelli, INAF-IAPS, Italy
Luca Bocchini, Thales Alenia Space, Italy
Savino De Palo, Thales Alenia Space, Italy
Martina Giraudo, Thales Alenia Space, Italy
Valter Perotto, Thales Alenia Space, Italy

252 **The measurement of the noise-equivalent spectral radiance of SIMBIO-SYS/VIHI spectrometer**
Gianrico Filacchione, INAF-IAPS, Italy
Fabrizio Capaccioni, INAF-IAPS, Italy
Francesca Altieri, INAF-IAPS, Italy
Cristian Carli, INAF-IAPS, Italy
Leonardo Tommasi, Leonardo SpA, Italy
Iacopo Ficai Veltroni, Leonardo SpA, Italy
Michele Dami, Leonardo SpA, Italy
Gianluca Aroldi, Leonardo SpA, Italy
Donato Borrelli, Leonardo SpA, Italy
Alessandra Barbis, Leonardo SpA, Italy
Marco Baroni, Leonardo SpA, Italy
Guia Pastorini, Leonardo SpA, Italy
Raffaele Mugnuolo, ASI Italian Space Agency, Italy
Gabriele Cremonese, INAF-Osservatorio Astronomico Padova, Italy

257 **Performances of the SIMBIO-SYS Stereo Imaging Channel (STC) on board BepiColombo/ESA spacecraft**
Alessandra Slemer, INAF-OAPD, Italy
Emanuele Simioni, INAF-OAPD, Italy
Vania Da Deppo, CNR-IFN, Italy
Michele Zusi, INAF-IAPS, Italy
Cristina Re, INAF-OAPD, Italy
Alice Lucchetti, INAF-OAPD, Italy
Michele Dami, Leonardo S.p.A., Italy
Donato Borrelli, Leonardo S.p.A., Italy
Iacopo Ficai Veltroni, Leonardo S.p.A., Italy
Maria Teresa Capria, INAF-IAPS, Italy
Gabriele Cremonese, INAF-OAPD, Italy

263 **Dielectric characterization of ice/Na2SO4·10H2O mixtures: implications for radar investigations of icy satellites**
Barbara Cosciotti, Università degli Studi Roma Tre, Italy
Elisabetta Mattei, Università degli Studi Roma Tre, Italy
Elena Pettinelli, Università degli Studi Roma Tre, Italy
Francesco Gabbai, Università degli Studi Roma Tre, Italy
Federico Di Paolo, Istituto di Radioastronomia, INAF, Italy
Sebastian E. Lauro, Università degli Studi Roma Tre, Italy

268 **How science can benefit from synergies with human space exploration: the case for Near Earth Asteroids (NEAs)**
Marco Tantardini, Italian Space Agency, Italy

General Session - PART II

Room: CNR Headquarter, Giacomello Hall

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

274 **MINLU: an instrumental suite for monitoring light pollution from drones or airballoons**
Pietro Fiorentin, University of Padova, Italy
Carlo Bettanini, University of Padova, Italy
Enrico Lorenzini, University of Padova, Italy
Alessio Aboudan, CISAS "Giuseppe Colombo", Italy
Giacomo Colombatti, CISAS "Giuseppe Colombo", Italy
Sergio Ortolani, University of Padova, Italy
Andrea Bertolo, Regional Environmental Prevention and Protection Agency of Veneto, Italy

279 **Design of a flowrate measurement system for low-pressure gases**
Bortolino Saggin, Politecnico di Milano, Italy
Diego Scaccabarozzi, Politecnico di Milano, Italy
Christian Pagliara, Politecnico di Milano, Italy
Arash Valiesfahani, Politecnico di Milano, Italy
Francesca Esposito, INAF - Astronomical Observatory of Capodimonte, Italy
Cesare Molfese, INAF - Astronomical Observatory of Capodimonte, Italy
Fabio Cozzolino, INAF - Astronomical Observatory of Capodimonte, Italy
Fausto Cortecchia, INAF - Astronomical Observatory of Capodimonte, Italy

284 **Metamaterials for hypersonic flow control: experimental tests on novel ultrasonically absorptive coatings**
Tiziano Pagliaroli, University Niccolò Cusano, Italy
Fabrizio Patanè, University Niccolò Cusano, Italy
Andrea Pagliaro, University Niccolò Cusano, Italy
Peng Lv, China Academy of Aerospace Aerodynamics, China
Angelo Tatì, R.C. ENEA, Italy

290 **Quasi-Newton Cubature Kalman Filitering Method based on BFGS Correction Formula for Attitude Determination Applied to Underwater Glider**
Haoqian Huang, Hohai University, China
Jun Zhou, Hohai University, China
Zhiqiang Liu, Hohai University, China
Tie Huang, Hohai University, China
Kangrui Hong, Hohai University, China
Chen Qu, Hohai University, China

General Session - PART III

Room: CNR Headquarter, Bisogno Hall

Chairs: *Fabio Leccese, "Roma Tre" University, Italy*
Roberto Sabatini, RMIT University, Australia

295 **High update rate star tracker for gyroless spacecraft operation**
Mikaël Marin, Korea Advanced Institute of Science and Technology, Republic of Korea
Hyochoong Bang, Korea Advanced Institute of Science and Technology, Republic of Korea

300 **A System Engineering Tool for the Optimisation of a GNSS Constellation Design**
Marco Nugnes, Politecnico di Milano, Italy
Camilla Colombo, Politecnico di Milano, Italy
Massimo Tipaldi, University of Sannio, Italy

305 **PRBS Selection for Velocity Measurements with Compressive Sampling-Based DS-CDMA Radio Navigation Receivers**
Pasquale Daponte, University of Sannio, Italy
Luca De Vito, University of Sannio, Italy
Grazia Iadarola, University of Sannio, Italy
Susanna Spinsante, Marche Polytechnic University, Italy

311 **Eye-Tracking Sensors for Adaptive Aerospace Human-Machine Interfaces and Interactions**
Yixiang Lim, RMIT University, Australia
Alessandro Gardi, RMIT University, Australia
Neta Ezer, Northrop Grumman Corporation, USA
Trevor Kistan, RMIT University, Thales Australia, Australia
Roberto Sabatini, RMIT University, Australia

Friday, June 22

Special Session on Metrology for Radar Systems - PART I

Room: CNR Headquarter, Auditorium
Chairs: *Alfonso Farina, LFIEEE, Distinguished Lecturer of AESS*
Silvia Ullo, IEEE Member, University of Sannio, Italy

317 **Receiver Operating Characteristics of a Passive Millimeter-wave Radiometric Sensor**
Massimiliano Rossi, MBDA Italia S.p.A., Italy
Riccardo Maria Liberati, MBDA Italia S.p.A., Italy
Marco Frasca, MBDA Italia S.p.A., Italy
Mauro Angelini, MBDA Italia S.p.A., Italy

322 **Methods for testing military radars produced in Poland**
Mariusz Pakowski, Air Force Institute of Technology (AFIT), Poland
Marek Brzozowski, Air Force Institute of Technology (AFIT), Poland
Mirosław Michalczewski, Air Force Institute of Technology (AFIT), Poland
Mirosław Myszka, Air Force Institute of Technology (AFIT), Poland

328 **Detection of Multiple Noise-like Jammers for Radar Applications**
Vincenzo Carotenuto, Università degli Studi di Napoli Federico II, Italy
Chengpeng Hao, Institute of Acoustics, Chinese Academy of Sciences, China
Danilo Orlando, Università degli Studi "Niccolò Cusano", Italy
Antonio De Maio, Università degli Studi di Napoli Federico II, Italy
Salvatore Iommelli, Ente di Formazione Professionale Maxwell, Italy

334 **Evolution of Cognitive Radars toward Intelligent Systems Architectures**
Silvia Liberata Ullo, University of Sannio, Italy

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

Room: CNR Headquarter, Marconi Hall
Chairs: *Lorenzo Ciani, University of Florence, Italy*
Marcantonio Catelani, University of Florence, Italy

340 **Model-based prognostic health-management algorithms for the freeplay identification in electromechanical flight control actuators**
Gianpietro Di Rito, Università di Pisa, Italy
Francesco Schettini, Università di Pisa, Italy
Roberto Galatolo, Università di Pisa, Italy

346 **Test Data Modeling and Implementation with Enhanced Accuracy for the Diagnosis of a DUT provided with Real-World Failure Models**
Gürkan Uygur, Friedrich-Alexander-University Erlangen-Nuremberg, Germany
Wolfgang Sörgel, Friedrich-Alexander-University Erlangen-Nuremberg, Germany
Wolfgang Magerl, Friedrich-Alexander-University Erlangen-Nuremberg, Germany
Sebastian M. Sattler, Friedrich-Alexander-University Erlangen-Nuremberg, Germany

352 **Study and ground simulations of outgassing and hypervelocity impacts on carbon-based materials for space applications**
Antonio Vricella, Sapienza University of Rome, Italy
Andrea Delfini, Sapienza University of Rome, Italy
Marta Albano, Italian Space Agency, Italy
Fabio Santoni, Sapienza University of Rome, Italy
Mario Marchetti, Sapienza University of Rome, Italy
Roberto Pastore, Sapienza University of Rome, Italy
Giulio Rubini, Sapienza University of Rome, Italy

358 **Dependable MPSoC-Based Mixed-Criticality Systems for Space Applications**
Stefano Esposito, Politecnico di Torino, Italy
Massimo Violante, Politecnico di Torino, Italy

363 **Applications for Diagnosis of Real Electromagnetic Behaviors in Hybrid Electronic Architectures**
Jean-Marc Dienot, Labceem - Institute Of Technology Université P. Sabatier, France
G. Vine, Institut National Polytechnique Toulouse, France

Special Session on Measurement and Instrumentation for Aerospace Applications - PART I

Room: CNR Headquarter, Giacomello Hall
Chairs: *Stefano Debei, University of Padua, Italy*
Marco Pertile, University of Padua, Italy

369 **Stereoscopic vision-based relative navigation for spacecraft proximity operations**
Mattia Mazzucato, CISAS, University of Padova, Italy
Andrea Valmorbida, CISAS, University of Padova, Italy
Alberto Guzzo, University of Padova, Italy
Enrico C. Lorenzini, CISAS, University of Padova, Italy

375 **Optical pressure sensor for landing gear**
Alberto Sposito, Oxsensis Ltd., UK
Ralf D. Pechstedt, Oxsensis Ltd., UK

380 **Characterization and testing of a high-resolution Time-of-Flight camera for autonomous navigation**
Roberto Opromolla, University of Naples Federico II, Italy
Giancarmine Fasano, University of Naples Federico II, Italy
Giancarlo Rufino, University of Naples Federico II, Italy
Michele Grassi, University of Naples Federico II, Italy

386 **An Experimental Comparison of ROS-compatible Stereo Visual SLAM Methods for Planetary Rovers**
Riccardo Giubilato, CISAS, University of Padova, Italy
Sebastiano Chiodini, CISAS, University of Padova, Italy
Marco Pertile, CISAS, University of Padova, Italy
Stefano Debei, CISAS, University of Padova, Italy

392 **Micro-thrust Measurement of a MEMS Based Cold Gas Micro-thruster in Vacuum Conditions**
Xingchen Li, National University of Defense Technology, China
Yiyong Huang, Academy of Military Sciences PLA China, China
Xiang Zhang, National University of Defense Technology, China
Wei Han, Academy of Military Sciences PLA China, China
Xianqian Chen, Academy of Military Sciences PLA China, China

Poster Session

Room: CNR Headquarter, Digital Corridor
Chairs: *Gregorio Andria, Politecnico di Bari, Italy*
Alessandro Gardi, RMIT University, Australia

398 **Dynamic Measurement of Spindle Errors of CNC Machine Tools by Capacitive Sensors During Aircraft Parts Machining**
Jerzy Józwik, Lublin University of Technology, Poland

403 **First tests of the altimetric and thermal accuracy of an UAV landfill survey**
Valerio Baiocchi, Sapienza University of Rome, Italy
Quintilio Napoleoni, Sapienza University of Rome, Italy
Martina Tesei, Sapienza University of Rome, Italy
Domenica Costantino, Polytechnic University of Bari, Italy
Gregorio Andria, Polytechnic University of Bari, Italy
Francesco Adamo, Polytechnic University of Bari, Italy

407 **Design and performance evaluation of drone propellers**
Gregorio Andria, Polytechnic University of Bari, Italy
Attilio Di Nisio, Polytechnic University of Bari, Italy
Anna Maria Lucia Lanzolla, Polytechnic University of Bari, Italy
Maurizio Spadevecchia, Polytechnic University of Bari, Italy
Giuseppe Pascazio, Polytechnic University of Bari, Italy
Fabio Antonacci, Polytechnic University of Bari, Italy
Gaetano Mirko Sorrentino, Polytechnic University of Bari, Italy

413 **Impact of the cooling technique on the voltage stability in thin supercoducting microbridges**
Antonio Leo, University of Salerno, Italy
Angela Nigro, University of Salerno, Italy
Sandro Pace, University of Salerno, Italy
Jean-Claude Villegier, CEA, France
Gaia Grimaldi, CNR-SPIN Istitute, Italy
Nadia Martucciello, CNR-SPIN Istitute, Italy
Francesco Avitabile, University of Sannio, Italy
Paola Romano, University of Sannio, Italy

418 **Measurements Optimization for Control of Distributed Parameter Systems**
Sergey A. Brodsky, International Institute for Advanced Aerospace Technologies, Russia
Alexander V. Nebylov, International Institute for Advanced Aerospace Technologies, Russia
Alexander I. Panferov, State University of Aerospace Instrumentation, Russia

424 **Metrology problems of WIG-craft motion control**
Alexander V. Nebylov, International Institute for Advanced Aerospace Technologies, Russia
Vladimir Nebylov, State University of Aerospace Instrumentation, Russia
Alexander Knyazhsky, State University of Aerospace Instrumentation, Russia

430 **Reliability Degradation, Preventive and Corrective Maintenance of UAV Systems**
Enrico Petritoli, "Roma Tre" University, Italy
Fabio Leccese, "Roma Tre" University, Italy
Lorenzo Ciani, University of Florence, Italy

435 **Nickel supported on Y2O3-ZrO2 as highly selective and stable CO2 methanation catalyst for in-situ propellant production on Mars**
Simonetta Tuti, "Roma Tre" University, Italy
Igor Luisetto, "Roma Tre" University, Italy
Fabio Leccese, "Roma Tre" University, Italy
Jagadesh K. Kesavan, "Roma Tre" University, Italy
Stefano Casciardi, INAIL Research, Italy

440 **Electronic Nose: a First Sensors Array Optimization for Pesticides Detection based on Wilks' Λ-statistic**
F. Leccese, "Roma Tre" University, Italy
M. Cagnetti, "Roma Tre" University, Italy
S. Giarnetti, "Roma Tre" University, Italy
E. Petritoli, "Roma Tre" University, Italy
S. Tuti, "Roma Tre" University, Italy
I. Luisetto, "Roma Tre" University, Italy
A. Pecora, IMM-CNR, Italy
L. Maiolo, IMM-CNR, Italy
R. Đurović-Pejčev, Institute of Pesticides and Environmental Protection, Serbia
T. Đorđević, Institute of Pesticides and Environmental Protection, Serbia
A. Tomašević, Institute of Pesticides and Environmental Protection, Serbia
V. Bursić, Institute of Pesticides and Environmental Protection, Serbia
V. Arenella, Fonderie Digitali s.r.l., Italy
P. Gabriele, Fonderie Digitali s.r.l., Italy

446 **Synthesis of amorphous Mg-carbonates for the application in the production of advanced materials**
Caterina De Vito, Sapienza University of Rome, Italy
Laura Medeghini, Sapienza University of Rome, Italy
Silvano Mignardi, Sapienza University of Rome, Italy
Fabio Leccese, "Roma Tre" University, Italy

451 **A virtual test-bench for noise figure measurements of mismatched devices**
Emanuele Cardillo, University of Messina, Italy
Alina Caddemi, University of Messina, Italy

456 **LEDSAT: a LED-based CubeSat for optical orbit determination methodologies improvement**
Giammarco Cialone, Sapienza University of Rome, Italy
Paolo Marzioli, Sapienza University of Rome, Italy
Silvia Masillo, Sapienza University of Rome, Italy
Andrea Gianfermo, Sapienza University of Rome, Italy
Lorenzo Frezza, Sapienza University of Rome, Italy
Alice Pellegrino, Sapienza University of Rome, Italy
Fabrizio Piergentili, Sapienza University of Rome, Italy
Fabio Santoni, Sapienza University of Rome, Italy

462 **Dynamic Analysis of Aircraft Landing Gear Wheel**
Jerzy Józwik, Lublin University of Technology, Poland
Jarosław Pytka, Lublin University of Technology, Poland
Arkadiusz Tofil, The Institute of Technical Sciences and Aviation, Poland

468 **Energy Saving Adaptive SDR Transmitters for Small Satellites and Their Metrological Characteristics**
Anatoliy Platonov, Warsaw University of Technology, Poland

473 **Testing of airborne laser altimetry sensors**
Lorenzo Ciani, University of Florence, Italy
Matteo Venzi, University of Florence, Italy

478 **UAS aided landing and obstacle detection through LIDAR-Sonar data**
Umberto Papa, University of Naples Parthenope, Italy
Gennaro Ariante, University of Naples Parthenope, Italy
Giuseppe Del Core, University of Naples Parthenope, Italy

484 **Miniaturized flight data recorder for unmanned aerial vehicles and ultralight aircrafts**
Przemysław Kordowski, Air Force Institute of Technology, Poland
Zbigniew Jakielaszek, Air Force Institute of Technology, Poland
Mirosław Nowakowski, Air Force Institute of Technology, Poland
Andrzej Panas, Air Force Institute of Technology, Poland

489 **Stereo vision module for UAV navigation system**
Bartosz Brzozowski, Military University of Technology, Poland
Natalia Szymanek, Military University of Technology, Poland

495 **Algorithms for the detection and compensation interferance of magnetic field measurement**
Marcin Chodnicki, Air Force Institute of Technology, Poland
Michał Mazur, Air Force Institute of Technology, Poland
Mirosław Nowakowski, Air Force Institute of Technology, Poland
Grzegorz Kowaleczko, Air Force Institute of Technology, Poland

500 **Specific damping capacity of CuZn and CuZnAl metal foams, a preliminary study**
Diego Scaccabarozzi, Politecnico di Milano, Italy
Bortolino Saggin, Politecnico di Milano, Italy
Marianna Magni, Politecnico di Milano, Italy
Alessio Sesana, Politecnico di Milano, Italy
Marco Tarabini, Politecnico di Milano, Italy
Jacopo Fiocchi, National Research Council, CNR, Italy
Carlo Alberto Biffi, National Research Council, CNR, Italy
Ausonio Tuissi, National Research Council, CNR, Italy

506 **Volume scattering losses evaluation for radar sounding of Jovian icy moons**
Federico Di Paolo, Istituto di Radioastronomia, INAF, Italy
Roberto Orosei, Istituto di Radioastronomia, INAF, Italy
Sebastian E. Lauro, Roma Tre University, Italy
Barbara Cosciotti, Roma Tre University, Italy
Elisabetta Mattei, Roma Tre University, Italy
Elena Pettinelli, Roma Tre University, Italy

511 **Baseline operation planning for the High Resolution Imaging Channel of BepiColombo mission to Mercury**
Michele Zusi, INAF-IAPS, Italy
Gaetano Di Achille, INAF-OATe, Italy
Valentina Galluzzi, IANF-IAPS, Italy
Elena Mazzotta Epifani, INAF-OAR, Italy
Vincenzo Della Corte, Università Parthenope, Italy
Pasquale Palumbo, Università Parthenope, Italy
Gabriele Cremonese, INAF-OAPd, Italy
Raffaele Mugnuolo, ASI, Italy
Milena Amoroso, ASI, Italy

516 **Performances of the SIMBIO-SYS High Resolution Imaging Channel on board BepiColombo/ESA spacecraft**
V. Della Corte, Parthenope University of Naples, IAPS-INAF, Italy
P. Palumbo, Parthenope University of Naples, IAPS-INAF, Italy
M. Zusi, IAPS-INAF, Italy
M. Baroni, Leonardo S.p.a., Italy
G. Cremonese, Osservatorio Astronomico di Padova, INAF, Italy
R. Mugnuolo, ASI, Italy

521 **GNSS performance modelling for positioning and navigation in urban environments**
Suraj Bijjahalli, RMIT University, Australia
Alessandro Gardi, RMIT University, Australia
Roberto Sabatini, RMIT University, Australia

Special Session on Metrology for Radar Systems - PART II

Room: CNR Headquarter, Auditorium
Chairs: *Alfonso Farina, LFIEEE, Distinguished Lecturer of AESS*
Marco Frasca, MBDA Italia, Italy

527 **Test Results of an innovative frustum of cone antenna sited in an outdoor Test Range**
Rossella Stallone, SEASTEMA S.p.A, Italy
Marco Massardo, SEASTEMA S.p.A, Italy

532 **Assessing Spectral Compatibility Between Radar and Communication Systems on Measured Data**
Vincenzo Carotenuto, University of Naples Federico II, Italy
Augusto Aubry, University of Naples Federico II, Italy
Antonio De Maio, University of Naples Federico II, Italy
Nicola Pasquino, University of Naples Federico II, Italy
Alfonso Farina, LFIEEE, Distinguished Lecturer of AESS

538 **Localization of Gravitational Sources From Time-Frequency Maps**
Paolo Addesso, University of Salerno, CNIT, INFN, Italy
Maurizio Longo, University of Salerno, CNIT, Italy
Vincenzo Matta, University of Salerno, CNIT, INFN, Italy
Vincenzo Pierro, University of Sannio, INFN, Italy

544 **On the use of ExoMars Radar Doppler Altimeter for Descent Module Attitude Reconstruction**
Marco Iorio, Thale Alenia Space Italia, Italy
Pasquale Pepe, Thale Alenia Space Italia, Italy
Michela Veredice, Thale Alenia Space Italia, Italy

549 **A MISO radar system for drone localization**
Giulia Sacco, Sapienza University of Rome, Italy
Erika Pittella, Sapienza University of Rome, Italy
Emanuele Piuzzi, Sapienza University of Rome, Italy
Stefano Pisa, Sapienza University of Rome, Italy

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

Room: CNR Headquarter, Marconi Hall
Chairs: *Fabio Leccese, "Roma Tre" University, Italy*
Ilaria Carlomagno, "Roma Tre" University, Italy

554 **[INVITED] Synchrotron X-rays methodologies for Aerospace Materials**
Ilaria Carlomagno, "Roma Tre" University, Italy

559 **Applicability of the Mixed Reality to Maintenance and Training Processes of C4I Systems in Italian Air Force**
Pompeo Piedimonte,Logistic Command, Italian Air Force, Italy
Silvia Liberata Ullo, University of Sannio, Italy

565 **A New Reliability Approach for Additive Layers Manufactured Components: an Improvement**
Francesca Nanni, University of Rome Tor Vergata, Italy
Simona Nacamulli, Unoauno Srl, Italy
Ruggero De Francesco, SeTeL s.r.l, Italy
Enrico Petritoli, "Roma Tre" University, Italy
Rosario Morello, University "Mediterranea" of Reggio Calabria, Italy

571 **Radome Reliability**
Anna Paggi, ItalConsul s.r.l., Italy
Gian Luca Mariotti, ItalConsul s.r.l., Italy
Roberto Paggi, ItalConsul s.r.l., Italy
Ernesto F. Ghizzoni, MBDA Spa, Italy
Fabio Leccese, "Roma Tre" University, Italy
Andrea Calogero, "Roma Tre" University, Italy

576 **Measuring of Axis Errors and Their Prognosis During Aircraft Parts Machining**
Jerzy Józwik, Lublin University of Technology, Poland

Special Session on Measurement and Instrumentation for Aerospace Applications - PART II

Room: CNR Headquarter, Giacomello Hall
Chairs: *Stefano Debei, University of Padua, Italy*
Marco Pertile, University of Padua, Italy

581 **Shape Measurement of Large Structures in Space: Experiments**
Thibaud Talon, California Institute of Technology, USA
Sergio Pellegrino, California Institute of Technology, USA

585 **Design of a Wireless Passive Sensing System for Impact Detection of Aerospace Composite Structures**
Hailing Fu, Imperial College London, UK
Aldyandra Hami Seno, Imperial College London, UK
Zahra Sharif Khodaei, Imperial College London, UK
M. H. Ferri Aliabadi, Imperial College London, UK

590 **Camera Rig Extrinsic Calibration Using a Motion Capture System**
Sebastiano Chiodini, CISAS "Giuseppe Colombo", University of Padova, Italy
Marco Pertile, CISAS "Giuseppe Colombo", University of Padova, Italy
Riccardo Giubilato, CISAS "Giuseppe Colombo", University of Padova, Italy
Federico Salvioli, ALTEC S.p.A., Italy
Marco Barrera, ALTEC S.p.A., Italy
Paola Franceschetti, Thales Alenia Space - Italia, Italy
Stefano Debei, CISAS "Giuseppe Colombo", University of Padova, Italy

596 **Application of Piezoelectric Sensors for Structural Health Monitoring in Aerospace**
Filip Ksica, Brno University of Technology, Czech Republic
Zdenek Hadas, Brno University of Technology, Czech Republic
Jiri Hlinka, Brno University of Technology, Czech Republic

602 **Smart Air-Data Probe for Fault-Tolerant Flow Measurements**
Francesco Schettini, Università di Pisa, Italy
Gianpietro Di Rito, Università di Pisa, Italy
Roberto Galatolo, Università di Pisa, Italy

General Session - PART IV

Room: CNR Headquarter, Auditorium
Chairs: *Silvia Ullo, IEEE Member, University of Sannio, Italy*
Konrad Wojtowicz, Military University of Technology, Poland

608 **Design of a Microwave Sensor for Fuel Quality Monitoring**
Gregorio Andria, Polytechnic University of Bari, Italy
Filippo Attivissimo, Polytechnic University of Bari, Italy
Attilio Di Nisio, Polytechnic University of Bari, Italy
Giuseppe Maria D'Aucelli, Polytechnic University of Bari, Italy
Sergio Mario Camporeale, Polytechnic University of Bari, Italy
Pietro Pappalardi, Polytechnic University of Bari, Italy

613 **Stochastic Flash ADC in Hardware Correlator for Very Long Baseline Interferometry**
Marjan Urekar, University of Novi Sad, Serbia
Nemanja Gazivoda, University of Novi Sad, Serbia
Jelena Đorđević-Kozarov, University of Niš, Serbia

618 **Investigation of image based measurement for aircraft approach**
Jacek Pieniazek, Rzeszow University of Technology, Poland

624 **MET4F: a tool for providing in near real-time weather information on board**
Myriam Montesarchio, Italian Aerospace Research Center, Italy
Alessandra Lucia Zollo, Italian Aerospace Research Center, Italy
Paola Mercogliano, Italian Aerospace Research Center, Italy

General Session - PART V

Room: CNR Headquarter, Marconi Hall
Chairs: *Ioan Tudosa, University of Sannio, Italy*
Graham Wild, RMIT University, Australia

629 **Temperature sensitivity of a quartz crystal microbalance for TGA in Space**
Marianna Magni, Politecnico di Milano, Italy
Bortolino Saggin, Politecnico di Milano, Italy
Diego Scaccabarozzi, Politecnico di Milano, Italy
Marco Tarabini, Politecnico di Milano, Italy
Ernesto Palomba, IAPS-INAF, Italy
Andrea Longobardo, IAPS-INAF, Italy
Fabrizio Dirri, IAPS-INAF, Italy
Emiliano Zampetti, IIA-CNR, Italy

634 **Compressed Sensing Technologies and Challenges for Aerospace and Defense RF Source Localization**
Pasquale Daponte, University of Sannio, Italy
Luca De Vito, University of Sannio, Italy
Francesco Picariello, University of Sannio, Italy
Sergio Rapuano, University of Sannio, Italy
Ioan Tudosa, University of Sannio, Italy

640 **Study on Vacuum Leak Calibration Technology Based on Static Cumulative Comparison Method**
Lan Zhao, Lanzhou Institute of Physics, Science and Technology, China
Yong-jun Cheng, Lanzhou Institute of Physics, Science and Technology, China
Wen-jun Sun, Lanzhou Institute of Physics, Science and Technology, China
Lian Chen, Lanzhou Institute of Physics, Science and Technology, China
Ya-li Li, Lanzhou Institute of Physics, Science and Technology, China
Tian-you Feng, Lanzhou Institute of Physics, Science and Technology, China

645 **Network Optimization for Multistatic Ultrasonic Sensors Based Indoor Navigation System**
Rohan Kapoor, RMIT University, Australia
Alessandro Gardi, RMIT University, Australia
Roberto Sabatini, RMIT University, Australia

Special Session on Measurement and Instrumentation for Aerospace Applications - PART III

Room: CNR Headquarter, Giacomello Hall
Chairs: *Stefano Debei, University of Padua, Italy*
Marco Pertile, University of Padua, Italy

651 **Reconfigurable S-Band Patch Antenna Radiation Patterns for Satellite Missions**
Erika Pittella, Sapienza University of Rome, Italy
Stefano Pisa, Sapienza University of Rome, Italy
Augusto Nascetti, Sapienza University of Rome, Italy

657 **Performance comparison among three optical fibre- based displacement sensors for Blade Tip Clearance measurements**
Rubén Fernández, University of the Basque Country, Spain
Josu Amorebieta, University of the Basque Country, Spain
Gaizka Durana, University of the Basque Country, Spain
Josu Beloki, Centro de Tecnologías Aeronáuticas, Spain
Joseba Zubia, University of the Basque Country, Spain

663 **Position measurement and uncertainty analysis for the shutter mechanism mounted on the Rosetta mission**
Marco Pertile, University of Padova, Italy
Sebastiano Chiodini, CISAS "G.Colombo", University of Padova, Italy
Riccardo Giubilato, CISAS "G.Colombo", University of Padova, Italy
Mariolino De Cecco, University of Trento, Italy
Stefano Debei, University of Padova, Italy

669 **OCEANS-18: monitoring undetected vessels in high risk maritime areas**
Angelo Dumitriu, University of Padua, Italy
Giuliana Elena Miceli, University of Padua, Italy
Sara Schito, University of Padua, Italy
Davide Vertuani, University of Padua, Italy
Pietro Ceccheto, University of Padua, Italy
Luca Placco, University of Padua, Italy
Giulia Callegaro, University of Padua, Italy
Laura Marazzato, University of Padua, Italy
Francesco Accattino, University of Padua, Italy
Anselmo Bettio, University of Padua, Italy
Elisa Conte, University of Padua, Italy
Thomas Golfetto, University of Padua, Italy
Enrico Cagnato, University of Padua, Italy
Alberto Scomparin, University of Padua, Italy
Rudy Roncato, University of Padua, Italy
Lorenzo Rossi, University of Padua, Italy
Gabriele Lombardo, University of Padua, Italy
Michele Lucrezia, University of Padua, Italy
Francesco Fontanot, University of Padua, Italy
Carlo Bettanini, University of Padua, Italy

675 **Index of Authors**