

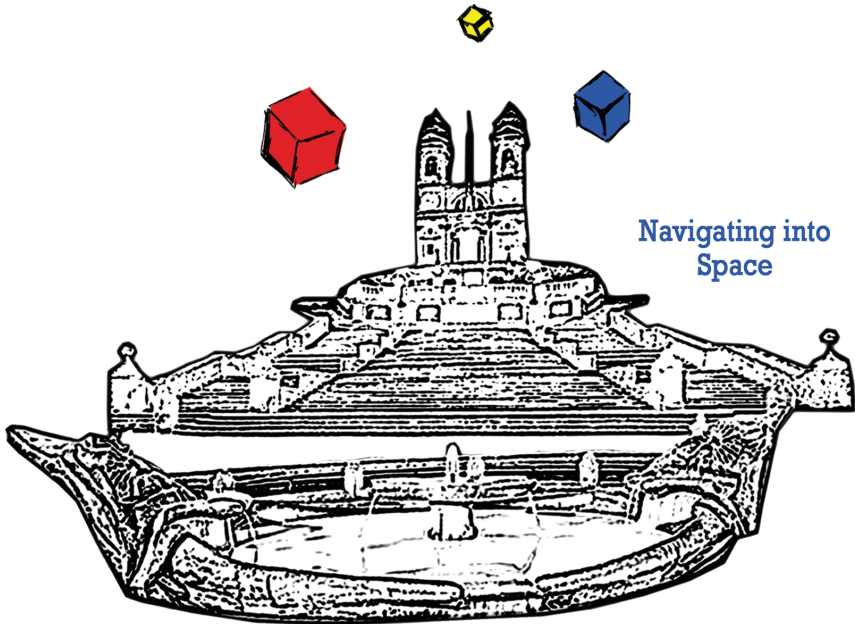
**3RD IAA CONFERENCE ON
UNIVERSITY SATELLITE MISSIONS
CUBESAT WORKSHOP &
INTERNATIONAL WORKSHOP ON
LEAN SATELLITE STANDARDIZATION (IWLS2)**

November 30th - December 5th, 2015

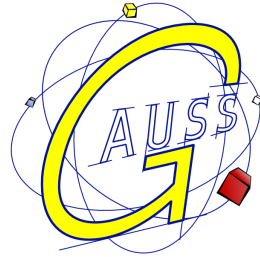
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Paolo Teofilatto - *IAA Member, Dean of the School of Aerospace Engineering*
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Chantal Cappelletti - *Professor, PhD, IAA Corresponding Member, G.A.U.S.S. Srl*
Marta Massimiani - *G.A.U.S.S. Srl*
Riccardo Di Roberto - *G.A.U.S.S. Srl*

Monday, November 30th, 2015

09:45-10:00 *Welcome Address - Filippo Graziani (GAUSS Srl)*

Opening Remarks - Antonio Sposito (ASI)

10:00-10:45 *Opening Lecture - Jean-Michel Contant (IAA): The IAA and Small Satellites For The Young Generations*
IAA Members Induction

10:45-11:30 *Invited Lecture - Vladimir Andreev (ISC Kosmotras): ISC Kosmotras. Dnepr Program. 15 Years at the World Launch Services Market*

11:30-11:50 **Coffee-break**

11:50-13:00 *Invited Lecture - Amalia Finzi (PoliMi), Emanuele Di Sotto (GMV): Rosetta: Le Nostre Ali Sulla Coda Di Una Cometa*

13:00-14:30 **Lunch**

14:30-18:00 **Afternoon sessions:**

Session: Space Missions Overview

IAA-CU-15-01-16 *Five Nations CubeSat Constellation; An Inexpensive Test Case For Learning And Capacity Building - Arifur R. Khan, George Maeda, Hirokazu Masui, Mengu Cho - Kyushu Institute of Technology*

IAA-CU-15-01-18 *QB50 Project: An Enabler Of Harmonization And Standardization Of CubeSat Platforms - Paride Testani, Jan Thoemel, Amandine Denis, Thorsten Scholz, Davide Masutti - Von Karman Institute*

IAA-CU-15-01-27 *NanosatC-Br2, The Second Cubesat Of The NanosatC-Br Program - Otavio Santos Cupertino Durão, Nelson Jorge Schuch - INPE-National Institute for Space Research, INPE/CRS - National Institute for Space Research/South Regional Center*

IAA-CU-15-01-43 *A Remote Controllable Thermovacuum Facility For Cubesats And Small Payloads - Claudio Paris, Giampiero Sindoni - Centro Fermi, Sapienza University of Rome*

IAA-CU-15-01-47 *UWE - Lessons Learned And Future Perspectives - Philip Bangert, Slavi Dombrovski, Alexander Kramer, Klaus Schilling, Stephan Busch - University of Würzburg*

16:00-16:20 **Coffee-break**

IAA-CU-15-01-48 *Approach And Perspectives Of The Italian Space Agency For Mini And Microsatellites - Luigi Ansalone, Claudia Facchinetti, Francesco Longo, Giancarlo Varacalli, Roberto Formaro - ASI-Italian Space Agency*

IAA-CU-15-01-49 *Multi-User Satellite Operations - Rayan Imam, Yang Gao - University of Khartoum, University of Surrey*

IAA-CU-15-01-58 *Inverse Dynamics Particle Swarm Optimization For Nanosatellites Rendezvous Via Differential Drag - Dario Spiller, Fabio Curti - Sapienza University of Rome*

IAA-CU-15-01-63 *Main Directions Of Yuzhnoye's Activity In Nanosatellite Technology - Bilousov Kostiantyn, Zaitzeva Anzhela, Dotcenko Oleh - Yuzhnoye SDO*

Session: New Perspectives in the Application of Microsatellites

IAA-CU-15-04-67 *University Earth Remote Sensing Satellite - Anatolii Kulabukhov, Oleg Klochkov - Dnepropetrovsk National University*

- IAA-CU-15-04-08 **Nanosatellite Constellations For Large-Scale Railway Transportation Monitoring**
- Julian Scharnagl, Alexander Kleinschrodt, Andreas Freimann, Karthik Ravandoor,
Lakshminarasimhan Srinivasan, Klaus Schilling - Zentrum für Telematik e.V., University of
Würzburg
- IAA-CU-15-04-13 **Analytical Study Of The Disturbances Effect On The Remote Sensing Image
Quality** - Mikhail Ovchinnikov, Yaroslav Mashtakov, Stepan Tkachev - Keldysh institute
of Applied Mathematics RAS

Tuesday, December 1st, 2015

**09:30-10:15 Invited Lecture - Benjamin Malphrus (MSU): Lunar IceCube: Prospecting
The Moon For Water Ice**

**10:15-11:00 Invited Lecture - Mikhail Ovchinnikov (KIAM): Big Goals For Small
Spacecraft: Missions To The Moon, Asteroids, Planets, And Interstellar Space.
Dynamical Aspects**

11:00-11:45 Invited Lecture - Paolo Teofilatto (SIA): Launchers For Responsive Space

11:45-12:05 Coffee-break

12:05-13:20 Morning sessions:

Session: Launch Opportunities for University Missions

- IAA-CU-15-02-39 **The Pico Satellite Launcher Family** - Stephan Roemer, Michael Scheiding, Sebastian
Scheiding, Roy Bretfeld - Astro- und-Feinwerktechnik Adlershof GmbH
- IAA-CU-15-02-61 **Firefly Alpha - A New Low Cost, Small Satellite Launch Vehicle** - Andy Bradford
- Firefly Space Systems
- IAA-CU-15-02-65 **UniSat Platform: An Innovative Launch Opportunity for Picosatellites** - Marco
Truglio, Aitor Conde, Salvatore Paiano, Riccardo Di Roberto, Chantal Cappelletti, Filippo
Graziani - G.A.U.S.S. Srl

Session: Ground Segment and Station Networks

- IAA-CU-15-03-05 **A Linux Based Software Defined Radio (SDRs) For Amateur Ground Stations** -
Aaron Yankey - All Nations University College
- IAA-CU-15-03-14 **ESEO Ground Segment Software Solutions: Design, Implementation And Testing**
- Marco Bosco, Paolo Tortora - University of Bologna
- IAA-CU-15-03-19 **Design and Implementation Of The TIGRISAT Ground Station** - Yousra Fakhri
Noori, Nabeel Abdualhussian Salman - Ministry of Science and Technology, Iraq
- IAA-CU-15-03-59 **Center Of Space Services In The Ryazan Region. Regional Aspect** - Soldatov
Victor Vasilevich, Antipova Olga Victorovna - Ryazan State Radio Engineering University

13:20-14:50 Lunch

14:50-17:55 Afternoon sessions:

Session: Space Debris

- IAA-CU-15-05-03 **Space Debris Removal** - Hari Shankar R L, Purnima Narayan - IGNOU, Pune
University
- IAA-CU-15-05-64 **GAUSS' Activities On Space Debris** - Riccardo di Roberto, Chantal Cappelletti,
Marco Truglio, Aitor Conde, Filippo Graziani - G.A.U.S.S. Srl
- IAA-CU-15-05-25 **A Review Of Surrey Space Centre Debris Removal Research Missions** - Chiara
Massimiani, Jason Forshaw, Martin Richter, Andrew Viquerat, Ed Simons, Richard Duke,
Guglielmo Aglietti - Surrey Space Centre

IAA-CU-15-05-62 Numerical Simulation Of Space Debris - *Khaled Alhussan - King Abdulaziz City for Science and Technology*

Session: CubeSat Payloads

IAA-CU-15-08-33 A Pilot Experiment Definition On CubeSat Class Of Innovative Design For A New Class Of Magnetic Field Sensors-Actuators Based On The Mechanism Of Hydration - *Giuseppe Rondinelli, Brunella Pavesi, Antonella De Ninno - Telespazio, ENEA*

IAA-CU-15-08-34 The Quadruple Image Multi-Band Sensor - An Innovative Cubesat Payload Against Exoplanet Transit False Detections - *Marcella Iuzzolino, Ernesto Oliva, Domenico Accardo, Andrea Tozzi, Giancarlo Rufino - University of Naples "Federico II", INAF - Osservatorio Astrofisico di Arcetri*

16:35-16:55 Coffee-break

IAA-CU-15-08-37 The Cosmic X-Ray Background NanoSat-2 (CXBN-2): Results From An Improved X-Ray Detector For CubeSats - *Roger McNeil, Benjamin Malphrus, Jordan Healea, Sean McNeil - Morehead State University*

IAA-CU-15-08-42 Combination Of Capillarity And EWOD Microfluidic Technology For Biomedical Space Research - *Pablo Rodriguez Llorca, Marco Nardecchia, Giampiero de Cesare, Domenico Caputo, Augusto Nascetti - Sapienza University of Rome*

Session: Interplanetary CubeSat Perspectives

IAA-CU-15-09-29 Sampled-Data Stabilization Around The L2 Translunar Libration Point - *Lorenzo Ricciardi Celsi, Raffaello Bonghi, Salvatore Monaco, Dorothee Normand-Cyrot - Sapienza University of Rome, Laboratoire des Signaux et Systèmes, CNRS-Supelec*

Wednesday, December 2nd, 2015

09:30-10:15 Invited Lecture - Jordi Puig-Suari (Tyvak): CubeSats And NanoSats: The Next Generation

10:15-11:00 Invited Lecture - Fernando Aguado (UVigo): Satellite Communication Systems Based On Small Satellite Platforms

11:00-11:45 Invited Lecture - Piero Galeone (ESA): ESA Education Office - Programme Opportunities for University Students

11:45-12:05 Coffee-break

12:05-13:20 Morning sessions:

Session: CubeSat SubSystems

IAA-CU-15-07-04 Micro-Cathode Arc Thruster For Cube Satellite Propulsion - *Michael Keidar - George Washington University*

IAA-CU-15-07-10 A Simple Attitude Controller For Staring Imaging Satellite - *Yijun Lian, Yudong Gao, Guoqiang Zeng - National University of Defense Technology*

IAA-CU-15-07-12 Optimal Gains For Attitude Stabilization Of Spacecraft Using Magnetorquers - *Fabio Celani, Renato Bruni - Sapienza University of Rome*

13:20-14:50 Lunch

14:50-17:55 Afternoon sessions:

IAA-CU-15-07-15 JumpSat Thermal And Mechanical Analysis - *Eduardo Martín López, Stéphanie Lizy-Destrez - DNM/AESS2-Space Systems, Space Systems Design and Operations*

IAA-CU-15-07-23 Design And Realization Of A Reconfigurable S-Band Patch Antenna System For Cubesat Satellites - *Erika Pittella, Stefano Pisa, Hussein Hadi, Alee K. Obeid, Nabeel Salman, Mauro Pontani, Paolo Teofilatto, Augusto Nascetti* - *Sapienza University of Rome*

IAA-CU-15-07-24 Control System for a Microsatellite Reaction Wheel - *Dmitry Pritykin, Nikita Ivlev, Anton Sivkov, Alexander Popov, Ruslan Sergeev, Sergey Efimov, Dmitry Prodan, Alexey Nozdrin* - *Moscow Institute of Physics and Technology, Sputnix Ltd.*

16:35-16:55 Coffee-break

Session: LeanSat Standard and Testing

IAA-CU-15-11-21 Appropriate Testing – With Emphasis On Operability - *Tim Lock* - *European Space Agency*

IAA-CU-15-11-41 Tackling Development Hurdles In CubeSat Projects - *Tim Lock* - *European Space Agency*

IAA-CU-15-11-52 IITMSAT Onboard Telecom And GS Design – A LeanSat Design And Test Approach - *Akshay Gulati, Sampoornam Srinivasan, David Koilpillai, Shubham Chavan* - *IIT Madras*

Thursday, December 3rd, 2015

09:30-10:15 Invited Lecture - Klaus Schilling (University of Würzburg): *Pico-Satellite Formations: Achieving Interesting Performance In Orbit By Cooperation*

10:15-11:00 Invited Lecture - Mengu Cho (Kyutech): *Update On International Standardization On Lean Satellites*

11:00-11:20 Coffee-break

11:20-13:00 Morning sessions:

Session: LeanSat Standard and Testing

IAA-CU-15-11-66 Leansatellites Ground Operations: Best Practices From The Experience Of UniSat-6 - *Aitor Conde, Marco Truglio, Riccardo Di Roberto, Filippo Graziani* - *G.A.U.S.S. Srl*

IAA-CU-15-11-54 Agile Development And Testing Approach And Results For The Aalto Series Nanosatellites - *Tuomas Tikka, Antti Kestilä, Bagus Riwanto, Nemanja Jovanovic, Jaan Praks* - *Aalto University*

IAA-CU-15-11-60 Verification Of InnoSAT2 Solar Panel Manufacturing Techniques Via Environmental Qualification Tests Base On NETS - *Mohd Izzed Mustafa, Zulkifli Abd. Aziz, Kamal Irfan Ahmad Shakir, Mohd Razif Samsudin, Norhizam Hamzah, Halla O. Almubarak, Hirokazu Masui, Mengu Cho* - *Astronautic Technology (M) Sdn. Bhd., Malaysia, Kyushu Institute of Technology*

Session: CubeSat Subsystems

IAA-CU-15-07-26 Simplifying CubeSat Mission: Magnetic Attitude Control Example - *Dmitry Roldugin, Mikhail Ovchinnikov, Benjamin Malphrus, Anatoly Petrukovich* - *Keldysh institute of Applied Mathematics RAS, Morehead State University, Space Research Institute of RAS*

IAA-CU-15-07-44 Development Of A Flywheel For Control, Orientation And Stabilization Of A Small Spacecraft - *Olga Antipova* - *Ryazan State Radio Engineering University*

13:00-14:30 Lunch

14:30-17:40 Afternoon sessions:

- IAA-CU-15-07-46 A Telemetry Muxing Design For The CXBN-2 CubeSat Beacon - *Kevin Brown - Morehead State University*
- IAA-CU-15-07-50 TVAC Tests And Integration Of QB50 ADCS To BeEagleSat - *Sibel Turkoglu, Mehmet Sevket Uludag, Alim Rustem Aslan - Istanbul Technical University*
- IAA-CU-15-07-51 Development Of CubeSat-Compatible Attitude Determination And Control System For The Cosmic X-Ray Background Nanosatellite-2 - *Yevgeniy Byeloborodov, Benjamin K. Malphrus, Kevin Brown - Morehead State University*
- IAA-CU-15-07-53 Radiation Pattern Synthesis Of A High Gain, Circularly Polarized Rectangular Antenna Array In The Ka Band For CubeSat Class Satellites - *Alessandro Cuttin, Giulia Buttazoni, Livio Tenze, Roberto Vescovo - University of Trieste, Esteco s.p.a.*
- IAA-CU-15-07-55 New Trends In The Design, Integration And Test Of Small Sized Satellites - *Muhammad Rizwan Mughal, Leonardo M. Reyneri, Anwar Ali - Institute of Space Technology, Islamabad, Polytechnic University of Turin*

16:15-16:35 Coffee-break

Session: CubeSat Activities Overview

- IAA-CU-15-06-07 Optimizing 3-Component Force Sensor Installation For Satellite Force Limited Vibration Testing - *Carmine Salzano, Bob Metz - PCB Piezotronics Inc.*
- IAA-CU-15-06-38 International Collaboration and CubeSat Research at Taiwan - *Jyh-Ching Juang, J. J. Miao, Steven Chen - National Cheng Kung University, Taiwan, National Space Organization*
- IAA-CU-15-06-40 6DOF ADCS Air-Bearing Testbed - *Julio Gallegos, Pedro Vallejo, Fernando Martín, Xavier Dupac, Tim Lock - European Space Agency*
- IAA-CU-15-06-45 The Integration And Testing Of UBAKUSAT - *Alim Rustem Aslan, Mengü Cho, Mehmet Sevket Uludag, Bogaç Karabulut, Mustafa Erdem Bas, Mehmet Deniz Aksulu, Mustafa Karatas, Erdiñ Yakut, Murat Suer - Istanbul Technical University, Turkish Amateur Satellite Technologies Organization, Kyushu Institute of Technology, ERTEK Space LTD., GUMUSH Space Ltd.*
- IAA-CU-15-06-56 The Construction Of A CubeSat With Additive Manufacturing: Racetrack To Orbit An Additive Revolution - *Stewart Davis - CRP USA*

Friday, December 4th, 2015

International Workshop on Lean Satellite Standardization

09:30-9:45 *Introduction*

9:45-10:15 *Keynote presentation on Lean Satellite concept*

10:15-10:45 *Round-Table Discussion on lean satellite concept*

10:45-11:15 *Exercise on lean satellite scale*

11:15-11:35 **Coffee-break**

11:30-12:00 *Feedback to lean satellite scale*

12:00-13:00 *Round-table discussion on requirements*

13:00-14:30 **Lunch**

14:30-16:00 *Round-table discussion on requirements*

16:00-16:15 *Other standardization issues*

16:15-16:35 **Coffee-break**

16:35-17:00 *Conclusions*

17:00-20:00 **Cheese & Wine Party**

Poster

- IAA-CU-15-03-09 Photovoltaic Power Supply with Supercapacitors - *Adrian Done - University "Stefan cel Mare" Suceava*
- IAA-CU-15-11-22 A Technique to Improve the Quality of your CubeSat Project - *Tim Lock - European Space Agency*
- IAA-CU-15-07-28 Calibration and Testing of Aalto-1 Attitude Determination and Control System - *Bagus Adiwiluhung Riwanto, Tuomas Tikka, Antti Kestilä, Nemanja Jovanovic, Jaan Praks - Aalto University*
- IAA-CU-15-02-36 Aspects of Scientific and Educational Activity of Ryazan State Radio Engineering University in the Area of Space Technologies - *Victor Gurov, Victor Eremeev, Kuznetsov Alexei, Alexaner Taganov - Ryazan State Radio Engineering University*
- IAA-CU-15-07-35 Low Power Consumption Radio Modem for Micro-Satellite - *Alexaner Taganov, Eugene Vasilyev, Sergei Gusev, Sergei Kolesnikov - Ryazan State Radio Engineering University*
- IAA-CU-15-03-31 A Novel Tracking Method of the Sun-Synchronous Satellite Using UHF Antenna - *Guofu Wu, Guoqiang Zeng, Haitao Shui, Fu Yuan - National University of Defense Technology*
- IAA-CU-15-07-30 A New Design Method for the On-Board Computer of Micro Satellites - *Haitao Shui, Zhijun Li, Guofu Wu, Guoqiang Zeng - National University of Defense Technology*