

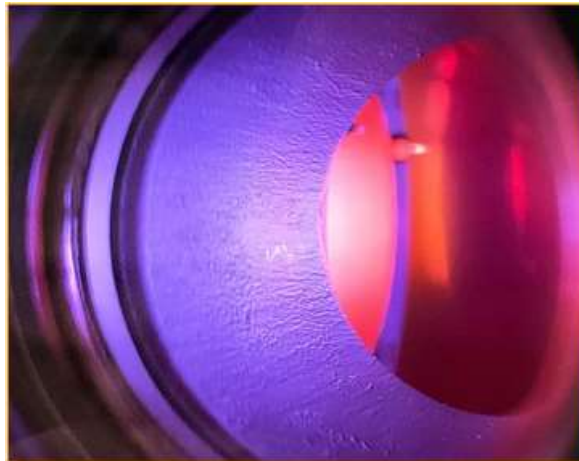
THE SPACE ENVIRONMENT INTERACTION ENGINEERING: PHYSICS, TEST TECHNOLOGY AND EXPERIMENTAL VALIDATION

In order to use space for scientific and commercial purposes it is necessary to understand the Low Earth Orbit (LEO) space environment where most of the activities are now, and will be in the future, carried out. LEO environment includes severe hazards such as Atomic Oxygen (AO), Ultraviolet (UV) Radiation, Ionizing Radiation, High Vacuum, Plasma, Micrometeoroids and Debris, Severe Temperature Cycles and, for some systems, the Re-Entry Environment. It is important to note that these environmental characteristics do affect the space systems, the materials and the structures at the same time, with a remarkable synergistic effect. In order to understand these synergistic effects, whether experimental or theoretical and numerical approaches are of essential importance, as the comprehension of the operative environment becomes a key point to extend operative life of satellites and structures and to withstand aggressive conditions.

The course is based on the analysis of the physics of Space Environment and it is completed with an in-depth analysis of both ground testing methods and the validation of experimental tests according to current regulations given by the major agencies as ESA and NASA.

Syllabus

- Part 1: Physics of the Space Environment (2 hours)
- Part 2: Test Technology, Ground-Test Facilities (2 hours)
- Part 3: Experimental Validation (2 hours)



LEARNING OBJECTIVES

Aim of the course is to give to the attendee the instruments to understand both the Space Environment and the related techniques for Environmental Tests on Space Systems, Materials and Structures.

Target audience: Doctoral students, non-academic professionals, and undergraduate students.

Dates and time: 13/15/17 November 2023, 10:00-12:00 CET

REGISTRATION AND CONTACTS

Course Code: 20231113

This course is part of the 2023 institutional activity for AIDAA members. The registration requires the purchase of one of the packages described here <https://www.aidaa.it/package-list/>, and the completion of the online form available on AIDAA webpage.

Course platform: Webex, a link will be sent via email as the registration is complete.
At the end of each course, **attendance certificates** will be sent to participants via email.

For further info, please, contact academy@aidaa.it



SPEAKER

Dr. Andrea Delfini received the University Master degree in Aerospace Engineering from “Sapienza” University of Rome in 2007 and the 1st level Master degree in composites materials and nanotechnologies in aerospace applications from “Sapienza” University of Rome, Italy, in 2012. In 2020 he received the Ph.D in Energy and Environment and the National Scientific Certification as Associate Professor in Aerospace Structures. He currently works at the Aerospace Systems Laboratory of the Department of Astronautic, Electric and Energy Engineering (D.I.A.E.E.) as a Research Associate and also conducts research activities at the Department of Mechanical and Aerospace Engineering (D.I.M.A.) both of Sapienza University of Rome. His research is related to Two-phases fluids cooling systems for Space Applications, Thermal Protection Systems for re-entry applications, Space Environment Interaction Engineering, Nano-satellites design and manufacturing and EM fields and Space Systems Interaction.