

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, Debris, Severe Temperature Cycles, and, for some systems, the Re-Entry Environment. It is important to note that these environmental characteristics do simultaneously affect the space systems, materials, and structures, with a remarkable synergistic effect. In order to understand these synergistic effects, whether experimental or theoretical, numerical approaches are of essential importance, as the comprehension of the operative environment becomes a key point to extending the operative life of satellites and structures and withstanding aggressive conditions.

The course is based on 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 such as ESA and NASA.



Learning objectives: The course aims to give the attendees the instruments to understand 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: 25 October 2022, 10:00-12:00 CEST; 4 and 8 November 2022 10:00-12:00 CEST

Speakers

Andrea Delfini received a University Master's degree in Aerospace Engineering from "Sapienza" the University of Rome, in 2007 and a University Master's 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, and he currently works with the Department of Mechanical and Aerospace Engineering (DIMA) as a Fellow Researcher and also conducts research activities in the Aerospace Systems Laboratory of the Department of Astronautics, Electric and Energy Engineering (DIAEE), both of Sapienza University of Rome. His research is related to Thermal Protection Systems for re-entry applications, Space Environment Interaction Engineering, Nano-satellites design and manufacturing, EM fields, and Space Systems Interaction.

Registration and Contacts

Course Code: 20221025

This course is part of the 2022 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

