

Introduction: Space Environmental Effects on Materials II

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WE ARE pleased to bring you this special edition of the *Journal of Spacecraft and Rockets*, titled *Space Environmental Effects on Materials II*. The papers in this edition were selected from the 10th International Symposium on “Materials in Space Environment” (ISMSE) and the 8th International Conference “Protection of Materials and Structures in a Space Environment” (ICPMSE), which were held as a joint symposium in Collioure, a small village in the South of France, from the 19th to the 23rd of June 2006. ISMSE was organized by the Office National d’Etudes et de Recherches Aérospatiales (ONERA) Centre National d’Etudes Spatiales (CNES) in collaboration with the European Space Agency (ESA) and the Centre National d’Etudes Spatiales (CNES). ICPMSE was organized by ITL, Inc. (Integrity Testing Laboratory) and the Canadian Space Agency.

The aim of both symposia was to promote information exchange among members of the various scientific and engineering disciplines engaged in the different aspects of space materials development, on-ground qualification, and in-flight experiments and lessons learned from operational vehicles. In this respect, the symposium brought to Collioure a distinguished representation of the scientific and engineering communities, working in different fields of protection of materials and structures from the harsh conditions of the space environment. The symposium welcomed 150 attendees from 16 different Northern hemisphere countries. The symposium included a plenary session with 3 invited papers, 10 oral sessions, 7 poster sessions, and a technical exhibition.

This joint symposium presented a unique dialogue opportunity for interaction between scientists, engineers, and managers working to characterize space environments and the critically important

discipline of space materials’ development. A number of subjects were discussed during the presentation sessions, ranging from new materials and coatings development, new testing methods, and new results on physical phenomena and synergetic effects of space environment to lessons learned from comparative analysis of ground-based and in-flight results.

The complete set of papers presented at the symposium is available through the ESA publications division (ESTEC, PO Box 299, 2200, AG Noordwijk, The Netherlands).

This AIAA special edition of the *Journal of Spacecraft and Rockets* includes selected papers covering the main aspects of the survivability of materials operating in the space environment. Space environment interaction with materials topic areas includes the effects of contamination, ultraviolet, atomic oxygen, and charging as well as the hypervelocity impacts by microparticles. Several papers were included describing how to test materials before flight and simulation in laboratory of the space environment, and some results from direct exposure to space (on the ISS).

As President of the 10th ICPMSE, I personally wish to take this opportunity to thank my colleagues of the organizing committee, the city of Collioure, ITL, CNES, and ESA, and all the participants (authors and exhibitors) who helped to make this meeting a success. I would also like to thank Dave Edwards and Joe Minow for their work as editors of this special issue.

Magdeleine Dinguirard-Regord
Guest Editor