

PREFACE

The second Spacecraft Charging Technology Conference was held at the U.S. Air Force Academy from October 31 to November 2, 1978. The first conference, held two years earlier, was so successful in bringing together experts from diverse areas of this technology to exchange results and viewpoints that it was believed another conference would be of substantial benefit.

The tenor of the presentations at this conference was gratifying. No longer are we working with first concepts and theories. We now have, in hand, space and ground test data that correlate well; analytical programs that can model the observed phenomena; and the imminent flight of the SCATHA spacecraft, which will extend our knowledge of the spacecraft charging environment. Although the technology is far from being complete, there was a feeling of confidence among the participants that we are beginning to develop a working knowledge of the problems and their potential remedies.

One session of this conference introduced a new area of general interest, environmental interactions with on-board, high-voltage spacecraft systems operating over a wide range of altitudes from low Earth orbit to geosynchronous orbit. These interactions must be considered during the initial design phases of future high-power space systems.

The proceedings includes 52 of the 54 papers presented at the conference. The panel discussion was recorded, has been transcribed and edited, and is included. The proceedings follows the conference session format. Four papers are printed at the end of the proceedings that were not presented at the conference.

Col. John E. Brooke, Assistant Director of Science and Technology, USAF Systems Command; and James J. Kramer, Associate Administrator for Aeronautics and Space Technology, National Aeronautics and Space Administration, approved and endorsed the conference. Col. Bernard S. Morgan, Jr., Commander of the USAF Geophysics Laboratory, USAF Systems Command, and Dr. John F. McCarthy, Jr., Director of the NASA Lewis Research Center, encouraged and supported the conference. Lt. Gen. K. L. Tallman, Superintendent of the USAF Academy, arranged accommodations, transportation, meals, and facilities. Capt. William Denton, Directorate of Conferences, USAF, gave outstanding support at the conference. The members of the Conference Program Committee were Maj. George Kuck, Capt. Henry Garrett, Dr. William Lehn, N. John Stevens, Dr. Elden Whipple, and Dr. Alan Rosen.

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