

About the Digest's Covers

The theme of the 1989 IEEE MTT-S Symposium is "MICROWAVES AMONG THE STARS" in recognition of the importance of microwaves to space exploration. Microwaves provide the eyes, ears and voice of our spacecraft. Specifically, microwaves provide communications with our spacecraft, imaging at nonvisual wavelengths, radar for ranging and velocity measurements, and also provide science information through utilization of their unique properties. For our interplanetary spacecraft, and most of our satellites, microwaves are the only link that provides for control of the spacecraft and retrieval of the data. Many of mankind's noblest endeavors in space exploration, such as the Voyager mission mentioned below, would not have been feasible without the use of microwaves. Truly, microwaves have been an enabling technology for many of the spacecraft now in existence.

The covers of the three volumes comprising this years digest were selected to be consistent with the theme of the symposium. The theme, "MICROWAVES AMONG THE STARS," can have a double meaning and, correspondingly, so can the covers. In the "Hollywood" sense the covers depict the progress of some future symposium attendee from outer space as they pass one of the planets (Volume I), arrive in orbit over the earth (Volume II) and finally approach the convention center meeting site (Volume III). Of perhaps more interest to the microwave community is that the front cover of Volume I is a montage of the images of Saturn and its six largest satellites (they are, clockwise; Titan at the bottom center, Rhea, Dione in the upper right, Enceladus, cratered Mimas and Tethys) obtained by the Voyager spacecraft during its Saturn encounter. These images were digitized and transmitted to earth by Voyager's X-Band down-link to the deep-space network. The image on the cover of Volume II was obtained from a thermatic mapper on Landsat which used a microwave link at L band to transmit the image to earth. Also the picture on page iv is a synthetic aperture radar (SAR) image of the Los Angeles area. It too was transmitted to earth via an L-Band link. These images illustrate the critical importance of microwaves to the world's activities in space.