

# Preface

The start of the twenty-first century has seen rapid development of China's space endeavors. Breakthroughs have come one after another from manned spaceflight missions and lunar exploration missions. The first-generation Chinese tracking and data relay satellite system is already operational and a full constellation Compass/Beidou navigation satellite system will soon be in place. Very productive space applications have been developed for ocean environment and earth resource monitoring, communications, and meteorology. Even more exciting milestones are yet to come as the momentum builds in these and other rising fields in the near future. China's space station will soon be launched and will soon send a rover to land on the moon and return to the Earth. China will also send a probe to explore Mars.

The rapid development of China's space capabilities has included successful development of Tracking, Telemetry and Command (TT&C), and communication systems to meet unprecedented opportunities and challenges. As a result of the persevering efforts of generations of scientists, China already has TT&C and communication systems that encompass land-based ground stations, seagoing instrumentation ships, instrumentation aircraft and tracking, and data relay satellites. The system has the capability to provide a wide range of support to all types of spacecraft at all altitudes of earth's orbit. China's deep space TT&C network successfully provided support to its Chang'E-1 and Chang'E-2 lunar exploration missions and significant growth of the network is expected in the near future. However, there are still numerous issues needing in-depth studies in China's TT&C system. For example, interconnectivity between TT&C networks and the integrated utilization of resources needs further development, inter-department and inter-mission coordination is too complicated and more synergy is needed in the development of ground systems.

With "Shared and Flexible TT&C Systems" as its theme, the 26th Conference of Spacecraft TT&C Technology in China highlights the latest developments related to standardization, informatization, networking and intelligent technologies, and their applications in the field of aerospace TT&C. The objective is to promote the development of an interconnectivity-oriented, resource-sharing, responsive,

flexible, and efficient TT&C system with state-of-the-art technologies based on the specific needs in China. Only in this way is it possible for us to assure healthy long-term development of our TT&C system and to meet the future requirements of China's space program.

The conference, which is organized by the Spacecraft TT&C Committee of the Chinese Society of Astronautics, received more than 250 papers from experts nation-wide with 42 selected for publication. I firmly believe that publication of the proceedings of this important conference will promote international exchange and provide a new channel for sharing of the latest research achievements and engineering practices in the field of spacecraft TT&C.

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