

Featured papers of the H-SPACE 2018 conference – Guest Editorial

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In 2018, the annual International Conference on Research, Technology and Education of Space has been held the 4th time. The host was the BME Space Forum operated by the Federated Innovation and Knowledge Centre (EIT) of the Faculty of Electrical Engineering and Informatics at the Budapest University of Technology and Economics (BME) – in cooperation with the Hungarian Astronautical Society (MANT), which is the oldest space association in Hungary. Three selected papers are featured in the current issue of the Infocommunications Journal.

The organization of the H-SPACE conference series started in 2015, at a time of growing opportunities arising from ESA recently granting membership to Hungary and the need for a joint presentation of space activities pursued at BME. The selection of the date of the event pays tribute to the successful deployment to orbit and mission of the first Hungarian satellite, the Masat-1, which has been launched on February 13, 2012. The main topic of this year’s conference was “Space research for society on every scale”. The agenda of the conference addressed scientific, technological and educational issues of space research and space activities.

The Federated Innovation and Knowledge Centre (BME EIT) was created at the Faculty of Electrical Engineering and Informatics of Budapest University of Technology and Economics (BME) in 2009 to stimulate the research and development activity and to assist the exploitation of research achievements at the Faculty. Currently, BME EIT also operates the BME Space Forum which mission is to harmonize and coordinate the activity of departments at BME participating in space activities by a common vision and strategy, to recognize the joint human and technical resources and amazing achievements, to make internal and external knowledge transfer more efficient, and to utilize opportunities lying in synergies granted by joint capabilities and unified representation. The common aim of BME Space Forum members is to become the bridge between academic research and production, service application, and to participate all phases of research/development/innovation and application processes of space activity.

The Hungarian Astronautical Society (MANT in Hungarian) is a civil organization in Hungary that gathers space researchers, users of space technology and everyone who is interested in the interdisciplinary and state-of-the-art uses and research of outer space. The society was established in 1956 in Budapest, and it is the only Hungarian member of the International Astronautical Federation (IAF) since 1959. The aim of MANT is to raise public awareness about space activity and space applications. The society also provides an opportunity for space enthusiasts to meet, exchange ideas and work together. MANT, through its members from various fields of science, organizes conferences, youth forums, summer space camps, issues periodicals, releases media

material and holds lectures about space research and connected scientific fields.

The conference was open for both local and international professionals and provided an opportunity to showcase Hungarian scientific, technological, educational and outreach activities, related to space. Detailed information can be found on its website (space.bme.hu). Due to the generous support of our partners, the conference had no registration fee. We had more than 200 registered participants from 11 countries. During the conference, we had 1 keynote lecture, 3 long talks and 26 technical presentations from which 11 authors have submitted a full paper. Among them we selected three papers for the current issue.

Estimation of Clear Sky Level for Satellite Propagation Measurements deals with a years-long-measurement. The European Space Agency launched a communication satellite called ‘Alphasat’ in 2013, with two experimental beacons to carry out a scientific experiment. The ground station at the institute of the authors receives signal from the satellite to characterize the satellite-Earth propagation channel. The main goal of long-term propagation measurements is to improve the existing attenuation models that are published in the relevant ITU-R recommendations.

Optical transfer in space communication presents the possibilities of free-space optical connection in space communication. It summarizes the advantages and disadvantages of optical transmission in case of Near Earth and Deep Space region as well as discusses the application of multichannel or more precise diversity systems.

Comparing Calculated and Measured Losses in a Satellite-Earth Quantum Channel deals with quantum-based satellite communication. It compares the theoretical predictions for channel loss with measured values of QuESS (Quantum Experiment at Space Scale) experiment which realized the first satellite-Earth quantum channel.



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