



University of Pavia
Ph.D. School in Electronics, Computer Science and Electrical Engineering

SEMINAR

Deep-space communication at Ka-band (32 GHz)

Maria Montagna, PhD
Visionspace Technologies, Darmstadt, Germany

21/12/2023, 9 am, Aula E7

Abstract: In the last years, satellite communications have been moving to higher frequencies in the microwave spectrum, due to bandwidth congestion and restrictions in its allocation. Space missions at the European Space Agency (ESA) are also following this trend: the first European deep-space satellite equipped with an operational downlink communication system at 32 GHz is BepiColombo, launched in October 2018, followed by JUICE, launched earlier this year. High frequency communications however present challenges in terms of technological development and spacelink management. The seminar focuses on the impairments due to Earth's atmosphere for radio-propagation at Ka-band and on related mitigation strategies under development at ESA for link operations in case of deep-space missions, with examples of BepiColombo communication passes.

Bio: Maria Montagna received the M.Sc. and Ph.D. degrees in electronic engineering from the University of Pavia, Pavia, Italy, in 2006 and 2009, respectively. She is currently with Visionspace Technologies, in Darmstadt, where she works as Ground Station System Engineer consultant at the ESA mission operations centre (ESOC) in Darmstadt, Germany, since 2009. Her main tasks concern the optimization of spacelink operations concepts for ESA's deep-space missions and the execution of radio-frequency and system tests for ESA's missions and tracking antennas.

Organizer
Prof. Marco Pasian

Ph.D. Coordinator
Prof. Ilaria Cristiani

Seminar in English

For more information: marco.pasian@unipv.it