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SEMINAR

RF SATCOM research at TNO

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Abstract: In the last five years the demand for High Throughput satellite communications (HTSC) has dramatically increased. New SATCOM mission concepts are being developed by new services providers (the Starlink constellation from SpaceX, Amazon's Kuiper project, etc.), that use constellations of small satellites in the Low/Medium Earth Orbit to realize any time global satellite-based internet connectivity. Typical SATCOM space and ground terminals were based on reflector antennas. For next generation HTSC systems, flat panel solutions using multi-beam, wide band, wide scanning phased array antennas are currently being investigated because of the supported flexibility and their integration potential. In this talk the main trends of High Throughput RF SATCOM will be summarised and most recent advances at TNO will be presented.

Bio: Stefania Monni was born in Cagliari, Italy, in 1974. She obtained her MSc. in Electronic Engineering in 1999 from the University of Cagliari, Italy, and her Ph.D. in Electrical Engineering in 2005 from the Technical University of Eindhoven, The Netherlands. In 1999 - 2000 she has been with the European Space Agency ESA-ESTEC, The Netherlands, as intern and YGT on interferometry and polarimetry techniques for Synthetic Aperture Radar. Currently, she is Senior Scientist and leader of the Antenna team at the Radar Technology department of TNO, The Netherlands, where she is responsible for the research activities and the long term strategy of the antenna team. She also contributes to the definition and implementation of multi-disciplinary research activities encompassing a broad spectrum of technologies for phased array systems for defense, aerospace and communication applications, with developments from low to high TRL. She coordinates TNO research activities on RF SATCOM technologies at front-end and antenna aperture level. At national level she has being harmonizing the efforts for the preparation of the Active Array Antenna roadmap for the Netherlands Space Office. Next to this, since 2019 Stefania is also with the Chip Integration Technology Centre, in Nijmegen, The Netherlands, as Senior Scientist of the Program on Antennas in Package. Her research interests include phased array antennas and digital beamforming techniques, Frequency Selective Surfaces and filters, leaky wave antennas, integrated antennas and advanced manufacturing technologies. Dr. S. Monni is currently member of the Board of Directors of the European Association of Antennas and Propagation (EurAAP). She has over 70 publications, including journals, peer reviewed conferences, book chapters and patents. She was co-recipient of the Best Innovation Award from the European Space Agency in 2018.

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