



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

SEMINAR

Current challenges and future needs in mm-wave test and measurement

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SIAE MICROELETTRONICA

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Room: Magenta, D floor

Abstract: The spectrum portion above 60 GHz is gaining importance year by year mainly driven by the upcoming Beyond-5G and 6G paradigms. In the terrestrial scenario, the E-band (71-86 GHz) currently offers the widest channels for point-to-point (P2P) wireless links but future perspectives already foresee the D-band (130-175 GHz) as the next step in the backhauling deployment. Systems for the detection of space debris and high-speed space data links, instead, heavily rely on W-band, which spans from 75 to 110 GHz. To keep pace with these applications, high-performance active components, passives and antennas are urgently needed. The design of such systems is only part of the job of engineers: once the prototype has been manufactured, the DUT validation is mandatory to deliver a working and reliable product with the intended performance. In the mm-wave spectrum, the lack of standard commercial devices leads to the necessity of custom testing socket, transitions, mechanical assembly, far-field setup, which have to be carefully designed to primary privilege measurement accuracy and avoid any performance drop. This seminar will cover the validation aspects of mm-wave systems, starting from the MMIC, to the passive waveguide assembly and mm-wave high-gain antennas.

Bio: Stefano Moscato was born in Pavia, Italy in 1988. He received the Ph.D. degree in electronics engineering from the University of Pavia, Italy, in 2016. He was a visiting Ph.D. student at Georgia Tech, Atlanta, GA, USA, in early 2015. He became part of the R&D microwave group of SIAE MICROELETTRONICA in May 2017. His research activities have been focused on RF-to-mm-wave passive components. From September 2022, Dr. Moscato is the head of the 1337 R&D group devoted to the design and validation of mm-wave passive components, antennas and sub-systems. He is involved in innovation programs and founded researches for microwave backhauling, O-RAN equipment, and space-oriented assemblies. He was a recipient of an IEEE MTTTS Undergraduate/Pre-Graduate Scholarship in 2012, author of more than 50 papers on international journals and conferences. He has been the Chair of the IEEE Student Branch, University of Pavia, from 2013 to 2016.

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