

Seminar On

Analysis and Design of 2-D Leaky-Wave Antennas for Space and Terrestrial Applications

Professor Davide Comite
Sapienza University of Rome, Italy

Date : 23 October 2025 (Thursday)

Time : 11:00 am – 12:00 noon

**Venue : Room 15-202, 15/F, State Key Laboratory of Terahertz and Millimeter Waves,
Lau Ming Wai Academic Building, City University of Hong Kong**

Abstract

The study of periodic structures has driven innovation in microwave and millimeter-wave device design, including electromagnetic bandgap structures, waveguides, and antennas, both dielectric and metallic forms. All-metal implementations have shown strong potential for high-frequency applications (30 GHz and beyond), especially in space and aeronautics, where robustness and low-loss performance are key.

At Sapienza University, research is focused on leaky-wave antennas (LWAs), also composed entirely of metallic elements. Supported by in-house numerical tools, these studies rely on accurate dispersion analyses. Corrugated metal surfaces, for example, are compact and robust, and support leaky-wave regimes at high frequency. Ongoing studies also includes the design of periodic microstrip and Fabry–Perot cavity antennas; the former enables highly directive radiation with very compact geometries; the latter offers planar designs operating in the homogenization regime.

The seminar will present the analysis and design of both conventional and all-metal LWAs developed at Sapienza, capable of supporting scanning beams or wideband highly directional broadside radiation, in the framework of national and international research projects. Perspectives on future research challenges will also be discussed.

Biography



Davide Comite received his Master's (cum laude, 2011) and Ph.D. (2015) in Electromagnetics from Sapienza University of Rome, where he is now Associate Professor. He was a visiting PhD student at the University of Rennes, France, and a postdoc at Villanova University, USA. His research focuses on microwave and millimeter-wave antennas, especially LWAs, and on non-diffracting waves. He has contributed to ESA and ASI projects and has also interest in modeling aspects of GNSS reflectometry and remote sensing for Earth observation.

***** ALL ARE WELCOME *****

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