

Prerequisites

Electromagnetics for graduate students

Credits

3 ECTS

Timetable

30 hours of lessons, including exercises

Facilities

Classrooms, computer rooms, library, canteen

General information:

Email:

fabrizio.frezza@uniroma1.it

URL:

labcem2.diet.uniroma1.it/fabriziofrezza

(with material about the Course topics, including a video presentation, and on the previous editions in 2005, 2008, 2011, and 2014)

School website:

www.esoa-web.org

	Wednesday 26	Thursday 27	Friday 28	Saturday 29
9:00 – 11:00	F. Frezza <i>Preface to the Course</i> D.R. Jackson <i>Introduction to Leaky Waves and Leaky-Wave Antennas (1)</i>	D.R. Jackson <i>The Spectral-Domain Immittance (SDI) method in Electromagnetics for analyzing structures in layered media (2)</i> P. Burghignoli <i>Planar 1-D leaky-wave antennas (LWAs); The substrate-superstrate configuration</i>	A. Galli <i>Leaky-wave antennas: Design aspects</i> <i>Leaky-wave antennas: Realizations and tests</i>	P. Burghignoli <i>Fabry-Pérot Cavity Antennas (FPCAs); general properties of planar 2-D leaky-wave antennas</i> <i>Wire-medium slabs and metal-strip grating FPCAs: Leaky-wave propagation and radiation.</i>
11:15 – 13:00	D.R. Jackson <i>Introduction to Leaky Waves and Leaky-Wave Antennas (2)</i> <i>The Spectral-Domain Immittance (SDI) method in Electromagnetics for analyzing structures in layered media (1)</i> N. Tedeschi <i>An example on how to use the SDP technique to evaluate the far field radiated by an infinite line source</i>	P. Baccarelli <i>1-D periodic traveling-wave structures (2-D fields): Modal properties and physics of leaky waves</i> T. Bertuch <i>Dispersion properties of periodically loaded parallel-plate waveguides: Analysis and leaky-wave antenna application</i>	P. Baccarelli <i>1-D periodic printed traveling-wave structures (3-D fields): Spectral-domain modal analysis</i> D. Comite <i>Modal analysis of 1-D periodic leaky-wave antennas through the simulation of truncated structures</i>	J.L. Gómez Tornero <i>Applications of LWAs for IoT: indoor positioning and WPT</i> W. Fuscaldo <i>Electromagnetic properties of graphene; Graphene leaky-wave antennas</i> C. Ponti <i>Antennas exploiting Band-Gap properties</i>
14:15 – 15:00	P. Burghignoli <i>Transmission-line analysis of planar radiators</i>	P. Baccarelli <i>1-D periodic traveling-wave structures (2-D fields): The metal-strip grating on a grounded dielectric slab.</i> <i>1-D periodic printed traveling-wave structures (3-D fields): Surface and spatial leaky-wave regimes (the modified Brillouin diagram)</i>	P. Baccarelli <i>1-D periodic leaky-wave antennas: Radiation properties and design aspects; optimization techniques (the CRLH LWA, the U-shaped stub LWA, and the impedance transformer design)</i>	N. Tedeschi <i>Final Test</i>
15:00 – 16:00	P. Burghignoli <i>Planar radiators: Spectral properties and leaky modes</i>	N. Tedeschi <i>An example on how to use the Bloch-wave analysis to study a wide class of 1-D periodic printed structures</i>	J.L. Gomez Tornero <i>Design of near-field focused LWAs.</i> <i>Electronically reconfigurable LWAs</i>	P. Simeoni <i>Interaction of inhomogeneous plane waves at the interface with dissipative media.</i> <i>The deep-penetration effect in the real world</i>
16:15 – 18:00	J.L. Gómez Tornero <i>Comparison of LWA technologies and topologies.</i> <i>Unusual tapering techniques for radiation pattern synthesis.</i> <i>Design of conformal LWAs</i>	G. Valerio <i>Computation of periodic Green's functions for metamaterials and leaky-wave antennas</i>	G. Valerio <i>Higher symmetries in periodic structures</i>	
20:00		Social dinner		