



UNIVERSITY: Public University of Navarre (UPNA)

WIT PROGRAMME'S RESEARCH LINE NAME:

High capacity communications in THz – THz Fabry-Perot cavity dual polarization antennas

DOCTORAL PROGRAMME: Doctorate in Communications Technology, Bioengineering and Renewable Energies: <https://www.unavarra.es/escuela-doctorado/doctorate-programs/current-plan/engineering-and-architecture/doctorate-in-communications-technology-bioengineering-and-renewable-energies?languageId=1>

COMPLETE DESCRIPTION OF THE LINE

While fifth generation (5G) wireless communication networks are being standardized and deployed around the world, research on components for 6G systems has already started. Antennas for these systems should be able to maintain good performance even at frequencies in the THz range.

This research line will focus on the design of planar moderate to high gain antennas based on Fabry-Perot cavities for THz frequencies. These antennas provide low profile solutions with reduced bandwidth. Therefore, bandwidth enhancement techniques will be explored. In addition, the combination of these type of antennas with innovative technologies, such as gap waveguide or glide symmetry structures for the feeding network would provide simplified manufacturing and reduced losses solutions for these systems.

RESEARCH GROUP NAME:

Antenna Group



COORDINATOR:

- Last and first name; link to the “Portal of scientific production”:
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- Teniente Vallinas, Jorge
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ANOTHER RESEARCH LINES OF THE GROUP: list of them

- Antennas
- Metamaterials and periodic structures
- THz technology and applications



- Quantum technologies
 - Sensing
 - Thermal emission
 - Microfabrication
- Entities involved in research lines and contact person:
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- Brief group overview
- UPNA's Antenna Group has been actively working on different areas of applied electromagnetics for more than 20 years. During these years, it has become a world reference group in metamaterials and nanophotonics, as well as in other areas of applied electromagnetics, such as terahertz technology and corrugated horn antennas.
- The group has 6 permanent members, 1 Ramón y Cajal fellow, 4 Post-Docs and 8 PhD students. During the last decade the group averages yearly more than 18 journal publications and attracts funds over 500.000 € per year from public and private sources. Out of these, the group is currently involved in 4 international research projects, among them projects ERC-2020-STG-948504 (ERC Starting Grant), H2020-FETOPEN-964450 and H2020-MSCA-ITN-2019-MENLAOS^{NT}.



Its state-of-the-art facilities for manufacturing and test comprise an ISO-7 clean room for microfabrication and test equipment from RF to the IR, including the THz range.

<http://www.unavarra.es/antennas-group>

- Link of the group to the “Portal of scientific production”

<https://academicos.unavarra.es/CawDOS/?id=90701b928ac24ad4&idiona=es&tipo=actGrupo>

REQUIRED QUALIFICATIONS: Engineering, Physics, Technology

Use of full-wave electromagnetic simulators. MsC Thesis in a topic in the fields of electromagnetics/RF/antennas.