



UNIVERSITY: Public University of Navarre (UPNA)

WIT PROGRAMME'S RESEARCH LINE NAME:

High capacity communications in THz – Dual circular 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

Fifth generation (5G) wireless communication networks are being standardized and deployed around the world. However, 5G will not meet all the requirements of the future in 2030. Researchers are beginning to focus on sixth generation (6G) wireless communication networks. The 6G should provide near 100% geographic coverage, higher geolocation accuracy, and millisecond update rates. Compared to 5G, 6G networks are expected to provide much higher spectral / energy / cost efficiency, higher data rates (up to Tbps), 10x lower latency, 100x higher connection density, more intelligence, etc. In order to migrate from 5G to 6G, high-gain and high-frequency antennas will be needed, above the 5G frequency limit set at 100 GHz. 6G communications should preferably use dual circular polarization to maximize communication capacity and provide robust links.

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-MENELAOS^{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&idio ma=es&tipo=actGrupo>

REQUIRED QUALIFICATIONS: Technology, Physics, Engineering Knowledge of Electromagnetics. Familiar with radiofrequency communications circuits and components.