



**UNIVERSITY: Public University of Navarre (UPNA)**

**WIT PROGRAMME'S RESEARCH LINE NAME:**

High capacity communications in THz – Design of array antennas based on CORPS beam forming networks

**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**

The CORPS (Coherently Radiating Periodic Structures) structures were proposed by the Antenna Group more than fifteen years ago and are still used as a support mechanism to improve the resolution of RADAR-type systems, using simple antennas and cooperative networks that are also very simple to manufacture.

For the same size of the antenna system, the introduction of CORPS concepts both in the beam forming network and in the design of the radiant elements themselves, can allow to have composed radiation areas, which can be physically overlapped, which translates directly into an improvement in the resolution capacity of the system, maintaining the rest of the characteristics that are expected of a radiant system of this type, low coupling between neighboring beams, matching bandwidths and gain comparable to conventional systems.

**RESEARCH GROUP NAME:**

Antenna Group



## **COORDINATOR:**

- Last and first name; link to the “Portal of scientific production”:  
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## **MEMBERS OF THE LINE RESEARCH:**

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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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- ✓ Industrial entities:



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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<sup>NT</sup>.

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&idoma=es&tipo=actGrupo>

**REQUIRED QUALIFICATIONS:** Engineering, Technology, Computer Science

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