

PROPOSITION DE STAGE EN COURS D'ETUDES

Référence : **DEMR-2026-06**
(à rappeler dans toute correspondance)

Lieu : Toulouse

Département/Dir./Serv. : DEMR/CAT

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Responsable(s) du stage : André BARKA

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DESCRIPTION DU STAGE

Thématique(s) : Antennes, Matériaux Microondes et technologies pour la Furtivité

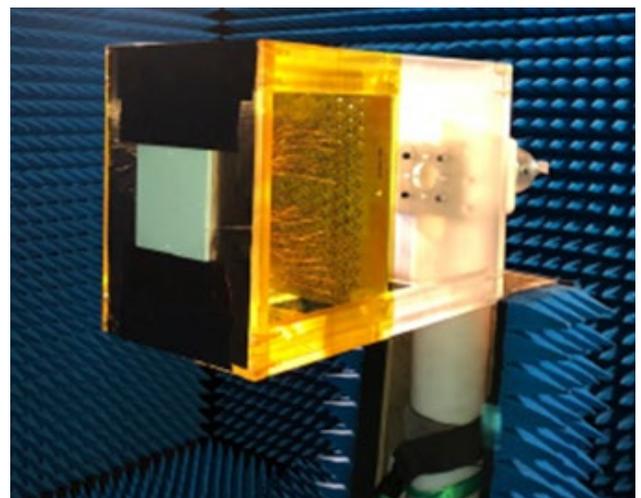
Type de stage : Fin d'études bac+5 Master 2 Bac+2 à bac+4 Autres

Intitulé :

Subject : Study and analysis of a metasurface-enhanced wideband antenna for polarization conversion and RCS reduction

The objective of the proposal is to focus on the design and development of wideband transmitarray or phased arrays integrated with a Polarization Conversion Metasurface (PCM) to achieve dual functionalities: wideband operation and significant radar cross-section (RCS) reduction.

The candidate will design a Ka band transmitarray surrounded by a metasurface structure, carefully engineered to enhance polarization conversion efficiency and minimize backscattering. Operating within the 20 to 30 GHz frequency range, the antenna will be well-suited for wideband applications, including stealth technologies and radar systems. Simulations will be conducted using the CST software for demonstrating the metasurface effectiveness in reducing RCS while maintaining stable polarization conversion performance across a wide range of incidence angles.



a) Example of transmit array (A. De Oliveira Cabral Phd Thesis, 2021-2024) and phased array (DGAC CHOSE project, 2022)

Est-il possible d'envisager un travail en binôme ? Non

Methods to implement:

Theoretical research

Synthesis work

Applied research

Documentation work

Experimental research

Participation in an achievement

Possibility of extension in thesis: Oui

Durée du stage :

Minimum : 5

Maximum : 6

Période souhaitée : March 2026 – July 2026

PROFIL DU STAGIAIRE

Knowledge and level required:
Electromagnetism, Antennas, circuits, CST or
HFSS software, Python

Desired schools or establishments:
Engineering school or Masters

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