Job Description
Doctoral Position

DC1: Development of innovative fabrication techniques for reconfigurable metasurfaces using Dynamic Molding additive manufacturing process.

Doctoral position at 3DEUS Dynamics SAS, in Lyon, France.

Main supervisor: Dr. Julien Barthes [3Deus Dynamics]

Co-supervisors/mentors: Prof. Viktar Asdchi [Aalto] and Prof. Ana Díaz-Rubio [UPV]

Objectives. The doctoral candidate will develop a new generation of conductive, reversible and reconfigurable metasurfaces based on silicone matrices loaded with graphene and other functional fillers.

The research will leverage the unique capabilities of the patented Dynamic Molding additive manufacturing process developed by 3Deus Dynamics, enabling:

- High-resolution 3D structuring of soft functional composites
- Controlled filler orientation and loading efficiency
- Fabrication of small-feature, high-frequency metasurface architectures

The work will combine materials engineering, electromagnetic design, and advanced additive manufacturing to fabricate metasurfaces suitable for Reconfigurable Intelligent Surfaces (RIS) and other next-generation electromagnetic applications.

The doctoral project will:

- Optimize conductive networks within silicone matrices by tuning graphene dispersion and percolation mechanisms.
- Investigate the impact of 3D printing parameters on microstructure and electromagnetic performance.
- Demonstrate metasurface prototypes with enhanced tunability, robustness, and frequency scalability.

The final goal is to enable compact, scalable and industrially viable reconfigurable metasurfaces compatible with high-frequency operation.

This position is part of the MetaTune Doctoral Network "Reconfigurability using inversely designed metasurfaces", which has been funded under the Horizon Europe Marie Skłodowska-Curie Actions (MSCA) program.

Job Description

Doctoral Position

Scientific Scope. The project integrates four main pillars:

Design	Materials	Fabrication	Characterization
●●●○○	●●●●○	●●○○○	●●●○○

Design. Electromagnetic modelling and inverse design strategies for reconfigurable metasurfaces, in close collaboration with leading European experts.

Materials. Formulation and rheological optimization of silicone–graphene composites; study of conductive network formation and reversibility.

Fabrication. High-resolution additive manufacturing using Dynamic Moulding technology; process–structure–property correlation.

Characterization. Electrical, mechanical and electromagnetic characterization of printed metasurface prototypes, including performance validation for RIS applications.

The doctoral research will directly contribute to the MetaTune network objective of reducing structural size to enable higher operational frequencies and improved energy efficiency.

Research Environment. 3DEUS Dynamics is a deep-tech company pioneering Dynamic Moulding additive manufacturing for advanced functional materials. The candidate will work at the interface between:

- Soft matter physics
- Conductive nanocomposites
- Additive manufacturing
- Electromagnetic device engineering

The project offers a rare opportunity to develop industrially relevant metasurface technologies within a fast-growing European deep-tech ecosystem.

→ Go to the project webpage for more information

Job Description

Doctoral Position

What METATUNE Offers:

- Gross salary starting around 3.500€/month (42.000€/year), with potential for additional funding depending on your family status.
- Work contract at 3DEUS Dynamics SAS for 36 months funded through the MSCA network, with the additional benefits for employees (public and universal health system, free schools, etc.).
- One 4-month stay at the University of Aalto, in Finland and two 3-month stays at the Polytechnic University of Valencia, in Spain, are foreseen in the research plan.
- Opportunity to pursue a PhD degree at a leading European university within a collaborative, international network.
- Training program including research-specific and transferable skills courses.
- Active participation in workshops, conferences, and network-wide events to build professional and scientific connections.
- Stimulating, multidisciplinary, and international research environment within a prestigious European training network.

Starting date: November-December 2026.

Deadline for online application: May 31, 2026 (but candidates are encouraged to apply as soon as possible).

Mandatory Requirements:

- You must have a finalised **master's degree** in fields related to the research topic: Telecommunications Engineering, Applied Physics, Optics, Electrical Engineering, Material Engineering.
- You should **not have a doctoral degree** at the time of recruitment.
- You must not have resided or carried out your main activity (work, studies, etc.) in Spain for more than **12 months in the 36 months** immediately before the recruitment (this is a requirement from the funding authority).
- Strong skills in the **English** language.

→ Apply Now!