

Post-doctoral offer

Graded-Index Radome for Beam Scanning Antennas at Ka-band

Context.

The proliferation of satellite communications links has been a strong trend in recent years. Multiple opportunities for deploying constellations have appeared and therefore new services, in particular of the SOTM ("Satcom On The Move") type. In this context, it is particularly necessary to seek innovative antenna solutions that can significantly increase the quality of the radio link, especially in difficult conditions where the satellite is close to the horizon.

Objectives.

Thus, the objective of the project proposed here is to study low-profile functionalized graded-index radomes to reduce the gain loss of beam scanning antennas at low elevation angles. The work will be carried out primarily at Ka band and will be based on the exploitation of 3D additive manufacturing techniques to synthesize the desired material properties and geometries.

The main project activities will deal with the electromagnetic modeling of the radome, the design and fabrication of an antenna demonstrator and finally its experimental characterization. This project is part of a collaborative framework involving an industrial partner (Thales Research and Technology), a technology transfer center (Canoe) and a research laboratory (IETR).

Expected profile.

The candidate must have a doctorate with solid experience in electromagnetism, microwaves, and/or modeling and design of antenna systems. He/she must also have very good skills in electromagnetic design software, and have good knowledge in English. Knowledge / experience in 3D printing will also be appreciated.

Duration: 18 months

Start date: April-June 2023

Location: IETR, Université de Rennes, France

Contact points:

David González Ovejero, david.gonzalez-ovejero@univ-rennes.fr

Mauro Ettorre, mauro.ettorre@univ-rennes.fr

Ronan Sauleau, ronan.sauleau@univ-rennes.fr