



Post-Doctoral Position

Design of wideband metamaterial absorbers for naval applications

A Post-doctoral Research Assistant is required to work on an [Astrid-Maturation](#) project called SAFASNAV (Self Complementary Structure with Low Signature for Naval applications). The SAFASNAV project is proposed by a consortium comprising [DCNS](#), [Télécom ParisTech](#), [ONERA](#) and [SART](#). The work will be based at the RadioFrequency and Microwaves (RFM) group at Télécom ParisTech, France.

The goal is the development of structural materials and multilayer thin coatings that reduce the structures and superstructures electromagnetic reflectivity of civilian and / or military ships.

The innovative field of this project is based on the very special properties of self-complementary surfaces [1] that have a theoretically unlimited operating bandwidth and that allow, when associated with one or more metasurfaces, to produce thin absorbent materials without any lossy dielectric or magnetic material. A first purpose of the study is to integrate the feature directly in the structure of the topsides of ships. The second purpose is to make coating materials used to reduce the reflectivity of single or multiple metal superstructures.

The major steps of the proposed work are, state of the art and choice of the materials, preliminary designs, optimization and finally to participate to realization and measurement phase.

Télécom ParisTech is a recognized institute in this field of research and the selected candidate will benefit of the experience of several scientists working together in antennas and metamaterials. All required tools for simulations and measurements are available at Télécom ParisTech.

Candidate : PhD or equivalent degree.

Required background: absorbing material design or antenna design, electromagnetism and metamaterials, very good skills in the use of commercial electromagnetic softwares (CST, HFSS) as well as microwave measurements. Knowledge of French is not required, but will be highly appreciated.

Duration : 24 months.

To apply for the Research Assistant position:

CV listing all publications; a pdf of a representative publication and a research statement describing your previous research experience, outlining the relevance to this project. Letter of recommendation.

Contact persons :

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Reference :

[1] S. Varault; M. Soiron; A. Barka; A. C. Lepage; X. Begaud, "[RCS reduction with a Dual Polarized Self-Complementary Connected Array Antenna](#)," in IEEE Transactions on Antennas and Propagation , vol.65, no.1, 2016. doi: 10.1109/TAP.2016.2637860.