Phd offer

Design of multibeam antenna for a 3D mmw channel sounder

Euraxess Domain:

- Engineering: Electrical engineering, Communication engineering
- Technology: Telecommunications technology, Instrumentation technology
- Physics: electronics, electromagnetism

Project context

Trains are entering the era of full automation thanks to wireless systems shifting control functions from the human driver to computers. High data rate, robustness, high reliability and ultra-low latency are required. The Future Railway Mobile Communication System (FRMCS) is under development at European level. The objective in considering mmW is to improve the communication system adaptability for full bearer independency. The 60 GHz band is of great interest for railway in case of very high data rate and very low latency requirements. The environment (ballast, cutting, tunnels, high voltage near the antennas, dust, interferences, *etc*.) as well as the constraints (vibrations of the trains, non-line of sight situations, crossing of trains, cohabitation with other systems, *etc*.) are very specific and will impact the performances of the wireless links for both Train-to-Infrastructure (T2I) and Train-to-Train (T2T). The propagation conditions and channel behaviour have to be well known to avoid communication outages particularly in the context of mobility. Dedicated channel models for mmW in railway environments are needed.

Objectives

A mmw channel sounder is currently designed in the research laboratory Lab-STICC/IMT Atlantique. The PhD student will contribute to the evolution of this mmw channel sounder by designing multibeam sensors for 3D channel sounding. He will participate to measurement campaigns and to process the data measurement to extract channel response.

Candidate

- Required education level: Master
- Duration: 36 months
- Required background: RF propagation, antenna theory, microwave engineering, basic knowledge with Python
- Knowledge of French is not required.

Location : IMT Atlantique - Brest – France

Contact persons

To apply please send your motivation letter, CV, and recommendation letters (optional) to:

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