We are looking for strongly motivated candidates for a double-degree Ph.D. Thesis between the Université de Pau et des Pays de l’Adour and the University of Zaragoza.

**Wave/Matter Interactions for Rough and Heterogeneous surfaces: Application to Unidirectional Composites**

**Description:**
The development of thermoplastic composite materials and their processing is a challenge for the years to come. Moreover, they can very easily be endowed with particular properties, multiple functionalities, and even gradient properties in a wide range of areas, as well as offer the possibility of being recycled.

This work aims at:
1 – Design an experimental device to study the interactions between different light wave and unidirectional composite material
2 – Propose a modeling of the interactions based on data driven analysis.

**Key Words:**
- Wave / matter interactions
- Thermoplastic composites
- Thermal instrumentation / thermal modeling
- Modeling Multiphysics
- Scientific machine learning
- Surfaces, topography, consolidation process

**Activities:**
- Numerical simulation, data driven analysis, multiscale approach (75%)
- Experimental work (device design, measurements in process real conditions) (25%)

**Skills:**
- Scientific curiosity, autonomy, fluent Spanish/English/French
- Programming (Matlab, python, eventually PyTorch, TensorFlow, …)

**Type of contract:** PhD, 36 months from October 2020

**Location:** IPREM UPPA \ Pau and UNIZAR Zaragoza.

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