



Research Engineer Position

in the framework of the Chair AWESOME

(mAnufacturing of neW gEneration Sustainable and therMoplastic coMpositEs)

- Recruitment grade: young researcher (i.e. with PhD or equivalent)
- Location: Pau (64), France
- Duration: 12 months minimum, starting date Feb. 2022
- Deadline: 30th January 2022
- Gross Salary Range: 2 849.10 € /month

CONTEXT AND AIMS

Title : [Toward high productivity thermoplastic composites winding process](#)

The development of thermoplastic composite materials and their processing is a challenge for the years to come, indeed the possibilities offered by these materials are without appeal since they offer an incredible ratio mechanical performance on density, moreover they can very easily be endowed with particular properties, multiple functionalities, and even gradient properties in a wide range of areas, as well offer the possibility of being recycled.

All these aspects make for sure thermoplastic composite materials the materials of tomorrow.

However today, although applications using these materials are more and more numerous, they are not up to what could be expected, neither in quantity nor quality, with production rates that are often limited. In addition, the proposed applications are quite specific and it seems rather difficult to adapt an existing production to another material for example or conversely for the same material, easily change the geometry of a part or its forming process chain.

The origins may be summarized in: (i) the cost, (ii) the difficulty of implementation. It is for example, difficult to organize a customized production while controlling costs. As it is difficult to master a production that unusually concentrates very varied physics, at multiple scales, which can have dramatic impacts on the quality of the parts. Moreover, at all scales of the product and at all stages of implementation, the uncertainty about the quality of the material, the part and the process is omnipresent. All these sources add up and feed the difficulty of implementation.

The AWESOME Chair (mAnufacturing of neW gEneration Sustainable and therMoplastic coMpositEs) – ARKEMA / CANOE / UPPA- offers an unexpected framework since it brings together quality partners with broad and varied skills with regard to the multi-disciplinary nature of the problem. Each partner being equipped with complementary technological platforms and innovative characterizations techniques, going from the matter at its molecular scale, to the part even at high production rate, and covering modeling, engineering, simulation and data scopes, to face an advanced and smart application that focus at more exploiting the possibilities offered by composite materials, and in this sense in break with the productions



of composite parts currently existing.

Key Words:

Multiphysics modeling, Thermo-mechanical effects, Multiscale. Consolidation process. Thermoplastic composites.

Thermal instrumentation / thermal modeling / Mechanical characterization

Activities:

Multiphysics approach, numerical simulation (75%)

experimental work (device design, measurements in process real conditions) (25%)

Skills : curious, and autonomous, fluent english/french, like teamwork

FUNDING

This research engineer position is funded by the project E2S-UPPA (Energy Environment Solutions) whom core scientific domain focuses on Environment and Energy to meet challenges related to the energy transition, geo-resources, aquatic habitats and the environmental effects of natural and anthropogenic changes (<https://e2s-uppa.eu/en/index.html>).

SUPERVISION AND CONTACT

Supervisory team : Anaïs Barasinski, Chair Leader.

For additional information and proposal, please contact: anais.barasinski@univ-pau.fr

APPLICATIONS AND DEADLINE

Please submit your application by email to anais.barasinski@univ-pau.fr

Please attach the following documents as a single pdf file:

- CV
- Cover letter detailing the candidate's motivations and interest in the scientific aspect of the job.
- Contact details of 2 referees as follows : title, first name, surname, organization/institute and e-mail address

The deadline for submitting the application is January 30th, 2020.