

## Laboratoire Ingénierie des Matériaux Polymères - UMR 5223

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### Master thesis on Carbon Footprint of High-Performance Green Thermoplastics

Are you interested in quantifying the Carbon Footprint of High-Performance Green Polymers and the development strategies/methods for the reduction of Carbon Footprint of these polymer materials?? Then join our multidisciplinary team of polymer and environmental scientists for a 6 months Master Thesis dealing with Carbon Footprint of Green Polymer. The Master thesis is part of INSA's collaborative project with **Radiall** Company on Sustainability of Green Thermoplastics

#### Context and Objectives

High performance polymers are slowly replacing traditional materials because of their strength to weight ratios and their economic advantages over aluminium and other metals. Their application often requires stable materials that are resistant to external factors and degradation, while at the same time meeting the requirements of sustainable development without burdening the environment through their entire life cycle. Radiall is one of the global leaders in the area of High-Performance Thermoplastics. Currently thermoplastics represent about ~8% CO<sub>2</sub> emissions of all CO<sub>2</sub> emissions linked to raw materials used to manufacture Radiall's products. The company is currently looking for strategy to decrease the environmental impacts (cradle-gate) of its products with compromising the performance and qualities of these products. Therefore, the main objective of the internship is to develop method/tool to support the design of High Performing Green Thermoplastics for the company **Radiall**, through the right combination of the performance levels of **Radiall's** product/component portfolio.

#### Skills developed:

At the end of this Master thesis, the student will acquire skills in life cycle analyses, eco-design and modelling Environmental impacts. Knowledge of material and polymer sciences.

#### Job description

The research focus in this Master thesis will be combination of life cycle assessment and design strategies to explore alternative low carbon footprint materials for the manufacturing of High-Performance Green Polymers. The internship will be carried out in the CNRS-IMP Laboratory of Polymer Materials Engineering under the supervision of a researcher specialized in life cycle assessment and the assessment of the carbon footprint of products. The candidate will also benefit from the support of researchers specialised in Polymer and Materials Engineering. The Duration of the internship is 6 months, starting from April 1

#### Applications

If you are interested, please send CV to Dr Sylvestre NJAKOU-DJOMO: [sylvestre.njakou-djomo@insa-lyon.fr](mailto:sylvestre.njakou-djomo@insa-lyon.fr)