



## STUDENTS SEARCHED FOR DEVELOPMENT OF BIO-BASED AND/OR CARBON-BASED MATERIALS

Are you interested in bio-based and/or carbon-based materials for various scientific and engineering applications? I'm a professor of forest bioproducts at the Institut de recherche sur les forêts de l'Université du Québec en Abitibi-Témiscamingue (IRF-UQAT), and I'm interested in the recovery and recycling of forest products (end-of-life residues, contaminated wood residues, effluents from the pulp and paper industry) into porous and/or carbonaceous biosourced materials. I'm recruiting BSc, MSc and PhD students to start their projects between Winter and Autumn 2025. Here are some of the projects I'm recruiting for:

### - Valorization of condensed softwood bark tannins for biomaterials applications

The general objective of this project is to develop various bio-based materials, mainly adhesives (widely used in wood panel production) based on tannin extracted in Abitibi-Témiscamingue, but also in insulating foams, gels and porous materials (**BSc1, MSc1**). A technico-economic study will be carried out as part of this project to evaluate the costs of tannin extraction in Abitibi-Ouest, in collaboration with other research members (**BSc2, MSc2**).

### - Production, characterization, and application of functional materials derived from forest residues

This research project aims to develop fundamental and applied knowledge on the characteristics of forest residues and their thermochemical conversion into sustainable carbonaceous materials with physicochemical properties that meet a variety of needs and applications. In collaboration with other research members, various forest products and wood residues will be collected, characterized, and converted into functional carbonaceous materials, followed by statistical analyses to obtain optimal processing conditions based on their physicochemical properties (surface chemistry, chemical composition, and porosity). Students (**PhD1, BSc3 and BSc4**) will subsequently test the materials developed in energy storage and electrochemistry.

### - Development of porous bio-based filters for capturing gaseous and particulate contaminants

This project aims to demonstrate the effectiveness of cellulose-based filters that are widely used in several industries that emit gaseous and solid contaminants but are little used by the mining and metallurgical industries. Students (**MSc3 and BSc5**) will be responsible for evaluating the effectiveness of adsorbent filters in capturing gaseous and particulate contaminants, using a columnar device to be developed in the laboratory.

**Project start dates:** Between Winter and Autumn 2025

**Contact information:** To express your interest, please send a letter of interest along with copies of your transcripts (which may be unofficial) to :

**Flavia Braghiroli, Ph. D.**

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