

New functional molecules from lignocellulose for advanced applications

PhD Scholarship Opportunity

ARC Hub for Processing Advanced Lignocellulosic (PALS)

Location: Clayton campus, Monash University, Australia – URD ABI – AgroParisTech, CEBB, France

Employment Type: Full time

Duration: 3-year fixed term appointment

Remuneration: Monash Graduate Scholarship stipend rates apply \$29,000 per year (tax-free).

<https://www.monash.edu/graduate-research/future-students/scholarships/stipend>

The project

This project aims to investigate new functional molecules and explore emerging technologies for the transformation and upgrading of lignocellulose-derived molecules. Functional chemicals and materials will be developed by applying a combination of enzymatic and other green reaction methods to lignin, hemicellulose and cellulose components of lignocellulosic biomass. Lignin from industrial pulping liquor will also be used as a starting material to investigate its potential for recovery of hemicellulose, nanocellulose fibres and gel-forming compounds. A potential project could be the design of UV-curable and depolymerized monomer reaction schemes with a basis in lignin chemistry for self-healing and other advanced coating applications.

About us

PALS is an industry-focused ARC research transformation Hub which aims to convert renewable biomass and waste streams from the Australian Pulp, Paper and Forestry Industry into high-value products in existing and developing markets. PALS will leverage world-leading Australian and international research capabilities in chemistry, materials science, and chemical engineering to create bio-based materials and chemicals leading to new companies and jobs in an emerging Australian bio-economy. This research will identify new applications and products derived from lignocellulose and will feed the pharmaceutical, chemicals, plastics and food packaging industries. PALS PhD candidates will benefit from interdisciplinary research, and develop professional skills and networks with Universities and industry.

Monash University is the largest university in Australia and ranks in the top 100 universities worldwide. Monash has six globally networked campuses and international alliances in Europe and Asia. The applicant will be based at the Clayton campus in Melbourne, and will also spend time at URD ABI – AgroParisTech, CEBB, Pomacle, France (www.chaire-abi-agroparistech.com).

Candidate Requirements

The successful applicant will have a background in either Chemistry, Chemical Engineering, Material Engineering, or similar. Applicants must have a relevant Honours/Master's degree at a high level (H1 or First-Class Honours degree).

Applicants must fulfil the criteria for PhD admission at Monash University and demonstrate excellent research capability <https://www.monash.edu/graduate-research/future-students/apply>.

To submit an Expression of Interest (EOI) application, please submit the following document as a single PDF to kei.saito@monash.edu florent.allais@agroparistech florent.allais@monash.edu gil.garnier@monash.edu

- Cover letter
- Curriculum vitae (CV)
- Full statement of academic record, supported by scanned copies of certified documentation
- Evidence of English language proficiency (international applicants only) such as TOEFL or IELTS
- Contact details of two academic referees

Applicants with a proven track record for generating high quality research outputs (e.g. patents, journal publications) will be favourably considered.

Shortlisted candidates will be interviewed electronically. The interviews will be conducted in English.

Closing date

Applications will be accepted until the project has been filled by a suitable candidate.