**Background**

Bio-refineries produce complex mixtures where the useful products are in low concentration. Therefore, in addition to biomass conversion processes, separation and purification of the biomass components and the of the products stream is of utmost importance. Often, this can be the single biggest factor influencing the overall success and commercialization of bio-refineries. Moreover, to optimally use the biomass resources, it is desirable that the valuable compounds are separated using sustainable technologies, before the biomass is converting into other bio-based chemicals, biofuels and energy carriers.

**Job description**

The successful candidates will perform scientific research aiming to generate knowledge, formalized through conceptual models, regarding novel, highly-efficient technical systems for separation and purification of valuable products from bio-resources. The research aims to exploit the synergy between physical and chemical phenomena taking place in multi-phase systems found in biotechnology, where the valuable products are obtained by bio-chemical reactions or isolated from natural resources. The envisaged results have a generic character being applicable to other fields where separation and purification plays and important role, such as food processing, (bio)pharmaceuticals, biofuels, etc.

**Job requirements**

We welcome applications from candidates with a BSc or MSc degree in Chemical Engineering or other relevant fields, with excellent academic results. The independent, self-motivated, creative candidates must be target-oriented and demonstrate the ability to meet deadlines within a team.

**Novel energy-efficient separations by enhanced operating modes**

Positions available: 1 PhD student; 1 MSc student

Specific requirements: Use of process simulation software (AspenPlus); Affinity with mathematical modelling, numerical techniques and programming (MATLAB). Experience with Fortran is a plus.

**New hybrid separation techniques for valorization of bio-resources**

Positions available: 1 PhD student; 1 MSc student

Specific requirements: affinity and abilities for experimental work with laboratory pilot plants and instrumental analysis; motivation for mathematical modelling and model validation. Reactive distillation, supercritical $CO_2$ extraction processes, high vacuum distillation and molecular distillation are main techniques to ensure research work.

**Non-conventional techniques for separation of sensitive, high added-value bio-products**

Positions available: 1 PhD student; 1 MSc student

Specific requirements: motivation for experimental work, abilities related to instrumental analysis, data processing and mathematical modelling. Interest in solid-liquid extraction, reactive extraction and valorization of natural (sub)products.

**Conditions of employment**

The successful candidates will be employed as researchers, within the framework of the project "Advanced Separation Systems for Valuable Products from Bio-Resources – ASPiRE", funded by the European Union in the "Priority Axis 1 – Research, Technological Development and Innovation (RD&I) to Support Economic Competitiveness and Business Development", as part of "The Competitiveness Operational Programme 2014-2020"

The PhD positions are full-time appointments, for 2 years, with possibility of extension for other 2 years as PhD or PostDoc. The MSc positions are part-time appointments for 1 year, with possibility of extension for another year or continuation as a PhD student (full time appointment).

***We offer motivating salary combined with studying and performing research. The project team has excellent competencies in process engineering. Working with state of art computing and experimental facilities will ensure your professional development.***

University POLITEHNICA of Bucharest provides accommodation within the campus.

**The application**

Applications and requests for further information should be sent by email to prof. Costin Sorin Bildea (s_bildea@upb.ro), prof. Valentin Plesu (v_plesu@chim.upb.ro) or prof. Anicuta Stoica (a_stoica@chim.upb.ro).

Applications should contain:

- Cover letter
- Curriculum Vitae indicating the contact details of two professors willing to provide references.
- Copy of Bachelor / Master degree certificate and academic transcripts
- Publications, other scientific works or relevant projects, copies of transcript.

Calendar

- 26 August 2016: deadline for submitting the applications
- 29 August – 2 September 2016: interviews
- 15-16 September 2016: admission to MSc program
- 28-30 September 2016: admission to PhD program
- 1 October 2016: tentative job start.