

SusChem 2017 Brokerage Event

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**UM, FKKT, Laboratory for Separation Processes and
Product Design**

- **University of Maribor (UM)**

With its nineteen member institutions, the university is turning into a **central development institution** attracting talented students from all over the world and providing a development context where excellence is at home at all levels.

The management is aware that close ties between the university as a central educational and research institution and its local environment and the industry are of the utmost importance. For this reason, various activities aimed at integrating knowledge and R&D with the industry are being implemented in order to initiate concrete projects contributing to new jobs and new products with high added value.

- **Faculty of Chemistry and Chemical Engineering (UM, FKKT)** is an educational and research institution that strives for excellence and increase of knowledge with the help of basic and applied research.
- **Laboratory for Separation Processes and Product Design (UM, FKKT, Labsep)**
 - Head of the Labsep Prof. Dr. Željko Knez ([Scopus ID: 7005274601](#))

- Research work of Labsep

Determination of basic thermodynamic and transport properties of the system, which are required for process design including experimental determination of phase equilibria, mass transfer study and modelling by the use of thermodynamic and empirical models.

Design and optimization of conventional and high pressure processes such as:

- **Extraction and adsorption processes** for isolation and concentration of active ingredients from natural materials; *in vitro* testing of antimicrobial and anti-oxidative activities of extracts from natural materials.
- **Enzyme catalysed reactions** for development of new synthesis paths by the use of high pressure reactors.
- **Development of new processes and nanostructured materials** for immobilization of biological compounds.
- **Materials processing**, production of micro and nanostructured materials by PGSS™ process, and aerogels for development of new high-tech products.
- **Analytical and preparative chromatography** with supercritical fluids.
- **Transfer of processes into industrial scale.**

- **CE-BG-07-2019: Sustainable solutions for bio-based plastics on land and sea**
- **LC-BG-03-2018: Sustainable harvesting of marine biological resources**

Main expected impacts

- Advanced separation processes using green solvents, experts in:
 - **Extractions using sub and supercritical fluids**
 - **Formulation in sub and supercritical fluids**
 - **Biochemical reactions in sub and supercritical fluids**
 - **Processing polymers using sub and supercritical fluids**

EXISTING PROJECT CONSORTIUM/ or LOOKING FOR PARTNERS

We are looking for partners with similar competences for the projects:

- CE-BG-07-2019: Sustainable solutions for bio-based plastics on land and sea
- LC-BG-03-2018: Sustainable harvesting of marine biological resources

Contact details for project idea(s) :

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