“Expression of interest” for hosting Marie S Curie fellows at Lappeenranta University of Technology, Finland (MSCA IF 2016)

Lappeenranta University of Technology is looking for possible applicants for the Marie Skłodowska Curie Individual Fellowship 2016 call (deadline 14 September 2016).

Lappeenranta University of Technology (LUT) is a pioneering science university in Finland bringing together the fields of science and business since 1969. Our international community is composed of approximately 6 000 students and experts engaged in scientific research and academic education. Clean energy and water, circular economy and sustainable business are the key questions of humankind to which LUT seeks solutions through technology and business. LUT has three schools:

The LUT School of Energy Systems' areas of expertise are energy engineering, electrical engineering, environmental engineering and mechanical engineering.

The LUT School of Engineering Science acts as an international expert in the fields of separation, purification and process technology, as well as machine vision and pattern recognition, industrial mathematics and different branches of physics.

The LUT School of Business and Management combines business, industrial engineering and management, as well as software expertise in a unique way. The focus of both education and research is on building sustainable competitiveness and promoting green technology.

Following research group is looking for applicants for the MSC Individual Fellowship call in described projects/topics:

Group: Systems Engineering, LUT School of Business and Management

The research in the group is focused on:

- modelling of decision making process in mining and construction industry
- development of measures for quantification of social sustainability of industrial processes
- assessment of sustainability of supply chains in processing industries
- water management

The applicant should have experience at least in one of the following fields, mathematical modelling of complex systems, optimization of supply chains, quantitative assessment of sustainability (especially social one), modelling of organisational behaviour.

More information available:

Name and e-mail Andrzej Kraslawski, Andrzej.Kraslawski@lut.fi

Who can apply?

- The researcher should have a doctoral degree by the deadline of the call or at least 4 years of research experience.
- Should not have resided or carried out their main activities in Finland for more than 12 months in the 3 years immediately prior to the deadline of the call.

Applications to LUT should include:

- Letter of interest including the abstract of the proposal
- CV (including the list of publications)
- (2 references)

and be sent to LUT to Dr Anne Vuorema by 31.5.2016.

Contact person at LUT:

Dr Anne Vuorema
Research Policy and Funding
anne.vuorema@lut.fi
http://www.lut.fi/web/en/

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The main research areas of the **Thermal Unit Operations** research group in the LUT School of Engineering Science are crystallisation and advanced oxidation processes.

The crystallisation research of the group utilises modern measuring methods to optimise and monitor crystallisation processes. Due to its efficiency and economical nature, crystallization is a widely used 'separation, purification and concentration'' procedure in water treatment processes and the chemicals, pharmaceutical and food industries. Crystallisation can also be utilised in other Cleantech applications in order to achieve low emission rates. “Furthermore, it has a great potential to be used more widely in the applications of circular economy and recovery of substances from side-streams.”

In the areas of water treatment and the modification of chemicals, the Thermal Unit Operations research group has studied advanced oxidation processes and photocatalytic water treatment. The Thermal Unit Operations research group has also developed a Pulsed Corona Discharge (PCD) method that can be used to degrade pollutants and disinfect waters in a cost effective way. The PCD method is an example of a non-thermal plasma technology.

The research group is looking for candidates interested in developing projects in either crystallisation or PCD methods.

More information available:

Professor Marjatta Louhi-Kultanen, marjatta.louhi-kultanen@lut.fi

http://www.lut.fi/web/en/school-of-engineering-science/research/crystallization

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Research Policy and Funding
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The main research areas of the Membrane Technology Laboratory are membrane filtration processes in recovering and purification of valuable compounds from different bio-based materials, purification of waste water and preparation and tailoring of membrane materials. LUT has excellent facilities for experimental research related to membrane filtration including laboratory and pilot scale filters operating even above 100 °C. LUT has also excellent possibilities for analyses (e.g. GS-MS/MS, ICP, MALLS) and characterization of separation materials (e.g. XRD, surface charge analyser, FTIR-microscope, CLSM, SEM, AFM, TEM).

Hemicelluloses, lignin, oligomeric and monomeric carbohydrates and phenolic compounds as well as organic acids (e.g. hydroxy acids from sulphate pulping waste liquor) are recovered, fractionated and purified from different kind of extraction liquors (water, ionic liquid, organic solvents) or waste process streams by combining membrane processes with e.g adsorption, chromatographic separation, crystallization and oxidation processes.

In waste water treatment our goal is to renew waste water treatment more toward utilisation of waste water compounds than only to degrade and dispose of them. To achieve this goal we develop fractionation processes for different waste waters and create solution to valorise these fractions.

In membrane preparation our focus has been cellulose based membranes and membranes modified by polyelectrolytes (Layer By Layer technology). In addition, we are interested to develop stimuli-responsive membranes for biorefinery and water treatment applications.

The research group is looking for candidates interested in developing projects related to

a) membrane contactors in fractionation and purification of bio-based compounds
b) valorisation of organic content of waste waters
c) recovery of nutrients from process and waste waters
d) development of cellulose membranes

More information available:

Professor Mika Mänttäri, mika.manttari@lut.fi

http://www.lut.fi/web/en/school-of-engineering-science/research/membrane-technology

Who can apply?

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