Doctoral network for microprocess engineering for electrosynthesis

JOB POSTING

Recruiting organisation:
University for Continuing Education Krems

Subproject title:
Integrated cell concepts & prototyping

Starting date:
1st September 2023 (or earlier if preferred)

Salary:
The Doctoral Network "MiEl" is financed by the European Union under the framework of the program HORIZON Europe, Marie Skłodowska-Curie Actions. The doctoral candidate will be hired for 36 months under contract by University for Continuing Education Krems, with a monthly gross salary of min. 3,277.30 € (excluding mobility allowance and other allowances that depend on eligibility, e.g. family allowance, special needs allowance).

Background information:

Marie Skłodowska-Curie Doctoral Networks are joint research and training projects funded by the European Union. Funding is provided for doctoral candidates from both inside and outside Europe to carry out individual project work in a European country other than their own. The training network "MiEl" is made up of 10 partners, coordinated by Fraunhofer ICT in Germany. The network will recruit a total of 12 doctoral candidates for project work lasting for 36 months.

New industrial production strategies like "production on demand" and "Industry 4.0" are increasing the demand for new digital concepts for the chemical industry that are easily scalable and can work like a construction kit. In addition, the reduction of fossil fuel consumption requires novel synthesis concepts with on-demand capabilities paired with the use of electrical energy as a primary source for chemical processes.

MiEl will address this demand from the chemical industry, combining the advantages of electrochemistry, micro process engineering and flow chemistry. The recruited researchers will explore new models for electrodes and electrochemical flow cells, and develop innovative integrated prototype cells using printed circuit board (PCB) technology as a mass-scalable and flexible tool. These cutting-edge technologies will be applied to promising fine chemical and pharmaceutical synthetic routes, which will be further accompanied by techno-economic evaluation defining new business opportunities. The new MiEl technologies and processes will allow safe, flexible and sustainable synthetic routes for the chemical industry of the future.

Job description:

The advertised subproject is fully funded by the Marie Skłodowska-Curie European Training Network „MiEl". It will be carried out by one doctoral candidate at University for Continuing Education Krems and Johannes Kepler University Linz (Austria) over a period of 36 months.

The University for Continuing Education Krems specializes in part-time academic continuing education. As a public university for continuing education, it works with its expertise in teaching and research to overcome societal challenges and tailors its study programs to address them. With 8,000 students coming from 85 countries, the University for Continuing Education Krems combines its many years of experience in university-based continuing education with innovation to provide outstanding quality in research and teaching at an international level. Situated 60 km from Vienna in the alluring world heritage region Wachau, Campus Krems is a highly attractive location.

***Your tasks**:*

- Design of printed circuit board (PCB) based electrochemical cells

- Conducting research into alternative cell concepts with thick-film ceramic technology and 3D printing
- Integration of electrodes into the cell
- Simulation of electrochemical cells
- Work should lead to original scientific results to be published in international peer-reviewed journals and conference proceedings

Benefits:

The recruited researcher will have the opportunity to work as part of an international, interdisciplinary team of 12 doctoral candidates, based at universities and industrial firms throughout Europe. She/he will be supported by two mentors within the MiEl project, and will have multiple opportunities to participate in professional and personal development training. Through her/his work she/he will gain a unique skill-set comprising electrosynthesis, flow chemistry and process analytical technologies, as well as modern control engineering techniques. She/he is expected to finish the project with a PhD thesis and to disseminate the results through patents (if applicable), publications in peer-reviewed journals and presentations at international conferences.

Your perspective while working at UWK:

- Full-time (40 hours/week) initially limited until end of June 2026 with a minimum salary of EUR 3,277.30 gross per month on a full-time basis (classification according to the collective agreement for universities §49 VwGr. B1), willingness to overpay with appropriate qualifications and professional experience
- Admission to the PhD program at Johannes Kepler University Linz, Austria
- An innovative and modern working environment
- Possibility of home office and mobile working
- Very good opportunities for further education within the framework of the university's own study programs, extensive offer of workplace health promotion as well as the University Sports Institute (USI), own childcare facility "Campus Kids" (further information regarding registration and available childcare places as well as FAQs under: https://www.donau-uni.ac.at/en/university/service/campus-kids.html)

Requirements:

Qualifications / experience:

- Excellent Master's degree in engineering, a focus on sensor technology and electrochemistry is desirable
- In accordance with the European Union's funding rules for doctoral networks, applicants must NOT yet have a PhD
- Experience in sensor technology, microfluidics, microsystems technology and/or electrochemistry is desirable
- Strong interest in experimental cross-disciplinary work
- Fundamental math and analytical skills including experience with data collection and data analysis
- Excellent communication skills and willingness to work in collaborative projects with multiple partners
- Ability to speak effectively in front of large groups (conferences, project meetings, customers)
- Good English language skills (min. B1), German is beneficial
- Self-motivation and the ability to achieve goals independently as well as to contribute effectively to the team

Mobility:

- The applicant must not have resided or carried out her/his main activity (work, studies etc.) in Austria for more than 12 months in the past 3 years.

How to apply:

We look forward to receiving your online **application by 31 March 2023** via our online tool: Application as (donau-uni.ac.at)

Application deadline: 31.3.2023