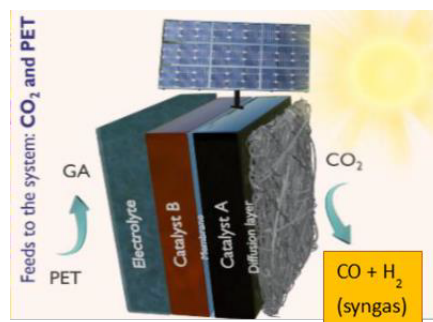


## PhD position in electrochemical CO<sub>2</sub> reduction at University of Innsbruck

The Materials and Electrochemistry Research Group of Prof. Julia Kunze-Liebhäuser at the University of Innsbruck focuses on gaining insight into fundamental electrochemical processes involved in commercially relevant reactions, in particular the reduction of CO<sub>2</sub>, CO and H<sub>2</sub>O. The state-of-the-art analytical infrastructure at the institute contributes to a deep understanding of surface morphology, reaction interfaces and reaction mechanisms. As part of the Horizon Europe project PHOENIX with an international consortium the University of Innsbruck (in collaboration with K1-MET in Linz) will contribute its expertise in electrochemistry to the optimization and development of a CO<sub>2</sub> electrolyzer. The electrocatalytic CO<sub>2</sub> reduction is a promising strategy to mitigate CO<sub>2</sub> emissions.

### Topic description:

The PhD student working as part of the consortium will work to achieve the research goals that will ultimately lead to the development of a CO<sub>2</sub> electrolyzer. The candidate will work on electrode fabrication by techniques such as spray coating and study the electrochemical CO<sub>2</sub> reduction reaction. In collaboration with the consortium partners, the candidate will build a functional membrane electrode assembly for a single cell electrolyzer. The influence of the membrane electrode architecture and composition on the efficiency of the electrochemical reduction will be investigated by product analysis (GC, NMR, HPLC).



In addition, studies of the reaction mechanism and analysis of the surface morphology will be performed using analytical tools such as differential electrochemical mass spectrometry (DEMS) and in-situ IR spectroscopy. Here, collaboration with group members that have the specific expertise in the analysis technique is foreseen.

### Required qualifications:

- The candidate should have a Master's degree or equivalent in Chemistry, Physics, Material Science or a comparable discipline.
- The candidate is expected to have a strong basic understanding of electrochemistry, both theoretical and practical. In addition, knowledge of one or more of the following research areas / analytical instrumentation is a plus: 1. Gas chromatography and / or HPLC 2. Electrolysis in membrane electrode assemblies 3. Material deposition and fabrication techniques.
- The candidate should have strong communication skills to be able to collaborate with international partners and be proficient in the English language.
- The candidate is expected to occasionally travel to project meetings within Europe.
- Motivation to work on the interface of fundamental and applied research to drive the electrochemical CO<sub>2</sub> reduction topic forward

### We offer:

- The doctoral position will be funded by the Horizon Europe project PHOENIX for a total period of 3 years, starting **as soon as possible**. The doctoral candidate will be employed on a 30 h/week contract (**Employer: University of Innsbruck**).
- An international and collaborative working atmosphere

### Application:

Please send your application documents including an updated CV, motivation letter and master's degree certificate including courses and grades to Dr. Nina Plankensteiner ([nina.plankensteiner@k1-met.com](mailto:nina.plankensteiner@k1-met.com)). Only complete applications with all the necessary documents shall be processed. For any queries related to the position located at the University of Innsbruck (Employer), please contact Dr. Prasad Kathe ([Prasad.Kathe@uibk.ac.at](mailto:Prasad.Kathe@uibk.ac.at)).