

Graz University of Technology  
**Institute of Chemical Engineering and Environmental Technology**  
**Working Group: Chemical Reaction Engineering**  
Ass.Prof. Priv.-Doz. Dr. Susanne Lux



Within the Institute of Chemical Engineering and Environmental Technology, the Working Group **Chemical Reaction Engineering** deals with all aspects of homogeneous and heterogeneous (catalytic) reactions; from the investigation of the reaction kinetics to the development of novel technologies and apparatuses.

To expand our scientific team in a new research project on **direct reduction of siderite ore with hydrogen** we are searching for a

### **University project assistant (PhD position)**

for 40 hours per week starting in March 2022.

The iron and steel industry is one of the most important, yet highest-emitting, industrial sectors. Austrian production partly relies on siderite ore, a carbonate iron ore from the Styrian Erzberg, which is challenging to use due to its carbonate nature. Direct hydrogen reduction of siderite ore bypasses the conventional route of calcination and reduction in the blast furnace, as elemental iron is formed directly from the iron carbonate. This results in a CO<sub>2</sub> emission reduction of ≥60%. The project objective is to develop a process concept for incorporating the direct hydrogen reduction of siderite ore into an overall hydrogen-based technology route for the production of crude steel from iron ore.

#### **Your field of activity:**

- Scientific research on direct reduction of mineral iron carbonate with hydrogen
- Development of an overall carbon-neutral process concept for iron production siderite ore
- Investigation of the techno-economic feasibility of the proposed concept
- Collaboration with the Montanuniversität Leoben and VA Erzberg GmbH
- Publishing in high-quality peer-reviewed journals

#### **Your profile:**

- Master's degree in chemical engineering or technical chemistry (or equivalent)
- Knowledge in chemical reaction engineering
- Interest in heterogeneous gas-phase reactions
- General interest in the subject area of novel, carbon-neutral technologies
- Commitment, flexibility and reliability
- Organizational talent, communication skills and good appearance
- Excellent knowledge of data evaluation software, MS-Office

#### **We offer:**

- Exciting work in an emerging field of research
- Excellent working atmosphere among young and motivated researchers and pleasant working environment
- Excellent lab infrastructure and hands-on-experience in practical applications

Please send your comprehensive application documents and any queries to:

**Ass.Prof. Priv.-Doz. Dr. Susanne Lux**

Inffeldgasse 25/C/II, 8010 Graz

[susanne.lux@tugraz.at](mailto:susanne.lux@tugraz.at), +43 (316) 873 - 7476