

PhD position for Slag Conductivities

(m/f/d)



Company description

K1-MET is one of the leading and internationally renowned metallurgical competence centres for ferrous and nonferrous metallurgy in Austria working on research issues such as energy efficiency, circular economy, and climate neutral metal production, as well as digitalization potential of the metal-producing sector. The basis for a fruitful development of K1-MET is the well-established cooperation with our partners from industry and academia. Our main sites are in Linz and Leoben, Austria, in close proximity to the most important locations of the Austrian metal industry. Together, we are working on process solutions to advance the modernization of the European metallurgical industry, driving forward the development and application of advanced future technologies from fundamental research towards industrial implementation.

Description of position and tasks

You will be working on the further development of fast measurement procedures for electrical slag conductivity and redox ratio in metallurgical process relevant scenarios and their validation. The PhD thesis will be carried out at Montanuniversitaet Leoben (MUL), Chair of Process Technology and Industrial Environmental Protection (VTIU), on the topic of **electrical conductivity and electrochemical measurements in iron- and steelmaking slags within controlled atmosphere**. You will learn and work on a measurement procedure for a fast acquisition of electrical conductivity data in iron oxide containing slags, thereby illustrating the interplay of the thermodynamic, the rheologic, and the electrochemical activity fields. The overall goals are to determine temperature dependent electrical conductivity data and the iron redox ratio in iron and steelmaking slags based on a voltametric sensor concept. During your PhD thesis, you will work with experienced colleagues in the field of metallurgical process engineering. You will become part of a diverse, international, professional team, which includes academic and industrial partners of K1-MET and MUL.

Competences and experiences

We are looking for the following competences and experiences:

- Full academic qualification (diploma / master) of a scientific discipline in technical or natural sciences (metallurgy, mechanical engineering, chemical engineering, physics, technical chemistry or related fields)
- Experience / skills in basic and detailed process engineering, thermodynamics and electronics
- Interest in metallurgical processes, slag chemistry and operation of experimental equipment
- Experience in experimental high-temperature work, systematic approaches for experimental design (e. g. Design of Experiments DoE)
- Experience in experimental work, systematic approaches for experimental design (e.g. DoE)
- Social competences, accessible personality, ready to work in an international team
- Decent presentation skills and autonomous time management desired
- Proficiency in English language obligatory, German language skills desired

Start of employment:	July 2023
Duration of employment:	limited to 4 years
Type of employment:	Full time (38.5 h/week), flexible working hours
Employer:	K1-MET GmbH, www.k1-met.com
Place of work:	Leoben, Austria
Compensation:	The gross salary for this PhD position with a Diploma/Master's degree is € 3,400 (14 x p.a., full time according to the collective labour agreement of mining and iron-producing industries).

Does this position sound interesting to you? Then feel free to send your CV, a motivation letter, and your references to office@k1-met.com, using "PhD position – Slag Conductivities" as the subject of your email. The position is open starting right away until a suitable candidate is found. International applications are encouraged. K1-MET GmbH and Montanuniversitaet Leoben are equal opportunity employers – we encourage female researchers to apply.

Employer

K1-MET GmbH
office@k1-met.com
www.k1-met.com

K1-MET Head office

Stahlstrasse 14
4020 Linz
Austria

Contact K1-MET

DI Dr. Johannes Rieger
Management Area Metallurgical
Process Efficiency and Circularity

Contact MUL-VTIU

Ao.Prof DI Dr. Christian Weiss
DI Dr. Jan Eisbacher-Lubensky
www.vtiu-unileoben.at