

PhD position for Process Simulation

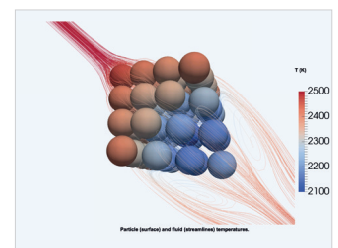
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Company description

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 development of ground-breaking simulations of industrial processes of iron- and steelmaking and their validation. The PhD thesis will be carried out at TU Wien (TUW), Institute of Chemical, Environmental & Bioscience Engineering (ICEBE), within the Research Unit Thermal Process Engineering and Simulation, on the topic of **detailed modelling of thermochemical conversion processes in solids**. You will learn and work on particle resolved simulations for the thermochemical conversion of solids, investigating various phenomena like thermal degradation, combustion, calcination, or similar. To validate the experiments, you will design and build a high temperature test rig and conduct suitable experiments. The overall goal is the comprehensive modelling of particle-scale resolved thermochemical solids conversion. During your PhD thesis, you will work with experienced colleagues in the field of simulation and experimental design. You will become part of a diverse, international, professional team which includes academic and industrial partners in national research projects of K1-MET and TUW. With your work, you will make an important contribution to enhance process understanding and the achievement of new and innovative results in the steel industry.



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 (mechanical engineering, chemical engineering, physics, technical chemistry or related fields)
- Experience / skills in basic and detailed process engineering
- Interest in design and construction of new experimental equipment, manual and craft skills desired
- Experience in modelling and simulation, basic understanding of computational fluid dynamics (e.g. OpenFOAM)
- 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, proficiency in German language advantageous

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:	Vienna, 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 – Detailed Solid Conversion Modelling" 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 TU Wien 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. Christine Gruber
Management Area Simulation
& Data Analyses

Contact TUW-ICEBE

DI Dr. Markus Boesenhofer
Assoc. Prof. DI Dr. Michael Harasek
<https://www.tuwien.at/tch/icebe>