Dean

of Faculty of Safety Engineering

VSB – Technical University of Ostrava

announces a selection procedure for a post of

Postdoctoral researcher (R2) in Hydrogen Safety / Zero-carbon and Low-Carbon fuel safety

The position is suitable for both women and men

About the CESAR Centre

We are seeking a highly motivated postdoctoral researcher (R2) to join the CESAR Centre (Centre of Excellence for Safety Research) led by Prof. Ernesto Salzano. CESAR focuses on understanding, mitigating, and managing safety challenges associated with emerging energy solutions. With a primary emphasis on hydrogen technologies, it aims to unravel the intricacies of hydrogen safety, from production and storage to distribution and utilisation, forging a path towards a safer, more resilient energy future. Its long-term vision is to develop cutting-edge safety measures for the entire hydrogen energy lifecycle.

Position Overview

The Postdoctoral researcher will:

- Conduct cutting-edge research on hydrogen safety/ Zero-carbon and Low-Carbon fuel safety.
- Design and perform experiments, analyse data, and contribute to the development of new methodologies and technologies, including numerical simulation.
- Collaborate with international project partners, including universities, research institutes, and industry stakeholders.
- Publish high-impact research articles in peer-reviewed journals and present findings at international conferences.
- Contribute to the training and supervision of doctoral candidates involved in the CESAR project.

Research Focus

- **Deflagrative and detonative behaviour**: Gas, liquid, vapour and dust flammability and explosibility of pure and hybrid mixtures related to hydrogen production, distribution/delivery and use.
- **Sustainable energy**: Analysis of sustainability of zero- and near-zero-carbon fuels, e-fuels, and renewable fuels, with particular emphasis on safety.
- **Process safety**: risk assessment, reliability assessment and consequence analysis of industrial processes involving hydrogen-related production, distribution/delivery and use, including external effects due to natural events and security, fire safety engineering and chemical stability (runaway reaction).
- **Artificial intelligence**: Predictive modelling and process optimization, machine learning algorithms, complex systems and AI-powered risk assessment models for zero-carbon fuels and for hydrogen production, distribution/delivery, and use, including new materials for transportation.

Candidate Profile

Essential Qualifications:

- A Ph.D. in Chemical Engineering, Environmental Engineering, Energy Engineering, or a related discipline.
- Strong research experience in chemical process safety, with a proven track record in experimental work and advanced modelling.
- Proven track record of high-quality publications in relevant scientific journals.

Desirable Skills:

- Experience with experimental setups and analytical techniques.
- Knowledge of advanced simulation tools, including CFD codes.
- Excellent communication and team collaboration skills in an international research environment.

Full time equivalent:	both part and full-time employment possible, relocation to Ostrava required
Type of job contract:	fixed-term employment contract with the possibility of extension
Anticipated commencement:	1st October 2025 onward
Number of positions:	1

What We Offer

- access to modern research facilities
- collaboration with a dynamic, international research team.
- opportunities to publish impactful research in high-ranking journals and participate in international conferences.
- supportive environment for skill development and professional growth.
- work in a promising organization,
- salary evaluation according to the candidate's experience,
- modern laboratory facilities,
- opportunity to participate in excellent research,
- flexible working hours,
- university kindergarten,
- 6 weeks of holidays,
- free parking for employees on the university campus,
- company catering in the canteen,
- MultiSport card,
- other employee benefits according to the employer's offer.

The CESAR Centre is committed to fostering diversity and inclusion. We encourage applications from candidates of all backgrounds and experiences. The working language is English.

Your personal data will be processed only to the extent necessary for the execution of the selection procedure in accordance with EU Regulation 2016/679: Informace-pro-uchazece-o-zamestnani-AJ.pdf (vsb.cz).

For inquiries or to submit your CV and introductory letter, please reach out to Dr. Vojtech Jankuj at the email address vojtech.jankuj@vsb.cz, CESAR Centre coordinator **until 31st August, 2025**.

Candidate selection for this position will be based on a comprehensive evaluation of their academic credentials, research achievements, potential for future contribution to the field, alignment with the department's strategic goals, and demonstrated ability to collaborate effectively with peers and students.