Location

Essen

Application area

the Faculty of Engineering, Department of Civil Engineering, Institute for Metal and Lightweight Structures

Research Assistant (f/m/d, Nr. 185-25)
EG 13 TV-L

The research project focuses on the analyzation and characterization of the monoaxial long-term load-bearing behaviour of typical glass/PTFE fabrics used in architectural membrane structures, taking into account production- and installation-related pre-damage in the form of creases/folding under the influence of moisture and alternating stresses due to wind. Analytical concepts for describing and recording the long-term load-bearing behaviour shall be developed for this purpose. In addition, the residual load-bearing capacity under high and low temperatures shall be analyzed after pre-damage and long-term loading. Furthermore, as part of the project, modification factors shall be developed for the computational recording of strength reductions as a result of long-term stress, taking into account pre-damages in the form of creases/folding. Tolerance specifications shall be defined which will be linked to fabrication tolerance quality classes to be developed for design and acceptance as part of construction supervision during fabrication/manufacturing and assembly.

Start of employment

as soon as possible

Duration of employment

until 31.05.2028

Working time

39 hours, 50 minutes (100% of a full-time employment, part-time employment is possible)

Your main tasks

- Working on a scientific topic in the field of architectural membrane structures
- Readiness and ability to complete a PhD thesis
- Experimental and theoretical work
- Analysis, interpretation and assessment of experiments
- Developing of analytical and experimental approaches
- Discussion of results within an international research team
- Writing and submitting of scientific publications in quality peer-reviewed journals
- Presentation of research results at national and international conferences

Your profile

- Above-average university master’s degree in civil engineering with focus on structural engineering (steel structures, membrane structures or equivalent) or materials science of at least 8 semesters standard period of study

- Experience and knowledge in technical textiles and foils as materials in membrane structures, the design and construction of membrane structures, material testing, in-depth metrological and statistical knowledge, and in-depth knowledge of FE simulation of membrane structures.
- Willingness to develop excellent experimental and analytical skills
- An aptitude for experimental and theoretical oriented research
- Good team-working and communication skills
- Excellent English and German skills, both written and spoken

Within the framework of the activity, the opportunity for further scientific qualification is offered.

We offer you

- A varied, multifaceted area of responsibility in a lively research-intensive environment
- Collaborations with international partners within the framework of the research project
- Further training opportunities and career support within the framework of the university
- A non-discriminatory working environment with respectful, appreciative cooperation
- A pleasant working atmosphere in a dynamic team
- The opportunity to do a doctorate with numerous support offers
- Family-friendliness through care for your children and advice on your care tasks
- A wide range of further education and training opportunities, individual induction

Application deadline

2025-05-25

Code number

185-25

Application

Please send your application with all documents via E-mail (cover letter, CV and certificates) summarized as a joint PDF and reference to this application (application number **185-25**) to Prof. Dr.-Ing. habil. Natalie Stranghöner, Universität Duisburg-Essen, Fakultät für Ingenieurwissenschaften, Institut für Metall- und Leichtbau, 45141 Essen, Phone +49-201-183-2757, E-Mail natalie.stranghoener@uni-due.de.

Information about the job

Information on the faculty and the advertising office can be found at:

https://www.uni-due.de/iml.