Universität Stuttgart

Institute for Lightweight Structures and Conceptual Design

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Adaptive envelopes and structures for the built environment of tomorrow
CRC 1244 C07 – Design and retrofitting of Adaptive Bridge Structures

Job advertisement

Research associate

Civil Engineering
(m/f/d)

From April 2023.
There is a possibility to enroll in the PhD program.

The aim of the Collaborative Research Centre (CRC) 1244 is to find answers to the pressing ecological and social issues of our time for the construction industry. The strategic integration of adaptive elements in load-bearing structures and envelope systems is considered a promising approach. The objective is to significantly reduce life-cycle energy, material and emissions through new design strategies and technologies that enable structures and envelopes to be adaptive against loading and environmental actions.
This project will focus on the development of novel design methods as well as retrofitting strategies for adaptive bridge structures. Project tasks will include:

- Analysis of different bridge typologies to implement and evaluate adaptation strategies for mass reduction and service life extension;
- Reliability analysis and evaluation of service life extension on real-world case studies;
- Experimental testing on a near-full-scale adaptive bridge structure to evaluate the feasibility and benefits of adaptation after damage events.

Your area of responsibility

- Elaboration of computational methods to design adaptive bridge structures
- Elaboration and dimensioning of adaptive components for bridge systems
- Develop feasible solutions for retrofitting bridge structures with actuation systems
- Cooperation in academic self-administration

Your profile

- MSc/MEng in civil/structural/mechanical engineering or related disciplines
- In-depth knowledge of structural mechanics including dynamic analysis
- Knowledge of mathematical and structural optimization
- Knowledge of control theory and implementation
- Knowledge of MATLAB/Python programming language
- Knowledge of CAD + FEM software (Rhino 3D, ANSYS, Abaqus)
- Experience in the design of load-bearing structures
- Excellent organizational and communication skills
- Strong interest in interdisciplinary work
- Proficient in English

The remuneration falls into group E-13, including social benefits. The position is 100% FTE to be filled from 01.04.2023. Applications must include a CV and a statement of research interest. Please send your application using the subject "SFB 1244 C07" to:

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