Reliability Assessment for Guided Wave-based Monitoring of Pipeline Systems

This PhD is funded by the Marie Curie program of European Union through the Innovative Training Network GW4SHM on Guided Waves for Structural Health Monitoring.

The position is offered with a fixed term contract of three years. According to the EU regulations, it is offered to an “early stage researcher” (that means: you are in the first four years of your research career (after Master degree) and you do not have a doctoral degree), who have not been living in Germany for more than 12 months within the last three years immediately before the recruitment date and not have carried out their main activity in Germany in that time. For refugees under the Geneva Convention apply specific rules. In the research project, a cooperative dissertation with University Siegen is envisioned.

Scientific context. To establish structural health monitoring for pipelines on a broad base, individual reliability assessment is mandatory. It enables future technical and normative qualification of these kind of SHM systems. The PhD position is therefore dedicated to the work on reliability assessment on several levels. In a first step, existing methods of reliability assessment for non-destructive testing need to be analysed and necessary adaptations for fundamental investigations should be tested. For individual analysis, the combination of experimental and numerical data for a variety of environmental and operational conditions is necessarily strived for. In cooperation with other members of the consortium, each of these aspects are focussed and combined. For the efficient reliability analysis also the development of surrogate models and sophisticated data analysis techniques complement the project.

Working Context. At Bochum University of Applied Sciences, you will be part of a team focussing different aspects of Structural Health Monitoring for civil and engineering structures. The chair of applied mechanics, led by Prof. Inka Mueller, was established in 2019. Current projects include different aspects of reliability of SHM systems, the development of monitoring strategies in subsurface engineering as well as involvement in standardization projects. Bochum University of Applied Sciences is situated in the Ruhr region, amid one of the largest clusters of academic establishments in Europe and maintains close ties with its local community while reaching out internationally. The university is widely acknowledged for its activities in the field of sustainability, like electromobility and areas of water management and environment.

Required Skills.

Mandatory skills:

- M.Sc. or equivalent in mechanical engineering, engineering mathematics, electrical engineering, computational engineering, physics or similar
- Solid knowledge in mechanics, math and statistics
- Excellent English writing and speaking skills
- Analytical thinking, organisational talent, team spirit, reliability, independent working style
- Open minded, cross-cultural competence
Desirable skills:

- Experience with experimental investigations in context of applied mechanics
- Experience in guided wave-based structural health monitoring
- Experience in numerical and/or statistical analysis

**Your application.** Please note that only applications with a CV, a motivation letter, the certificates and an affirmation in lieu of oath about the named EU regulations (see above or in Eligibility Criteria) will be considered. Please apply via the website of Hochschule Bochum: [https://karriere.hochschule-bochum.de/jobposting/01c5011a9d162e8556df0533986910a289c3728?ref=homepage](https://karriere.hochschule-bochum.de/jobposting/01c5011a9d162e8556df0533986910a289c3728?ref=homepage). For your application you need to press the button “Online-Bewerbung” at the bottom of the page.

The position is a 100% position, i.e. 39.83 hours/week.

The job is paid according to pay group 13 of the collective agreement for the public service of the federal states (TV-L).

We would like to see more female scientists here and are therefore particularly pleased to receive applications from women. Since April 2008 the Bochum University of Applied Sciences is certified as a family-friendly institution. Applications from suitable severely disabled persons or persons of equal status within the meaning of SGB IX are highly welcome.

For further questions, please do not hesitate to contact Prof. Dr.-Ing. Inka Mueller, Tel.: +49 234 3210420, Email: inka.mueller@hs-bochum.de.