

Your Key to success

The City University of Applied Sciences Bremen (HSB) with around 600 employees was the first university worldwide which offers academic studies in biomimetic (BSc, MSc). The Biomimetic-Innovation-Centre of HSB has around 20 employees and is engaged in the identification and investigation of physical phenomena in nature and transfer of the latter to technical applications. Current and previous research projects were funded by public institutions and by industry. Focal points are locomotion, construction and materials. In the first domain, flows over and in bodies are of special interest. Here, research is carried out in the fields of functional surfaces (reduction of frictional drag, poison-free anti-fouling flows), shape design of bodies (reduction of drag, lift enhancement, manoeuvrability). Investigations are carried out by numerical simulation using different codes and by experiments.

At the Bremen University of Applied Sciences, subject to the release of funds, there is a vacancy from 1. September 2023 for the

PhD position (f/m/d) on CFD simulations of biological inspired filters

Code: FK5-9-2023, Pay group / Entgeltgruppe 13 TV-L

to be filled with the full working hours per week (39.2 hours) and to be limited to 36 months. The position is not suitable for part-time.

The EU-funded Nature4Nature project brings biologists, engineers, designers and manufacturers together to develop biologically inspired high-throughput, clog-resisting filtration systems. At HSB, this doctoral thesis will focus on the fluid mechanical characterisation and optimisation of the system using Computational Fluid Dynamics (CFD) in cooperation with Mpacts/Belgium. The filter models are taken from vertebrates (birds, fishes). The flow analysis includes the efficiency of particle separation, residence times, pressure drop and energy balances. CFD results are compared to experimental data from the Biomimetics Group of the Energy and Sustainability Research Institute Groningen of the University of Groningen/The Netherlands. The development/optimisation of the filter geometry and the determination of process parameters towards a technical application of the filter take place in close cooperation with the interdisciplinary and international team of Nature4Nature (<https://www.nature4nature.net/>).

YOUR AREA OF RESPONSIBILITY

- Numerical simulation of one and two phase flows in filter systems using different CFD codes including extension and adaptation of CFD codes
- Publication of project results in scientific journals and at conferences
- Collaboration and communication with project partners
- Preparation, participation and follow-up of project meetings and workshops
- Preparation of project reports and participation in administration of the project

PROFILE & REQUIREMENTS

- Applicants must have completed academic university studies (M.Sc., M.Eng.) with a specialization in CFD, physics, engineering or similar fields of study
- Applicants should have experience in the use of CFD codes and programming (C++, Python)
- Master's certificate must be available by the date of the recruitment
- Applicants should have a strong affinity for research and be result oriented
- The candidate should display an analytical view of complex contexts
- Applicants should be willing to work independently but also display teamwork skills
- Applicants may be of any nationality but must comply with the Horizon Europe MSCA eligibility criteria*
- Applicants must be able to understand and express themselves in both written and spoken English to a level that is sufficient for the completion of a PhD

* **HORIZON MSCA Mobility Rule:** Applicants must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organization (Germany) for more than 12 months in the past 3 years immediately before the recruitment date.

* **HORIZON MSCA eligibility criteria:** Applicants may not hold a doctoral degree or equivalent at the start date of the recruitment. Researchers who have successfully defended their doctoral thesis but who have not yet formally been awarded the doctoral degree will not be considered eligible.

OUR OFFER

- The opportunity to be part of an MSCA Doctoral Network: the selected candidate will benefit from the designed training programme offered by the host organisation and the Nature4Nature consortium
- The selected candidate will participate in international secondments to other organisations within the Nature4Nature network
- An interesting and varied job in an international environment at a cosmopolitan university
- An open working atmosphere
- Flexible working hours at a family-friendly university
- Wide range of opportunities for personal and professional development
- A subsidized job ticket for public transport
- Subsidized company fitness in all EGYM Wellpass-studios

In the case of university degrees that you completed outside the EU, please send a PDF excerpt from the database for **the recognition and evaluation of foreign educational certificates (ANABIN)**.

Bremen University of Applied Sciences promotes the employment of women at all levels. Women are therefore particularly encouraged to apply.

Candidates with an officially recognized disability with essentially the same professional and personal qualifications will be given priority. Applications from persons with a migration background are welcomed.

Further information about the University of Applied Sciences Bremen can be found at **www.hs-bremen.de/en**. If you have any questions regarding the job advertisement, please contact **Prof. Dr. Albert Baars** at **+49 421-5905-2749** or **[albert.baars\(at\)hs-bremen.de](mailto:albert.baars(at)hs-bremen.de)**.

We look forward to receiving your application **by 10.07.2023 inclusive** via **career.hs-bremen.de**.

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