

Job posting

Type of position



scientific



administrative

Target group



graduates



post docs



other

Title Doctoral Researcher (m/f/d) (65 %)

Institution The Leibniz Institute for Agricultural Engineering and Bioeconomy is a pioneer and a driver of bioeconomy research. We create the scientific foundation to transform agricultural, food, industrial and energy systems into a comprehensive bio-based circular economy. We develop and integrate techniques, processes and management strategies, effectively converging technologies to intelligently crosslink highly diverse bioeconomic production systems and to control them in a knowledge-based, adaptive and largely automated manner. We conduct research in dialogue with society - knowledge-motivated and application-inspired.

Position In the Engineering for Livestock Management competence area, we combine veterinary research on stress parameters and germ contamination with environmental research on emissions and flow processes in and around animal husbandry facilities. For the basic research project "Determination of air exchange rates in naturally ventilated barns — Validation of prediction Models 2.0", funded by the German Research Foundation, in the working group "Barn climate and emission modelling", we are looking for a Doctoral Researcher (m/f/d) (65 %). The barn climate and emissions modelling working group develops, adapts and validates empirical and mechanistic models for describing and predicting temperature distribution and air quality in naturally ventilated barns and pollutant transport processes in connection with livestock farming. The models are further used to evaluate options for adapting barn systems to climate change and reducing emissions. The mathematical modelling (i.e., computational fluid dynamics modelling, clustering and regression analysis) in the predecessor project "BeLuVa" (<https://www.atb-potsdam.de/en/research/research-projects/project/projekt/beluva>) provided initial insights into how boundary conditions influence the air exchange rate in individual animal accommodation areas and local concentration ratios of target and trace gases. Based on this, the basic understanding of the influence of the wind direction shall be expanded and tipping points identified at which a change in the wind direction significantly changes the flow. Another goal is the refinement of

the parametric models derived in BeLuVa for local air exchange and gas balancing accuracy. Model results are cross-validated with measurements in a large boundary layer wind tunnel and in the real barn.

This part-time position (65 %) is limited to 3 years. The salary is based on your qualification and professional experience according to TV-L up to salary group 13.

Responsibilities

- Independent execution of flow simulations with an existing computer model
- Analysis of flow patterns with different spatial verification techniques
- Support for the further development of the numerical flow model
- Derivation of a parametric model for the air exchange rate from simulations
- Analysis of the simulated tracer distribution and derivation of a parametric model to estimate the achievable accuracy of gas concentration measurements
- Participation in the planning of validation measurements (wind tunnel and on-farm)
- Creation of scientific publications in peer-reviewed journals

Requirements

- Successfully completed university degree (diploma / master examination) in a scientific-technical course in the field of engineering, physics, meteorology or comparable
- Very good knowledge in data science / statistics
- Experience in computer vision, spatial verification and cluster analysis desirable
- Very good programming skills (e.g., R or Python)
- Very good knowledge of fluid dynamics
- Experience in using common CFD software desirable (preferably ANSYS FLUENT and SpaceClaim);
- Very good spoken and written English skills
- Independent working style, personal commitment, reliability, enjoyment of basic science, solution-oriented action, ability to work in a team and willingness to cooperate
- European driving licence class B is desirable

We offer

- Doctorate within a structured program and accompanying training courses
- Opportunities of participating international conferences to support your scientific exchange
- Attractive, interdisciplinary working environment and very good conditions for developing your scientific career and network

- The best prerequisites for independent, interdisciplinary research in an ambitious team and with modern and excellent infrastructure
- Access to national and international networks for your scientific development
- Family-friendly working conditions that promote the compatibility of work and family life
- Company-owned electric bicycles for business trips
- Participation on the VBB company ticket

Application procedure (deadline etc.)

If you would like to contribute your professional competence to our interdisciplinary research, please apply by the following deadline August 15th, 2022 using ATB's online application form for the job advertisement, code 2022-5-8, at <https://www.atb-potsdam.de/en/career/vacancies>. Applications received after the application deadline cannot be considered.

Equality of opportunity is part of our personnel policy. Disabled applicants with adequate qualification will be preferentially considered.

By submitting an application, you agree that your job application documents will be stored for a period of six months, even in the case of an unsuccessful application. Further information on the processing, storage and protection of your personal data can be found at <https://www.atb-potsdam.de/en/services/data-protection-declaration-for-the-application-process>.

Contact

For further information, please contact Dr. Sabrina Hempel (E-Mail: shempel@atb-potsdam.de) and visit our website www.atb-potsdam.de.