The mission of the Leibniz Centre for Agricultural Landscape Research (ZALF) as a nationally and internationally active research institute is to deliver solutions for an ecologically, economically and socially sustainable agriculture – together with society. ZALF is a member of the Leibniz Association and is located in Müncheberg (approx. 35 minutes by regional train from Berlin-Lichtenberg). It also maintains a research station with further locations in Dedelow and Paulinenaue.

Together with the Sustainable Agroecosytems group at ETH Zurich, CIRAD and the Crop Science group at the University of Bonn, ZALF's Cropping System Analysis group is offering a PhD position within the project "Optimal N for future agricultural landscapes: digital technologies to optimize tradeoffs". The project aims at developing knowledge and models to support the site-specific design of crop rotations and nitrogen management for optimal delivery of ecosystem services related to nitrogen. The project is composed of three sub-projects, with respective focuses on process understanding; upscaling; and process-based model development and application. We are looking for a PhD candidate to work on this last sub-project which aims to derive spatially allocated crop rotations and nitrogen management schemes considering regional soil heterogeneity to minimize the probabilities of trade-offs between crop yields and nitrogen losses given uncertain weather conditions. To do so, a state of the art soil organic matter model will be improved in the project to include nitrogen transformations, and will be integrated with a cropping system model and applied in the tradeoff analysis.

We are offering a TVL-13, 65% position for 3 years at our location in Müncheberg as

PhD student (f/m/d)

Your tasks:

- improve a state-of-the-art soil organic matter model to include nitrogen transformations;
- integrate the soil organic matter model in an existing cropping system model;
- collect data from field experiment measurements for model development and calibration, together with the other PhD candidates in the project;
- calibrate the integrated model for crops and rotations evaluated in the studied field experiments;
- develop a weather risk-based scenario framework to design optimal crop rotations and within-season nitrogen application strategies;
- collaborate with the other PhD students and senior researchers in the project; and
- publish your research results in peer-reviewed scientific journals.

Your qualifications:

- a MSc in soil science, agriculture, agricultural engineering, ecology, mathematics, physics or similar;
- a solid understanding of soil organic matter transformations in the context of cropping systems;
- excellent analytical and quantitative skills;
- strong motivation to develop your model development skills;
- some previous experience in computer programming or scripting (e.g. Matlab, R, Python, Fortran, C++ or similar);
- a good overview of the challenges facing sustainable agroecosystems;
- excellent communication skills in English
- good teamwork skills and willingness to collaborate across disciplines.

Leibniz Centre for Agricultural Landscape Research (ZALF), Eberswalder Straße 84, D-15374 Müncheberg, Germany

Contact of Human resource management: personal@zalf.de

www.zalf.de zalf.agrarlandschaftsforschung zalf_leibniz

We offer:

- the opportunity to work with leading international scientists and networks in cropping system analysis and soil biogeochemical processes
- an interdisciplinary, collegial and open-minded working atmosphere in a dynamic research institution
- research stays in the Sustainable Agroecosytems group at ETH Zurich
- membership in ZALF's graduate program (incl. various research and communication training courses)
- strong institutional commitment to a good work-life balance
- classification according to the collective agreement of the federal states (TV-L) EG13 with a 65% weekly working time (including special annual payment)

Women are particularly encouraged to apply. Applications from severely disabled persons with equal qualifications are favored. Please send your application preferably by e-mail (one PDF file, max. 5 MB; packed PDF documents, archive files like zip, rar etc. Word documents cannot be processed and therefore cannot be considered!) with the usual documents, in particular CV, proof of qualification and certificates, stating the reference number **25-2021** until **March 25, 2021** to: Bewerbungen@zalf.de.

If you have any questions, please do not hesitate to contact Dr. Heidi Webber, webber@zalf.de or Prof. Johan Six, johan.six@usys.ethz.ch.

For cost reasons, application documents or extensive publications can only be returned if an adequately stamped envelope is attached.

If you apply, we collect and process your personal data in accordance with Articles 5 and 6 of the EU GDPR only for the processing of your application and for purposes that result from possible future employment with the ZALF. Your data will be deleted after six months.

You can find further information at: www.zalf.de/en/ueber_uns/Pages/Datenschutzerklaerung.aspx