

**June, 20th 2022**

Leibniz Centre for Agricultural Landscape Research (ZALF), WG Microbial Biogeochemistry offer a

### **Master/ Bachelor Thesis Project (Master-/ Bachelorarbeit)**

We are looking for motivated Bachelor/Master student who is interested in experimental studies in the Crop Rhizo SOM project, which focuses on

### **The mechanisms of carbon sequestration in eroded soils**

**Background.** The soil microbiome is a main driver of carbon transformations in soils. Bacteria, fungi and archaea in soils utilize existing Soil Organic Matter (SOM), plant litter and rhizodeposits of the plants as energy and carbon source.

These microbial transformations are catalyzed by a large variety of enzymes, which can be directly measured in soils.



### **Master Thesis Project. What can you expect?**

The main focus of the thesis will be the measurement of potential soil enzyme activities from samples collected in a climate chamber experiment with simulated tillage erosion. Oil rapeseed (*Brassica napus*) is used as a model crop to study the rhizosphere processes that drive carbon transformations and subsequent carbon sequestration. The soil is derived from a well-studied ZALF research site in NE Germany (Carbo-ZALF). The selection of specific enzymes or enzyme groups will be compared to collect metagenome data (sequencing and possibly RT-qPCR assays) to characterize the rhizosphere microbiome from the experiment.

The workload of the thesis encompasses:

- Literature search

- Fluorescence-based based micro-plate assays of rhizosphere (& bulk) soil samples

- Analysis and interpretation of results (preferably with R)

All work steps are accompanied by experienced scientists in the working group, laboratory work will be conducted at ZALF headquarters in Müncheberg. A background in environmental sciences, especially soil science, biology or agriculture and experience in laboratory analysis is desirable. The thesis can be written in English or German.

Start of the thesis: Winter semester 2022/23, flexible start date possible.

If you are interest in the thesis and have further questions, feel free to reach out to us:

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**We look forward to receiving your application!**

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