



PhD Position available in the ERC Project Self-organisation of microbial soil organic matter turnover (SomSOM)

Soil Microbial Ecology meets Complex Systems Science

The aim of this PhD project is to investigate fundamental principles of ecological organization in the soil microbial ecosystem by combining the analytical framework of **Complex Systems Science** with experimental methods of **Soil Microbial Ecology**.

Soil microbial ecosystems are complex systems. One common phenomenon of complex systems is the emergence of ordered structures in space and time out of initial disorder. These structures, which are driven by endogenous (i.e. emerging by interactions among members of the system) rather than exogenous forces, are often *self-similar* over a wide range of spatial or temporal scales and are often linked to the presence of *power-law relations*. The presence or emergence of ordered structures is also responsible for complex systems exhibiting sudden or continuous *phase transitions* at critical points. The aim of this PhD project will be to apply the framework of complex systems science to targeted experimental measurements of soil microbial ecosystems to improve our understanding of fundamental mechanisms underlying their dynamics and their response to environmental change.

I am looking for an enthusiastic PhD student with a strong experimental background in soil microbial ecology and/or soil biogeochemistry and a fundamental interest in physical phenomena applicable to complex systems and in theoretical ecology. Experience in the following areas will be of advantage:

- Application of stable isotopes in soil ecological research
- Various techniques in soil biogeochemistry and microbial ecology, f.e soil respiration, extracellular enzyme activities, Phospholipid fatty acids (GC-MS, GC-IRMS), soil chemical composition (Pyrolysis-GC-MS), Chromatography (GC, HPLC), 16S rRNA gene amplicon sequencing, SIP approaches
- Programming skills, background in mathematics or physics

Applicants must have good communication skills and be committed to pursuing interdisciplinary research in an international team. The PhD position (3 years) will be located at the Division for Terrestrial Ecosystem Research, Centre for Microbiology and Environmental Systems Science, University of Vienna, a vivid, cooperative and friendly working environment with excellent opportunities for scientific interactions and collaborations.

Please send your application as one pdf file including

- a motivation letter (ca 1 page)
- CV (including scientific publication and presentation activities, if any)
- Contact details of two possible references

to christina.kaiser@univie.ac.at, and also apply via the official call of the Doctoral School in Microbiology and Environmental Science by September 30th, 2020: <https://vds-mes.univie.ac.at/apply>.

More about:

Christina Kaiser's team and research: <http://ter.csb.univie.ac.at/people/christina-kaiser>

Division for Terrestrial Ecosystem Research: <http://ter.csb.univie.ac.at/>

Centre for Microbiology and Environmental Systems Science:

<http://cmess.csb.univie.ac.at/>



For questions please contact christina.kaiser@univie.ac.at.