



**UNIVERSITÄT ZU KÖLN**

**Department für Biologie  
Schwerpunkt Ökologie**

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**ÖKOLOGISCHES KOLLOQUIUM**  
**of the Institute of Zoology in person in room 0.024**

**Wednesday, July 02, 2025, 01:15 pm**



**Prof. Dr. Holger Pagel**

Soil Systems Modeling | Bodensystemmodellierung

- 1) Agrosphere (IBG-3) - Forschungszentrum Jülich GmbH
- 2) Institute of Crop Science and Resource Conservation - University of Bonn

Host: Prof. Dr. Bonkowski

**Modeling microbial energy and matter cycling in soil systems**

Modeling and predicting essential soil functions such as carbon storage, nutrient cycling, water purification and plant productivity is fundamental for understanding agroecosystems and their response to global change, but requires to represent the relevant underlying microbial processes in sufficient detail. How to adequately model microbial energy and matter flows of organic compounds, nutrients and pesticides in soil and soil-plant systems and how to link models and measurements is an open challenge.

My talk will present microbially explicit modeling approaches and shed light into integrating functional microbial traits, omics data and thermodynamics with process-based models. I will also present an integrated functional-structural modeling framework that combines plant, rhizosphere, and soil systems (including microbial communities) and can facilitate the upscaling from the microhabitat to the pedon scale.

For more information, please visit:

<https://www.fz-juelich.de/en/ibg/ibg-3/research-groups/modelling-terrestrial-systems/soil-systems-modeling>

**Gäste sind herzlich willkommen!**  
**Die Mitarbeiter/innen der Ökologie**

→ bei Rückfragen: 470-8269 (Ilić)