



MARTIN-LUTHER-UNIVERSITÄT  
HALLE-WITTENBERG



## Soil Science Colloquium - Halle

# Prof. Dr. Stephan Peth

University of Hannover, Germany

28. November 2024 - 4pm

Julius-Kühn-Hörsaal, Theodor-Lieser-Straße 9, Halle

## Between particles and grain clusters - what holds the soil together or not

### **Abstract:**

Soil structure is one of the key drivers for soil functioning. Advances in X-ray CT and image analysis approaches have significantly advanced the study of soil structure and their relation to soil functions which greatly improved our understanding of the interacting processes in complex soil systems. While usually the focus is on pore space organization, which controls the flow of water and gas through soil, the “grain space” seems to be widely neglected. This is surprising as the grain network provides stability to soil structures sustaining pore network functions.

In this talk I would like to take a closer look at the mechanisms that hold soils together from an interparticle level to the bulk / grain cluster scale. I will present imaging techniques to localize soil deformation patterns upon the action of mechanical and hydraulic stresses and rheometry as a tool to measure the influence of soil chemistry on interparticle strength which ultimately control structural stability.