



## **Hydraulic Parameter Estimation in Heterogeneous Porous Media**

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The combination of multistep-outflow experiments and inverse modeling is a standard method for the determination of hydraulic properties of soil samples. Usually the sample is assumed to be homogeneous, which is not true for most natural soils. New measurement techniques (x-ray tomography, geoelectrics, georadar) allow the non-destructive determination of the spatial structure of a soil sample. If the structure of a sample is known, it might be possible to estimate the hydraulic properties of the basic materials of a soil with multistep-outflow experiments and an optimisation procedure, which takes the structure explicitly into account.

We tested this approach with packed sand columns where the results could be directly verified and undisturbed soil, where verification was done by predicting a solute transport model. The results are presented and the implications for the applicability of the method are discussed. Possible consequences for the interpretation of field experiments are discussed.