

Special Issue

X-ray Computed Tomography in Agricultural Systems

Message from the Guest Editors

Most of the performed studies on soil physics are restricted to analyzing macroscopic soil properties, such as bulk density, porosity, water retention and infiltration properties. For understanding or modeling the dynamics of the soil water and soil aeration, information related to the pore size and shape distributions, pore connectivity, pore tortuosity, pore anisotropy, and pore system complexity are required. X-ray microtomography is a technique allowing the study of the soil's inner structure at the micrometric scale. The reconstruction of 3D images permits the simulation of numerous processes inside the soil. Some CT scanning systems and techniques make it possible to follow physical processes as they happen in the soil (4D tomography). Soil structure modifications due to contrasting tillage systems and uses, continuous wetting and drying cycles, irrigation processes, crop rotation and compaction are also viable using the microtomographic technique. The Special Issue aims to publish articles related to microtomography in studies involving the investigation of the structure of soils under different agricultural management and when submitted to soil-plant interaction processes.

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