



## **An approach of identifying the optimum parameters for image acquisition using X-ray Computed Tomography: an example using soil**

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The present investigation aimed to improve the accuracy of quantifying soil structure using X-ray computed tomography. Scans of a soil aggregate were performed at 40, 75, 100, 115 and 130kV and various metal filters were tested by placing in front of the X-ray beam or the image intensifier. Radiographs were processed morphologically and mathematically prior to reconstruction to improve thresholding and discrimination between soil phases. It was observed high X-ray energies provide digital imagery which allow a more precise isolation between pore and solid phases compared to lower energies. Metal filters typically used to reduce noise can provide further improvement. An approach is suggested that can be followed to identify the optimum condition for scanning soil or the material of interest for a more precise quantitative analysis.