

An Automated System for the Quasi-Continuous Determination of the Particle-Size Distribution. (S01-nemes060928-Poster)

Authors:

- I.Czinkota* - *Szent Istvan University, Godollo, Hungary*
- A.Nemes - *Res. Inst. for Soil Sci. and Agric. Chem., Budapest, Hungary*
- G.Czinkota - *Altair Bt., Fot, Hungary*
- L.Tolner - *Szent Istvan University, Godollo, Hungary*
- B.Kovacs - *University of Miskolc, Miskolc, Hungary*
- Y.A.Pachepsky - *USDA-ARS, Beltsville, MD*

Abstract:

Lack of a single (uniform) world-wide soil texture description system often hinders the optimal use of basic soil data while estimating soil hydraulic properties. An alternative to the error-plagued particle-size distribution (PSD) interpolations is to measure PSD in such detail that it is compatible to more of the commonly used classification systems. An automated measurement system is introduced to measure PSD that is compatible to any of the existing national and international classification systems. The computerized system records density changes of the soil solution in a settling tube in arbitrarily small time steps. This, in turn, allows the derivation of a quasi-continuous PSD curve. The measurement is based on areometry (Stokes-law), so the system is compatible to the most commonly applied settling-tube type systems. The theory and setup of the system are explained and a measurement example is given. The automated reading requires less manpower to operate the system, reduces risks of human errors, and provides very detailed PSD data that has advantages like revealing multi-modality and fine-scale details of PSD.

Corresponding Author Information:

Attila Nemes
Res. Inst. for Soil Sci. and Agric.
Chem.
Herman Otto u. 15.

phone: +31 317 474548
fax: +31 317 419000
e-mail: attila@alterra.wag-
ur.nl

Budapest 1022
Hungary

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