



# Identification of soil deformation moduli from innovative penetrometer testing – Experimental and numerical analysis

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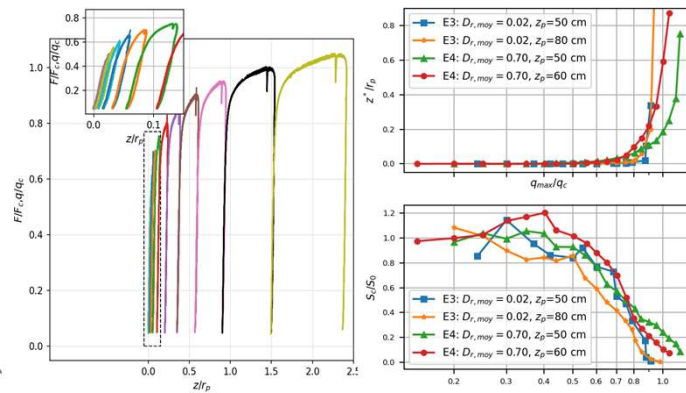
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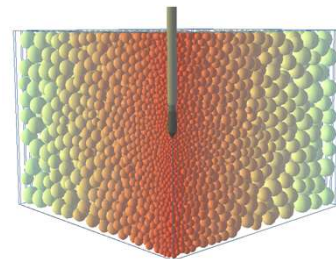
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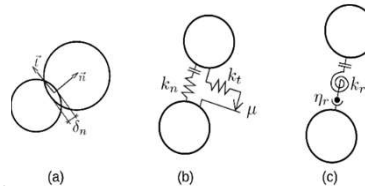
**Objective:** Derive a methodology to characterize the deformability of soils from in-situ test using a penetrometer.



**Some results:** Very small irreversible displacements of the tip along with a relatively constant secant stiffness of the soil and a low hysteresis are observed even for a stress level equal to half of the tip resistance.

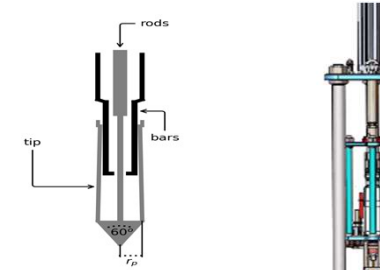


The numerical sample

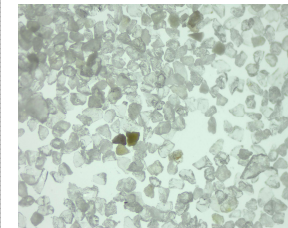


A contact law with rolling resistance

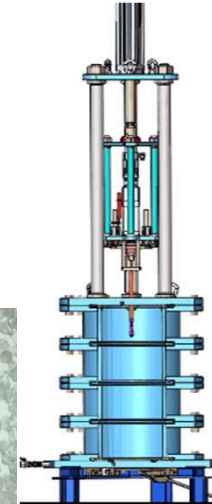
## The Experimental Setup



A moveable cone tip



Fontainebleau GA39 sand grains ;  $d_{50} = 113 \mu m$



The calibration chamber with the loading frame.