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# Irish researchers develop automated anisotropic test kit

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A HOLLOW cylinder apparatus for measuring anisotropic soil behaviour has been developed by researchers at the National University of Ireland, Dublin.

Dr Brendan O'Kelly and Pat Naughton said the automated apparatus represented 'the next stage in the evolution of soil laboratory test apparatus for stressstrain-strength measurement'.

They said it was 'capable of determining mechanical behaviour and properties of soil under multi-directional loading conditions'.

They added: 'Complex soil engineering problems, involving rotation of the principal stress directions and/or changes in the magnitude of the intermediate principal stress, can be simulated and more reliable measurements of design parameters obtained, in particular, for numerical analysis.' The new equipment allows testing over the soil's entire strain range, including the pseudo-elastic domain. Stress history and loading conditions are reproduced by applying axial and/or torsional loads to the ends of the hollow cylindrical test-specimen which is subjected to a hydrostatic confining pressure.

The behaviour and pore-pressure response of the specimen are accurately measured throughout the test. Dynamic testing can also be carried out.

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