CALL FOR PAPERS FOR THE SPECIAL TRACK

"ADVANCED MEASUREMENTS IN GEOTECHNICS"

ABSTRACT

In recent years significant research developments in Geotechnical Engineering have been achieved thanks to the capability of testing and measuring the behaviour of soils by field and laboratory equipment, on physical models and on prototypes of geotechnical systems. The main variables usually measured, among the others, are force, displacement, velocity, acceleration (as in most of Civil Engineering fields) and pressure, suction, water flow, which are more typical of the Geotechnical area.

Thanks advancing technology, modern instrumentation and technical procedures, significant progress has been made in laboratory testing of soil specimens to determine constitutive properties, and in monitoring of real geotechnical systems, such as slopes, embankments, foundations and earth retaining structures to reveal their actual performance.

Some of these measurements are particularly challenging in Earthquake Geotechnical Engineering, due to the dynamic variability of such parameters with time. Nevertheless, noticeable and reliable measurements are often performed, as in experimental activities on physical models by means of shaking table and centrifuge apparatuses.

The aim of this session is to focus on the most advanced technical measurements in geotechnics, and on the future perspectives. Hence a fruitful meeting between the research institutions (presenting recently achieved results and the future needs) and the industrial world (illustrating the progress and the perspectives of the improving measurement technologies) is strongly encouraged.

SUGGESTED TOPICS

Main topics include, but are not limited to:
- Measurements of force and deformation in laboratory soil specimens;
- Measurements of force and deformation on structural elements interacting with the soil;
- Measurements of displacement, velocity and acceleration in soils;
- Measurements of pressure, suction and water flow in soils;
- Geophysical testing for soil characterization;
- Monitoring of slopes and embankments through traditional instrumentation (e.g. inclinometers);
• Monitoring of slopes and embankments through satellite and Interferometric techniques;
• Monitoring of foundations and earth retaining structures.

CHAIRS

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ABOUT THE ORGANIZERS

ARMANDO L. SIMONELLI graduated “cum laude” in Civil Engineering in 1982 at the University of Naples Federico II. Since 1985 researcher of the National Earthquake Group of the National Research Council. Since 2001 Associate Professor in “Geotechnics” at the University of Sannio (Benevento, Italy). His main research interests are Soil Dynamics, Seismic Response of Retaining Structures, Slope Stability, Seismic Response of Piles, Geotechnical Earthquake Engineering and Seismic Normative.

He has been involved in important projects, among which: "Benevento Seismic Risk Project" (in “Microzonation and hazard assessment methodology with application to a selected area in Southern Italy”, XII CEE Committee); PIANC (International Navigation Association)/ PTCII/Working Group 34, for developing seismic design guidelines for port structures.

He led the national research on “Deep Foundation”, L.R.6.4 theme of the “DPC-RELUIS 2005-2008” project between RELUIS (Seismic Engineering University Laboratory Network) and the Civil Protection Department. Since 2010 leader of the European TA4 “PILESI” project, funded by SERIES (Seismic Engineering Research Infrastructures for European Synergies) under the umbrella of the 7th Framework Programme (FP7). He has also been involved in the SERIES European TA1 project on "Experimental Investigation of Dynamic Behaviour of Cantilever Retaining Walls". At present he coordinates the national Work Package WP4 “Large scale methodologies for the prevision of Local Site Response and Instability subsoil phenomena” of the “DPC-RELUIS 2014-2016” project. He is one of the authors of the National Building Code (NTC 2008), as member of the AGI (Associazione Geotecnica Italiana) Committee. He is currently working on the revision of the seismic European Code (EC8), as member of the European Technical Committee ETC-12 of ISSMGE (International Society of Soil Mechanics and Geotechnical Engineering).

A.L. Simonelli published more than 100 papers on national and international conference acts, geotechnical journals, books. He is a peer reviewer for several international journals in Geotechnics.
COLIN A. TAYLOR (CEng FICE) is Professor of Earthquake Engineering and Director of the Earthquake Engineering Research Centre in the Department of Civil Engineering at the University of Bristol, UK. A former Head of Department, he is currently the university’s Academic Champion for Future Cities and Communities, with responsibility for drawing together cognate research from across the university’s Faculties of Engineering, Science, Social Science and Law, Arts and Humanities, Medicine and Medical Sciences. This activity is exploring the question of how Smart City technologies can shape sustainable human behavior. He serves on the Futures Panel of the Institution of Civil Engineers, is a founding director of the university’s oldest spin-out company, BEELAB Ltd, and a Trustee of the Clifton Suspension Bridge.

His research interests are focused on the performance of complex infrastructure subjected to natural hazards. His research spans theory, analysis, laboratory experimentation and prototype observations. He led the design and construction of the 6-degree of freedom EPSRC Earthquake Simulator (shaking table) and the £20m Bristol Laboratories for Advanced Dynamics Engineering (BLADE) in which it is housed. He led the development of an innovative, flexible geotechnical ‘shear stack’ for testing large soil structures on the shaking table. He has led numerous prototype monitoring campaigns, including one of the first developments and deployments of a vision monitoring system for measuring the dynamic displacement of the Humber Suspension Bridge (at the time the longest single span in the world) in the early 1990’s. He is currently leading a £4m laboratory project for EDF Energy, which is building a ¼ scale shaking table model of a nuclear Advanced Gas-cooled Reactor graphite core in order to support evaluations of the seismic safety of such cores as they age. The model incorporates an innovative, purpose designed, distributed data acquisition system that will support up to 20,000 sensors for measuring the various dynamic interactions of the graphite brick assemblies under seismic loading.
PAPERS SUBMISSION

Prospective authors must electronically submit an extended abstract (4 pages, including figures) by June 24, 2014 (http://www.imeko-tc4-2014.org). All papers will receive multiple peer reviews; authors will receive timely notification of paper acceptance. If accepted, final papers must be no more than 6 pages and will be submitted electronically by July 31, 2014.

Papers must be presented at the conference -- either orally or as a poster -- by an author, will appear in the final conference proceedings, and will be indexed in the Scopus citation index. Formats and complete submission instructions are available at http://www.imeko-tc4-2014.org.

SPECIAL ISSUE ON JOURNAL

Authors of best papers will be invited to submit a significantly extended version of their Proceedings paper to the Journal Measurement of Elsevier for a corresponding Special Section devoted this Session at TC-4 Symposium.