

Correspondence

Further detailed information about the Symposium will appear on the web page of the Symposium microtomacro2018.unirc.it/ and will be sent with the second announcement to anyone that wish to be inserted in the mailing list of the Symposium. To be added to the list and for any other information please contact Prof. Giuseppe Mortara, DICEAM, University Mediterranea of Reggio Calabria, Via Graziella, Feo di Vito, I-89122 Reggio Calabria, Italy; email giuseppe.mortara@unirc.it; phone: +39 0965 1692 271.

Reggio Calabria

Reggio Calabria is located on the “toe of the boot” (the southern tip of Italy) and is separated from Sicily by the Strait of Messina. The prestigious National Archaeological Museum of Magna Grecia hosts the famous Bronzes of Riace, the symbols of the city. The Reggio Calabria waterfront is known as the “*the most beautiful kilometre of Italy*”.

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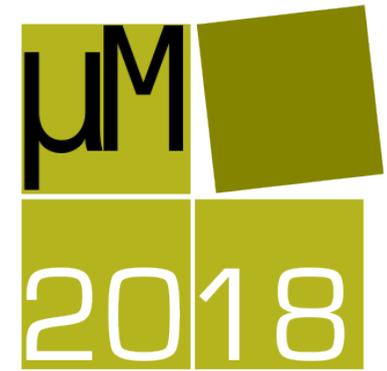
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micro^{to}MACRO

micro to MACRO mathematical modelling in soil mechanics

May 29 – June 1, 2018

University *Mediterranea*
of Reggio Calabria
DICEAM



First announcement and Call for papers

Overview

On behalf of the Scientific Committee, we are pleased to announce the International Symposium on **Micro to macro mathematical modelling in soil mechanics** that will be held in Reggio Calabria (Italy) on May 29 - June 01, 2018, at the Department of Civil, Energy, Environmental and Materials Engineering (*DICEAM*) at University *Mediterranea* of Reggio Calabria.

Conference theme

Three Symposia on granular or porous issues have already been held in Reggio Calabria with the participation of many outstanding scholars in the field. The new proposed Symposium will be an occasion to enhance the scientific debate about the construction of mathematical models for the description of the physical behaviour of soils, as well as about the suggestions obtained from the micro-mechanical observation of the matter.

The attention will be focused on the comparison between the appropriateness of models and the needs of mathematics to get rigorous results. Skills from applied mathematical physics, geotechnical engineering and mechanics are then involved. As is well known granular matter displays, in fact, subtle complexity. Phenomena like strain localization, liquefaction of solids, cyclic mobility, effects of diagenesis, weathering, compaction and segregation may imply sophisticated models and sometime render questionable traditional approaches. Moreover, these models

suggest non-trivial mathematical problems that are interesting per se. Engineering requests of applicability need also to be satisfied for civil and geotechnical purposes. All these issues may be open to discussion during the Symposium, though the emphasis will be on modelling: higher order continua, incrementally non-linear laws, micro-mechanical considerations must be taken into account.

Invited speakers will present complementary issues from geotechnical engineering, statistical physics and applied mathematics that can be considered together as a short advanced course on the topic. Regular presentations are also intended to cover fields from mathematical physics to civil and geotechnical engineering with the discussion of theoretical, numerical and experimental results.

Main Topics

- continuum modelling
- mechanics of porous materials
- multiphase flows
- discrete element modelling
- micro-macro in soil-mechanics
- granular flows
- transport phenomena in particulate materials
- hydro-thermo-chemo mechanical coupling
- mechanics of saturated and unsaturated soils
- laboratory testing and modelling

Contributions

Those interested in submitting technical contributions related to the proposed topics are invited to send an abstract prior to the deadline of November 15, 2017.

Abstracts, in English and in pdf format, should be submitted to Prof. Giuseppe Mortara, email giuseppe.mortara@unirc.it, typed on a single sheet of A4 paper; they must include (i) title, (ii) name of the Author(s), (iii) full address of the corresponding Author including email address. The decision of the Scientific Committee will be communicated to Authors before the end of 2017.

Complete papers will be peer-reviewed before final approval for publication in a special issue of an international journal indexed by Scopus or WoS; the remaining papers accepted for presentation will be published as proceedings and also submitted to Scopus or Thompson Reuters Conference. Instructions for submitting final papers will be provided later. English will be the official Symposium language.

Symposium Programme

The programme is based on eight general lectures based on the main topics. The lectures will be given by

Edward Andò, *Laboratoire 3SR*

Diego Berzi, *Politecnico di Milano*

Itai Einav, *University of Sidney*

Guy Houlisby, *University of Oxford*

Vanessa Magnanimo, *University of Twente*

Farhang Radjai, *University of Montpellier*

Tim Ricken, *University of Dortmund*

Jean-Noël Roux, *Université Paris-Est*

There will be four round-table discussions about mathematical models, physical behaviour, computational methods and experimental validations. Submitted papers will be presented there: Authors and Participants are invited to join in the discussion that will follow.