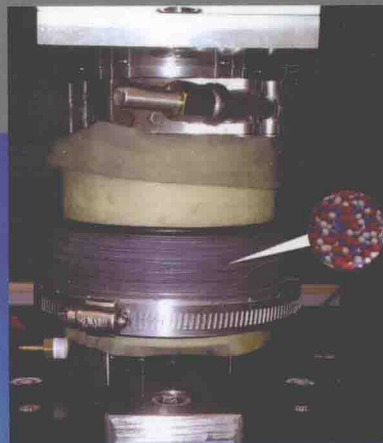


Geomechanics from Micro to Macro

Editors:

Kenichi Soga, Krishna Kumar, Giovanna Biscontin and Matthew Kuo



Volume 2

 **CRC Press**
Taylor & Francis Group
A BALKEMA BOOK

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Editors

Kenichi Soga, Krishna Kumar, Giovanna Biscontin & Matthew Kuo

Department of Engineering, University of Cambridge, Cambridge, UK

VOLUME II



CRC Press

Taylor & Francis Group

Boca Raton London New York Leiden

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© 2015 Taylor & Francis Group, London, UK

Typeset by MPS Limited, Chennai, India

Printed and bound in Great Britain by CPI Group (UK) Ltd, Croydon, CR0 4YY.

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Published by: CRC Press/Balkema
P.O. Box 11320, 2301 EH Leiden, The Netherlands
e-mail: Pub.NL@taylorandfrancis.com
www.crcpress.com – www.taylorandfrancis.com

ISBN: 978-1-138-02707-7 (set of 2 volumes + CD-ROM)

ISBN: 978-1-315-73732-4 (eBook-PDF)

ISBN Vol 1: 978-1-138-02722-0

ISBN Vol 2: 978-1-138-02723-7

Preface

The International Symposium on Geomechanics from Micro to Macro (IS-Cambridge 2014) was held from the 1st to the 3rd of September 2014, at the University of Cambridge, Cambridge, UK. This was the third symposium organised under the auspices of Technical Committee 105 (Geo-Mechanics from Micro to Macro) of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). The first symposium was held at Yamaguchi University, Japan, in 2006, which was followed by the second symposium at Tongji University, China, in 2010.

The University of Cambridge's Geotechnical Group has long standing research experience on the fundamental behaviour of geomaterials. It is the birth place of 'Cam-clay' model, which revolutionised the discipline of 'soil mechanics' and 'plasticity theory'. It has been promoting the critical state concept, stress-dilatancy relationship and constitutive modelling through centrifuge testing, field testing and numerical modelling. We have also actively engaged in micromechanics and its link to macro-behaviour, which led to the development of ISSMGE Technical Committee 105 (formerly TC35) by Professor Malcolm Bolton in 2000. It was therefore natural for us to host this Symposium.

The behaviour of geomaterials is complex because of their diverse nature in size, mineralogy and shapes. Mixing them with other materials (solid inclusions) and/or fluids (such as water and air) makes the behaviour more complex. The aim of this symposium was to discuss how micro-scale effects influence the macro-scale behaviour in terms of mechanical, thermal and hydraulic properties and to identify implications to geotechnical engineering practice. These can be investigated from conducting experiments at different scales, modelling as multi-scale continuum and performing Discrete Element Method (DEM) simulations. This proceedings consists of 268 peer-reviewed papers from researchers and geotechnical engineers, reporting their academic findings from such investigations. The editors hope that this proceedings becomes one of the premiere sources of new advances in the micro-macro relations of geomaterial behaviour and its modelling.

Kenichi Soga
Chairperson of IS-Cambridge 2014
Department of Engineering
University of Cambridge
Cambridge, UK

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