



One-Day Workshop on Advanced Laboratory Soil Testing

Co-sponsored by JGS TC101 and JGS Hokkaido
Hokkaido University, 8 May 2018

This one-day workshop invites internationally renowned experts on advanced soil testing and offers an opportunity to learn how non-routine soil testing and lab innovation help understand and design against unknown problems. The highlight is a relive of the 56th Rankine Lecture delivered by Professor Richard Jardine. The latter part of this workshop is held in more casual atmosphere in a lounge-styled seminar room with flat floor, where every participant is free to share their experience and seek feedbacks.

PART 1

(Chair: Dr. Satoshi Nishimura Venue: B21 Open Hall, Engineering Building)

- 9:00 Welcome by Professor Yoichi Watabe
9:05 Introduction of Professor Jardine
9:10-10:10 **Invited lecture: Geotechnics and Energy (56th Rankine Lecture)**
Professor Richard J. Jardine (Imperial College London)
10:10-10:40 **Lecture 1: New development in marine soil characterisation**
Professor Yoichi Watabe (Hokkaido University)
10:40-10:50 Break
10:50-11:20 **Lecture 2: Laboratory innovation in transportation geotechnics**
Professor Tatsuya Ishikawa (Hokkaido University)
11:20-11:50 **Lecture 3: Experimental approaches to soil-fluid coupled dynamics on soil surface**
Dr. Kazunori Fujisawa (Kyoto University)
11:50-12:20 **Lecture 4: Laboratory approaches to urban ground problems**
Professor Reiko Kuwano (University of Tokyo)

PART 2

(Isami Hiroi Memorial Room, Civil Engineering Building)

- 13:40-16:00 **Open discussion – Recent topics from geotechnical laboratory**
Stiffness anisotropy in sedimentary rocks: New innovation
Dr. Yota Togashi (Saitama University)
Experimental and numerical analysis of planar piezo ceramic transducers for elastic wave measurement
Dr. Masahide Otsubo (University of Tokyo)
Laboratory and field measurement of soil-metal friction sound
Dr. Suguru Yamada (Osaka City University)
Stiffness measurements in laboratory: Some new topics
Dr. Satoshi Nishimura (Hokkaido University)
16:00-17:00 Laboratory tour of new Civil Engineering Building of Hokkaido University



56th Rankine Lecture

Geotechnics and Energy

The 56th Rankine Lecture considers the pressing problem of ensuring vital energy supplies while also recognising, mitigating and dealing with the climate consequences of fossil fuel consumption. The Lecture's three main sections report recent geotechnical research relating to these wide ranging topics, illustrating some aspects of each with specific examples from the Speaker's portfolio. The first focuses on research to support offshore hydrocarbon production, considering platform foundations on the continental shelf and large landslide geohazards in deeper water. The second considers research into climate change impacts in warming permafrost regions and engineering to raise flood defences founded on difficult organic soils. The final section reports on current research that is having a major impact on offshore wind turbine foundations and hence renewable energy economics.

The Lecture emphasises that integrating geology and rigorous analysis with advanced laboratory and field experiments is the key to resolving the complex geotechnical problems raised; careful full-scale field monitoring is also essential to checking reliability in practice. A collaborative approach is vital to such multi-faceted research and the contributions of the Speaker's International and British co-workers are recognised throughout the Lecture.



Professor Richard J. Jardine

Professor Richard Jardine took his degrees at Imperial College London, joining the staff in 1984, becoming Professor of Geomechanics in 1998 and Dean/College Consul for Engineering in 2012. His research covers offshore geotechnics, soil characterisation, field instrumentation, geohazards and recently, climate change impact on permafrost. His current work with INP Grenoble and Zhejiang (China) involves experimental studies of pile ageing and cyclic loading. He has published over 200 papers and sits on six International Committees. Recent keynotes covered micro-mechanical behaviour (IS-Shanghai 2010), deep foundations (Mong Lecture, Hong Kong 2011), Offshore Geotechnics (London 2012) and Advanced Soil behaviour (Zeng Lecture China 2008, Tunisia 2012 etc). Richard is a Royal Academy of Engineering Fellow (from 2002) and has won a dozen National and International Prizes. He has been a visiting Professor in Singapore, Japan and now China as a Ministry of Education Overseas Distinguished Professor. He has consulted on many major International and UK projects.

Organised by the Japanese Geotechnical Society TC101

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