

Programme Guide

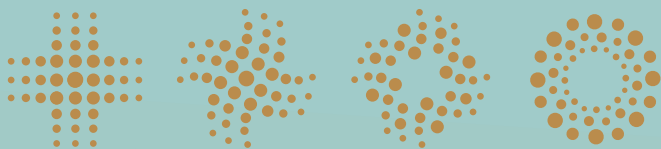
ICPMG 2010

7th International Conference on Physical Modelling in Geotechnics

Technical Committee 2

International Society for Soil Mechanics
and Geotechnical Engineering

June 28th – July 1st 2010, Zurich, Switzerland



The 7th International Conference on Physical Modelling in Geotechnics 2010 in Zurich on the ETH Campus Science City, Hönggerberg

We are delighted to welcome you to Switzerland, Zurich and the International Conference on Physical Modelling in Geotechnics. A massive amount of time and effort has been invested by the Local Organising Committee, and many members of our community from all around the world, to offer an enjoyable and educational time to all participants while we are together at the Hönggerberg Campus (Science City) of ETH Zurich.

We look forward to excellent presentations, stimulating discussions and a wonderful opportunity to meet socially, as the hosting Institute for Geotechnical Engineering celebrates 75 years of soil mechanics at ETH.

Professor Sarah M. Springman OBE FREng

Dr. Jan Laue

Local Organising Committee ICPMG 2010

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Conference Sponsors

The Organising Committee gratefully acknowledges the following organisations for their generous financial contributions and support to the 7th International Conference on Physical Modelling in Geotechnics 2010 (ICPMG 2010) in Zurich, Switzerland: Their valuable support has made an indisputable contribution to this conference.

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75th Anniversary of the
Institute for Geotechnical Engineering

SIMSG ISSMGE



This conference is held under the auspices of the International Society for Soil Mechanics and Geotechnical Engineering ISSMGE
www.issmge.org

Committees

Conference organised by

Chair of Geotechnical Engineering
Institute for Geotechnical Engineering
ETH Zurich (ETHZ),
Zurich, Switzerland

ICPMG 2010
Wolfgang-Pauli-Str. 15
8093 Zurich, Switzerland
info@icpmg2010.ch
www.icpmg2010.ch

Local Organising Committee

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The ICPMG 2010 LOC is grateful that so many distinguished geotechnical engineers have agreed to contribute to this ISSMGE sponsored conference.



**ETH Zurich Zentrum
Main Building HG**

Arrival on 27th June
 ● **27th June only**
 Registration & Ice-Breaker
 at ETH Zurich Zentrum

**Airport to
ETH Zurich Zentrum**
 Train to
 "Zurich Hauptbahnhof"
 (c. 15')
 change there to Tram,
 see below

**Main Station to
ETH Zurich Zentrum**
 Tram 6 from
 "Bahnhofstrasse/HB"
 Tram 10 from
 "Bahnhofplatz/HB" to
 "ETH/Universitätsspital"
 (c. 7')

**ETH Campus Science City
Hönggerberg**

Arrival after 27th June
 ● **28th June to 1st July**
 Registration & Main
 Programme
 at Campus Science City

**Airport to
Campus Science City**
 Train to
 "Bahnhof Oerlikon" (c. 5')
 Bus 80 to
 "ETH Hönggerberg"
 (c. 15')

**Main Station to
Campus Science City**
 Tram 11 from
 "Bahnhofstrasse/HB"
 to "Bucheggplatz" (c. 10')
 Bus 69 to
 "ETH Hönggerberg" (c. 10')

Sunday 27th June

17.00 – 20.00
Registration
 Main entrance, ground floor E

**ETH Zurich Zentrum
Main Building HG, Foyer
on 27th June only**

18.00 – 20.00
Ice-Breaker

**ETH Zurich Zentrum
Main Building HG, floor J, Dozentenfoyer**

Note: The main Conference Venue is
 ETH Zurich, Campus Science City (Hönggerberg).

Transportation & General Information

Public Transport in Zurich
 Tickets for all forms of
 public transport within the
 city of Zurich are included in
 the conference package.

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www.zvv.ch/en

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**Information about
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www.myswitzerland.com

Climate in Summer
 Average daily temperature
 22°C/71.6 °F

**Swiss-German –
Good to Know**
 Grüezi: Hello
 Danke: Thank you
 En Guete: Enjoy your meal!
 Zum Wohl: Enjoy your drink!

Currency
 Swiss Francs: CHF
 ATMs abound in Zurich,
 where Swiss Francs can
 be obtained.
 Euros may be used in most
 tourist areas.

Monday 28th June

8.00 – 17.00
Registration
 ETH Campus Science City, HPH Building, Information Desk

HPH Foyer, Information Desk

9.30 – 11.00
Opening Ceremony
 Minister R. Aeppli, Member of the Zurich Cantonal Government
 Prof. H. Wunderli-Allenspach, Dean ETH Zurich
 Prof. R.N. Taylor, Secretary General ISSMGE
 Prof. S.M. Springman, Dr. J. Laue, ETH Zurich

Invited Lecture
 Prof. R.N. Taylor **Soil – Structure – Interaction**
Co-Chairs J. Laue, S.M. Springman

Coffee Break

11.30 – 12.45
General Reporter Session 1
 A. McNamara **Excavations & retaining structures**
 D. König **Tunnels**
 M.F. Bransby **Shallow foundations**
 D.J. White **Single piles**
Co-Chairs J. Grabe, D. Muir Wood

Lunch Break

14.00 – 15.30
Paper Presentations

S. O1-1	HPH G1	S. O1-2	HPH G2	S. O1-3	HPH G3
Tunnels		Excavations & retaining structures		Shallow foundations	
Co-Chairs		Co-Chairs		Co-Chairs	
D. König		F.H. Lee		M.F. Bransby	
G.M.B. Viggiani		A. McNamara		A. Hettler	

Coffee/Tea Break

16.00 – 18.00 *Poster exhibition after presentations in the HPH Foyer*
Oral Poster Presentations

S. P1-1	HPH G1	S. P1-2	HPH G2	S. P1-3	HPH G3
Excavations, retaining structures & shallow foundations		Tunnels & pipelines		Single piles & pile groups	
Chair X.F. Ma		Chair M. Hossain		Chair D. Airey	

17.00 – 18.00 **HPI D8.3
TC2 Meeting**

18.00 – 21.00
Swasian Sunset
HPH Restaurant

Paper Presentations Parallel Sessions

14.00 – 15.30
Venue HPH G1
Session O1-1

Tunnels

Co-Chairs

D. König / G.M.B. Viggiani

Centrifuge modelling of steel pipe umbrella arch for tunnelling in clay

C.H. Yeo, F.H. Lee, A. Hegde & A. Juneja

Physical model testing on earth pressure balance shield machine tunnelling in sand strata

Q.W. Xu, X.R. Ge, H.H. Zhu, Y.B. Fu & X.S. Wu

Centrifuge modelling of the response of buildings to tunnelling

R.P. Farrell & R.J. Mair

Experimental study into tunnel face collapse in sand

J. Messerli, E. Pimentel & G. Anagnostou

Centrifuge modelling on long-term behaviour of tunnels in transitional ground

X.F. Ma, L. Yu, K. Soga & R. Laver

Modeling of tunnel lining deformation due to face instability

H. Walter, C.J. Coccia, R.B. Wallen, H.Y. Ko & J.S. McCartney

14.00 – 15.30
Venue HPH G2
Session O1-2
Excavations & retaining structures

Co-Chairs

F.H. Lee / A. McNamara

Centrifuge modeling of deep excavation in soft clay

S.Y. Lam, M.Z.E.B. Elshafie, S.K. Haigh & M.D. Bolton

Physical modelling of flexible retaining walls under seismic actions

R. Conti, G.M.B. Viggiani & S.P.G. Madabhushi

Centrifuge modeling of shored mechanically stabilized earth walls

Y.B. Lee, J.S. McCartney & H.Y. Ko

Influence of an anchor head on detection of soil anchorage load

K. Palop, A. Ivanović, R.D. Neilson & A.J. Brennan

Seismic loads for evaluating internal stability of cantilevered retaining walls

A. Takahashi, S. Tanimoto & H. Sugita

Fresh concrete pressure induced during concreting a diaphragm wall panel

D. König & C. Loreck

In-flight investigation of excavation effects on smooth single piles

G. Zheng, S.Y. Peng, Y. Diao & C.W.W. Ng

14.00 – 15.30
Venue HPH G3
Session O1-3
Shallow foundations

Co-Chairs

M.F. Bransby / A. Hettler

Centrifuge modelling of bridge system with rocking footings

L. Deng, B.L. Kutter, S. Kunnath & T.B. Algje

Centrifuge modelling of the interaction between fault rupture and rows of rigid, shallow foundations

W. Ahmed & M.F. Bransby

Centrifuge modelling of the behaviour of flexible raft foundations on clay and sand

A. Arnold, J. Laue, T. Espinosa & S.M. Springman

Cyclic load testing facility for pavement model testing

C.T. Gnanendran, J. Piratheepan & J. Ramanujam

Cyclic deformations of foundations for offshore wind turbine structures

H. Wienbroer, G. Huber & T. Triantafyllidis

An experimental study on the instability of drill rigs during self propelling on site

T. Hori, S. Tamate & N. Suemasa



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8.30 – 17.00 **HPH Foyer, Information Desk**
Registration
 ETH Campus Science City, HPH Building, Information Desk

9.00 – 9.45 **HPH G1**
Keynote Lecture 1
M.C.R. Davies **Natural Hazards**
Co-Chairs *M.D. Bolton, L. Thorel*

9.45 – 10.45 **HPH G1**
General Reporter Session 2
B. Caicedo **Slopes**
B.V.S. Viswanadham **Dams & embankments**
W.A. Take **Natural hazards**

Coffee Break

11.15 – 12.45
Paper Presentations

S. O2-1 HPH G1 Facilities	S. O2-2 HPH G2 Slopes	S. O2-3 HPH G3 Dams & embankments
Co-Chairs <i>D.S. Kim</i> <i>R. Phillips</i>	Co-Chairs <i>E.T. Bowman</i> <i>B. Caicedo</i>	Co-Chairs <i>A. Bezuijen</i> <i>B.V.S. Viswanadham</i>

Lunch Break

14.00 – 15.30
Paper Presentations

S. O2-4 HPH G1 Education & similitude	S. O2-5 HPH G2 Natural hazards & environmental geotechnics	S. O2-6 HPH G3 Single piles
Co-Chairs <i>S.P.G. Madabhushi</i> <i>J.S. Sharma</i>	Co-Chairs <i>K. Soga</i> <i>W.A. Take</i>	Co-Chairs <i>M. Achmus</i> <i>D.J. White</i>

Coffee/Tea Break

16.00 – 18.00 *Poster exhibition after presentations in the HPH Foyer*
Oral Poster Presentations

S. P2-1 HPH G1 Facilities & new equipment, sensors & experimental techniques	S. P2-2 HPH G2 Similitude & liquefaction	S. P2-3 HPH G3 Slopes, dams & embankments, natural hazards & protection measures
Chair <i>D. Wilson</i>	Chair <i>T. Abdoun</i>	Chair <i>B. Teymur</i>

18.00 – 19.15 **HPH G1**
Public Lecture
S.M. Springman **Celebrating 75 years of soil mechanics at ETH Zürich**
R.S. Steedman **Flooding New Orleans: modelling the Hurricane Katrina disaster**

Paper Presentations Parallel Sessions

11.15 – 12.45
Venue HPH G1
Session O2 -1
Facilities

Co-Chairs
D.S. Kim / R. Phillips

Development of a low cost teaching centrifuge

D.W. Airey & R. Barker

Establishing a beam centrifuge facility at the Institute of Technology, Sligo, Ireland

C.D. O'Loughlin, P. Naughton, N. Baker & A. Ainsworth

Miniature high speed wireless data acquisition system for geotechnical centrifuges

C. Gaudin, D.J. White, N. Boylan, J. Breen, T. Brown & S. De Catania

NEES @ UC Davis

D.W. Wilson, B.L. Kutter & R.W. Boulanger

Development of a horizontal and vertical shaker for the IWHR 450g-ton centrifuge

Y.J. Hou, X.G. Wang, Z.P. Xu, Y.F. Wen & P. Ibanez

The drizzle method for sand sample preparation

J. Rietdijk, F.M. Schenkeveld, P.E.L. Schaminée & A. Bezuijen

The Josef UEF – a new location for “in-situ” physical modelling

J. Svoboda & R. Vasicek

A new geotechnical centrifuge at the University of Tehran, I.R. Iran

M. Moradi & A. Ghalandarzadeh

Retrofits to COPPE mini-drum geotechnical centrifuge

M.S.S. Almeida, J.L.S. Neto, M.C.F. Almeida, D.F. Fagundes & J.R.M.S. Oliveira

The UENF geotechnical centrifuge facility

F. Saboya, S. Tibana, R. Martins Reis, R. Ramires Sobrinho, S. Brum, V. Montero del Aguila & J. Domingos Vieira

11.15 – 12.45
Venue HPH G2
Session O2 -2
Slopes

Co-Chairs
E.T. Bowman / B. Caicedo

Physical modeling of slope failure during slope cutting work

K. Itoh, Y. Toyosawa, S. Timpong & N. Suemasa

Centrifuge modelling of submarine landslide flows

C.S. Gue, K. Soga, M.D. Bolton & N.I. Thusyanthan

Influence of ground anchors on topographic amplification at slope crests

A.J. Brennan, N.I. Thusyanthan & S.P.G. Madabhushi

Centrifuge modeling of slope failures induced by rainfall

H. Ling, H.I. Ling, L. Li & T. Kawabata

Evaluation of performance of soil-nailed slopes subjected to seepage in a centrifuge

B.V.S. Viswanadham & V. Deepa

Centrifuge modelling of slope stabilisation using a discrete pile row

B.S. Yoon & E.A. Ellis

11.15 – 12.45
Venue HPH G3
Session O2 -3
Dams & embankments

Co-Chairs
A. Bezuijen / B.V.S. Viswanadan

Effect of drainage zoning and deeply placed plinth on CFGD

Y.W. Choo, D.S. Kim, K.H. Kim, D.H. Shin, E.S. Im, S.E. Cho & H.G. Park

Real-time monitoring of full-scale levee testing

T. Abdoun, V. Bennett, R. Dobry, A. Koelewijn & S. Thevanayagam

Physical modelling of concrete gravity dam vulnerability to explosions

W. Vanadit-Ellis, L.K. Davis & M. Sharp

Influence of sand and scale on the piping process – experiments and multivariate analysis

V.M. van Beek, J.G. Knoeff, J. Rietdijk, J.B. Sellmeijer & J. Lopez De La Cruz

Computer simulations and physical modelling of erosion

C.S. Stuetzle, J. Gross, Z. Chen, B. Cutler, W.R. Franklin, K. Perez, & T. Zimmie

Centrifuge modeling of railway embankments in terms of high moisture content of soil

V.V. Vinogradov, Y.K. Frolovsky & A.A. Zaitsev

Paper Presentations Parallel Sessions

14.00 – 15.30
Venue HPH G1
Session O2 - 4

Education & similitude

Co-Chairs

S.P.G. Madabhushi / J.S. Sharma

Development of teaching resources for physical modelling community

*S.P.G. Madabhushi,
U. Cilingir & M.E. Stringer*

Preparation of fully saturated model ground

M. Okamura & T. Inoue

Applicability of two stage scaling in dynamic centrifuge tests on saturated sand deposits

L. von der Tann, T. Tobita & S. Iai

Influence of fluid viscosity on the response of buried structures in earthquakes

S.C. Chian & S.P.G. Madabhushi

Centrifuge modeling of a sensitive clay slope for simulation of strain softening

D.S. Park, B.L. Kutter & J. DeJong

Modelling precast concrete piling for use in the geotechnical centrifuge

*J.A. Knappett, K. O'Reilly,
P. Gilhooly,
C. Reid & K. Skeffington*

14.00 – 15.30
Venue HPH G2
Session O2 - 5

Natural hazards & environmental geotechnics

Co-Chairs

K. Soga / W.A. Take

Centrifuge modelling of ground vibration isolation with geofoam barriers

C. Murillo, L. Thorel & B. Caicedo

A centrifuge experiment to derive insight on rock fragmentation within sturzstroms

B. Imre, J. Laue & S.M. Springman

Optical investigation through a flowing saturated granular material

*N. Sanvitale,
R. Genevois & E.T. Bowman*

A simple model to simulate the full-scale behaviour of falling rock protection barriers

*S. de Miranda, C. Gentilini,
G. Gottardi, L. Govoni & F. Ubertini*

Testing of an expansive clay in a centrifuge permeameter

M.D. Plaisted & J.G. Zornberg

Physical modelling for ecological geotechnics

S. Sassa & Y. Watabe

14.00 – 15.30
Venue HPH G3
Session O2 - 6

Single piles

Co-Chairs

M. Achmus / D.J. White

Large-scale model tests on uplift ultimate capacity of enlarged base piles

*L.G. Kong, G.Q. Zhang,
R.P. Chen & Y.M. Chen*

On the shaft capacity of non-displacement piles in sand from centrifuge tests

*V. Fioravante,
L. Guerra & M. Jamiolkowski*

Modelling helical screw piles in clay using a transparent soil

C.C. Hird & S.A. Stanier

Physical modelling for pile foundation re-use

L. Begaj Qerimi & A. McNamara

The installation resistance of open-ended piles

P. Doherty & K. Gavin

The effect of pile shape on the horizontal shaft stress during installation in sand

*S. Taenaka,
D.J. White & M.F. Randolph*



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8.30 – 17.00 **HPH Foyer, Information Desk**
Registration
 ETH Campus Science City, HPH Building, Information Desk

9.00 – 9.45 **HPH G1**
Keynote Lecture 2
A. Elgamal **Earthquake Engineering**
Co-Chairs *R.W. Boulanger, Y.J. Hou*

9.45 – 10.45 **HPH G1**
General Reporter Session 3
S.K. Haigh **Liquefaction**
M.P.Z. Brown **Piles under cyclic & dynamic loads**
C.D. O'Loughlin **Offshore engineering**

Coffee Break

11.15 – 12.45 **HPH G1**
Discussion Session
Similitude & TC2 Catalogue on Scaling Laws
General Reporter
T. Tobita **Similitude**
A. Bezuijen **Scaling of hydraulic processes**
B. Caicedo **Potentialities and challenges of**
centrifuge modelling on unsaturated soils
L. Dihoru **Stiffness design for granular materials –**
a theoretical and experimental approach
Co-Chairs *J. Garnier, J.G. Zornberg*

Lunch Break

14.00 – 15.30
Paper Presentations

<i>S. O3-1</i> HPH G1 Offshore systems	<i>S. O-2</i> HPH G2 Piles under cyclic & dynamic loads	<i>S. O3-3</i> HPH G3 Liquefaction
Co-Chairs <i>M. Cassidy</i> <i>C.D. O'Loughlin</i>	Co-Chairs <i>M.P.Z. Brown</i> <i>J. Takemura</i>	Co-Chairs <i>S.K. Haigh</i> <i>T. Tobita</i>

Coffee/Tea Break

16.00 – 18.00 *Poster exhibition after presentations in the HPH Foyer*
Oral Poster Presentations

<i>S. P3-1</i> HPH G1 Cyclic piles & offshore systems Chair <i>S. Gourvenec</i>	<i>S. P3-2</i> HPH G2 Ground improvement & environmental geotechnics Chair <i>M. Kitazume</i>
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Break

19.15 – 20.15 **Albisgütli**
Drinks

20.15 – 23.00 **Albisgütli**
Gala Dinner
Welcome *S.M. Springman*
Speaker *M.D. Bolton*

Paper Presentations Parallel Sessions

14.00 – 15.30
Venue HPH G1
Session O3-1

Offshore systems

Co-Chairs

M. Cassidy / C.D. O’Loughlin

Installation resistance and bearing capacity of a shallow skirted foundation in clay

H.E. Acosta-Martinez & S. Gourvenec

Soil-pipeline behaviour in lateral buckling on dense sand

A. Rismanchian & W.H. Craig

Study of soil movements around a penetrating spudcan

Y. Xie, C.F. Leung & Y.K. Chow

Experimental investigation of punch-through potential for spudcan foundations

M.S. Hossain & M.F. Randolph

Installation process of suction anchors in Gulf of Guinea clay: Centrifuge modelling

L. Thorel, H. Dendani, J. Garnier, J.L. Colliat & G. Rault

Study of soil-pipeline interaction under vertical and horizontal loading in very soft soil

M. Orozco-Calderon & P.Y. Foray

14.00 – 15.30
Venue HPH G2
Session O3-2

Piles under cyclic & dynamic loads

Co-Chairs

M.P.Z. Brown / J. Takemura

Measuring the apparent density change near a cyclically loaded displacement pile in sand

J. Dijkstra, W. Broere & A.F. van Tol

Centrifuge experiments on laterally loaded piles with wings

J. Dührkop, J. Grabe, B. Bienen, D.J. White & M.F. Randolph

Effects of inclined piles on the seismic performances of pile groups

S. Escoffier, J.L. Chazelas & N. Chenaf

Centrifuge modelling of a laterally cyclic loaded pile

R.T. Klinkvort, C.T. Leth & O. Hededal

Pile-sheet pile combined foundation subjected to lateral and moment loading

J. Izawa, J. Takemura, H. Yamana, Y. Ishihama & M. Takagi

Stress paths measured around a cyclically loaded pile in a calibration chamber

P.Y. Foray, C.H.C. Tsuha, M. Silva, R.J. Jardine & Z.X. Yang

14.00 – 15.30
Venue HPH G3
Session O3-3

Liquefaction

Co-Chairs

S.K. Haigh / T. Tobita

Experimental and numerical verification of earthquake triggered slope failure

L. Li & Y. Hata

Dynamic stability of oil tank supported by piled-raft foundation on liquefiable sand

S. Imamura, T. Yagi & J. Takemura

Liquefaction and reconsolidation in a 1-g shake-box testing device

D. Rebstock, H. Wienbroer & G. Huber

Uplift behaviour of buried structures under strong shaking

T. Tobita, G.C. Kan & S. Iai

Effect of permeability on soil-structure response to earthquake lateral loading

L. Gonzalez, D. Luca, T. Abdoun & R. Dobry

Evolution of shear modulus during liquefaction in 1-D centrifuge shaking table tests

C.J. Lee, Y.C. Wei, W.Y. Hung & H.T. Chen



Zurich's well preserved Old Town with its Charlemagne Tower and the Fraumünster Church. Lake and River Limmat.

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8.30 – 15.30 **HPH Foyer, Information Desk**
Registration
 ETH Campus Science City, HPH Building, Information Desk

9.00 – 9.45 **HPH G1**
Keynote Lecture 3
F.H. Lee **Soft Soil Engineering**
Co-Chairs *P.Y. Foray, C.W.W. Ng*

9.45 – 10.45 **HPH G1**
General Reporter Session 4
V. Fioravante **Ground improvement**
E.A. Ellis **Pile groups**
C. Gaudin **New equipment, sensors & experimental techniques**

Coffee Break

11.15 – 12.45
Paper Presentations Parallel Sessions

S. O4-1 HPH G1 New equipment, sensors & experimental techniques Co-Chairs <i>W.H. Craig</i> <i>C. Gaudin</i>	S. O4-2 HPH G2 Ground improvement Co-Chairs <i>V. Fioravante</i> <i>C.F. Leung</i>	S. O4-3 HPH G3 Pile groups Co-Chairs <i>E.A. Ellis</i> <i>O. Hededal</i>
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Lunch Break

14.00 – 15.30 **HPH G1**
Discussion Session
Industry Practice

Presentations
C. Gaudin **Physical modelling with industry – Overview of practices and benefits**
P.E.L. Schaminée **STREAM: A method to facilitate efficient data exchange and archiving**

Panellists
M.S.S. Almeida (S America), S. Jacobsz (Africa), C.J. Lee (Asia), C.W.W. Ng (Asia), S.E. Stallebrass (Europe), I. Sasanakul (N America)
Chair *M.C.R. Davies (Oceania)*

15.30 – 16.30 **HPH G1**
Special Lecture, Closing Ceremony
W.H. Craig **Heritage lecture**
C. Gaudin **ICPMG 2014 UWA, Perth, Australia**
C.W.W. Ng **TC2 -> TC104**

Co-Chairs
J. Laue **A final thought**
S.M. Springman **The last word**

17.00 – 21.00 **Zurich Main Railway Station**
Post Conference Construction Site Tour

Paper Presentations Parallel Sessions

11.15 – 12.45
Venue HPH G1
Session O4-1
New equipment,
sensors & experimental
techniques

Co-Chairs

W.H. Craig / C. Gaudin

Observing and measuring
arching in ideal and natural
granular materials

*S.G. Paikowsky,
H.S. Tien & L.E. Rolwes*

Experience using
MEMS-based accelerom-
eters in dynamic testing

*M.E. Stringer,
C.M. Heron & S.P.G. Madabhushi*

Development of
VS tomography testing
system for geotechnical
centrifuge experiments

N.R. Kim & D.S. Kim

Earthquake motion
selection and calibration
for use in a geotechnical
centrifuge

*H.B. Mason, J.D. Bray, B.L. Kutter,
D.W. Wilson & B.Y. Choy*

A wireless data acquisition
system to monitor
centrifuge pile installation

*A.D. Deeks, D.J. White, J. Breen,
P. Hortin, S. De Catania & T. Brown*

Fibre optic cable and
micro-anchor pullout tests
in sand

*D. Hauswirth, M. Iten,
R. Richli & A.M. Puzrin*

11.15 – 12.45
Venue HPH G2
Session O4-2

Ground improvement

Co-Chairs

V. Fioravante / C.F. Leung

Pile-supported earth
platforms: Two approach-
es with physical models

*L. Thorel, J.C. Dupla,
G. Rault, J. Canou, G. Baudouin,
A.Q. Dinh & B. Simon*

Compensation grouting
research, the influence of
the physical model

*A. Bezuijen,
A.F. van Tol & M.P.M. Sanders*

Evaluation of seismic
resistance of pile founda-
tion in composite ground

K. Tomisawa & S. Miura

Centrifuge tests
on column type mixing
improved ground with
surface improvement

M. Kitazume & K. Maruyama

1g model test on
granular soil columns
for ground improvement
of very soft soil

F. Rackwitz & M. Schüßler

Seismic performance of
mixed module columns
and rigid inclusions

*X. Zhang, P. Foray, P. Gotteland,
S. Lambert & H. Alsaleh*

11.15 – 12.45
Venue HPH G3
Session O4-3

Pile groups

Co-Chairs

E.A. Ellis / O. Hededal

Mechanical behavior
of piled raft foundation in
sand subjected to static
horizontal load

*K. Sawada, J. Takemura,
J. Izawa & S. Seki*

Load transfer mechanisms
of piled raft foundations

V. Fioravante & D. Giretti

Model tests on free-
standing passive pile
groups in sand

W.D. Guo & E.H. Ghee

The deformation pattern
around a pile group under
lateral loading in sand

*M. Hajjalilue-Bonab,
H. Azarnya-Shahgoli,
F.B. Sarand & M.H. Mohassel*

Stiffness of piled
raft foundations

*V. Fioravante,
D. Giretti & M.B. Jamiolkowski*

Modelling the performance
of linear minipile groups

A.V. Rose & R.N. Taylor

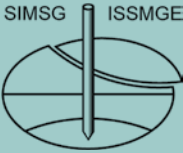
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