

## 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. Algie*

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*

## 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*

## Paper Presentations Parallel Sessions

14.00 – 15.30  
Venue HPH G1  
Session O3-1

### Offshore systems

#### Co-Chairs

S. Gourvenec / 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

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*

Measuring shaft friction during earthquakes

*M.E. Stringer & S.P.G. Madabhushi*