

22nd ACMSM: “Materials to Structures: Advancement through Innovation”
Sydney, Australia
December 11-14, 2012

ACMSM22 will be held at the University of Technology Sydney, Australia on 11-14 December, 2012. The first ACMSM conference was held in 1967 at the University of New South Wales and since then another 20 of such biennial conferences have been hosted by various universities across Australia and New Zealand. ACMSM conferences provide the forum for academics, researchers and practitioners to discuss and review latest developments in the broad area of structural mechanics and materials. These conferences place strong emphasis on participation from research students.

Conference Chairs:

Professor Bijan Samali, UTS (chair)
A/Professor Mario Attard, UNSW (co-chair)
A/Professor Chongmin Song, UNSW (co-chair)

Papers will be peer reviewed and published in the conference proceedings, as well as indexed in major academic databases.



22nd Australasian Conference on the Mechanics of
Structures and Materials

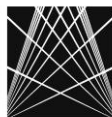
"Materials to Structures: Advancement through Innovation"

Conference Program Sydney, 11th – 14th December 2012

Organisations



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University of Sydney
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aerial
UTS FUNCTION CENTRE

Wednesday 12/12

11:00

Concurrent Sessions

Room 1	Composite Structures and Materials (6) Session Chair: M.A. Bradford
F. Alatshan, F.R. Mashiri & B. Uy	Concrete filled fabricated VHS tube to mild steel plate triangular stub columns under axial compression load
Z.K. Awad, T. Ravinthan, Y. Zhuge & F. Gonzalez	Multi-objective design optimisation of GFRP sandwich beams
Q. Nguyen, T. Ngo & P. Mendis	A review on fire protection for phase change materials in building applications
R.M. Bajracharya, W.P. Lokuge, W. Karunasena, K.T. Lau & A.S. Mosallam	Structural evaluation of concrete expanded polystyrene sandwich panels for slab applications
A. Gholamhoseini, R.I. Gilbert, M.A. Bradford & Z-T. Chang	Long-term deformation of composite concrete slabs under sustained loading
M. Hailu, C. Gerber, R. Shrestha & K. Crews	Residual strength of timber-concrete composite beams after long-term test

Room 2	Concrete Structures (5) Session Chair: R. Melchers
F.M. Abas, R.I. Gilbert, S.J. Foster & M.A. Bradford	The behaviour of fibre reinforced continuous concrete slabs under load – an experimental study
P. Abtahi, B. Samali, M. Zobec & T. Ngo	Application of flexible façade systems in reducing the lateral displacement of concrete frames subjected to seismic loads
K. Angus, P.S. Thomas, K. Vessalas & A.S. Ray	Investigation of ground flint glass as a supplementary cementitious material in autoclaved lime-silica binders
F. Butt & P. Omenzetter	Finite element model calibration of an instrumented RC building based on seismic excitation including non-structural components and soil-structure-interaction
R. Choudhury, T.G. Suntharavadeiv, P. Keleher & A. Patil	Shear strengthening of RC beam with external FRP bonding: A State-of-the-Art review

Wednesday 12/12

11:00

Concurrent Sessions

Room 3	Dynamic Analysis of Structures (6) Session Chair: H. Man
Y. Aoki, B. Samali, A. Saleh & H. Valipour	Assessment of key response quantities for design of a cable-stayed bridge subjected to sudden loss of cable(s)
X. Chen, P. Omenzetter & S. Beskhyroun	Ambient vibration tests and analysis of a multiple-span elevated bridge
X.Z. Jiang, Y.C. Li & J.C. Li	A novel piezoelectric wafer-stack vibration energy harvester
N. Liu, W. Gao, C. Song & N. Zhang	Optimization-based interval dynamic response analysis of a bridge under a moving vehicle with uncertain properties
E.T. Ooi, M. Shi, C. Song, F. Tin-Loi & Z.J. Yang	Automatic dynamic crack propagation modeling using polygon scaled boundary finite elements
T. Xiang, H. Man, C. Song & W. Gao	Dynamic analysis for plate structures by the scaled boundary finite element method

Room 4	Foundation and Pavement Engineering (4) and Geomechanics (2) Session Chair: J. Carter
A.M.A.N. arunarathne, E.F. Gad, S. Sivanerupan & J.L. Wilson	Review of residential footing design on expansive soil in Australia
R. Nishanthan, D.S. Liyanapathirana & C.J. Leo	Analysis of pile group behaviour due to excavation induced ground movements
H.R. Tabatabaiefar, B. Fatahi & B. Samali	Inelastic lateral seismic response of building frames under influence of bedrock depth variations incorporating soil-structure interaction
N. Yan, J. Li, U. Dackermann & B. Samali	Numerical and experimental investigations of stress wave propagation in utility poles under soil influence
P. Ariyaratne, D.S. Liyanapathirana & C.J. Leo	Comparison of existing design methods for geosynthetic reinforced pile-supported embankments: three-dimensional numerical modelling
X. Chen, C. Birk & C. Song	Efficient modeling of wave propagation in unbounded domains using the scaled boundary finite element method

13:00

Lunch

Wednesday 12/12

14:00

Concurrent Sessions

Room 1	Composite Structures and Materials (5) Session Chair: G. Ranzi
E. Hamed & M. Ramezani	Effect of boundary conditions on the creep response of sandwich beams with a viscoelastic soft core
R.M Hizam, A.C. Manalo & W. Karunasena	A review of FRP composite truss systems and its connections
P. Jasion & K. Magnucki	Post-critical behaviour of sandwich cylindrical shells with variable thickness
A. Kroflič, M. Saje & I. Planinc	Analytical solution of multi-layer composite beam including interlayer slip and uplift
A. Kroflič, M. Saje & I. Planinc	Time dependent behaviour of two-layer composite beams

Room 2	Concrete Structures (5) Session Chair: M. Hadi
A. Gholamhoseini, R.I. Gilbert, M.A. Bradford & Z-T. Chang	Evaluation of longitudinal bond shear stress and bond-slip relationship in composite concrete slabs using partial shear connection method
M. Shamsuddoha, M.M. Islam, T. Aravinthan, A.C. Manalo & K.T. Lau	Mechanical properties of epoxy grouts for structural repair
R.I. Gilbert	Bond failure in grouted post-tensioned slab tendons with little or no initial prestress
Y. Huang & E. Hamed	Effect of supporting conditions on the long-term load capacity of high strength concrete panels
M.K. Hussin, Y. Zhuge, F. Bullen & W.P. Lokuge	A mathematical model for complete stress-strain curve prediction of permeable concrete

Thursday 13/12

11:00

Concurrent Sessions

Room 3	Earthquake and Wind Engineering (2) and Shock and Impact Loading (4) Session Chair: L. Shen
R. Shahi, N. Lam, E. Gad & J. Wilson	Quasi-static testing protocol for simulating earthquake conditions in regions of low-moderate seismicity
C.W. Yang, C. Wang, W. Gao & C. Song	Dynamic analysis of structures with interval parameters under random process earthquake excitations
M. Ali, J. Sun, N. Lam, L. Zhang & E. Gad	Fundamentals of impact actions demonstrated by miniature experimentations
S.D. Ekanayake, D.S. Liyanapathirana & C.J. Leo	Numerical simulation of impact pile driving and its effect on far field
E.J. Guades, T. Aravinthan, A.C. Manalo & M.M. Islam	Effects of energy level and impact repetitions on the impact fatigue behaviour and post-impact flexural properties of square FRP pultruded tubes
Y.C. Li, J.C. Li & B. Samali	A novel adaptive base isolator utilising magnetorheological elastomer

Room 4	Computational Mechanics (6) Session Chair: D. Kellermann
M.Y. Kim, D.J. Min & M.M. Attard	Improved nonlinear analysis methods for determining the initial shape of cable-supported bridges
H. Man, C. Song, W. Gao & F. Tin-Loi	Efficient bending analysis for piezoelectric plates using scaled boundary finite-element method
E.T. Ooi, I. Chiong & C. Song	Evaluation of stress intensity factors on cracked functionally graded materials using polygons modelled by the scaled boundary finite element method
L. Su & M.M. Attard	In-plane stability of variable cross-section columns with shear deformations
S. Tangaramvong, F. Tin-Loi & C. Song	Limit analysis in the presence of plasticity and contact
T. Watts, K. Kayvani & A. Kucyper	Application of explicit finite element analysis in solving practical structural engineering problems

13:00

Lunch

Friday 14/12

11:00

Concurrent Sessions

Room 1	Structural Health Monitoring (2) and Sustainability of Structures and Materials (4) Session Chair: H. Guan
A.A. Saputra, C. Birk, C. Song & H. Gravenkamp	Numerical modelling of Lamb waves in cracked plates using the scaled boundary finite element method
D. Tran, S. Venkatesan & S. Fragomeni	Damage detection in a timber bridge model
G. Adam, S. Salek, B. Samali, P. Battista & M. McKinnon	A novel acid resistant green mortar for high corrosive environments
D. Miller, J.H. Doh, H.Guan, M. Mulvey, S. Fragomeni, T. McCarthy & T. Peters	Environmental impact assessment of post tensioned and reinforced concrete slab construction
L. Peng & M.G. Stewart	Deterioration of concrete structures in Australia under a changing climate

Room 2	Concrete/Material Technology (6) Session Chair: K. Vessalas
X.H. Ling, S. Setunge & I. Patnaikuni	Effect of different concentrations of lime water on mechanical properties of high volume fly ash concrete
C.Y. Lo, S.H. Chowdhury & J.H. Doh	Recycled aggregate concrete prepared with water-washed aggregates - An investigative study
W.P. Lokuge & T. Aravinthan	Mechanical properties of polymer concrete with different types of resin
F. Nabavi, S. Nejadi & B. Samali	Investigation of the mathematical models of chloride diffusion coefficient into the concrete in marine environment
A. Ngadimin, K. Vessalas, P. Thomas, P. Hamedanimojarrad	Investigation of flint glass for partial replacement of fine aggregate in fly ash cement-based mortars
A. Noushini, K. Vessalas, N. Ghosni & B. Samali	Effect of polyvinyl alcohol fibre and fly ash on flexural tensile properties of concrete

Friday 14/12

11:00

Concurrent Sessions

Room 3	Steel and Aluminium Structures (6) Session Chair: H. Valipour
A. Agarwal, S. Foster, E. Hamed & Z. Vrcelj	Testing of steel-CFRP adhesive joints under freeze-thaw cycling
H. Fang, M.B. Wong & Y. Bai	A new kinetic model for steel specific heat during phase transformation
A. Firouzianhaji, A. Saleh & B. Samali	Finite Element modeling of a beam-column connection in industrial storage racking structures
P. Keerthan & M. Mahendran	Shear tests of lipped channel beams with stiffened web openings
A. Kozłowski & L. Ziemiański	The use of neural networks for identification of parameters of semi-rigid connections
G.J. Lume	Finite element modeling of existing cable net structures

Room 4	Fibre Composites (6) Session Chair: S. Foster
N.L. Galea, P. Hamedanimojarrad, K. Vessalas & P.S. Thomas	Assessment of wollastonite microfibre on drying shrinkage behaviour of cement-based composites
S.A. Hadigheh, R.J. Gravina, S. Setunge & S.J. Kim	Experimental study on the bondline behavior between concrete and FRP materials
S. Huang, J.Li, B. Samali & M. Zobec	An experimental investigation of a thermal break composite façade mullion section
A.C. Manalo, W. Karunasena & K.T. Lau	Mechanical properties of bamboo fiber-polyester composites
Y. Shafaei & O. Eren	Influence of hooked-end steel fibers on absorbed energy of slurry-infiltrated fiber concrete in flexural test
A. Ticoalu, T. Aravinthan & F. Cardona	Properties and behaviour of gomuti fibre composites under tensile and compressive load

13:00

Lunch

Friday 14/12

16:00

Concurrent Sessions

Room 3	Steel and Aluminium Structures (5) Session Chair: M.M. Attard
S. Maduliat, P. Mendis & T.D. Ngo	Theoretical research on cold-formed channel sections under bending
A.C. Manalo, T. Aravinthan & W. Karunasena	Analysis of a railway turnout system with a spot replacement sleeper
N. Schillo, D. Schaefer & M. Feldmann	Stability reinforcement of steel plates by heat-induced stress deformation fields
K.S. Seak, A.C.C. Lam & M.C.H. Yam	Numerical study of block shear strength of coped beams bolted with angles/tee-section
R.H.R. Tide	Re-evaluation of shear strength of high strength bolts in AS 4100

Room 4	New Design and Construction Technologies (4) Session Chair: B. Samali
T. Gunawardena, T. Ngo, P. Mendis, L. Aye & J. Alfano	Structural performance under lateral loads of innovative prefabricated modular structures
N. Herath, P. Mendis, T. Ngo & N. Haritos	Displacement based design method for outrigger braced tall buildings
I. Saifullah, E.F. Gad, J.L. Wilson, N.T.K. Lam & K. Watson	Review of diaphragm actions in domestic structures
S. Sorourian, A. Keshavarzi, B. Samali & J. Ball	Study of blockage effect on scouring pattern downstream of a box culvert

18:00

Conference Close