

20th Australasian Conference on the Mechanics of Structures and Materials (ACMSM20)
University of Southern Queensland, Toowoomba, Queensland, Australia, 2-5 December 2008

Program Outline

Tuesday 02 December

17:00-19:00 Registration *Foyer, Allison Dickson Lecture Theatre*
 17.30-19:00 Welcome reception *Foyer, Allison Dickson Lecture Theatre*

Wednesday 03 December

8.30-9.30	Registration	<i>Foyer, Allison Dickson Lecture Theatre</i>		
9.30-10.00	Conference Opening	<i>Allison Dickson Lecture Theatre</i>		
10.00-10.30	Keynote Lecture: Professor Hiroshi Mutsuyoshi, <i>Saitama University, Japan</i>	<i>Venue: Allison Dickson Lecture Theatre</i>		
10.30-10.50	Morning tea			
	Venue	Rm G314A	Rm G414A	Rm G312
10.50-12.30	Session 1	Timber engineering	Shock and impact loading	Reliability and sustainability of structures
12.30-1.30	Lunch			
1.30-3.30	Session 2	Mechanics of materials	Reinforced and prestressed concrete structures	Reliability and sustainability of structures
3.30-3.50	Afternoon tea			
3.50-5.30	Session 3	Fire engineering	Structural health monitoring	Geomechanics and foundation engineering

Thursday 04 December

8.55-9.25	Keynote Lecture: Professor Brian Uy, <i>University of Western Sydney, Australia</i>	<i>Venue: Allison Dickson Lecture Theatre</i>		
	Venue	Rm G314A	Rm G414A	Rm G312
9.30-10.30	Session 4	Composite structures and materials	Reinforced and prestressed concrete structures	Geomechanics and foundation engineering
10.30-10.50	Morning tea			
10.50-12.30	Session 5	Composite structures and materials	Rehabilitation of Structures	Structural dynamics
12.30-1.30	Lunch			
1.30-3.30	Session 6	Mechanics of materials	Shock and impact loading	Steel structures
3.30-3.50	Afternoon tea			
3.50-5.30	Session 7	Earthquake and wind engineering	Computational mechanics	Structural mechanics
7.00-10:30	Conference dinner	- Picnic Point Restaurant		

Friday 05 December

8.55-9.25	Keynote Lecture: Professor Andrew Deeks, <i>University of Western Australia, Australia</i>	<i>Venue: Allison Dickson Lecture Theatre</i>		
	Venue	Rm G314A	Rm G414A	Rm G312
9.30-10.30	Session 8	Earthquake and wind engineering	Computational mechanics	Structural dynamics
10.30-10.50	Morning tea			
10.50-11.50	Session 9	Mechanics of materials	Reinforced and prestressed concrete structures	Structural mechanics
12.00-1.00	Closing Ceremony and Lunch			
2:00	Bus leaves for Brisbane Airport			

20th Australasian Conference on the Mechanics of Structures and Materials (ACMSM20) Full Conference Program
University of Southern Queensland, Toowoomba, Queensland, Australia, 2-5 December 2008

Day 1 – Wednesday, 03 December

8.30-9.30	Registration <i>Foyer, Allison Dickson Lecture Theatre</i>		
9.30-10.00	Conference Opening <i>Allison Dickson Lecture Theatre</i>		
10.00-10.30	Keynote Lecture: Recent technologies of prestressed concrete bridges in Japan Lecturer: Prof Hiroshi Mutsuyoshi, Saitama University, Japan Session Chair: A/Prof T. Aravinthan Rm: Allison Dickson Lecture Theatre		
10.30-10.50	Morning tea		
Venue	Rm G314A	Rm G414A	Rm G312
Session 1	Timber engineering	Shock and impact loading	Reliability and sustainability of structures
	Session chairs: Prof M. Dhanasekar / Dr W. Gao	Session chairs: Prof R. Clegg / Dr T. Omar	Session chairs: A/Prof N. Haritos / Dr P. Omenzetter
10.50-11.10	Predicting the behaviour of timber connections subjected to fire <i>P.J. Moss, A.H. Buchanan & M. Fragiacom</i>	Response of thick-walled structures on impact load <i>P.P. Prochazka & V. Dolezel</i>	Determination of life expectancy of concrete septic tanks under biogenic sulphuric acid corrosion <i>M.S. Hasan, S. Setunge, T. Molyneaux & D.W. Law</i>
11.10-11.30	An investigation on the design stiffness for fibre composite railway sleepers <i>A.N.E. Ticoalu, T. Aravinthan & W. Karunasena</i>	A reliability model for assessing the failure of glazing windows subjected to explosions using neural network <i>H.S. Susiswo, C. Duffield, P. Mendis & T. Ngo</i>	Adoption of advanced materials by SME constructors <i>D.S. Thorpe</i>
11.50-12.10	Structural characteristics of the Japanese historical timber bridge: Kintaikyo Bridge <i>T. Yoda</i>	Impact tests on wool fibres and yarns <i>D. Ruan & G. Lu</i>	Stochastic processes for modeling bridge deterioration <i>K. Aboura, B. Samali, K. Crews & J. Li</i>
12.10-12.30	Investigation on role and function of noggings in residential timber frame construction, <i>W.Karunasena & C.J. Leitch</i>	Modelling and performance assessment of window glazing unit under blast loads <i>R. Lumantarna T. Ngo & P. Mendis</i>	Reliability theory and estimating the likely safety of constructed facilities <i>R.E. Melchers</i>
12.10-12.30	Investigation on the structural behaviour of timber concrete composite connections <i>C. Gerber, K. Crews, D. Yeo & A. Buchanan</i>	Ballistic impact of metallic sandwich panels with aluminium foam core <i>W. Hou, F. Zhu & G. Lu</i>	Probabilistic modelling of extreme traffic load-effects based on WIM data <i>N. Yaiaroon & S.G. Reid</i>
12.30-1.30	Lunch		
Venue	Rm G314A	Rm G414A	Rm G312
Session 2	Mechanics of materials	Reinforced and prestressed concrete structures	Reliability and sustainability of structures
	Session chairs: Prof P. Prochazka / Dr H. Wang	Session chairs: Prof H. Mutsuyoshi / Dr R. Gravina	Session chairs: Prof B. Samali / Dr D. Thorpe
1.30-1.50	Effects of chopped hemp on mechanical and thermal properties of epoxy resins <i>A. Vandenbroucke, F. Cardona, H. Ku & D. Rogers</i>	Design for flexural crack control in reinforced concrete <i>R.I. Gilbert</i>	Issues in quantifying sustainable buildings <i>L. Aye, N. Haritos, M.A. Mirza & J.R.W. Robinson</i>
1.50-2.10	Mechanical properties of pineapple leaf fibre reinforced high impact polystyrene composites <i>S.M. Sapuan & J.P. Siregar</i>	Review of flexural strength requirement for suspended RC slabs reinforced with class L mesh <i>S.J. Foster & A.E. Kilpatrick</i>	Climate change, deterioration and time-dependent reliability of concrete structures <i>J. Peng & M.G. Stewart</i>
2.10-2.30	Sandwich column buckling experiments <i>M.M. Attard</i>	Numerical and experimental analyses of R/C arch <i>T. Hara & M. Kaneda</i>	Environmentally friendly sustainable pervious concrete <i>Y. Aoki, R. Sri Ravindrarajah & H. Khabbaz</i>
2.30-2.50	The statistical distribution of the strength of glass <i>I. Nurhada, N.T.K. Lam & E.F. Gad</i>	Topological interlocking - A new principle in design of concrete structures <i>H.C. Khor, A.V. Dyskin, N. Nofal, E. Pasternak & Y. Estrin</i>	Building sustainable structures and reuse of building materials <i>L. Zhang, N. Lam, P. Mendis and N. Haritos</i>
2.50-3.10	Synthesis and characterization of modified phenolic resins for composites with enhanced mechanical performance <i>F. Cardona & C. Moscou</i>	Improving ductility of over-reinforced HSC beams using different helix diameter <i>R. Jeffry & M.N.S. Hadi</i>	Humidity diffusion in concrete <i>B.T. Nguyen & S.G. Reid</i>
3.10-3.30	Tensile properties of sisal fibres reinforced cashew nut shell liquid composites <i>P.B. Msemwa, L.Y. Mwaikambo, J.V. Tesha, C. Nyahumwa & S. Karlson</i>	Lower limit influence of slenderness on strength of reinforced concrete columns <i>A.H. Owusu</i>	Project X: Lessons learnt from multidisciplinary teaching <i>Z. Vrcelj, M.M. Attard, G. Bell & C. Longbottom</i>
3.30-3.50	Afternoon tea		

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Day 1 cont'd

Venue	Rm G314A	Rm G414A	Rm G312
Session 3	Fire engineering	Structural health monitoring	Geomechanics and foundation engineering
	Session chairs: Prof P. Mendis / Dr E. Hamed	Session chairs: Prof R.I. Gilbert / Dr S. Santhikumar	Session chairs: Prof T. Hara / Dr R. Tuladhar
3.50-4.10	Modelling hollowcore concrete slabs subjected to fire <i>P.J. Moss, R.P. Dhakal, A. H. Buchanan, J-K. Min & J.J. Chang</i>	Monitoring system for in-situ measurement of creep and shrinkage effects in a prestressed concrete bridge <i>N. Ibrahim, P. Omenzetter & P. Lipscombe</i>	Computational methods in Dirichlet-Neumann coupling of soil-structure interaction <i>H. Zolghadr Jahromi, B.A. Izzudin & L. Zdravkovic</i>
4.10-4.30	An investigation of major factor of influence of strength gain or loss of geopolymer when exposed to 800°C <i>Z. Pan, J.G. Sanjayan, F.G. Collins & B.V. Rangan</i>	A new non-destructive damage detection method for reinforced concrete beams based on modal strain energy, <i>Y. Wang, J. Li, B. Samali & F.C. Choi</i>	Advanced finite element analysis of pile-to-pile cap connections subjected to cyclic loads <i>M. Teguh</i>
4.30-4.50	Modelling the out-of-plane deformations of thin RC walls subjected to fire loadings <i>B.L. Deam</i>	Long-term monitoring of slab deflections of a multi-level office building <i>R.J. Gavina, M.T.P. Jayasinghe & S.T. Setunge</i>	Evaluation of penetration resistance of a Ball penetrometer in strain softening clay <i>D.S. Liyanapathirana</i>
4.50-5.10	Modelling the performance of CFRP/concrete composites at high temperature exposure <i>K. Gamage, R. Al-Mahaidi & B. Wong</i>	A new modal based damage detection approach utilising added mass <i>J. Li, B. Samali & Y-L. Xu</i>	Parametric study on piled raft foundation in sand using numerical modelling <i>E. Oh, Q.M. Bui, C. Surarak & A.S. Balasurbamiam</i>
5.10-5.30	Spalling of concrete: Implications for structural performance in fire <i>S. Deeny, T. Stratford, R.P. Dhakal, P.J. Moss & A.H. Buchanan</i>	Condition monitoring of rail joints using wavelet signal analysis <i>W.L. Bayissa, M. Dhanasekar & P. Boyd</i>	Damage classification in structural systems using time series analysis and supervised and unsupervised clustering methods <i>O.R. de Lautour & P. Omenzetter</i>

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Day 2 - Thursday, 04 December

8.55-9.25	Keynote Lecture: Behaviour and design of composite steel-concrete beams subjected to combined actions Lecturer: Prof Brian Uy, University of Western Sydney, Australia Session chair: A/Prof T. Aravinthan Rm. Allison Dickson Lecture Theatre		
Venue	Rm G314A	Rm G414A	Rm G312
Session 4	Composite structures and materials	Reinforced and prestressed concrete structures	Geomechanics and foundation engineering
	Session chairs: A/Prof M. Hadi / Dr R. Sriravindrarajah	Session chairs: A/Prof S. Setunge / Dr Y. Zhuge	Session chairs: Prof A. Deeks / Dr E. Oh
9.30-9.50	Mechanical behavior of hybrid FRP composites with bolted joints <i>A.C. Manalo, H. Mutsuyoshi, S. Asamoto, T. Aravinthan & T. Matsui</i>	Exploration of the failure behaviour of reinforced concrete structures <i>F. Tahmasebinia & A.M. Remennikov</i>	Ductility demand of fixed-head pile-to-pile cap connections embedded in cohesive and cohesionless soils <i>M. Teguh</i>
9.50-10.10	Behaviour of handmade FRP spike anchors <i>S.T. Smith & S.J. Kim</i>	Pseudo-section analysis and its implication in the design of RC beams strengthened via external prestressing <i>C.K. Ng</i>	Numerical simulation of geosynthetic reinforced pile supported embankments over soft ground <i>D.S. Liyanapathirana & H.G. Poulos</i>
10.10-10.30	Behaviour of steel fibre reinforced mortar and concrete in tension <i>T.N.S. Htut & S.J. Foster</i>	Behaviour of post-tensioning anchors in early age concrete: experimental study <i>P. Mendis, M. Sofi & D. Baweja</i>	Soil-pile-structure interaction using 3D FEM <i>R. Tuladhar, H. Mutsuyoshi & T. Maki</i>
10.30-10.50	Morning tea		
Venue	Rm G314A	Rm G414A	Rm G312
Session 5	Composite structures and materials	Computational mechanics	Structural dynamics
	Session chairs: Prof S. Foster / Dr S. Smith	Session chairs: Prof M. Stewart / Dr T. Ngo	Session chairs: A/Prof W. Karunasena / Dr D. Tran
10.50-11.10	Interaction diagrams for FRP wrapped circular hollow columns <i>V. Yazici & M.N.S. Hadi</i>	Using sensitivity method and genetic algorithms to model updating <i>F. Shabbir & P. Omenzetter</i>	Nonlinear analysis of frames under cyclic loading <i>J. Petrolito & K.A. Legge</i>
11.10-11.30	Composite behaviour of hybrid CFRP-GFRP bridge girders <i>H.Mutsuyoshi, N. D. Hai, S. Asamoto, H. Minh & T. Matsui</i>	Variational bounds using extended Hashin-Shtrikman principles <i>P.P. Prochazka</i>	Vibration of mistuned bladed discs <i>O. Repetskiy, I. Ryzhikov, N. Lutaenko & A. Latin</i>
11.30-11.50	Developing impact resistant structures using SIFCON <i>G.R. Pandey, L. Ives & T. Collister</i>	Stress distribution characteristics in dental implant influenced by its wall thickness <i>R.C. van Staden, H. Guan, Y.C. Loo, N.W. Johnson & N. Meredith</i>	Theoretical and experimental studies on semi-active smart pin joint <i>Y. Li, J. Li, B. Samali & J. Wang</i>
11.50-12.10	Dynamic behavior of hybrid composite bridge girder <i>J. Epaarachchi, W. Karunasena & T. Aravinthan</i>	A 3D procedure to recover inter-element forces and stress tensor at finite element mesh nodes <i>D. Ciancio & I. Carol</i>	Dynamic analysis of structures with uncertainty using the probabilistic and interval methods <i>W. Gao & F. Tin-Loi</i>
12.10-12.30	Fibre composite wind mill structure - investigations and design considerations <i>T. Omar & T. Aravinthan</i>	Formulation of the damped SBFEM within a convected coordinate system <i>D.J. Scales, A.J. Deeks & H. Hao</i>	Simple tools for analysing the dynamic impact behaviour of elastic beams and plates <i>N.T.K. Lam, E.F. Gad & N.I. Nurhada</i>
12.30-1.30	Lunch		

20th Australasian Conference on the Mechanics of Structures and Materials (ACMSM20)

Day 2 cont'd

Venue	Rm G314A	Rm G414A	Rm G312
Session 6	Mechanics of materials	Shock and impact loading	Steel structures
	Session chairs: A/Prof J. Sanjayan / Dr J. Eparaachchi	Session chairs: Prof N. Lam / Dr H. Ku	Session chairs: Prof B. Uy / Dr D. Scales
1.30-1.50	Development of high performance geopolymer concrete <i>T.S. Ng & S.J. Foster</i>	Experimental investigation on the dynamic behavior of reinforced concrete subjected to shock loading <i>J. Lu, T. Ngo, P. Mendis & A. Whittaker</i>	An experimental study on the long-term behaviour of full-scale composite steel-concrete beams <i>S. Al-Deen, G. Ranzi & Z. Vrcelj</i>
1.50-2.10	Performance of shrinkage prediction method given in AS3600 <i>S. Fragomeni & D. Baweja</i>	Dynamic impact testing of ultra high performance fibre reinforced concrete <i>X. Gao, T.C.K. Molyneaux & I. Patnaikuni</i>	Behaviour and design of stud shear connectors in composite steel-concrete beams <i>O. Mirza & B. Uy</i>
2.10-2.30	Comparison the performance of recycled and quarry aggregate and their effect on the strength of permeable concrete <i>Y. Zhuge</i>	Preliminary investigation on the behaviour of RC panels with polymer coatings under blast loads <i>S.N. Raman, T. Ngo & P. Mendis</i>	Effects of the shear deformability of the steel member in the short- and long-term partial interaction analysis of steel-concrete composite beams <i>G. Ranzi, A. Zona & Z. Vrcelj</i>
2.30-2.50	Properties of adjusted density high-performance concrete <i>R. Sri Ravindrarajah & M.C. Lyte</i>	Mobile footing for blast resistance modules <i>T. Omar, A. Reid & C. Singer</i>	Steel beam-column connections designed for damage avoidance utilising high force-to-volume dampers <i>G.W. Rogers, T.J. Mander, J.G. Chase, R.P. Dhakal & G.A. MacRae</i>
2.50-3.10	Effects of rotating bending fatigue of Ck45 steel test specimens on yield strength, elongation and area reduction <i>K. Farhangdoost & E. Homaei</i>	An investigation of the interaction between RC panels and fixings under blast loading <i>T. Pham, T. Ngo & P. Mendis</i>	Time-dependent behaviour of concrete-filled steel tubular columns: a comparative study using different concrete models <i>Y. Geng, G. Ranzi, S.M. Zhang & Y.Y. Wang</i>
3.10-3.30	Re-designing the air heater gear Teeth at a 315 MW steam power station <i>M. Shanbghazani, Y. Haseli & M. Majidazar</i>	Impact characteristics of a flexible road barrier and vehicle crash response <i>R. Gover, P. Gudimetla, Y.T. Gu & D. Thambiratnam</i>	Blind bolted connections for steel hollow section columns in low rise structures <i>J. Lee, H.M. Goldsworthy & E.F. Gad</i>
3.30-3.50	Afternoon tea		
Venue	Rm G314A	Rm G414A	Rm G312
Session 7	Earthquake and wind engineering	Structural rehabilitation	Structural mechanics
	Session chairs: Prof J. Petrolito / Dr R. Dhakal	Session chairs: A/Prof S. Fragomeni / Dr G. Ranzi	Session chairs: Prof Y.C. Loo / Dr D. Ciancio
3.50-4.10	Dynamic response characteristics of trees from excitation by turbulent wind <i>N. Haritos & K. James</i>	An assessment of available design models for FRP retrofitted URM walls under in-plane shear <i>Y. Zhuge</i>	Structural damage identification utilising PCA-compressed frequency response functions and neural network ensembles <i>U. Dackermann, J. Li & B. Samali</i>
4.10-4.30	Non-linear dynamic analysis of reinforced concrete frames subjected to ground motion <i>H.R. Valipour & S.J. Foster</i>	Effectiveness of repairing damaged RC beam-column connections with FRP strips <i>R. Shrestha, S.T. Smith & B. Samali</i>	Uncertainty on application of bi-linear approximation to tension softening material near creep rupture region <i>S. Santhikumar</i>
4.30-4.50	Rapid assessment of structures in low to moderate seismicity regions <i>E. Lumantarna, N. Lam, B. Kafle & J. Wilson</i>	Development of pressure-impulse curves of reinforced concrete columns strengthened with carbon fiber reinforced polymer <i>A. Mutalib & H. Hao</i>	Static response analysis of structures with random parameters <i>W. Gao, M.M. Attard & Z. Vrcelj</i>
4.50-5.10	Seismic response of reinforced concrete frame structures with low strength infill <i>J. Dorji and D. Thambiratnam</i>	AFRP retrofitting of RC structures in Japan <i>H. Shinozaki, G.R. Pandey, H. Mutsuyoshi & T. Aravinthan</i>	Nonlinear time-dependent behaviour of spherical shallow concrete domes – shallowness effect <i>E. Hamed, M.A. Bradford & R.I. Gilbert</i>
5.10-5.30	Drift demand on flexible structures in a distant earthquake: case history of Singapore and Malaysia <i>B. Kafle, N.T.K. Lam, S. Venkatesan & J.L. Wilson</i>	Modelling of FRP strengthened RC slabs subjected to blast loading <i>G. Tanapornraweekit, N. Haritos, P. Mendis & T. Ngo</i>	A plastic hinge model for the elasto-plastic analysis of I-beams curved in-plan <i>R.E. Erkmen & M.A. Bradford</i>
7.00-10:30	Conference dinner Picnic Point Restaurant		

20th Australasian Conference on the Mechanics of Structures and Materials (ACMSM20)

Day 3 – Friday, 05 December

8.55-9.25	Keynote Lecture: The pursuit of accuracy in computational mechanics Lecturer: Prof Andrew Deeks, University of Western Australia, Australia Session chair: A/Prof W. Karunasena Rm. Allison Dickson Lecture Theatre		
Venue	Rm G314A	Rm G414A	Rm G312
Session 8	Earthquake and wind engineering	Computational mechanics	Structural dynamics
	Session Chairs: A/Prof T. Molyneaux / Dr S. Liyanapathirana	Session chairs: Prof H. Hao / Dr M. Attard	Session chairs: Prof S. Reid / Dr J. Li
9.30-9.50	Investigation of the dynamic properties of the Trennery Crescent Pedestrian Bridge over Melbourne's Eastern Freeway <i>M. Hashim & N. Haritos</i>	Generating frequency response functions from time signals of accelerations <i>M. Sarairoh & D. Tran</i>	Dynamic design guidelines for prestressed concrete sleepers <i>A.M. Remennikov, M.H. Murray & S. Kaewunruen</i>
9.50-10.10	Effect of precast-prestressed flooring systems on the seismic performance of reinforced concrete frames <i>B.H.H. Peng, R.P. Dhakal & R.C. Fenwick</i>	Substructuring technique for damage detection using statistical multi-stage artificial neural network <i>N. Bakhary, H. Hao & A.J. Deeks</i>	Dynamic behaviour of a block held by preloading and Coulomb friction to an incline under vertical harmonic excitation <i>D. Tran</i>
10.10-10.30	Seismic performance assessment of soft storey buildings based on results from field testing <i>R.S. Bhamare, N.T.K. Lam, A.W. Wibowo, J.L. Wilson, E.F. Gad & K. Rodsin</i>		Change of dynamic response of pultrusion components used in advanced composite structures due to fatigue and fracture <i>J. Epaarachchi</i>
10.30-10.50	Morning tea		
Venue	Rm G314A	Rm G414A	Rm G312
Session 9	Mechanics of materials	Reinforced and prestressed concrete structures	Structural mechanics
	Session chairs: Prof G. Lu / Dr M. Islam	Session chairs: Prof R. Melchers / Dr R. Tuladhar	Session chairs: A/Prof W. Karunasena / Dr M. Teguh
10.50-11.10	Continuous and discontinuous crack growth in brass embrittled by liquid gallium <i>R.E. Clegg</i>	Deflection calculations for reinforced concrete flexural members <i>R.I. Gilbert</i>	Numerical and empirical approaches for the assessment of the load distribution in SSP structures <i>C. Gerber & K. Crews</i>
11.10-11.30	An overview on manufacturing and properties of syntactic foams made of ceramic hollow microspheres and starch <i>M.M. Islam & H.S. Kim</i>	Modeling and analysis of reinforced concrete silos <i>J.M. Durack</i>	A complementary energy-based formulation for torsional buckling analysis of columns <i>R.E. Erkmén, M.A. Bradford & M.E. Mohareb</i>
11.30-11.50	Deformation behavior of aluminum alloys in semisolid state <i>H. Wang & Z.L. Ning</i>	On the design of wide spaced reinforced masonry shear walls <i>M. Dhanasekar, N.G. Shive & A.W. Page</i>	An accurate assessment of the behaviour of sandwich panels using an improved higher order zigzag plate model <i>A.H. Sheikh, M.K. Pandit & B.N. Singh</i>
12.00-1.00	Closing ceremony and lunch <i>Allison Dickson Lecture Theatre</i>		
2:00	Bus leaves for Brisbane Airport		