

6th Australasian Congress on Applied Mechanics



December 12th-15th 2010

Perth Convention Exhibition Centre
(PCEC),
Perth, Western Australia

Introduction

The latest version of the ACAM 6 Session Program is available to download [here](#).

The National Committee on Applied Mechanics of Engineers Australia is hosting the **6th Australasian Congress on Applied Mechanics (ACAM 6)** in Perth, Australia on December 12th-15th 2010 at the [Perth Convention Exhibition Centre \(PCEC\)](#).

ACAM 6 aims to provide an international forum for researchers, industry practitioners, engineers and postgraduate scholars to promote, exchange and disseminate knowledge and experiences of the most recent results and advances in a wide range of topics in Applied Mechanics, including, but not limited to:

Acoustics	Gear Dynamics	Renewable Energy Mechanics
Biomechanics	Geo-Mechanics	Smart Materials & Structures
Biomedical	Impact Mechanics	Smart Sensors

[Home](#)

[Key Dates](#)

[Keynote Speakers](#)

[Abstracts](#)

[Papers](#)

[Registration Program](#)

[Accommodation](#)

[Perth](#)

[Sponsorship](#)

[Committees](#)

[Contact Us](#)

Engineering		
Composites	Machine Dynamics	Structural Mechanics
Computational Mechanics	Machining/Manufacturing	Structural Health Monitoring
Contact Mechanics/Tribology	Micro & Nanomechanics	Sustainable Engineering
Coupled Systems	Nondestructive Evaluation	Tissue Engineering
Dynamics/Vibration	Particle Mechanics	Tribology
Fluid-Structure Interaction	Plasticity	
Fracture/Fatigue	Reliability & Maintenance Engineering	

The program is aimed at providing opportunities for discussions and exchanges of insights and information on new ideas and problems in the area of Applied Mechanics. This will be facilitated by a number of parallel sessions of oral presentations. A number of leading international researchers are going to present [keynote papers](#).

NDT Seminar

The congress will also include a one-day seminar hosted by the Western Australian branch of the [Australian Institute for Non-Destructive Testing](#). Topics will include case studies and new developments in non-destructive testing.



Publication of Proceedings

All papers accepted for publication in the proceedings will be subject to a full peer review. Selected papers will also be published in a special issue of the [Australian Journal of Mechanical Engineering](#).

Programme Line-up

Sunday, 12 th December 2010	
TIME	PROGRAM
18:00	Welcome Reception
	Registration
	Cocktail food
	Drinks
20:00	CLOSE

DAY	Monday, 13 th December 2010			
TIME				
08:00	Registration Desk – Tea/Coffee			
08:50	Opening Ceremony			
09:00 to 09:45	Plenary Keynote Address by Prof. Nick Fazzalari HUMAN BONE – A SELF HEALING COMPOSITE MATERIAL STRUCTURE River View Room 5			
09:45 to 10:20	Morning Tea Break			
SESSION	ONE			
ROOM NO	5	6	7	8
TOPIC	BioMedical Engineering Session Chair: Prof Tony Lucey	Machine Dynamics Session Chair: Prof Bob Randall	Composites Session Chair: Prof Martin Veidt	Reliability Session Chair: Dr Timothy Coates
10:20 to 10:40	Nabil A. Ilahee [1103] Structural assessment of the human pelvis using finite element modelling	Lifu Wang [1019] Modelling, parameter estimation and testing of a vehicle with anti-roll systems	Hitoshi Takagi [1235] Strength evaluation of unidirectional abaca fibre reinforced biocomposites	Vladis Kosse [1093] Revealing Design Flaws at Different Stages of Product Development Using Anticipatory Failure Determination (AFDTM) Technique
10:40 to 11:00	Elijah E.W. Van Houten [1146] Quantifying Tissue Attenuation and Damping Structure with Magnetic Resonance Elastography	Arcady V. Dyskin [1170] Coupled bilinear oscillators, their resonances and controlling parameters	In Lee [1182] Aeroelastic Analysis of Composite Wind Turbine Blades	Simon Kellett [1203] pHUMS - Prognostic Health and Usage Monitoring of Military Land Systems
11:00 to 11:20	Chih Ling, Lin [1222] Effects of Bone Tissue Microstructure and Aging on the Micro-Mechanical Properties of Human Femoral Heads	Daniel Ausling [1092] Non-constant Radius Curve Profiles in Controlling Lateral Belt Drift Through Horizontal Curves in Belt Conveyor Systems	Hiroyuki Hamada [1178] Long term behaviour of SMC from recycled jute woven cloth	Hack-Eun Kim [1210] New machine prognostics approach based on health state probability estimation

11:20 to 11:40	Thanapong Chaichana [1250] An investigation of hemodynamic function in realistic coronary arteries: preliminary study representing the actual psychodynamic	Paul D. Walker [1110] Dynamics and simulations of shifting in a dual clutch transmission	Chensong Dong [1161] Experimental investigation on the formation of resin-rich zones in composites processing	Jens Lidders [1213] Improve your Shutdown Success – an Introduction to online Condition Monitoring
11:40 to 12:00	John Codrington [1107] Influence of pre-fatigue microdamage on the fracture of human cortical bone	Lav Deshpande [1142] Improved gearbox simulations for diagnostic and prognostics purposes using finite element model reduction techniques	Warna Karunasena [1064] The effect of debonding on the natural frequencies of laminated fibre composite sandwich plates	Samuel Telford [1215] Modern maintenance practices: approaches and visions towards condition-based asset health management
12:00 to 13:00	Lunch			
13:00 to 13:45	Plenary Keynote Address by Prof Chan Ghee Koh A NEW METHOD FOR DYNAMIC PROBLEMS INVOLVING RELATIVE MOTION River View Room 5			
SESSION	TWO			
ROOM NO	5	6	7	8
TOPIC	Computational Mechanics Session Chair: Dr Raj Das	Fracture & Fatigue Session Chair: Dr Francis Rose	Composites Session Chair: Dr John Hart-Smith	Dynamics & Vibration Session Chair: Dr Kazem Abhary
13:45 to 14:05	W.Y. D. Yuen [1172] Development of a model for strip submergence in pickling tanks	Anthony J. Kinloch [1001] The dynamic fracture of structural adhesives	Hakim S. Sultan Aljibori [1264] Experimental and Numerical Investigations of Composite Tubes under Axial and Lateral Loading	Vincent Rouillard [1017] A Practical Method for Estimating Ground Vehicle Frequency Response Function from Response Data
14:05 to 14:25	Y. T. Gu [1225] An Advanced Implicit Meshless Approach for Fractional Partial Differential Equation in Computational Mechanics	R. Jones [1068] On the growth of short cracks in a head hardened rail steel	Kiyoshi Itatani [1173] Influence of acid treatment on the characteristics of Si-Al-C@ fibre with carbon interface	Helen Wu [1006] Vibration investigation of passive control using rubber bearing
TOPIC	Structural Health Monitoring			
14:25 to 14:45	R.J. (Buzz) Sanderson [1077] Non-Linear Explicit Finite Element Analysis of Multi-particle Polymer Composite Materials	Masaaki Watanabe [1007] Fracture Criterion associated with the Angled Crack Problem I. Extended Irwin's Energy Release Rate	W.K. Chiu [1058] Structural Health Monitoring of Sub-Surface Vertical Cracks from Fuel Weep Holes	Jens Lidders [1214] Monitoring the Sound and Vibration of Windturbines
14:45 to 15:05	N. Mai-Duy [1082] A stable and accurate control-volume technique based on integrated RBF networks for fluid-flow problems	A. Kotousov [1055] Some New Developments in 3D Fracture Mechanics	W.G. Favier [1060] Finite Element Analysis of Strain Transfer from a Mechanically Loaded Substrate to a Surface Mounted Piezoceramic Structural Health Monitoring Transducer.	Rejwan Ali [1074] Advanced Wireless Architectures for Synchronizing Dynamic Measurements with GPS Technology
15:05 to 15:30	Afternoon Tea Break			
SESSION	THREE			
ROOM NO	5	6	7	8
TOPIC	Geomechanics Session Chair: Dr Chunsheng Lu	Fracture & Fatigue Session Chair: Prof Tony Kinloch	Structural Health Monitoring Session Chair: Prof C.G Koh	Fluid Structural Interaction Session Chair: Dr Andrew King
15:30 to 15:50	L. Wang [1043] Experimental Study of Precambered Steel Plate Strengthened Reinforced Concrete Columns	Michael T. Heitzmann [1190] Numerical analysis of the shaft loaded blister test: influence of nonlinearities on analytic solution	Gayana C. Kahandawa [1048] An investigation of spectral response of embedded Fibre Bragg Grating (FBG) sensors in a hollow composite cylindrical beam under pure torsion and combined loading	Mark Pitman [1040] Spatio-temporal eigenmodes of plane-Poiseuille flow interacting with a finite compliant panel

15:50 to 16:10	Muhammad Zahid [1096] Mechanics of active earth pressure under surcharge and seismic loading condition	R.J. Callinan [1156] Investigation of Stress Intensity Factor for Overloaded Holes and Cold Expanded Holes	Ying Wang [1113] Integrated Health Monitoring for Reinforced Concrete Beams: An Experimental Study	Nima Nadim [1209] Secondary flow characteristics and prediction of Dean vortices in fluid flow through a curved duct
16:10 to 16:30	B. Hamidi [1150] Application of Dynamic Compaction in Port of Ras Laffan Expansion Project	Weiping Hu [1269] The effect of specimen thickness on fatigue crack growth rate and threshold behaviour in aluminium alloy 7075-T7351	Bhavin Desai [1044] Civionics: The modern approach to structural test and monitoring	Anthony D. Lucey [1033] Fluid-structure interactions in the human upper airway - large-displacement biomechanics
16:30 to 16:50	Boris G. Tarasov [1168] Depth distribution of earthquake activity as a reflection of rock brittleness variation	Xiaobo Yu [1270] Investigations on critical load cases for robust and efficient shape optimisations	Wern H. Ong [1067] Damage Quantification in Plates Using Lamb Waves	Mohd A. A. Rahman [1157] Free surface effects on vortex induced vibrations of cylindrical offshore structures
16:50 to 17:10	Tong Xi Yu [1253] Elastic Deformation and Equivalent Stiffness of a Ring on Elastic Foundation	Matthew Lamb [1080] A practical study of Fourier Analysis for monitoring fatigue progression in elements subjected to random loads	L. R. Francis Rose [1261] A comparison of algorithms for in-situ imaging of structural damage	A.D. Lucey [1127] The effect of inertial inhomogeneity on the flutter of a cantilevered flexible plate
17:10	CLOSE			

DAY	Tuesday, 14 th December 2010				
TIME					
08:00	Registration Desk – Tea/Coffee				
08:50	Opening Ceremony				
09:00 to 09:45	Plenary Keynote Address by Prof Peter Cawley FROM NDT TO SHM - POTENTIAL AND CHALLENGES River View Room 5				
09:45 to 10:20	Morning Tea Break				
SESSIONS	FOUR				
ROOM NO	5	6	7	8	9
TOPICS.	AINDT Session Chair: Prof Peter Cawley	Non-Destructive Evaluation Session Chair: Prof Wing Kong Chui	Dynamics & Vibration Session Chair: Prof Dianne Hesterman	Manufacturing Session Chair: Prof Liangchi Zhang	Structural Mechanics Session Chair: Dr Sook-Ying Ho
10:20 to 10:40	Tony McPherson Lean Manufacturing in the Construction Industry GE	Stuart J. Wildy [1118] New damage detection technique based on governing differential equations of continuum mechanics. Part I: out-of-plane loading	Sook-Ying Ho [1038] Aerothermal-Structural Analysis of High-Speed Flight Vehicles	P. Mathew [1133] Comparison of tool-chip interface stress distributions in predicting cutting forces and tool chip contact lengths in orthogonal machining using the Oxley Machining Model	Elena Pasternak [1266] Negative Poisson's ratio materials' design principles and possible applications
10:40 to 11:00	Damian Tanner RTD ROTOSCAN - Automated Ultrasonic testing of Pipeline Girth Welds, its Present Status and Future Developments ApplusRTD	M. Veidt [1143] Scattering analysis of fundamental anti-symmetric Lamb wave at delaminations in composite laminates	N. Zhang [1051] Attenuation of primary resonance vibrations of a nonlinear system using a nonlinear vibration absorber	R. J. Wescott [1159] Algorithms for Improved Numerically Controlled Manufacture of Stress Optimal Free Form Shapes	Chunguang Wang [1013] Numerical Analysis of Deep Sea Steel Risers under Combined Loads
11:00 to 11:20	Mark Vellacott Comparative Vacuum Monitoring (CVM): a New Way to Monitor Cracks in Bridges Structural Monitoring Systems	Stuart J. Wildy [1119] New damage detection technique based on governing differential equations of continuum mechanics. Part II: in-plane loading	Ming Jin [1084] A Study of Vibration Properties of Parallel Beams Coupled by Insulation Elements	Raj Das [1163] On the use of SPH for three-dimensional simulation of heat transfer and residual stress generation in arc welding processes	Mikail F. Lumentut [1151] The Experimental Validation of an Electromechanical Dynamic Model of a Piezoelectric Bimorph Beam for Prediction of Power Generation
11:20 to 11:40	Mike Trinidad Effective Aboveground Storage Tank Floor Inspections TWI (Singapore)	Ramadas C [1152] Numerical studies on guided Lamb wave reflection and transmission in semi-infinite composite sub-beams	Jonny Latuny [1088] Bearing Fault Analyses through Application of ANFIS and Vector Array Indicators Based on Statistical Parameters of Wavelet Transformation Components	M. N. Islam [1257] An investigation of additional factors affecting dimensional accuracy and surface finish of turned parts	R.J.(Buzz) Sanderson [1078] The Design and Analysis of Guyed Wind Monitoring Towers using Explicit Non-linear Finite Element Analysis in response to Wind and Construction Loads
11:40 to 12:00	Peter Clarke Laser scanning for grinding mill condition monitoring Scanalyse	Ben S. Cazzolato [1120] New method for accurate strain measurements utilising a 3D scanning laser Doppler vibrometer	Gareth L. Forbes [1102] Fluid-structure interaction study of gas turbine blade vibrations	S. Kalyanasundaram [1125] Stretch Forming Studies on Thermoplastic Composite.	Atalla A. Mohammed [1265] On the dynamic characteristics of box-girder bridges under moving vehicles
12:00 to 13:00	Lunch				

13:00 to 13:45					
Plenary Keynote Address by Dr John Hart-Smith LESSONS LEARNED BY ONE AEROSPACE STRUCTURES ENGINEER IN A 40-YEAR CAREER River View Room 5					
SESSION FIVE					
ROOM NO	5	6	7	8	9
TOPIC	AINDT Session Chair:	Particle Mechanics Session Chair: Prof Vladis Kosse	Fracture & Fatigue Session Chair: Prof Andrei Kotousov	Composites Session Chair: Dr Ian Davies	BioMedical Engineering Session Chair: Prof Nick Fazzalari
13:45 to 14:05	Roland Fricke Development and successful deployment of custom built remote operated NDT inspection tools for subsea pipelines Woodside	Lars E. Spelter [1002] Semicontinuous nanoparticle screening and applied Laser-Doppler-Anemometry in tubular bowl centrifuges	Susan Pitt [1069] Application of supersonic particle deposition for restoring the structural integrity of damaged aircraft structures	Hatem Alamri [1232] Mechanical and fracture properties of nano-filler-cellulose fibre-reinforced epoxy nanocomposites	Ling Yin [1175] Mechanical responses of hydrated and dehydrated cortical bones to microindentation
14:05 to 14:25	Lou Carro Inspection of Piping Systems BP	Andrew J. C. King [1024] Discrete particle tracking in fluid flows for particulate filter simulations	Ung Hing Tiong [1016] Impact of Aircraft Corrosion Protection Systems on Joint Durability	Tomoko Ota [1197] A study on the mechanical property of injection molded cellulose/glass hybrid composites	Yongmin Zhong [1164] Hopfield neural network for modelling of soft tissue deformation
14:25 to 14:45	Alison Glover Recent Case Studies in Semi-Automated UT Olympus	Yury A. Stepanyants [1144] Nanoparticle dynamics in a viscous fluid at small Reynolds numbers	Ninh T. Nguyen [1029] Remaining life of a high pressure rotor subjected to thermal fatigue operating conditions	Ian Brown [1140] Application of Composite Theory to the Development of a Tough Wear Resistant High Chromium White Iron	Wenyi Yan [1162] Material Property Influences on the Modelling of Child Brain Injuries
14:45 to 15:05	Zach McCann Developments in subsea ultrasonic inspection. Innospection	Abul Hasan Md. Mamunur Rashid [1052] Attrition Assessment of Alumina using Single Impact with Variable Air Stream Velocity	Matthew Lamb [1081] A multi-resolution time domain technique for monitoring fatigue progression in elements subjected to random loads	Chamila S Sirimanna [1008] Effects of temperature on a pultruded FRP composite	Helen Kershaw [1085] Combining a genetic algorithm with fitness function analysis to improve the elastodynamic inverse problem
15:05 to 15:30					
SESSION SIX					
ROOM NO	5	6	7	8	9
TOPIC	AINDT Session Chair:	Computational Mechanics Session Chair: Dr Daniel Yeun	Fracture & Fatigue Session Chair: Dr Xiaobo Yu	Composites Session Chair: Prof Hitoshi Takagi	Micro & Nanomechanics Session Chair: Dr Chensong Dong
15:30 to 15:50	Zach McCann SLOFEC - fast corrosion screening technique Innospection	Matthias Nanning [1009] Infinite elements in saturated porous media	Dong Hoon Chang [1124] A compact solution for the interface corner stress intensity factor of a cylindrical butt joint	Chun Hui Wang [1267] Computational analysis of the Influence Material Orthotropy on the Residual Strength of Laminated Composites	Chunsheng Lu [1160] Revisit to the estimation of percolation thresholds in electrical conducting nanocomposites
15:50 to 16:10	David Lake Understanding acoustic emission and its application to industry ATTAR	Min-Gyu Im [1026] A New Topology Optimization Scheme Based on BESO for Electro-Thermal-Compliant Mechanisms	N. Nik Abdullah [1255] Determination of the micro-support constant ρ^* of Neuber's rule using elastic-plastic fracture mechanics	Manudha T. Herath [1211] Modelling of delamination damage in composite beams	A. Alhuthali [1194] Mechanical and fracture properties of recycled cellulose fibre reinforced vinyl-ester nanocomposites
TOPIC			Plasticity		
16:10 to 16:30	John Norman Computer based ultrasonics: an adaptable solution NTS Ultrasonics Pty Ltd	James W. Jewkes [1123] LES of a Low Velocity-Ratio Jet in a Flat-Plate Boundary Layer.	Chris Wallbrink [1087] A new method for evaluating the cyclic elastic-plastic stress distribution near an open hole under variable amplitude loading	Sudharshan Venkatesan [1126] Effect of Preheat Temperature on Formability of Consolidated all-PP Composite materials during Stamp Forming	Yuan Tong Gu [1224] Atomistic numerical investigation of single-crystal copper nanowire with surface defects

16:30 to 16:50	Chris Smith Title: To Be Advised Applus RT	Syed H. Masood [1183] An investigation on the Operational improvement in Robotic Palletisation	Maziar Ramezani [1259] Bulge test of sheet metals using rubber as pressure carrying medium	Komsun Siripun [1049] Tensile Strength Improvement Using Fibre Cement Material	Kausala Mylvaganam [1122] Effect of nano-scratching direction on the damage in monocrystalline silicon
TOPIC			BioMedical Engineering		
16:50 to 17:10	Charles Perrie Title: To Be Advised ALS Global	W.Y. D. Yuen [1176] Width-wise Variation of Residual Stresses in Wound Coils	Jane F. MacKenzie [1271] Muscle activity during lifting: effect of core conditioning on the external oblique abdominal	Karu Karunasena [1004] Evaluation of the strength and stiffness of glue-laminated fibre composite sandwich panels for structural beam application	Syed Masood [1065] Effect of selected DMD process parameters on mechanical and microstructural property of cladded H13 tool steel on copper alloy substrate
17:10	Presentations Conclude				
	CONFERENCE DINNER Government House - St Georges Tce				
18:00 to 19:00	Pre-dinner drinks in the Lady Kyle Garden				
19:00 to 22:30	Dinner in the Ballroom				
22:30	CLOSE				

DAY	Wednesday, 15 th December 2010			
08:00	Registration Desk – Tea/Coffee			
08:50	Opening Ceremony			
09:00 to 09:45	Plenary Keynote Address by Prof Liangchi Zhang CONTINUUM MECHANICS CHALLENGES IN MULTI-SCALE MANUFACTURING River View Room 5			
09:45 to 10:20	Morning Tea Break			
SESSION	SEVEN			
ROOM NO	5	6	7	8
TOPIC	Impact Mechanics Session Chair: Prof Jie Pan	Geo-Mechanics Session Chair: Dr Chunsheng Lu	Manufacturing Session Chair: Prof Yee Cheong Lam	Dynamics & Vibration Session Chair: Prof Arcady V. Dyskin
10:20 to 10:40	Tong Xi Yu [1021] Dynamic Response of a Ring on Viscoelastic Foundation to Impact	Komsun Siripun [1047] Stress Estimating of Unbound Granular Base Course	Md Shahanur Hasan [1099] Effect of cutting tool nose radius on surface roughness for Stellite 6 machining using coated carbide insert	Jing Zhao [1032] Fluid Induced Vibration in Liquid-Filled Pipe Guided Hydraulic Circuit Systems
10:40 to 11:00	Dong (Tracy) Ruan [1028] The ballistic impact characteristic of sandwich panel consisting of Kevlar woven fabric and hexagonal aluminium honeycomb	Md Monir Hossain [1108] Effect of vertical seismic coefficient on the stability of rock slopes against plane failure	Brian Boswell [1097] An experimental approach to determine the effectiveness of minimum liquid cooling for end milling 1040 steel	Rejwan Ali [1073] Data Acquisition for a Bridge Collapse Test
11:00 to 11:20	Karthik Ram Ramakrishnan [1037] Numerical Simulation of Low Velocity Impact on Plastic Laminates	Komsun Siripun [1050] Effects of moisture characteristics of unbound granular base course	Shankar Kalyanasundaram [1111] A study on the forming analysis of a self-reinforced polypropylene based composite-aluminium hybrid structures.	D. P. Lowe [1116] Diesel engine condition monitoring and simulated diesel knock
11:20 to 11:40	Roslina Mohammad [1059] Dynamic Behaviour of Transporting Liquid Under Impulse Loading	X. Liu [1234] Numerical study of landslide-induced water waves in reservoir	Md Shahanur Hasan [1117] Residual stress analysis on machined surface in turning Stellite 6	Bijan Samali [1198] Active Vibration Control of two benchmark structures equipped with Multiple Tuned Mass Dampers
11:40 to 12:00	Mustafizur Rahman [1105] Simulation of impact response of multilayered panels composed of bonded and unbonded plies.	B. Hamidi [1148] Predicting Soil Parameters by Modelling Dynamic Compaction Induced Subsidence	Chensong Dong [1112] Mechanism analysis and experimental study for the bevelling of quartz crystal blanks	David Lowe [1220] Enhancing acoustic emission signals from multi-cylinder diesel engine
12:00 to 13:00	Lunch			
13:00 to 13:45	Plenary Keynote Address by Prof Bharat Bhushan NANOTRIBOLOGY, NANOMECHANICS AND MATERIALS CHARACTERIZATION STUDIES AND APPLICATIONS TO BIO/NANOTECHNOLOGY AND BIOMIMETICS River View Room 5			
SESSION	EIGHT			
ROOM NO	5	6	7	8
TOPIC	Fluid Structural Interaction Session Chair: Prof Tony Lucey	Tribology Session Chair: Prof Bharat Bhushan	Manufacturing Session Chair: Dr Ron Wescott	Dynamics & Vibration Session Chair: Prof Vincent Rouillard
13:45 to 14:05	L. Lai [1034] Numerical two-dimensional flexible channel	Yuriy Solomonov [1061] Experimental Apparatus and Preliminary	Sudharshan Venkatesan [1128] A Study on the Real Time Strain Evolution in Glass	Matej Krajnc [1072] Distributed Systems Architectures For Machine

	model fixed at both ends for flow-induced instability analysis	Investigations of Friction and Wear Phenomena in Water-Lubricated Bearings	Fiber Reinforced Composites during Stamp Forming	Condition Monitoring
14:05 to 14:25	Jarrad S. Kapor [1041] Fluid-Structure Interaction Using Mesh-Free Modelling	Ronghao Bao [1115] From Stokes roughness to Reynolds roughness: a perturbation characterisation	Phuc Nguyen [1121] Investigation of Thermo-Mechanical Properties of Thermal Barrier Coatings Fabricated using the Slurry Spray Technique	Mohsen Askari [1201] Multi Objective Optimal Placement of Structural Control Actuators
TOPIC		Machine Dynamics		Computational Mechanics
14:25 to 14:45	Ben Hoes Tan [1130] Hydroelastic Stability of an Inhomogeneous Flexible Panel in a Uniform Mean Flow	Vladis Kosse [1090] Advanced mathematical modelling and experimental investigation of new torque arms for shaft-mounted drives	Garry Leadbeater [1226] Processing and properties of porous Ti-Nb-Ta-Zr alloy for biomedical applications using the powder metallurgy route	F. Kolahan [1254] Modeling and optimization of the electron beam welding process using statistical approaches
14:45 to 15:05	Mohammad Reza Mobinipouya [1138] A promising avenue for the intensification of turbulent free convection in square cavities using an adequate selection of binary gas mixtures	F. Ding [1189] Modelling and Dynamic Analysis of a Heavy Duty Truck with Rear Tandem Axle Bogie Suspension System	Y C Lam [1005] Surface roughness, hardness and strength of an aluminum mold fabricated by hot embossing	Mohammad Reza Mobinipouya [1139] Deviation of the calculated vapor and liquid density of refrigerant fluids at different temperatures and pressures using aforementioned equations of state from literature data
15:05 to 15:30	Afternoon Tea Break			
SESSION	NINE			
ROOM NO	5	6	7	8
TOPIC	Fluid Structural Interaction Session Chair: Dr. Mark Pitman	Machine Dynamics Session Chair: Dr Brian Boswell	Structural Mechanics Session Chair: Prof Tongxi Yu	Computational Mechanics Session Chair: Dr James Jewkes
15:30 to 15:50	Tony Lucey [1268] Wave propagation in an elastic waveguide: fluid-structure interactions in a spinal disease	Ray Malpress [1180] Assessment of an eccentric link in the connecting rod of a spark ignition engine intended for variable compression ratio operation	Dong (Tracy) Ruan [1188] Experimental investigation of the lateral crushing behaviour of short sandwich tubes	M. H. Abolbashari [1045] Topology optimization of continuum structures with elasto-plastic behaviour using evolutionary structural optimization based on stress and stiffness criteria
TOPIC	Acoustics			
15:50 to 16:10	Daniel R. Wilkes [1018] Application of the Fast Multipole Boundary Element Method to Underwater Acoustic Scattering	Kazem Abhary [1233] A new analytical method for kinematic analysis of planar mechanisms	Bijan Samali [1195] Adaptive Neuro-Fuzzy Modelling of a high-rise structure equipped with an Active Tuned Mass Damper	F. Kolahan [1252] Optimization Of Process Parameters In Laser Welding By Simulated Annealing Algorithm
16:10 to 16:30	Jie Pan [1223] Near field sound radiation from a finite-sized loudspeaker in a room	Zhongwei Wang [1262] The Development of Lumped Mass Dynamic Modeling Methods of Planetary Gearbox for Fault Detection and Diagnosis	M.H. Abolbashari [1071] Analytical solution of functionally graded plates with any combination of clamped and simply supported boundary conditions under transverse mechanical loading	F. Kolahan [1251] Optimizing of fair curves based on the strain energy criterion using Tabu Search algorithm
16:30 to 16:50	Manindra Kaphle [1023] Analysis of acoustic emission data for structural health monitoring applications	Ding Fei [1184] Study on bifurcation characteristics of front wheel self-excited shimmy	M.H. Abolbashari [1003] Overall Deflection Minimization of Structures Using Morphing Evolutionary Structural Optimization Method	
16:50 to			M.H. Abolbashari [1046]	



ENGINEERS
AUSTRALIA

6th Australasian Congress
on Applied Mechanics

17:10			Shape and topology optimization of mechanical components using adaptive biological growth method	
17:10	CLOSING CEREMONY			


University of Southern Queensland
Publications Research Data Collection

C1 - REFEREED JOURNAL ARTICLE

REFEREED ARTICLE IN A SCHOLARLY JOURNAL

Faculty / Department	Faculty of Engineering and Surveying / Department of Mechanical and Mechatronic Engineering
Name of Authors	Mai-Duy, Nam Tran-Cong, Thanh
No of Authors	
No of USQ Authors	
Year of Publication	2011
Journal Name	Australian Journal of Mechanical Engineering
Title of Article	A stable and accurate control-volume technique based on integrated RBF networks for fluid-flow problems
Volume and Page Nos	vol. 8 no. 2 pp. 151-158
Place of Publication	Australia
Publisher	Engineers Australia
ISSN Number	1448-4846
FOR 08 Codes	091307 Numerical Modelling and Mechanical Characterisation 010302 Numerical Solution of Differential and Integral Equations
SEO 08 Codes	970101 Expanding Knowledge in the Mathematical Sciences 970109 Expanding Knowledge in Engineering
ePrint ID	20251

Fields of Research (FOR2008) and Socio-Economic Objective (SEO2008) Details <http://www.usq.edu.au/research/anzsrc.htm>

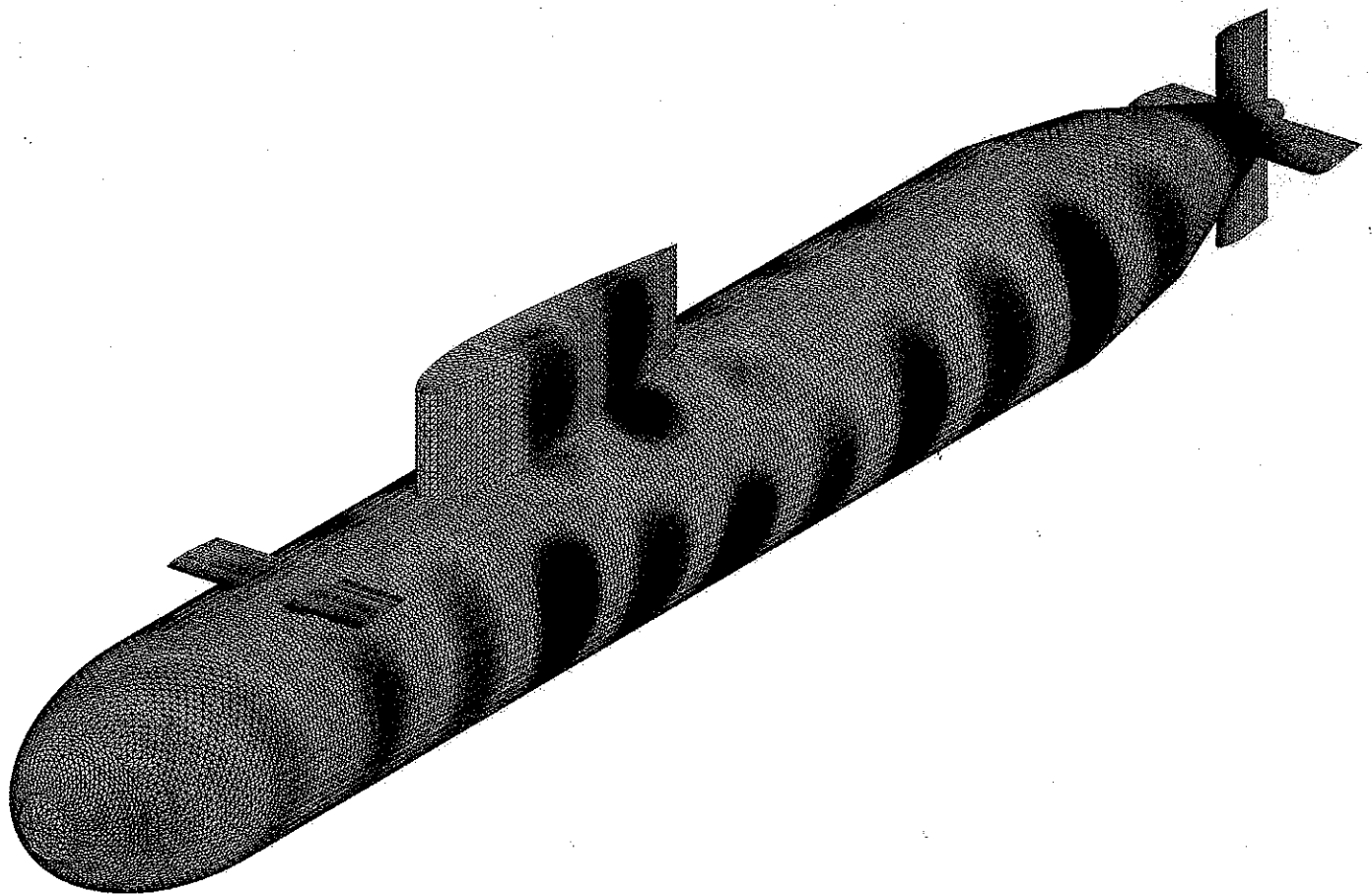
<p>Verification Checklist for Category C</p> <p>Attached is a photocopy of:</p> <p><input checked="" type="checkbox"/> Bibliographic details as specified above (journal title, ISSN, dates of copyright)</p> <p><input checked="" type="checkbox"/> Page showing journal publication details</p> <p><input checked="" type="checkbox"/> An offprint or photocopy of the full article</p> <p><input checked="" type="checkbox"/> Proof that full article was refereed (Any of the following)</p> <p> <input type="checkbox"/> ISI</p> <p> <input type="checkbox"/> Ulrich</p> <p> <input checked="" type="checkbox"/> Statement in journal</p> <p> <input type="checkbox"/> Register of refereed journal</p> <p> <input type="checkbox"/> Statement from editor</p> <p> <input type="checkbox"/> Copy of referee's assessment</p> <p><input checked="" type="checkbox"/> By-line or footnote giving recognition to USQ as staff or student when the research was done</p>	
<p>I accept responsibility and accountability for the accuracy and completeness of the information provided below:</p> <p>Author's Signature: </p> <p>Date: 29/11/2011</p>	<p>Endorsement of Faculty Administrative Representative:</p> <p>Endorsement of Faculty Academic Representative:</p>

AUSTRALIAN JOURNAL OF MECHANICAL ENGINEERING

Vol 8 No 2

Special issue on ACAM6

ISSN: 1448 - 4846 PRINT POST APPROVED PP255003/08865



ENGINEERS
AUSTRALIA

AUSTRALIAN JOURNAL OF MECHANICAL ENGINEERING

Vol 8 No 2

Special issue on ACAM6

CONTENTS

conference papers

- 79 New machine prognostics approach based on health state probability estimation
H-E Kim, AGC Tan and J Mathew
- 91 Improved gearbox simulations for diagnostic and prognostic purposes using finite element model reduction techniques
L Deshpande, N Sawalhi and RB Randall
- 103 A multi-resolution time domain technique for monitoring fatigue progression in elements subjected to random loads
M Lamb, V Rouillard and D Ainalis
- 113 Attenuation of primary resonance vibrations of a non-linear system using a non-linear vibration absorber
JC Ji and N Zhang
- 121 Application of the fast multipole boundary element method to underwater acoustic scattering
DR Wilkes and AJ Duncan
- 133 Effect of flowing medium for a simply supported pipe subjected to impulse loading
R Mohammad, A Kotousov, J Codrington and A Blazewicz
- 143 Fluid-structure interaction study of gas turbine blade vibrations
GL Forbes, ON Alshroof and RB Randall
- 151 A stable and accurate control-volume technique based on integrated radial basis function networks for fluid-flow problems
N Mai-Duy and T Tran-Cong
- 159 Material property influences on the modelling of child brain injuries
W Yan and R Fittock
- 169 Processing and properties of porous Ti-Nb-Ta-Zr alloy for biomedical applications using the powder metallurgy route
AW Nugroho, G Leadbeater and IJ Davies
- 177 Investigation of stress intensity factor for overloaded holes and cold expanded holes
RJ Callinan, R Kaye and M Heller
- 189 Simulation of impact response of multi-layered panels composed of bonded and unbonded plies
M Rahman, EV Morozov, K Shankar and M Tahtali
- 197 Scattering analysis of fundamental anti-symmetric Lamb wave at delaminations in composite laminates
CT Ng and M Veidt
- 207 Integrated health monitoring for reinforced concrete beams: An experimental study
Y Wang and H Hao



The paper this publication is printed on is certified by the Forest Stewardship Council (FSC) ©1996 FSC A.C.

The FSC promotes environmentally responsible, socially beneficial and economically viable management of the world's forests.

Printed by Ligare Pty Ltd

Published by Engineers Media for Engineers Australia.

Responsibility for the content of these papers rests upon the authors and not on Engineers Australia. Data and conclusions developed by the authors are for information only and are not intended for use without independent substantiating investigation on the part of the potential user.

All correspondence, including manuscripts and advertising enquiries, should be addressed to Engineers Media, PO Box 588, Crows Nest NSW 1585. Abstracting is permitted with due credit to the Australian Journal of Mechanical Engineering. Reprints of technical articles are available. Quantities of not less than 25 may be ordered.

INSTRUCTIONS TO AUTHORS SUBMITTING TO ENGINEERS AUSTRALIA TECHNICAL JOURNALS

Members or non-members of Engineers Australia can submit technical papers to the Engineers Australia Technical Journals. Basic requirements for manuscripts are set out below:

1. Manuscripts must be submitted electronically via the Engineers Australia Technical Journals online submission system, powered by Editorial Manager, at <http://www.editorialmanager.com/eatj>.
2. The desirable maximum length of a paper is 6000 word equivalents, with 4000-5000 words being the norm.
3. There is no template that authors must follow, with only simple formatting required:
 - Papers should be arranged in the following order: Title; Author(s) (including qualifications, professional memberships and organisation); Summary/Abstract; Keywords; Notation (if any); Introduction; Main text; Conclusions; Acknowledgements (if any); References; Appendices (if any).
 - Headings and subheadings should be numbered, eg. 1 Heading, 1.1 Subheading, 1.1.1 Sub-subheading, etc.
 - Figures (diagrams and photographs) should be numbered consecutively, eg. Figure 1: caption, Figure 2: caption, etc. Figures can be placed within the text near where they are first referred to or listed at the end of the paper.
 - Tables should be numbered consecutively in separate series, eg. Table 1: caption, Table 2: caption, etc. Tables can be placed within the text near where they are first referred to or listed at the end of the paper.
 - Appendices should be lettered, eg. Appendix A, Appendix B, etc.
 - Equations should be numbered consecutively as they appear in the text and be referred to by their number, eg. equation (1), equation (2), etc.
4. Only English (UK) spelling is acceptable.
5. Only SI units are acceptable in text, tables and figures.
6. References should be in the Harvard (author, date) format within the body of the text (eg. Smith, 2000; Smith & Jones, 2005; Smith et al, 2002) and listed by lead author alphabetical order at the end of the paper.

Each technical paper received for publication in the Engineers Australia Technical Journals is reviewed for the journal's editorial panel by at least two independent peer reviewers. The editorial panel considers the reviews and decides whether or not a paper is to be accepted, revised and resubmitted, or rejected. The names of members of the various editorial panels are listed in the journal issues. If accepted, a copy of the manuscript will be returned to the author together with appropriate comments by reviewers and editors, and instructions for the preparation of the final copy.

Authors are also invited to submit Discussions, Technical Notes, Conference Papers, Research Project Reports and Heritage Papers:

1. Discussion of a paper/technical note is open to anyone who has significant comments or questions regarding its content. Discussion papers will be accepted for a period of four months following the publication of the relevant journal issue. All discussions are to be in the third person, with the discussor being referred to as "the writer" and the author of the original paper as "the author".
2. Technical Notes provide the opportunity for the dissemination of technical ideas that are not sufficiently developed to warrant a full paper. Such notes should not exceed 1500 words with two diagrams.
3. Papers presented at a recent conference relating to the journal's subject area may be submitted for publishing consideration as a Conference Paper. The author must inform the journal office which conference the paper was presented at and whether the paper has been published in the conference proceedings. Authors who wish to have their conference paper considered for publishing as a full Technical Paper will need to significantly update and expand on the original paper.
4. Project Reports provide the author with the opportunity to inform the journal's readers about a recent project they were involved in that relates to the journal's subject area. These reports may not necessarily be peer-reviewed and can be accepted for publication at the editorial panel's discretion.
5. Heritage Papers present and discuss a project or period of significant engineering heritage value relating to the journal's subject area. These papers may not necessarily be peer-reviewed and can be accepted for publication at the editorial panel's discretion.

Unless informed by the author to the contrary, Engineers Australia will assume that a paper submitted has not been published or offered elsewhere, and is not the property of any other person or body. The author must assign the copyright of the paper to Engineers Australia prior to publication. It is the author's responsibility to obtain any necessary permission from his/her organisation, or from any other person or body, for the publication of a paper or any material in it. Such permission does not require acknowledgment in the paper.