



**Composites Australia and CRC-ACS**

**2012 Conference**

**Diversity in Composite  
Conference Proceedings**

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## Peer Reviewed Paper Listing

The following papers published in the 2012 Conference Proceedings and presented at the Composites Australia and CRCAS 2012 Composites Conference, held in Leura, NSW from Thursday, 15<sup>th</sup> March through Friday, 16<sup>th</sup> March, 2012 have been peer reviewed.

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A REVIEW OF THE MODELLING TECHNIQUES FOR MOISTURE ABSORPTION and DESORPTION PROCESSES AND EFFECTS IN FIBRE REINFORCED COMPOSITE MATERIALS, Christopher Kourloufas, Rikard Heslehurst and Eric Wilson

BOND SURFACE ANALYSIS USING FOURIER TRANSFORM INFRARED SPECTROSCOPY (FTIR) AND X-RAY PHOTOELECTRON SPECTROSCOPY (XPS), Amandeep Virk, Luigi-Jules Vandi, Marieke Meeuwissen, M. T. Heitzmann

COMBINING RECYCLED HIGH DENSITY POLYETHYLENE WITH WASTE MATERIAL FLY ASH TO MAKE A NEW ENVIRONMENTALLY FRIENDLY ENGINEERING GRADE COMPOSITE MATERIAL, Imrana Kabir, Sri Bandyopadhyay, Akhmad Zaeni, M Reddy Mada, Don Ralph

COMPRESSIVE PROPERTIES OF CHEMICALLY-TREATED HEMP FIBRE REINFORCED COMPOSITES, Mohammad Mazedul Kabir, Hao Wang, Alan Lau, Francisco Cardona, Thiru Aravinthan

DELAMINATION DETECTION IN COMPOSITE STRUCTURES USING FREQUENCY MEASUREMENTS, Z. Zhang, K. Shankar, M. Tahtali and E. V. Morozov

DESIGN OF DEEP SEA COMPOSITE RISERS UNDER COMBINED ENVIRONMENTAL LOADS, Chunguang Wang, Krishnakumar Shankar, Evgeny V. Morozov

EXPERIMENTAL INVESTIGATION ON THE INTERFACIAL ADHESION OF DATE PALM FIBRES WITH EPOXY MATRIX, T. Alsaeed, A. Alajmi, B.F. Yousif, H. Ku, and Alan Kin-tak Lau *here*

NON-DESTRUCTIVE TESTING OF MOISTURE INGRESSION IN COMPOSITE HONEYCOMB SANDWICH STRUCTURES USING THE THICKNESS-RESONANCE TECHNIQUE, Jendi Kepple and Martin Veidt

RESIN BLEED SCHEDULE IMPACT ON COMPOSITE SPECIFIC PROPERTIES, Rikard B. Heslehurst and Anne-Marie Lane

SHEAR CONNECTORS FOR HYBRID JOINTS OF METAL AND FRP, T. Quadflieg, J. Schoene, M. Schleser, S. Jockenhövel, U. Reisgen, T. Gries

STRENGTHENING OF CORRODED STEEL ANGLES USING CFRP, Qaidar H. Tawfik, Warna (Karu) Karunasena and Francisco Cardona ✓

STRUCTURAL INTEGRITY REGULATION AND MODELS, Aaron Warren, Rikard Heslehurst and Eric Wilson

THE EFFECT OF INTERLAYER ON THE STRUCTURAL BEHAVIOUR OF TIMBER CONCRETE COMPOSITE JOINTS USING LIGHT-WEIGHT AND CONVENTIONAL CONCRETE, Farzad Moshiri, Chris Garven, Keith Crews, Christophe Gerber, Hamid R. Valipour, Rijun Shrestha

THERMAL PROPERTIES AND STRUCTURE CONFORMATION ON SILKWORM SILK FIBRE, Mei-po Ho, Hao Wang and Kin-tak Lau ✓

USE OF FRP COMPOSITES IN CIVIL STRUCTURE CONSTRUCTION: CHALLENGES AND RECENT DEVELOPMENTS, Yu Bai\*, Tien-Cuong Nguyen and Sindu Satasivam

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# Conference Program

Wednesday 14 March 2012									
7.00 pm	Welcome Drinks function								
DAY ONE: Thursday 15 March 2012									
7.30 am	Registration								
8.30 am	<b>Plenary Session</b> Introduction – opening of conference Welcome by President of Composites Australia, Ms Genelle Coghlan, and by CEO of the CRC-ACS, Professor Murray L. Scott								
9.00 am	Keynote Address: Composites for Exploration – Dr James Kilbane Sutter, NASA Glenn Research Center (US), Restricted paper (not in the proceedings)								
9.45 am	Keynote Address: <b>Composite Repairs for Steel Tubing</b> – Prof Geoff Gibson, Centre for Composite Materials Engineering, Newcastle University (UK)								
10.30 am	<b>MORNING TEA PRACTICAL DEMONSTRATION – Vacuum Infusion under a Sprayomer Reusable Bag System, Lachlan Welch, Nuplex Composites</b>								
	<table border="1"> <thead> <tr> <th>Session A – Materials 1</th> <th>Session B – Infrastructure 1</th> </tr> </thead> <tbody> <tr> <td>           11.00 am Keynote Address: <b>Convergence of Areas for Translational Research and Innovation Ecosystem in Bio to Composite Materials</b> - Prof Jag Sankar, NC A&amp;T State University (NCAT), Restricted paper (not in the proceedings)         </td> <td>           RP-5 Dr Barry Yu Bai, Monash University  <b>Use of Fiber Reinforced Polymer Composites in Civil Structure Construction</b> </td> </tr> <tr> <td>           11.30 am            11.45am RP-23 Prof Sri Bandyopadhyay, University of New South Wales  <b>New HDPE Composite Material</b> </td> <td>           RP-17 Mr Chunguang (Allen) Wang, UNSW@ADFA  <b>Design of Deep Sea Composite Risers under Combined Environmental Loads</b> </td> </tr> <tr> <td>           12.00 pm         </td> <td>           Dr Floreana Coman, Engineered Materials Australia  <b>Innovation in Composites for Building and Construction</b> </td> </tr> </tbody> </table>	Session A – Materials 1	Session B – Infrastructure 1	11.00 am Keynote Address: <b>Convergence of Areas for Translational Research and Innovation Ecosystem in Bio to Composite Materials</b> - Prof Jag Sankar, NC A&T State University (NCAT), Restricted paper (not in the proceedings)	RP-5 Dr Barry Yu Bai, Monash University <b>Use of Fiber Reinforced Polymer Composites in Civil Structure Construction</b>	11.30 am 11.45am RP-23 Prof Sri Bandyopadhyay, University of New South Wales <b>New HDPE Composite Material</b>	RP-17 Mr Chunguang (Allen) Wang, UNSW@ADFA <b>Design of Deep Sea Composite Risers under Combined Environmental Loads</b>	12.00 pm	Dr Floreana Coman, Engineered Materials Australia <b>Innovation in Composites for Building and Construction</b>
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12.00 pm	Dr Floreana Coman, Engineered Materials Australia <b>Innovation in Composites for Building and Construction</b>								

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<b>DAY ONE: Thursday 15 March 2012 continued</b>		
12.30 pm	<b>LUNCH</b>	
	<b>Session A- Materials 2</b>	<b>Session B-2 Design/Analysis</b>
1.30 pm	RP-2 Dr Belal Yousif, USQ CEEFC <b>Experimental Investigation on the Interfacial Adhesion of Date Palm Fibres with Polyester Composites</b>	Mr. Charles Tur, Magnum Venus Plastech (USA) <b>The "Evolution" of Closed Mould Technology over the Last Decade</b>
2.00 pm	RP-15 Mabel Mei-Po Ho, CEEFC-USQ Strengthening Mechanism and Bio-Degradability of a Silk-Based Polymer Composite	Dr Rik Heslehurst - <b>TUTORIAL The Ten Steps of Designing Composite Components</b>
2.30 pm	Dr Menghe (Malcolm) Miao, CSIRO <b>Materials Science and Engineering</b> <b>Natural Fibre Reinforcements for Structured Thermoplastic Composites</b>	
3.00 pm	<b>AFTERNOON TEA - PRACTICAL DEMONSTRATION: Flex Molding, Charles Tur, Magnum Venus Plastech</b>	
	<b>Session A - Materials 3</b>	<b>Session B - Infrastructure 2</b>
3.30 pm	Mr Geoff Germon, Talon Technology <b>Collecting Force and Location Data in Carbon Components - The Merlin Data Acquisition Paddle</b>	RP-8 Mr Qaidar H. Tawfik, USQ CEEFC <b>Strengthening of Corroded Steel Angles Using CFRP</b>
4.00 pm	RP-20 Mr Mazedul Kabir, CEEFC-USQ <b>Compressive Properties of Chemically-Treated Hemp Fibre Reinforced Composites</b>	RP-22 Mr Michael Heitzman, ACS-A <b>Bond Surface Analysis Using Fourier Transform Infrared Spectroscopy (FTIR) and X-Ray Photoelectron Spectroscopy (XPS)</b>
4.30 pm	Mr Rob Woudman, Teijin Aramid BV <b>Teijin Aramid: Twaron Fiber in Composites &amp; the new Aramid... Twaron® Black</b>	
6.00 pm	Pre-Dinner Drinks	
7.00 pm	<b>Conference Dinner</b> - buffet conference dinner (and Presentation of CA Industry Award)	

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<b>DAY TWO: Friday 16 March</b>		
8.30 am	Registration	
	<b>Session C Fabricators Friday 1</b>	<b>Session E Infrastructure 3</b>
9.00 am	Mr Patrice Sinthon, JEC Composites <b>Composites &amp; Automotive Trends for the Future</b> Presented by Michael Leggett, VP Composites Australia	RP-6 Mr Till Quadflieg, Aachen University (Germany) New Shear Connectors for Hybrid Joints of Metal And FRP
9.30 am	Mr Philippe Odouard, Quickstep Holdings <b>Quickstep's Technology to Deliver Carbon Cars</b>	
10.00 am	Mr Phil Maxwell, Composite Materials Engineering (CME) Composites Replacing Steel in Automotive Parts	RP-24 Mr Farzad Moshiri, University of Technology, Sydney <b>Investigation on Timber Concrete Composite Systems Using Light Weight Concrete</b>
10.30 am	<b>MORNING TEA - PRACTICAL DEMONSTRATION: Flex Molding, Charles Tur, Magnum Venus Plastech</b>	
	<b>Session C - Fabricators Friday 2</b>	<b>Session D – Materials 5</b>
11.00 am	Don Elliott <b>Training Composites – Project Driven Learning</b>	RP-9 Dr Rikard Heslehurst, UNSW@ADFA <b>Resin Bleed Schedule Impact on Composite Specific Properties</b>
11.30 am	Composites Qualifications & Training Forum: <b>Presentation &amp; discussion:</b> <b>“A Trade for the Composites Industry”</b> Mr Bob Paton, Manufacturing Skills Australia; Mr Kevin Hummel, TTAPS; MC: Mr Phill Bovis, Kangan Batman TAFE	RP-21 Mr Christopher Kourloufas, UNSW@ADFA <b>A Review of the Modelling Techniques for Moisture Absorption/Desorption Processes in Carbon Fibre Reinforced Composite Materials</b>
12.00 pm		RP-1 Mr Aaron Warren, UNSW@ADFA <b>Structural Integrity Models</b>

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<b>DAY TWO: Friday 16 March, continued</b>		
12.30 pm	<b>LUNCH</b>	
	<b>Session C - Fabricators Friday 3</b>	<b>Session D – Damage 1</b>
1.30 pm	SUPPLIER SESSION: (20 min each) Mr Harry ter Beek, Akzo Nobel <b>Cobalt Accelerator Replacement in the Unsaturated Polyester Industry</b>	RP-7 Miss Jendi Kepple, The University of Queensland <b>Non-Destructive Testing of Moisture Ingression in Composite Honeycomb Sandwich Structures using Thickness-Resonance Technique</b>
2.00 pm	Mr Geoff Germon, Talon Technology <b>The State of Australian Manufacturing: What It Means for the Australian Composites Industry</b>	RP-13 Ms Zhifang Zhang, UNSW@ADFA <b>Delamination Detection in Composite Structures Using Frequency Measurements</b>
2.30 pm	Mr David McAllister, Verisure Insurance Brokers <b>Managing Risk</b>	
3.00 pm	<b>AFTERNOON TEA-PRACTICAL DEMONSTRATION – Vacuum Infusion under a Sprayomer Reusable Bag System, Lachlan Welch, Nuplex Composites</b> <b>PRIZE DRAW:</b> Fabricators Friday Prize Draw – sponsored by Glas-Craft Australia	
	<b>Session C - Fabricators Friday 4</b>	<b>Session D – Damage 2</b>
3.30 pm	Mr Alex Kryger, Aptec Composites <b>CAD CAM Processes for the Composite Industry - How to Choose What to Use</b>	Dr Mike Shenouda, Worksafe Medics <b>Composites and Aging Healthy</b>
4.00 pm	Prof Geoff Gibson, Centre for Composite Materials Engineering, Newcastle Univ. <b>Fire Response of Aerospace Composites Under Load</b>	
5.00 pm	<b>Wrap-Up &amp; Refreshments</b>	

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