



ADDITIVE MANUFACTURING IN INDUSTRY

Conference 2012



Rapid Product Development
Association of South Africa

31 October to 2 November 2012
Kwa Maritane
Pilanesberg National Park

PROGRAMME

WEDNESDAY 31 October

TIME	Tau/Nare	
	Session Chair: Willie du Preez	
12:00	Opening Remarks: Willie du Preez, Conference Chair	
12:10	Welcome: Dr. Liesbeth Botha, Executive Director, Materials Science and Manufacturing, CSIR	
12:25	Opening Address: Dept of Science and Technology, South Africa	
13:00	LUNCH	
	Session Chair: Hardus Greyling	
14:00	Key Note Address: Dr Paul Potgieter: <i>The Role of Technology and Innovation in Securing a Sustainable Future for the SA Aerospace Industry</i>	
14:45	Prof Deon de Beer AM in industry - announcement of a new SA AM initiative to support innovation in a very traditional industry cluster	
TIME	Tau	Rhino
	Session Chair: Terry Wohlers	Session Chair: Ian Gibson
15:10	<i>Additive Manufacturing as an Enabler for Enhanced Consumer Involvement:</i> Ian Campbell	<i>Recent Progress in Additive Manufacturing and Repair using the LENS Laser Deposition Process:</i> Richard Grylls
15:35	<i>Industrial 3D-Printing - size and speed matters:</i> Tobias King	<i>Establishing optimal laser power and scanning speed to fully laser sinter Ti-6Al-4V:</i> Johan Els
16:00	Coffee Break	
16:20	<i>The commercial state of the art in precious metal sintering:</i> Frank Cooper	<i>Phase evolution in Ti6Al4V alloy during thermal and thermo-mechanical treatment:</i> Kalenda Mutombo
16:45	<i>The use of laser sintering and fused deposition modelling to support direct manufacturing for proof of concept research:</i> Jan Jooste	<i>Effect of laser power and scanning speed on the macrostructure and porosity of the laser deposited Ti6Al4V/TiB2 matrix composites:</i> Nomsa Mokgalaka
17:10	SAMI-LAM Laser Additive Manufacturing for the South African Manufacturing Industry. To establish a network for Additive Manufacturing, and to identify common research themes and programmes that can be addressed nationally. Facilitated by Prof Federico Sciammarella.	
19:00	Drumming in front of the Swimming pool	
19:30	Welcome Dinner: The Kwa Lefakeng Restaurant. Dress: Casual. Cash bar available.	

THURSDAY 1 November

TIME	Tau/Nare		
	Session Chair: Deon de Beer		
08:10	Key Note Address: Dr Terry Wohlers: <i>Recent Trends in Additive Manufacturing</i>		
08:55	Key Note Address: Prof Jim Sears: <i>Laser Additive Manufacturing for Wear Resistant Applications</i>		
09:40	Key Note Address: Dr Andres Gasser: <i>New Developments in Selective Laser Melting (SLM) and Laser Metal Deposition (LMD) for Rapid Manufacturing</i>		
10:25	Tea Break		
TIME	Tau	Nare	Rhino
	Session Chair: Marius Vermeulen	Session Chair: Ian Campbell	Session Chair: Martin Dahmen
10:55	<i>Additive Manufacturing in South Africa - 2012 update:</i> Deon de Beer	<i>The effect of heat treatment on the residual stress levels in Selective Laser Melted Ti-6Al-4V:</i> Thorsten Becker	<i>Hybrid manufacturing of FLM parts:</i> Uwe Berger
11:20	<i>On the Product Life Cycle Stage of Additive Manufacturing Processes in the South African Metal Casting Industry:</i> Didier Nyembwe	<i>Microfocus X-ray Computed Tomography (CT) analysis of laser sintered parts:</i> Anton du Plessis	<i>Timeline: Unconventional:</i> Bob Bond
11:45	<i>Industrial Mobile Solution for Refurbishment of High Value Components:</i> Herman Rossouw	<i>Strategy for the manufacturing of perfused parts using Laser Beam Melting:</i> Jan Sehr	<i>Idea 2 Product Lab™ – A key factor to grow Regional Innovation in Southern Gauteng:</i> Deon de Beer
12:10	<i>Application driven process chain for the manufacturing of fuel cell components consisting of Multi-jet modeling (MJM), electroforming and machining:</i> Oliver Baier	<i>Investigations on the degradation behavior of PA12-plastic powders – Influence of high Temperatures on the molecular weight:</i> Florian Kühnlein	<i>Collaborative Research in Materials and Biomedical applications of Rapid Prototyping with Non-Ferrous Materials Technology Development Centre, Hyderabad, India:</i> Subha Kumpaty



PROGRAMME

12:35	<i>Development of a refurbishment process for steam turbine blades via Laser metal deposition:</i> Charl Smal	<i>Improvements in Capability Profile of 3D Printing – an Update:</i> Dimitri Dimitriov	<i>Evaluation of CAD user experience and learning progress in the Idea 2 Product Lab:</i> Martin Lotz
LUNCH			
Session Chair: Marius Vermeulen			
14:00	Key Note Address: Dr David Dietrich: <i>Additive Manufacturing in Aerospace</i> (Tau)		
TIME	Tau	Nare	Rhino
	Session Chair: Gerrie Booysen	Session Chair: Eugene Erfort	Session Chair: Dimitri Dimitrov
14:45	<i>Application of Cu Additive Manufacturing with LENS:</i> Federico Sciammarella	<i>Mould Pre-Heating Temperature Effect on Investment Cast Ti-6Al-4V alloy Microstructure:</i> Kalenda Mutombo	<i>Development of a stereolithography input and g-code output algorithm for an entry level 3D printer:</i> Andrew Brown.
15:10	<i>Evolving Properties of Laser Metal Deposited Ti6Al4V:</i> Rasheedat Mahamood	<i>The Role of 3D Printing in Designing a Vascular Graft Bioreactor:</i> David Prawel	<i>Design for Additive Manufacturing – Plugging in the Numbers:</i> Ian Gibson
15:35	<i>Additive Manufacturing of Bespoke Jewellery Series:</i> Lionel Dean	<i>Effect of Laser Power on the Deposition Mechanism and Microstructure of Laser Assisted Cold Sprayed (LACS) Al-12wt%Si Coatings:</i> Eytayo Olakanmi	Design Workshop
Coffee Break			
16:20		<i>Build Orientation Optimisation for Implant Making by SLS process:</i> Sarang Pande	Design Workshop
16:45	RAPDASA Annual General Meeting (Tau)		
18:30	Transfer to the Boma from Reception Conference dinner - Kwa Potokwe Boma Dress: Casual with warm jacket Wine, beer and soft drinks and cash bar 22:00 Return to Hotel		

FRIDAY 2 November

TIME	Tau/Nare		
	Session Chair: Federico Sciammarella		
08:10	Key Note Address: Prof Stewart Williams: <i>Recent developments in wire + arc additive manufacture for aerospace large scale applications</i>		
08:55	Key Note Address: Rob Truysen: <i>The Evolution of the Additive Manufacturing Market</i>		
09:40	Key Note Address: Mr Jon Meyer: <i>Industrialisation of Additive Manufacturing for Aerospace</i>		
10:25	Tea Break		
TIME	Tau	Nare	Rhino
	Session Chair: Michele Truscott	Session Chair: Uwe Berger	
10:55	<i>Applications of Additive Manufacturing in Musical Instruments:</i> Olaf Diegel	<i>Laser coating of zirconium + ZrO₂ composites on Ti6Al4V for biomedical applications:</i> Nkele Baloyi	ASTM Workshop
11:20	<i>Mechanical properties of Aluminium alloys produced in Ink-Jet print moulds:</i> Anica Dipale	<i>Micro-patterned nanowire surfaces produced by semi-rapid prototyping technique encourages directional neuronal cell growth:</i> Ketul C. Popat	ASTM Workshop
11:45	<i>Ultra-High Precision Diamond Turning of Convex Optical Lens made from Silicon:</i> Khaled Abou el-Hosseini	<i>Faraday Effects in Spray-Coating Electron Beam Melted Titanium Parts:</i> David Prawel	ASTM Workshop
12:10	<i>On the Validity of Selective Laser Melting for Ultra High Carbon Steel:</i> Khalid Abd-Elghany	<i>Selective laser melting of Ti6Al4V alloy: temperature monitoring and microstructural evolution:</i> Igor Yadroitsev	Design Workshop
	Session Chair: Hardus Greyling		
12:35	NAMII: Terry Wohlers National Additive Manufacturing Innovation Institute in the U.S. (Tau)		Design Workshop
LUNCH			
	Session Chair: Peter Mendonides	Session Chair: Willie du Preez	
14:00	<i>The EOS e-Manufacturing Vision: On the road to becoming the leading supplier of e-Manufacturing solutions:</i> Peter Rosker	Presentation by TIA: Moses Mogotlane	Design Workshop
14:45	Conference Closure		