

Programme 2026 RAPDASA-AMI Conference

Tuesday 27 October 2026

08:30 Pre-conference seminar on Design and Additive Manufacturing of Sailplane and Jewellery Parts – Dr Francis Monaheng: **DAY LILY**

08:30 Pre-conference seminar on Computational and Data-driven Modelling – Prof Ramogohlo Diale-Boshielo: **ROSEWOOD**

09:00 Industry Day – Mr Heinrich van der Merwe: **MAKHULU**

17:00 Welcoming Cocktail & Registration

Wednesday 28 October 2026

07:30	REGISTRATION					
08:00	PLENARY SESSIONS IN AUDITORIUM: CHAIR: Dr Marandela Mulaudzi					
08:10	WELCOMING: Chairperson of RAPDASA – Dr Washington Makoana					
08:30	Opening address: Dr Jones Papo					
09:00	PLENARY SESSION IN AUDITORIUM: CHAIR: Dr Marandela Mulaudzi					
09:00	Keynote address K1: Mr Vince Zhao, Farsoon Technologies, China: Innovation in Industrial Additive Manufacturing: From Research to Serial Production					
09:30	Keynote Address K2 (online): Dr Terry Wohlers, Distinguish Fellow of Advanced Manufacturing at Wohlers Associates, powered by ASTM International, USA: Evolution of AM and Trends Shaping its Future					
10:00	Keynote Address K3: Dr Ndanduleni Lethole, Sefako Makgatho Health Sciences University, South Africa: From Binary to Ternary Pt-Based Magnetic Alloys: First-Principles Insights into Structure, Magnetism and Materials Design					
10:30	TEA/COFFEE BREAK					
11:00	BREAKAWAY SESSIONS					
	SAFARI		DAY LILY		ROSEWOOD	
	Session Chair: Dr Maje Phasha Prof Thywill Dzogbewu		Session Chair: Dr Hertzog Bissett		Session Chair: Prof Hasani Chauke	
	Theme: Materials Engineering		Theme: AM Material and Part Characterisation		Theme: Computational & Data-driven Modelling	
	Title	Presenter	Title	Presenter	Title	Presenter
11:00	Modelling disordered alloys: density functional theory and machine learning	Invited speaker: Dr Ricardo Grau-Crespo (Online)	To be confirmed	Invited speaker: Mr Mangalani Miyambo	To be confirmed	Invited speaker:
11:30	First principles study of the structural, magnetic and electronic properties of Fe ₅₀ Pt ₅₀ -xCu _x alloys	Mashilo Matlala	Evaluation of titanium metal powders produced from scrap parts	Kiyaasha Dyal Ukabhai	Prediction of stable structures in Ti-V-Mn AB ₂ -type alloys using a cluster expansion approach	Vukosi Chauke
11:50	Influence of heat treatment procedure on the B2→B19' crystallographic distortion in TiNi alloy: a comparison of experimental and DFT results	Bongani Ngobe	Microstructural and mechanical characterization of AlTiCrFeCoNi high Entropy alloy fabricated via laser metal deposition	Anesu Prime Dhlwayo	Comparative performance analysis of OpenCV, and array fire for computer vision systems	Patrick Malatjie
12:10	The structural, magnetic, and elastic properties of the Mn ₅₀ Al ₅₀ -xMg _x alloys: a DFT study	Thabang Mokwena	Comparison of additively manufactured lattice structure types for sustainable basalt fibre reinforced sandwich panel composites	James Dicks	Predictive multiphysics modeling of titanium nanoparticle synthesis: bridging vapor condensation and industrial powder technology	Alex Seya
12:30	Correlation between microstructure and mechanical properties in A356 aluminum alloy	Philisile Sekgata	Simulation framework and thermal descriptor extraction for direct energy deposition of Ti-Nb-Zr alloys	Tinashe Matyatya	Unsupervised learning for biomedical data classification	Kelvin Mpofu
13:00	LUNCH BREAK					
14:00 – 14:30	POSTER PRESENTATIONS IN MAKHULU: Dr Bathusile Masina					
	BREAKAWAY SESSIONS					
	SAFARI		DAY LILY		ROSEWOOD	
14:30	Session Chair: Dr Maria Mathabathe		Session Chair: Prof Claudia Polese		Session Chair: Dr Ramogohlo Diale-Boshielo	
	Theme: Materials Engineering		Theme: AM Material and Part Characterisation		Theme: Computational & Data-driven Modelling	
	Title	Presenter	Title	Presenter	Title	Presenter

14:30	Evaluation of thermal stability and phase transformation in β -type Ti-10Nb-1Ru alloy	Duduzile Nkomo	Effect of laser power on the microstructure and mechanical performance of CpTi/TiC composites deposited on Ti6Al4V by laser metal deposition	Xolile Michael Mdlalo	Germanium doping as a strategy to enhance silicon anode performance for advanced battery applications	Samson Singo
14:50	Corrosion resistance performance of commercial Ni-Cr based alloys: A review	Veronica Morudu	Effect of surface preparation techniques on hybrid investment cast-additive manufactured Ti-6Al-4V components	Kim Beyl	Zn adsorption and charge-transfer mechanisms on MO_2 (110)	Percy Ngobeni
15:10	Effect of alloying on microstructure and mechanical properties of high chromium white cast iron (HCWCI) for mill liner application	Joseph Moema	Mechanical and corrosion behaviours of titanium carbide thin film sputtered on metallic substrate using RF magnetron sputtering	Musibau Ogunlana	First-principles study of Ni and Pt addition on inducing ductility in brittle iridium: structural, mechanical, and electronic properties	Thabo Nhlenyama
15:30	TEA/COFFEE BREAK					
	BREAKAWAY SESSIONS					
	SAFARI		DAY LILY		ROSEWOOD	
16:00	Session Chair: Dr Washington Makoana		Session Chair: Mr James Dicks		Session Chair: Dr Kemeridge Malatji	
	Theme: Materials Engineering		Theme: AM Post Processing and Qualification		Theme: Computational & Data-driven Modelling	
	Title	Presenter	Title	Presenter	Title	Presenter
16:00	The effect of heat treatment on microstructure and hardness of 9% Ni and 25% Mn cast steels	Sibongile Mamonyane	Microstructure-hardness linkage in localized laser tempering of LMD 17-4 PH: Cu-rich precipitation and Nb-rich segregation driving HAZ hardness recovery	Michael Femi Olabisi	Atomistic simulation synthesis of Li_xTiO_2 nanoporous as anode electrode materials for energy storage in lithium-ion batteries	Blessing Rikhotso
16:20	The effect of Nb and V on the metallurgical properties of FeCo alloy	Ramogohlo Diale-Boshielo	Digital twin-based monitoring and data management in the LPBF process chain using a learning integrated manufacturing system	Kekeletso Thejane	Effect of temperature on the predicted $\text{Fe}_{1-x}\text{Ag}_x\text{Al}$ stable phases for component coating	Christine Mkhonto
16:40	Tribological properties of spark plasma sintered Ni-Al based high entropy alloys	Gadifele Nicolene Mekgwe	Enhancement of mechanical properties of WAAM 316LSi stainless steel through post-solution annealing	Taiwo Ebenezer Abioye	Benchmarking artificial neural networks against traditional regression models for the scalable prediction of Ti-6Al-4V powder spheroidization	Justin Mbwebwe
17:00	RAPDASA Annual General Meeting					

Thursday 29 October 2026

08:00	WELCOMING: Dr Marandela Mulaudzi					
08:05	PLENARY SESSIONS IN AUDITORIUM: CHAIR: Dr Washington Makoana					
08:05	Keynote Address K4 (online): Prof Diego Correa, Department of Physics and Meteorology, Faculty of Sciences of UNESP, Brazil: Innovative design of biomedical high entropy alloys					
08:35	Keynote Address K5 (online): Prof Ulrich E. Klotz, Munich University of Applied Sciences, Germany: To be confirmed					
09:05	Keynote Address K6: Prof Peace Mkhonto, Materials Modelling Centre, University of Limpopo, South Africa: Application of Computational Modelling in Reagents Design for Separation of Minerals and Adaptation of Machine Learning Approach					
09:35	Move to breakaway sessions					
09:40	BREAKAWAY SESSIONS					
09:40	SAFARI		DAY LILY		ROSEWOOD	
	Session Chair: Prof Thywill Dzogbewu		Session Chair: Prof Deon de Beer		Session Chair: Dr Jaco van der Walt	
	Theme: Materials Engineering		Theme: Product Design and Development		Theme: Process Development	
	Title	Presenter	Title	Presenter	Title	Presenter
09:40	Microstructure and phase analysis of Cu-modified Hercules™ stainless steel	Melanie Smit	A pseudo-1D thermo-hydraulic design methodology for additively manufactured Archimedean spiral coil condensers	Nicolaas Steenekamp	A spatially controlled localised surface heat treatment process for hardenable steels	Maxwell Vos
10:00	A review on additive manufacturing of metal carbides	Tumelo Moloi	Rapid prototyping of a UAV propulsion thrust and torque measurement rig: design, implementation, and characterisation	Michael Thomson	Investigation of the mechanical properties of rotary friction welded stainless steel rods	Xitsundzuxo Humphrey
10:20	Materials strength of spheroidal graphite iron plates welds in as-cast and heat-treated conditions	Mokgohloa Caroline Mphela	The potential for additively manufactured triply periodic minimal surface components to improve the efficiency of reciprocating compressors	Annalene Olwagan	System dynamics-based modeling for remaining useful life prediction of bearings in rotating machinery	Themba Mashiyane
10:40	Studying properties of liquid hydrogen storage and distribution novel material developed from nickel-based alloy	Mbavhalelo Maumela	Investigating a lattice structure for a 316L stainless steel injection mould cavity	Andile Ndlovu	Evaluation of HDD62G medical-grade high-density polyethylene before use in material extrusion additive manufacturing for fabrication of craniomaxillofacial augmentation implants	Rebakakgosi Mohutsiwa
11:00	TEA/COFFEE BREAK					
11:30	BREAKAWAY SESSIONS					
11:30	SAFARI		DAY LILY		ROSEWOOD	
	Session Chair: Dr Ntombi Mathe-Maleboho		Session Chair: Mrs Londiwe Motibane		Session Chair: Dr Gys Jacobs	
	Theme: Materials Engineering		Theme: AM Material and Part Characterisation		Theme: Process Development	
	Title	Presenter	Title	Presenter	Title	Presenter
11:30	Analysis of high Mo content and its effect on compression strength of binary β -Ti-Mo alloys for vascular stent applications	Nthabiseng Abigail Moshokoa	Effect of Nb and Fe as β -stabilisers on the phase evolution and microstructure of directed energy deposition additively manufactured titanium alloys	Mavis Khathutshelo Nemavhola	Evaluating the practical implementation of multivariate polynomial regression model based NUC for variable integration time	Mathews Chirindo
11:50	Metallurgical analysis of Ti-42 %Nb biomedical alloy subjected to different cooling conditions	Linah Twala	Characterization of hardness gradients and galvanic coupling in hybrid additively manufactured AISi10Mg/6061 systems	Ngeleshi Michel Kibambe	DevOps for AI-driven autonomous sorting system	Teboho Sekopa
12:10	Tissue integration of direct metal laser sintered Ti64-xCu alloy implants	Nthabiseng Nhlapo	Process-defect relationship in laser metal-deposited AlTiCrFeCoNi high-entropy alloys	Tshepiso Modikwane	An initial dynamic time-driven activity-based costing approach for identification of cost drivers within the laser powder bed fusion process chain	Tadiwanashe Zinzombe
12:30	Flexural behaviour of natural and hybrid fibre-reinforced bio-polymer composites	Mpho Ntloane	The effect of ruthenium precursor chemistry on the	Nomalungelo Maphanga	Experimental investigation of process characteristics in a 5-axis composite additive manufacturing system	Daniel Kirkman

	for sustainable high-performance applications		morphology of electrodeposited coatings on 304L stainless steel			
13:00	LUNCH BREAK					
14:00 – 14:30	POSTER PRESENTATIONS IN MAKHULU: Dr Bathusile Masina					
	BREAKAWAY SESSIONS					
14:30	SAFARI		DAY LILY		ROSEWOOD	
14:30	Session Chair: Dr Francis Monaheng		Session Chair: Dr Joseph Moema		Session Chair: Prof Kobus van der Walt	
	Theme: Materials Engineering		Theme: Rapid Casting		Theme: Industry presentations	
	Title	Presenter	Title	Presenter	Title	Presenter
14:30	Effect of post-weld heat treatment on microstructure and mechanical properties of TIG-welded LPBF AISi10Mg alloy	Mosima Maja	Influence of sand grain fineness and print resolution (DX) on the mechanical properties of additive binder jetting manufactured sand moulds	Jonathan Kabasele	Additive Manufacturing: From Material Characterization to Quality Performance	Zwelihle Ndlovu & Bomkazi Sobuwa (Anton Paar)
14:50	The effect of heat-treatment on 28% Mn and 9% Ni austenitic steels for use in cryogenic LNG applications	Tokelo Taba	Integrating the SDGs into South Africa's 3D sand printing industry	Neo Tshabalala	CTI: a computational tool for industrial investment readiness in Africa	Vince Mbanze (Nexusnode)
15:10	Effect of microstructure on corrosion behaviour of Ti-15Cu alloy subjected to different heat treatment cycles	Zanele Phasha	Smart supplier selection in metal casting processes: Integrating MCDM and Industry 4.0 – a review	Samson Dare Oguntuyi	From Print to Performance: Unlocking Additive Manufacturing Potential Through Heat Treatment and Smart Hardness Verification	Wise Mukhola (Verder Scientific)
15:30	Mechanical and microstructural property evaluation of chromium alloyed 22wt% Mn alloy compared to commercial 9wt% Nickel alloy in as-cast and solution-treated conditions	Lebedike Mampuru	Effect of FeSi-based inoculants on microstructure, indentation size effect and strain gradient plasticity in grey cast iron	Pertunia Seema		
15:50	TEA/COFFEE BREAK					
16:20	BREAKAWAY SESSIONS					
16:20	SAFARI		DAY LILY		ROSEWOOD	
16:20	Session Chair: Dr Washington Makoana		Session Chair: Prof Didier Nyembwe		Session Chair: Dr Donald Mkhonto	
	Theme: Technology Innovation Agency support		Theme: Rapid Casting		Theme: Computational & Data-driven Modelling	
	Title	Presenter	Title	Presenter	Title	Presenter
16:20	The technology commercialization journey	Dembe Nenzhelele	Layer-wise mechanical performance of binder-jet printed sand components	Samson Dare Oguntuyi	Effect of Ta on the magnetic and mechanical properties of Fe50Co43.75Ni6.25 alloy	Dineo Maepa
16:40	Technology development funding	Iodien Rensburg	Casting and characterisation of Ni-based filler materials used for welding of spheroidal graphite cast iron (SG42)	Dieketseng Maya	First principles study of electrical and thermoelectric properties of tungsten disulphide (WS2)	Moshibudi Ramoshaba
17:00	Closure					
18:30 for 19:00	GALA DINNER – Invited Speaker: Dr Jeffrey Mabelebele, Vice-Chancellor of University of Limpopo					

Friday 30 October 2026

08:00	WELCOMING: Dr Marandela Mulaudzi		
08:05	PLENARY SESSIONS IN AUDITORIUM: CHAIR: Prof André van der Merwe		
08:05	Keynote Address K7: Prof Conrado Afonso, Federal University of São Carlos (UFSCar), Brazil: 3D Printing by LPBF of Multiprincipal Equimass β Ti-Nb-Zr(-Ta) alloys from Ultrasonic Atomized powder for Implant Applications		
08:35	Keynote Address K8: Prof Mohamed Abdel-Hady Gepreel, Egypt-Japan University of Science and Technology: Modeling the high temperature deformation of a novel Ti-Nb-Ta-Mo alloy for biomedical applications		
09:05	Keynote Address K9: Prof Alain Bernard, Laboratory of Digital Sciences of Nantes (LS2N), France: To be confirmed		
09:35	Move to breakaway sessions		
09:40	BREAKAWAY SESSIONS		
09:40	SAFARI		
	Session Chair: Mr Heinrich van der Merwe		
	Theme: Product Design and Development		
	Title	Presenter	
09:40	Material selection and traditional reconstruction techniques for cranial plate implants: a review	Onesimo Mjiba	
10:00	Review of window of mounting methods and bracket design for mirror steered optical system's cylindrical window	Andrew Baloyi	
10:20	Optimum processing of CPTi using laser powder bed fusion	Nthabiseng Nhlapo	
10:40	Recycled stainless steel scrap and powder from ultrasonic atomisation techniques	Donald Mkhonto	
11:00	TEA/COFFEE BREAK		
11:30	BREAKAWAY SESSIONS		
11:30	SAFARI		
	Session Chair: Dr Daniel Kirkman		
	Theme: AM Post Processing and Qualification / Robotics		
	Title	Presenter	
11:30	Effect of heat treatment on the microstructure and hardness of laser powder bed fusion manufactured Inconel 718	Elelwani Tshisimba	
11:50	Effect of heat treatment on microstructure and hardness of DED fabricated Ti-11Nb-9Fe alloy	Dimakatso Moyan	
12:10	Scanning strategy on the mechanical properties of heat treated additively manufactured 1.2709 tool steel	Lerato Tshabalala	
12:30	Design and development of an integrated telemetry system for racing vehicle monitoring and data analysis	Emma Leigh Lucas	
12:50	CLOSURE		
13:00	FINAL LUNCH		

The current programme is subject to change.