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 – Dr Ramogohlo Diale-Boshielo: **ROSE ROOM**
09:00 Industry Day – Mr David Mauchline: **MAKHULU**
17:00 Welcoming Cocktail & Registration: **LAPA**

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, Group Executive: Mining, Materials and Automation, Mintek, South Africa					
09:00	**PLENARY SESSION IN AUDITORIUM: CHAIR: Dr Marandela Mulaudzi**					
09:00	Keynote address K1: Mr Vince Zhao, Farsoon Technologies, China: From Laboratory Research to Industrial-Scale up of Additive Manufacturing					
09:30	Keynote Address K2: 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					
10:00	**TEA/COFFEE BREAK**					
10:30	**BREAKAWAY SESSIONS**					
	SAFARI		**DAY LILY**		**ROSE ROOM**	
	Session Chair: Dr Maje Phasha		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
10:30	Modelling disordered alloys: density functional theory and machine learning	Invited speaker: Dr Ricardo Grau-Crespo (Online)	Integrated material characterisation and computational modelling capability for defence protection technologies	Invited speaker: Mr Mangalani Miyambo	Built here, used here: Localising manufacturing technology from applied research	Invited speaker: Dr Luyolo Mabhali
11:00	First principles study of the structural, magnetic and electronic properties of $Fe_{50}Pt_{50-x}Cu_x$ alloys	Mashilo Matlala	Characterisation of titanium metal powder produced by ultrasonic atomisation 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
11:20	β-constrained crystallographic evolution of B19' TiNi: a DFT study with comparison to experimental XRD data	Bongani Ngobe	Correlation between microstructure and mechanical properties in A356 aluminum alloy	Phillisile Sekgata	Comparative performance analysis of OpenCV and ArrayFire for computer vision systems	Patrick Malatjie
11:40	Coupled CFD–DQMOM modeling of titanium nanoparticle formation and size evolution during plasma-assisted vapor condensation	Alex Seya (Online)	Comparison of additively manufactured lattice structure types for sustainable basalt fibre reinforced sandwich panel composites	James Dicks	The structural, magnetic, and elastic properties of the $Mn_{50}Al_{50-x}Mg_x$ alloys: a DFT study	Thabang Mokwena
12:00	Benchmarking artificial neural networks against traditional regression models for the scalable prediction of Ti-6Al-4V powder spheroidization	Justin Mbwebwe (Online)	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
12:30 – 13:00	**POSTER PRESENTATIONS IN MAKHULU: Dr Bathusile Masina**					
13:00	**LUNCH BREAK**					
14:00	Keynote Address K3 (online): Dr Terry Wohlers, Distinguished Fellow of Advanced Manufacturing at Wohlers Associates, powered by ASTM International, USA: Evolution of AM and Trends Shaping its Future					
14:30	**BREAKAWAY SESSIONS**					
	SAFARI		**DAY LILY**		**ROSE ROOM**	
14:30	Session Chair: Prof Thywill Dzogbewu		Session Chair: Dr Nthabiseng Cholo		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	A localised heat treatment process for hardenable steels	Maxwell Vos	Effect of alloying on microstructure and mechanical properties of high chromium white cast iron (HCWCI) for mill liner application	Joseph Moema	Automated micrograph feature extraction and machine learning surrogate benchmarking for bead geometry prediction in LMD repair of Al-Si alloys	Laone Ronaldo Pilane
14:50	Effect of laser power on the microstructure and microhardness of CpTi/TiC composites deposited on Ti6Al4V by laser metal deposition	Xolile Michael Mdlalo (Online)	Effect of surface preparation techniques on hybrid investment cast-additive manufactured Ti-6Al-4V components	Kim du Preez	First-principles study of the effect of Ni and Pt addition on the ductility of brittle FCC iridium: structural, mechanical, and electronic properties	Thabo Nhlenyama
15:10	The effect of heat treatment on microstructure and hardness of 9% Ni and 25% Mn cast steels	Sibongile Mamonyane	Mechanical and corrosion behaviour of TiC thin films deposited on brass substrate by RF magnetron sputtering	Musibau Ogunlana		
15:30	TEA/COFFEE BREAK					
	BREAKAWAY SESSIONS					
	SAFARI		**DAY LILY**		**ROSE ROOM**	
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 Nb and V on the metallurgical properties of FeCo alloy	Ramogohlo Diale-Boshielo	Microstructure–hardness response to localised laser tempering of LMD 17-4 PH stainless steel	Michael Femi Olabisi	Atomistic simulation synthesis of Li_xTiO_2 nanoporous as an anode electrode material for energy storage in lithium-ion batteries	Blessing Rikhotso
16:20	Finite element analysis of weight-strength trade-offs in Ti6Al4V sternal implant design	Eric Dlamini (online)	Digital twin-based monitoring and data management in the laser powder bed fusion process chain using a learning integrated manufacturing system	Kekeletso Thejane	First principles study of electronic and thermoelectric properties of hexagonal tungsten disulphide (WS_2)	Moshibudi Ramoshaba
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: From Phase Diagram to Digital Twin: An Integrated Approach to the Development of Precious Metal and Technical Alloys					
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**		**ROSE ROOM**	
	Session Chair: Dr Maria Mathabathe		Session Chair: Prof Didier Nyembwe		Session Chair: Dr Donald Mkhonto	
	Theme: Materials Engineering		Theme: Product Design and Development		Theme: Process Development	
	Title	Presenter	Title	Presenter	Title	Presenter
09:40	Phase predictions and microstructural characterisation of Cu-modified low-nickel Hercules™ stainless steel	Melanie Smit	A pseudo-1D thermo-hydraulic design methodology for additively manufactured Archimedean spiral coil condensers	Nicolaas Steenekamp	Evaluation of thermal stability and phase transformation in β-type Ti-10Nb-1Ru alloy	Duduzile Nkomo
10:00	A review on additive manufacturing of metal carbides	Tumelo Moloi	A low-cost UAV propulsion thrust and torque measurement rig	Michael Thomson	System dynamics-based modelling for remaining useful life estimation of bearings in rotating machinery	Themba Mashiyane
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	Annaléne Olwagen	Evaluation of HHD62G medical-grade high-density polyethylene before use in material extrusion additive manufacturing for fabrication of craniomaxillofacial augmentation implants	Rebakakgosi Mohutsiwa
10:40	Hardness and microstructural property evaluation of chromium alloyed 22wt% Mn alloy compared to commercial 9wt% Ni alloy in as-cast and solution-treated conditions	Lebedike Mampuru	Investigating a lattice structure for a 316L stainless steel injection mould cavity	Andile Ndlovu	Performance evaluation of a polynomial regression based NUC for variable integration-time	Mathews Chirindo
11:00	**TEA/COFFEE BREAK**					
11:30	**BREAKAWAY SESSIONS**					
11:30	**SAFARI**		**DAY LILY**		**ROSE ROOM**	
	Session Chair: Dr Francis Monaheng		Session Chair: Mrs Londiwe Motibane		Session Chair: Dr Bathusile Masina	
	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	Comparative evaluation of phase constitution and microstructure in directed energy deposition additively manufactured CP-Ti, Ti-11Nb and Ti-9Fe alloys	Mavis Khathutshelo Nemavhola	An initial dynamic time-driven activity-based costing approach for identification of cost drivers within the laser powder bed fusion process chain	Tadiwanashe Zinzombe
11:50	Metallurgical analysis of Ti–42 %Nb biomedical alloy subjected to different cooling conditions	Linah Twala	Hardness gradients and galvanic corrosion behaviour of hybrid laser powder bed fusion - Al10SiMg on wrought 6061 aluminium substrates	Ngeleshi Michel Kibambe	Experimental investigation of process characteristics in a 5-axis composite additive manufacturing system	Daniel Kirkman
12:10	Casting and characterisation of Ni-based filler materials used for welding of spheroidal graphite cast iron (SG42)	Dieketseng Maya (online)	The effect of ruthenium precursor chemistry on the morphology of electrodeposited coatings on 304L stainless steel	Nomalungelo Maphanga	Use of ultrasonic atomisation in recycling of used powder and scrap from stainless steel	Donald Mkhonto
12:30	Flexural performance of sustainable fibre-reinforced composites using basalt and flax	Mpho Ntloane	Antibacterial and biocompatibility properties of additively manufactured titanium–Cu alloy implants	Nthabiseng Cholo		
13:00	**LUNCH BREAK**					
14:00 – 14:30	**POSTER PRESENTATIONS IN MAKHULU: Dr Bathusile Masina**					
	BREAKAWAY SESSIONS					

14:30	**SAFARI**		**DAY LILY**		**ROSE ROOM**	
14:30	Session Chair: Dr Daniel Kirkman		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	The effect of heat-treatment on 28% Mn and 9% Ni austenitic steels for use in cryogenic LNG applications	Tokelo Taba	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	Effect of microstructure on corrosion behaviour of Ti-15Cu alloy subjected to different heat treatment cycles	Zanele Phasha	Integrating the UNSDGs 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	Scanning strategy on the mechanical properties of heat treated additively manufactured 1.2709 tool steel	Yoshlyn Naidoo	Smart supplier selection in metal casting processes: integrating MCDM and industry 4.0 – a critical review	Samson Oguntuyi	From print to performance: unlocking additive manufacturing potential through heat treatment and smart hardness verification	Wise Mukhola (Verder Scientific)
15:30	Material selection and traditional reconstruction techniques for cranial plate implants: a review	Onesimo Mjiba	Effect of FeSi-based inoculants on microstructure, indentation size effect and strain gradient plasticity in grey cast iron	Pertunia Seema	Microstructural characterisation of AM components using penetrative radiation techniques	Andrew Venter (Necsa)
15:50	**TEA/COFFEE BREAK**					
16:20	**BREAKAWAY SESSIONS**					
16:20	**SAFARI**		**DAY LILY**		**ROSE ROOM**	
16:20	Session Chair: Dr Washington Makoana					
	Theme: Technology Innovation Agency support					
	Title	Presenter				
16:20	The technology commercialization journey	Dembe Nenzhelele				
16:40	Technology development funding	Iodien Rensburg				
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 Equimassic 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, Honorary President of France Additive, Honorary Professor Centrale Nantes, Fellow of the Academy of Technologies of France: Ontological approach for a systemic improvement of AM value chains			
09:40	**TEA/COFFEE BREAK**			
10:10	**BREAKAWAY SESSION**			
10:10	**SAFARI**			
	Session Chair: Ms Keke Thejane			
	Theme: Product Design and Development & AM Post Processing and Qualification			
	Title	Presenter		
10:10	Optimum processing of cpTi using laser powder bed fusion	Nthabiseng Cholo		
10:30	Cylindrical window mounting design for a mirror-steered optical system	Andrew Baloyi		
10:50	Effect of heat treatment on the microstructure and hardness of laser powder bed fusion manufactured Inconel 718	Elelwani Tshisimba		
11:10	Effect of heat treatment on microstructure and hardness of DED fabricated Ti-11Nb-9Fe alloy	Dimakatso Moyan		
11:30	Electronic charge-transfer dynamics of Zn-O co-adsorption on MO_2 (M= Mn, Ti, V) (110) surfaces in Zn-air batteries	Percy Ngobeni (online)		
11:50	CLOSURE			
12:00	**FINAL LUNCH**			

The current programme is subject to change.