Central University of Technology, Free State

PRE-CONFERENCE SEMINAR ON DESIGN AND ADDITIVE MANUFACTURING OF SAILPLANE AND JEWELLERY PARTS

science, technology & innovation
Department: Science, Technology and Innovation
REPUBLIC OF SOUTH AFRICA

Hosted by the Central University of Technology, Free State (CUT)
Sponsored by the Department of Science, Technology and Innovation
Venue: *Day Lily, Protea Hotel Polokwane Ranch Resort, South Africa*
Date: *Tuesday, 27 October 2026*
Time: *8:30 to 12:45*

PROGRAMME		
Programme Director: Dr LF Monaheng		
8:30 – 9:00	**Registration**	
9:00 – 9:05	Welcoming Address	Dr LF Monaheng CUT
9:05 – 9:30	Opening Address	Ms Wilna du Plessis CPAM
9:30 – 10:00	Certification of materials for aviation and additive manufacturing	Prof Attie Jonker Jonker Sailplanes
10:00 – 10:20	Redesign of a sailplane tailwheel fork using topology optimisation for laser powder bed fusion manufacturing in Ti6Al4V(ELI)	Tristan Strydom, Lehlohonolo Francis Monaheng, Claudia Polese and Johan Bosman
10:20 – 10:40	Enhancing surface morphology of LPBF TI6Al4V(ELI) specimens through rotary and vibratory tumbling	Neo Moabi, Lehlohonolo Francis Monaheng, Willie du Preez, and Attie Jonker
10:40 – 11:10	**Tea**	
11:10 – 11:30	Conceptual and parametric design development of a modified reciprocating compressor cylinder head with integral cooling channels and a finned piston	Junior Makhubela, Gys Jacobs and Annaléne Olwagen
11:30 – 11:50	Structural and elastic properties of two commercial binary Pt jewellery alloys – ab initio study	Maje Phasha, Melita Lekganyane, Joseph Moema and Donald Mkhonto
11:50 – 12:10	A study into the laser powder bed fusion of customised pure platinum jewellery	Imdaadulah Adam, Willie du Preez, Charmaine Johnston and Allan Ross
12:10 – 12:30	First-principles study of thermodynamic and mechanical enhancement in V and Cr alloyed FCC platinum for jewellery applications	Mawisha Mafifi, Donald Mkhonto, Mwende Mbilo, Maje Phasha and Refilwe Mapasha
12:30 – 12:45	General Discussion	All
13:00 – 14:00	**Lunch**	