

2022/23 ELbM Project Topics

Partner Institution	Masters	PhD	Contact person
BIUST	(i) Corrosion resistance and high temperature oxidation response of super-alloy composites (ii) Development of new anti-wear materials for mitigating degradation of mining equipment	N/A	Prof. E. O. Olakanmi olakanmie@biust.ac.bw
	(i) Cracking behaviour and control in laser processed Ni-base super-alloys for high temperature applications (ii) Effect of surface modification on corrosion behaviour of laser processed steels (iii) Fabrication of corrosion test-rig for additively manufacture materials	N/A	Dr. P Raghupatruni raghupatrunit@biust.ac.bw

FUPRE	<p>(i) Laser fabrication of functionally graded aluminum-silicon composites</p> <p>(ii) Selective laser melting of hazardous inorganic and organic waste composite.</p> <p>(iii) Selective laser desorption of heavy metals in hazardous waste composite.</p> <p>(iv) Decontamination of heavy metals from incinerator ash using selective laser melting.</p>	<p>(i) Laser Fabricated Functionally Graded Membrane Electrode Assembly for Fuel Cells.</p> <p>(ii) Laser Surface Patterning of Fuel Cell Membrane Electrode Assembly for Improved Performance.</p> <p>(iii) Laser Micro-structural Cleaning of Fuel Cell Membrane Electrode Assemblies.</p>	<p>Dr. O. Otanocha</p> <p>otanocha.omonigho@fupre.edu.ng</p>
JKUAT	<p>i) Optimization of laser metal deposition process of a novel refractory high-entropy alloy for high temperature applications</p> <p>ii) In-process monitoring of laser additive manufacturing for aluminium-based alloys</p> <p>iii) Parametric optimization for laser welding of refractory high-entropy alloys</p> <p>iv) Process evaluation and optimization of development</p>	<p>i) Process Parameter Optimization and Thermo-mechanical Property Evaluation in SLMed Bio-compatible Metal Materials for Use in Medical Applications.</p> <p>ii) In-situ Process Parameter Monitoring and Control During SLM of 18Ni (300-grade) Maraging steels</p> <p>iii) Manufacture and laser beam welding of low density refractory high entropy alloys</p>	<p>Dr. N. Rehema</p> <p>reheheman@eng.jkuat.ac.ke</p>

	<p>of functionally graded materials</p> <p>v) FEM thermal and structural analysis of laser joining of bulk and additive manufactured titanium alloys.</p>	<p>(RHEAs) for aerospace industry.</p> <p>iv) Development and Performance Evaluation of a Wire Arc Additive Manufacturing Rig for Custom-made Spare Parts.</p>	
SU	<p>i) Development of additive manufactured self-lubricating ball bearings for AGV for warehouses</p> <p>ii) Design and development of Ti-xMo-yFe lattice structures for biomedical applications using laser powder bed fusion.</p> <p>iii) Effect of iron (Fe) content on the properties of Ti-xMo alloys for biomedical applications using laser powder bed fusion.</p>	N/A	<p>Prof Natasha Sacks</p> <p>natashasacks@sun.ac.za</p>

	<p>iv) Investigating the mechanical properties of cermet materials produced using laser powder bed fusion.</p> <p>v) The effect of carbide content on the mechanical properties of carbide-based metal matrix composites produced using laser powder bed fusion.</p>		
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