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## IRES 2017 Submission 137


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### Paper 137

Title:	Microstructures and mechanical properties studies of the directional solidified developed ex-situ Al-4.5%Cu-SiCp metal-matrix composites.
Paper:	
Author keywords:	Al-4.5Cu-SiC composite DS XRD hardness
EasyChair keyphrases:	mechanical property (110), tensile strength (80), cu sic composite (79), directional solidification (60), technology agartala (50), sic particle (50), metal matrix composite (47), applied surface science (47), production engineering (40), micro hardness (40)
Abstract:	<p>In the present investigation, silicon carbide reinforced Al-Cu alloy based metal matrix composite was fabricated by the directional solidified (DS) stir casting technique and the effect of this novel method was compared. Al-Cu-SiCp composites were investigated by comparing microstructure and mechanical properties of as-cast conventional and DS developed specimens. The formed samples were found to be crack free and casting defect free. This feature is very likely to be due to very good interface bonding of uniformly dispersed sub-micron size SiC particles with the Al-Cu matrix. X-ray Diffraction was also performed to know the presence of the phases of reinforced material. The microstructures of the MMC revealed the homogeneous dispersion of SiC particles into the aluminium matrix having clear and good interfacial bonding is obtained. The measured hardness and tensile strength of the composite show the enhancement of the synthesized composite compared to conventionally developed composite. This practical research investigation and test results on the tensile and hardness of Al-Cu-SiCp MMC will provide useful guidelines for the industry to use this newly developed composite.</p>
Time:	Apr 10, 18:20 GMT

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