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Improving the microhardness and wear resistance of Titanium and Titanium carbide based metal matrix composite

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Abstract content
   (Max 300 words)

Titanium metal matrix composite (MMCs) was fabricated on Titanium Alloy (Ti–6Al–4V) substrate with the aim of improving the hardness and wear property for high performance automotive parts using a Rofin Sinar 4 K W Nd: YAG laser. Wear investigations were carried out with the aid of three body abrasion. The results show that the microstructures of fabricated composite consist of homogeneous distribution of TiC particles which were free from cracks. Multiple track deposited systems revealed microhardness increase reaching a peak as high as HV 922.2 for 60% Ti6Al4V + 40%TiC and the least HV 665.3 80% Ti6Al4V + 20%TiC. The wear rate results were low, due to the proper distribution of ceramic particles and increase in the TiC Content in the titanium alloy thereby forming a metal matrix composite.

Keywords: Laser metal deposition, metal matrix composites, Ti6Al4V, Titanium carbide.

Apply to be
 consider for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD)?

MSc

Main supervisor (name and email)
and his / her institution

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Would you like to <br> submit a short paper <br> for the Conference
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Yes

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