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Investigating Effect of Laser Cladding Parameters on Clad Geometry of Metal Matrix Composites on Steel Surface

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Laser cladding process is an advanced process for coating powder material on substrate through feeding powder axially from the machine nozzle and instantly melt it by means of focused laser beam by using set of mirrors and lenses that reflects the laser beam to the desired position, adjusting the laser beam diameter is done by changing the height of the last mirror to an accurately calculated height using the laser head robotic arm. The production of aluminum Silicon carbide and Aluminum Tungsten carbide based coatings on a Steel 37 substrate using axial laser cladding. The laser machine used for this experiments was a YAG laser system at the CSIR-NLC with a 4.4kW Nd. In this research we applied several speeds and power to trace the track and layer formation for each clad material separately and compared between them. This results was done by means of taking photos of the samples macroscopic and microscopic by CETI microscope equipped with camera .In this experiment we successfullyachieved full view on layer formation process and effect of power and speed on track width and height.

Biography:

Aly Ahmed Aly Hussien Elkoussy was born in Cairo – Egypt on 25th of September 1992. He graduated from Design and production department- Faculty of engineering Ain Shams University (ASU) on July 2014. Started working as a demonstrator and researcher at Ain Shams University since October 2015. Started his master degree point on October 2016 after he had finished 8 pre-master courses. Travelled to CSIR in Pretoria – South Africa to conduct experiments in the laser center for his master degree.