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STUDIES ON INTERLAYER CHARACTERISTICS OF TI/AL DISSIMILAR METAL JOINTS USING LASER BEAM WELDING.

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Description Laser beam welding is a fusion welding process and is advantageous compared to conventional methods. Titanium (Ti)/Aluminium (Al) alloy thin sheets are difficult to weld due to a large difference in melting point of these dissimilar metals. The performance of the weld joint depends upon interlayer formation and distribution of intermetallics. During welding, Al is severely lost at the temperature below the melting point of Ti. Therefore, it is needed to develop a new joining process between these two alloys. The present work is carried for welding Ti and Al alloy by using Nd: YAG Pulsed laser welding unit. The characteristics and mixed region of the butt welded interlayer structures are discussed in detail. Test results reveal that interlayer fracture is caused near Al side due to high aluminium deposition and is the cause for producing low strength in the dissimilar metal joint. Formation of intermetallic compounds at the ...

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