



METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY

Affiliated to Osmania University, - College Code – 1607

Ref: MCET/CA/023

Date: 25-10-2018

CERTIFICATE OF APPRECIATION

This is to certify that **Dr. A Rajashekar, Professor** Department of **Mechanical Engineering** for extending the expertise as a **REVIEWER** in the peer review of research papers submitted for **Transactions of Indian Institute of Metals, Manuscripts reference is TIIM-D-18-00633**. The Management, Director, Principal, Dean Engineering, HOD would like to place on record their appreciation.



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Journal of Materials Processing Technology
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Ms. Ref. No.: PROTEC-D-18-03200

Title: Cold-rolling performance of non-equilibrium martensitic stainless steel produced by laser-arc hybrid welding

Journal of Materials Processing Technology

Dear Dr. Rajasekhar,

Thank you for agreeing to review manuscript number PROTEC-D-18-03200 for Journal of Materials Processing Technology.

If possible, I would appreciate receiving your review by Nov 12, 2018.

Please note that, if present, we ask you to include Highlights and the Graphical Abstract in the reviewing process.

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TIIM: Reviewer Invitation for Improving pulsed laser weldability of duplex stainless steel to 5456 aluminum alloy via friction stir process reinforcing of aluminum by BNi-2 brazing alloy

Inboxx



Madhusudan Reddy G <em@editorialmanager.com> Wed, Aug 29, 2018, 1:58 AM

to me

Dear Dr. A.,

As the Editor of the journal Transactions of the Indian Institute of Metals I want to ask you if you could review the article "Improving pulsed laser weldability of duplex stainless steel to 5456 aluminum alloy via friction stir process reinforcing of aluminum by BNi-2 brazing alloy" for a possible publication in our journal.

This is the abstract:

Effects of superficial reinforcing of aluminum alloy and laser pulse distance on laser weldability of 1.436 duplex stainless steel to aluminum alloy were investigated. In half cases, the stainless steel plate was directly welded to 5456 aluminum alloy (A_x samples) by pulsed laser welding technique. While in the rest ones, the surface of aluminum alloy was initially reinforced by nickel-base BNi-2 brazing powder via friction stir processing (FSP). Then, stainless steel plates were laser welded to the superficially aluminum composite (C_x) samples. Microstructure and mechanical properties of the weld zones were studied by scanning electron microscope (SEM), hardness and shear tests. All A_x samples and some C_x samples contained macro- and micro-cracks in their weld pools. Susceptibility to weld cracking, thickness of the interface layer and height of weld pool decreased by two parameters; superficially reinforcing of the aluminum and increasing the laser pulse distance.

Reinforcing the aluminum surface by nickel-base particles modified intermetallic compounds in the laser weld interface, and led to the reduction or even elimination of cracking tendency in the weldments. It also reduced hardness and improved mechanical properties of the laser weldments. The mechanical properties of C_x samples were remarkably increased in comparison to those of A_x ones.

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