
From the Editor's Desk

The month of October ushers in the Festive Season of the year. People all over the country resonate with the Season's ethos – admiring creativity, worshipping and celebrating. Unauspiciously, across the globe in the USA, on the 11th of September destruction struck by the evil hand of mankind has brought untold suffering to many. We offer our heartfelt sympathy to the bereaved. We offer our sympathy to all innocent victims of violence. May we offer our Bejaya/Dussehra greetings to all.

In this issue of the journal we have the honour to publish a letter from Mr. M. K. Mittal, the President of IIW as he lays down his office after 30th November 2001. The Editorial Board is very thankful to him for his continuous support for the journal. His appeal to all members of IIW, specially to the Industrial Corporate Members, for 'support through advertisement' should ring the bells in the right places. Mr. Mittal's emphasis on the importance of Welding education needs to be greeted with a cautious encore for the formidable task which lies ahead in this regard. In the world of applied Welding Technology "adoption of TQM", as Mr. Mittal states, is becoming imperative concomitant with HRD. In this scenario role of IIW needs to be seen as increasingly adopting and implementing agenda items already on the anvil. IIW takes this opportunity to thank Mr. Mittal, President of IIW, for his persuasive work within and without IIW for the present and for the future.

Technical papers published in this issue of the journal extoll welding technology in the realm of metallurgy of the HAZ and the adjacent welding metal in general. The subject is wide and the papers have creditably covered areas including structure – property – composition relationship, mathematical modelling of the solidification processes in the weldmetal pool and the welding parameters affecting interactive processes for the joining of the metal substrates.

In his review paper "Simulation of Fluid Flow in Weld Pools – A Review" the author R. B. Choudary has focussed on the effects of liquid metal buoyancy, electromagnetic and surface tension effects on mass transfer within the weld pool, loss of alloying elements by evaporation on microstructure and weld bead geometry. The paper with number of reference would be helpful to the research technologists working in the area of solidification profiling. A Seshu Kumar et al in their paper "An Appraisal on Assessment of HAZ Toughness" highlight "Catastrophic weld failure (to read brittle failure!) also at the HAZ with its "microstructural gradient". Their experimental studies include fracture mechanics approach to assess toughness of HAZ produced by different welding processes – a comparative study of the welding processes in general would be of interest to the designer-fabricators negotiating critical section sizes in particular. In the welding of thick sections, particularly of alloy steels, selection of heat input (welding) need critical assessment. While a 'high temperature' input with a higher cooling rate would produce brittle structure, a 'low temperature' related under cooling would result in inadequate fusion. S. Chakraborty et al in their paper "Effect of Welding Parameters on the Weldability of ASTM 517 GR.F Steels" have characterised the effects of different heat input during welding (SAW) of 30mm thick pipe section of ASTM 517 GR.F steel for a correct welding procedure in fabrication – demand related research work also yielded wider information related to time-temperature-cooling rate affecting structure – property relationship at HAZ. The analysis of the effects of (weld) process parameters on the weld penetration is a topical research subject in the fabrication studies. Heat input in general, its effects on weldability and mechanical properties (of the weldment) have been critically reviewed. Process parameters such as wire feed rate, welding voltage & speed and plate thickness affect weld penetration. Sunil Pandey et al in their paper "Effect of Process Parameters on Weld Bead Penetration in SAW" have proposed a model for predicting weld (bead) penetration in graphical form highlighting relative effects of these Parameters gross heat input notwithstanding.

We look forward to hearing from our members, and with Season's Greetings.

Dr. P. Majumdar
– Editor