

---

## From the Editor's Desk

---

Fabrication industries in general and nuclear and space-related industries in particular use a very large tonnage of stainless steel (SS) of all types. From the domestic kitchen to the cryogenic hive of a cyclotron, SS connections are ubiquitous. R&D works are going on globally to highlight the unique properties and therefore the uses of different kinds of SS. In his paper "Welding Processes and Technology for Stainless Steels", the author Dr. Bhaduri has discussed this material's unique corrosion resistance properties, its strength, toughness and ductility at widely varying temperatures in a host of industrial environments. Joining of this material by welding brings to the fore the physics of the material, its HAZ and the deposited weld metal and so on. By stressing the uniqueness of this material's properties the author reassuringly states that it could be welded by all principal welding processes viz. SMAW, GMAW, GTAW, SAW and FCAW. However, corrosion resistance, cracking propensity, precipitation phenomena, alloy-partitioning need to be considered for proper selection of a welding process. The author has covered a wide area in dealing with the subject matter lucidly, which would no doubt be of interest to many in the field.

"Welding of steel is a casting process" and is similar to cast metal solidification. Weldmetal solidifies in situ, on line on a weld bead and in the process two metal faces are joined together, in contrast to a casting situation. Authors Dunne et al in their paper "Cracks Running Hot and Cold – a tale of weld metal Integrity" have investigated the effects of solidification on weld properties. In reviewing research results both hot and cold cracking phenomena for carbon steels in a pipeline welding scenario have been discussed including the processes to reduce weld-cracking phenomena.

Design engineers sustain many headaches while looking for a solution to the problem associated with dissimilar metal welding, as it is necessary to harmonise their structural integrity. Such welds often fail with weld flaws, porosities, underfill and so on. Post weld heat treatment could induce brittleness. Authors Pandey et al in their paper "Dissimilar Metal Welding using Nd:YAG Pulsed Laser", have indicated optimisation of welding parameters for welding of Permendur 49 with stainless steel 304. Based on microscopical studies an expert system has been validated. This encouraging result obtained from experimental studies could be of interest to the fabricators in general.

"The welding and cutting industry will either be a part of the solution or a part of the problem..." is what the authors Larsson et al have emphasised in their paper "Welding and Cutting in a Sustainable World". It is refreshing to re-read in this paper technologists almost echoing the Rio Declaration of 1992 and beyond. While recommending the paper for reading one wonders about the reasons for the apparent parity in this context between a "sustainable world" and the developing world.

Thank you  
**Dr. P. Majumdar**  
– Editor