

This file has been cleaned of potential threats.

If you confirm that the file is coming from a trusted source, you can send the following SHA-256 hash value to your admin for the original file.

6f0742580d4236e41183d34a4048b97065bec6500d9bc125e767efc1e1e7fdb

To view the reconstructed contents, please SCROLL DOWN to next page.

Seminar

Institute for Plasma Research

Title : Thermo-mechanical analysis of GTA welding of Mod. 9Cr-1Mo steel considering the effects of phase transformation, Pre heating and Post heating

Speaker: Mr. Zubairuddin

Institute for Plasma Research, Gandhinagar

Date : 16th January 2021 (Saturday)

Time : 10.30 AM

Venue : Online - Join: <https://vimeet.igcar.gov.in/>

Procedure to join the meeting is available at <https://vimeet.igcar.gov.in/inst.html>

Recommended Browsers:

Google Chrome (version 75 and above), or the latest Microsoft Edge

Meeting ID: 202101_43

Login Password: juoescco

Abstract :

Grade 91 (Modified 9Cr-1Mo) steel is ferritic-martensitic steel which undergoes phase transformation during welding. Phase transformation significantly influences the residual stresses of the weld joint. Grade 91 steel is extensively used in fabrication of high temperature components of nuclear industries. In the present work, it is proposed to develop numerical models for predicting residual stress and distortion in modified 9Cr-1Mo steel plate weld joints by considering phase transformation effects for autogenous and multi-pass GTA welding. The beneficial effects of combined preheating and post heating on the residual stresses and distortion need to be quantified. Hence the effect of preheating before welding and the combined effect of pre heating and post heating on the residual stresses and displacements is proposed to be studied in detail using simulation. Validation of the simulated results on the residual stresses and displacements employing suitable experimental tools such as XRD technique and height gauge respectively is envisaged. Two different thicknesses of plates 3 mm and 6 mm were preheated at 200°C and after welding; the joint was post heated at 200°C for 30 minutes. Thermo-mechanical analysis of GTA welding was carried out using SYSWELD software. Predicted and measured values are compared for the joints fabricated employing combined pre heating and post heating.
