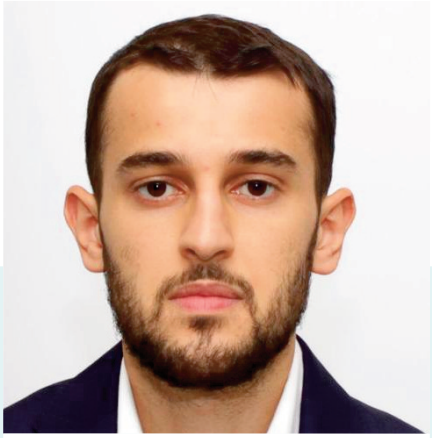
POSTER EXPOSITION

WARWICK

Poster 11

Simulation of high frequency induction welded thick-walled line pipe products



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ABSTRACT:
This research aims to develop a computational model to replicate the High-Frequency Induction (HFI) welding process used at Tata Steel for thick-walled line pipe products. A COMSOL-based model has been created to simulate induction heating of the tube, incorporating temperature-dependent material properties, the influence of an impeder, the V-shaped geometry where the edges of the strip meet, and the dynamic motion of the tube moving forward while its edges converge. Samples and data from Tata Steel are used to validate the results from the simulation. Future work will focus on simulating the contact pressure at the edges to ensure the correct amount of material is removed, expelling manganese silicates from the bond line to improve weld quality.

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