

Poster 7



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ABSTRACT:

The use of low alloy steels increased over the years for manufacturing heavy industrial machines and structural steel constructions to achieve lighter structures with a focus on sustainability. However, the literature for high strength steels (HSS) is limited in terms of fracture mechanics properties such as the fatigue crack propagation rates and fracture toughness compared to the low to medium strength grades of structural steels. This research aims to provide insights of crack propagation tests on the HSS. The methodology followed for test procedure is based on the ASTM E647 standard and a compact tension (CT) test sample design. The experimental results are used to validate finite element analysis (FEA) for crack propagation based on the ANSYS SMART (separating, morphing and adaptive remeshing tool) technology. Additionally, the tensile testing and Charpy impact testing results are presented and SEM fractography analysis is discussed.



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