



Poster 5



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## Retained austenite decomposition in low alloy steels

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### ABSTRACT:

Low alloy steels are used in a variety of engineering applications as structural materials. They are often heat treated to form microstructures comprising hard microconstituents such as bainite and martensite. Typical heat treatment usually comprise austenitisation, quenching and tempering steps. Following quenching, it is often found that small amounts of austenite remain untransformed at room temperature, called retained austenite. This retained austenite can be found as carbon-enriched austenite blocks, or films which are stabilised between martensite laths. While the amount of this is small, it may influence the final microstructure and properties of the final component after tempering. The presented work uses XRD with rietveld refinement, EBSD and dilatometry to measure the amount of retained austenite in the samples prior to and post tempering. Additionally, SEM imaging is used to understand the decomposition products and start temperatures for both the block and film retained austenite.



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