Speaker 7

A rapid CCT predictor for low alloys steels, and its application to compositionally heterogeneous material

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ABSTRACT:
It is well understood that alloy processing has a direct impact on steel performance. By manipulating transformation kinetics, alloy behaviour can be modified to produce unique properties unlike those predicted under equilibrium. It is this relationship that grants the ability, and the ambition, to model steel behaviour and predict the performance of processed components. A rapid model for predicting the continuous cooling transformation (CCT) behaviour of low alloy steels has been developed using modified semi-empirical equations by Kirkaldy and Venugopalan. The model is unique in that it considers the effects of carbon partitioning on subsequent transformations, allowing it to predict characteristic CCT behaviours, like martensite suppression, that are not considered in other models. Further work has also involved extending the model to compositionally heterogeneous material with good success. The accuracy of the model has been determined.

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