



UNIVERSITY OF  
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Poster 9

## *Prediction of the mechanical properties of hot rolled steel plates using artificial neural network and statistical method*



Xiaoran Yang

*AUTHOR OF POSTER:*

Xiaoran Yang

*INSTITUTION:*

University of Leicester

*OTHER AUTHORS:*

Dr Jenny Shepherd, University of Leicester

Qing Tao, University of Leicester

Stefan Stein, University of Warwick

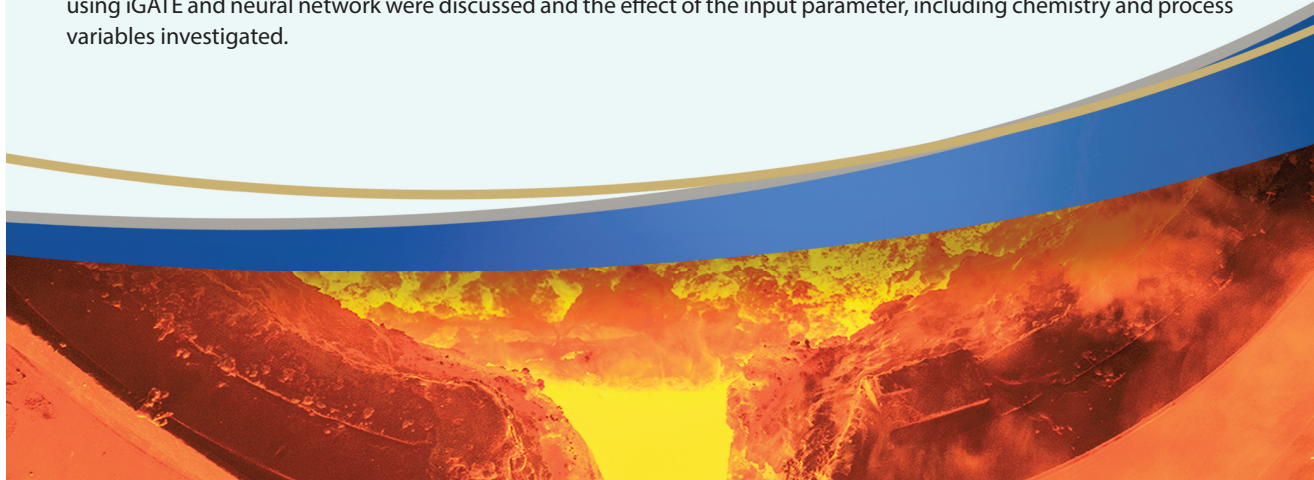
Professor Chenlei Leng, University of Warwick

Professor Hongbiao Dong, University of Leicester

*ABSTRACT:*

Steel manufacturing is a long and complicated process involving iron-making, refining, casting, rolling, etc.; the result, hundreds of processing parameters all with a potential influence on the mechanical properties of the final product. This complexity results in significant challenges in the correlation of input parameters with output mechanical properties.

In this work, we applied both a neural network based model and a statistic method in order to predict yield strength, ultimate tensile strength, elongation and impact toughness of hot rolled steel plates using chemical composition and process parameters (including finish rolling temperature and reduction ratio). The influential process parameters recognized by the neural network model were compared with the key features selected by the statistical method, initial Guided Analytics for parameter Testing and control band Extraction or iGATE. The differences between predicted results using iGATE and neural network were discussed and the effect of the input parameter, including chemistry and process variables investigated.



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