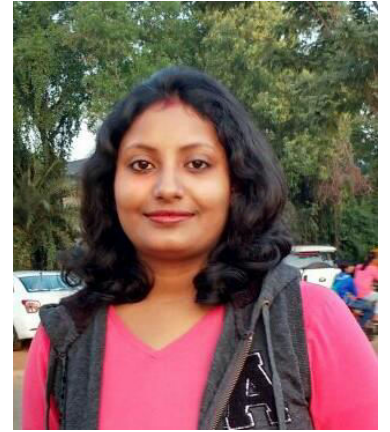


Name: Tanusree Dutta

Department: Metallurgy and Materials Engineering

Email: tanu.dutta16@gmail.com



Aim of the proposed study is to develop a suitable image processing algorithm that will consider morphological pattern and morphology classification in addition to the grey level intensity for proper identification, segmentation and quantification of microstructural aspects specifically applicable to the DP microstructures having varying amount and morphology of martensite. Utilizing the generated experimental results and information available in the literature, the proposed investigation will also try to develop data driven predictive models capable to establish processing-microstructure-property interrelationships for DP steels with specific emphasis on the identification of domains suitable commercial development of high-martensite DP steel with enhanced strength-ductility combination.

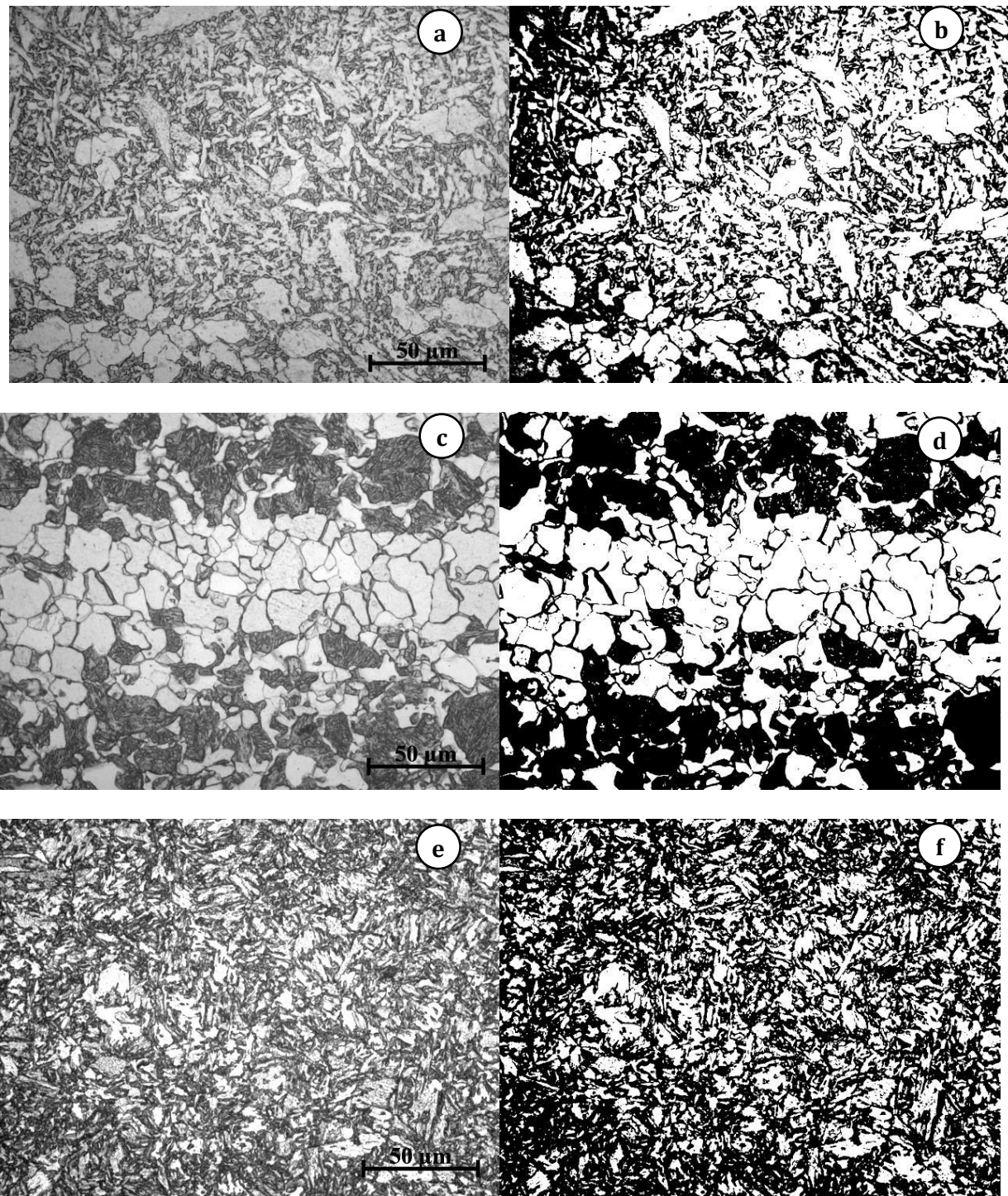


Fig. 1. (a), (c) and (e) representative optical micrographs of ferrite (white) - martensite (black) dual-phase structure generated by intercritical annealing (IA) treatment , intermediate quenching (IQ) treatment and step-quenching (SQ) treatment respectively. (b), (d) and (f) are images after thresholding of the original grey scale images of (a), (c) and (e), respectively.

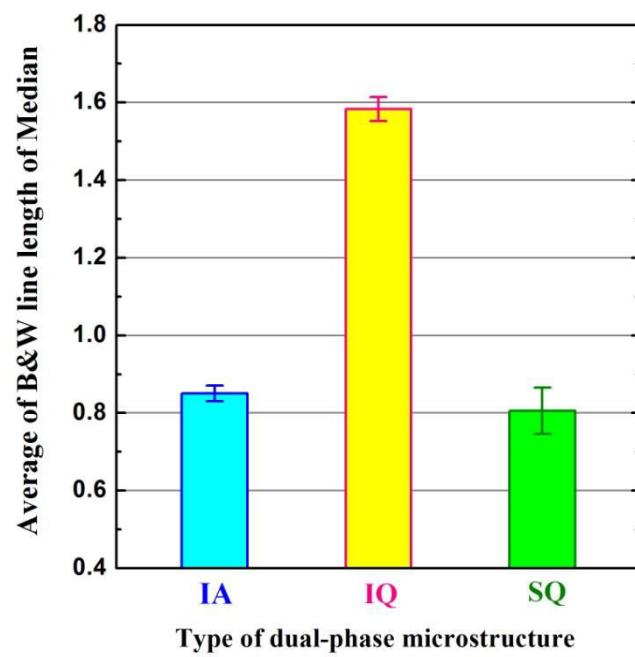
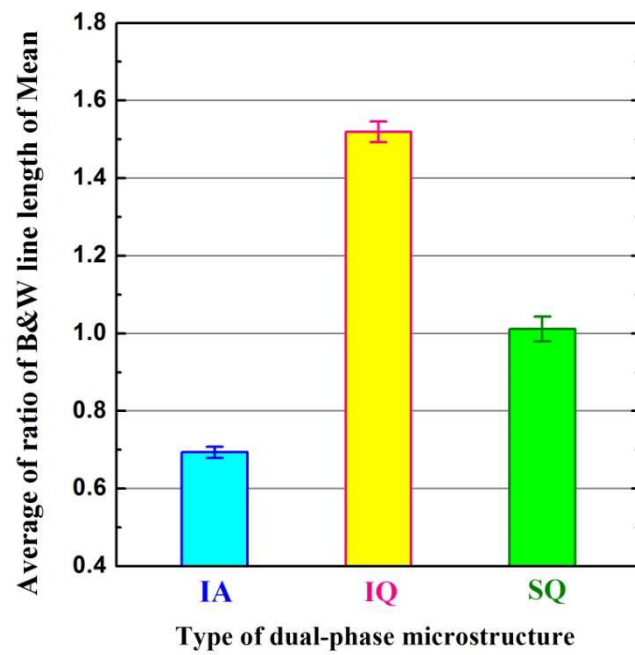


Fig. 2. Calculated average of the ratio of black and white (B&W) line length of (a) mean and (b) median of different types of heat treatment schedules, i.e., intercritical annealing (IA), step-quenching and (SQ) and intermediate quenching (IQ).

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2. Tanusree Dutta, Siddhartha Banerjee, Sanjoy Kumar Saha, Debdulal Das and Shubhabrata Datta, Noise Removal and Image Segmentation in Micrographs of Ferrite-Martensite Dual-Phase Steel, 2016, Key Engineering Materials (ISSN Print: 1013-9826, ISSN Web: 1662-9795) (Accepted).
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