

Special Issue

Offshore Engineering Steel: Welding Performance and Microstructure Analysis

Message from the Guest Editor

With the continuous development of marine structures from shallow sea to deep sea regions, the strength and thickness of the steel used for the construction of the marine structure are gradually increasing. In addition, the construction of steel structures has more stringent requirements for the welding performance of the base material. But in the welding process, factors affecting the microstructure transformation, including the chemical composition of the base metal and welding material, welding procedures (heat input, interpass temperature, cooling rate, and welding thermal cycle), post-weld heat treatment, and others, are variable and less controllable. Thus, the microstructure transformed either in welding-heat-affected zone or weld metal is very complex. Nevertheless, any complex process of steel formation has its laws and can be effectively controlled on the premise of identifying its evolution process and influencing factors. Therefore, it is very important to study the principles of physical metallurgy and welding performance of offshore engineering steel.

Guest Editor

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Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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