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# **Challenges and Prospects of Steelmaking Towards the Year 2050**

Guest Editor:

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### Message from the Guest Editor

Dear Colleagues,

The IPCC report 2018 defined the jointly approved target of limiting global warming to 1.5°C by 2050, which means deep cutting of CO<sub>2</sub> emissions comprehensively.

The challenge of the steel industry is dual: on one hand, it must strongly cut its own CO<sub>2</sub> emissions by improving and developing the process route, and on the other hand by developing new steel grades with improved properties in order to achieve a longer life cycle and better recyclability.

In this issue, the potential methods to decrease CO<sub>2</sub> emissions in current processes via improved energy and materials efficiency, increasing recycling, and utilizing alternative energy sources are considered. Development programs for current and novel innovative processes as well as trends of alternative energy sources are surveyed. Additionally, the role of steel as an integral part of the global circular economy should be discussed. As a whole, the target of this Issue is to give a holistic overview of the current situation and challenges, and a comprehensive cross-section of the potential technologies and solutions for the global CO<sub>2</sub> emissions problem.









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### **Message from the Editorial Board**

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 metallurgical field the ranging from processing. and mechanical behavior. phase transitions microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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