1. Record Nr. UNINA9910557390103321

Autore	Holappa Lauri
Titolo	Challenges and Prospects of Steelmaking Towards the Year 2050
Pubbl/distr/stampa	Basel, Switzerland, : MDPI - Multidisciplinary Digital Publishing Institute, 2021
Descrizione fisica	1 electronic resource (222 p.)
Soggetti	Technology: general issues
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	The world steel industry is strongly based on coal/coke in ironmaking, resulting in huge carbon dioxide emissions corresponding to approximately 7% of the total anthropogenic CO2 emissions. As the world is experiencing a period of imminent threat owing to climate change, the steel industry is also facing a tremendous challenge in next decades. This themed issue makes a survey on the current situation of steel production, energy consumption, and CO2 emissions, as well as cross-sections of the potential methods to decrease CO2 emissions in current processes via improved energy and materials efficiency, increasing recycling, utilizing alternative energy sources, and adopting CO2 capture and storage. The current state, problems and plans in the two biggest steel producing countries, China and India are introduced. Generally contemplating, incremental improvements in current processes play a key role in rapid mitigation of specific emissions, but finally they are insufficient when striving for carbon neutral production in the long run. Then hydrogen and electrification are the apparent solutions also to iron and steel production. The book gives a holistic overview of the current situation and challenges, and an inclusive compilation of the potential technologies and solutions for the global CO2 emissions problem.