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 online 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.

2. Record Nr. UNINA9910557366903321

Autore	Girolamo Annalisa De
Titolo	Spectroscopy-Based Biosensors
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Descrizione fisica	1 online resource (142 p.)
Soggetti	Research & information: general
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	Biosensors are analytical devices capable of providing quantitative or semi-quantitative information by using a biological recognition element and a transducer. Depending upon the nature of the recognition element, different surface sensitive techniques can be applied to monitor these molecular interactions. In order to increase sensitivities and to lower detection limits down to even individual molecules, nanomaterials are promising candidates. This is possible due to the potential to immobilize more bioreceptor units at reduced volumes and their ability to act as transduction elements by themselves. Among such nanomaterials, gold nanoparticles, quantum dots, polymer nanoparticles, carbon nanotubes, nanodiamonds, and graphene are intensively studied. Biosensors provide rapid, real-time, accurate, and reliable information about the analyte under investigation and have been envisioned in a wide range of analytical applications, including medicine, food safety, bioprocessing, environmental/industrial monitoring, and electronics. A variety of biosensors, such as optical, spectroscopic, molecular, thermal, and piezoelectric, have been studied and applied in countless fields. In this book, examples of spectroscopic and optical biosensors and immunoassays are presented. Furthermore, two comprehensive reviews on optical biosensors are included