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Chemical Engineering

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CHEMICAL ENGINEERING METHODS AND TECHNOLOGY

**The Effects and Performance
Analysis of Non-linear Phase
Noise in All Optical OFDM Systems**

**Iraj Sadegh Amiri - Amin Khodaei
Volker J Sorger**

Novinka

**New Titles
September 2018**

**Molybdenum
Disulfide**

**Application of
Electrospun Fibers
in Tissue
Engineering**

Fungicides

**The Effects and
Performance
Analysis
of Non-linear Phase
Noise in All Optical
OFDM Systems**

Water Purification

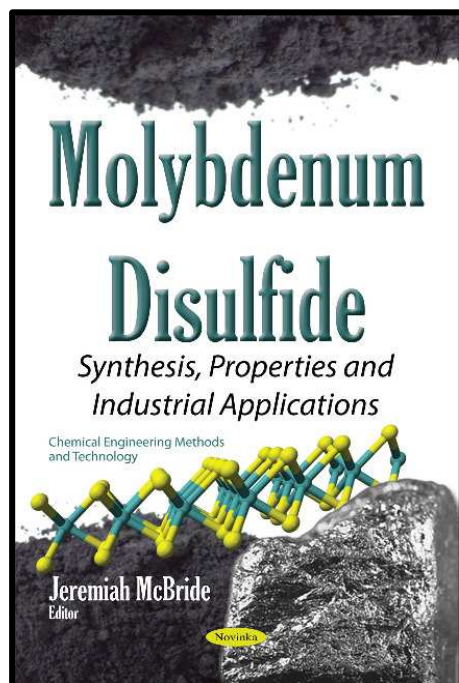
Hydrometallurgy

**Artificial Neural
Networks in
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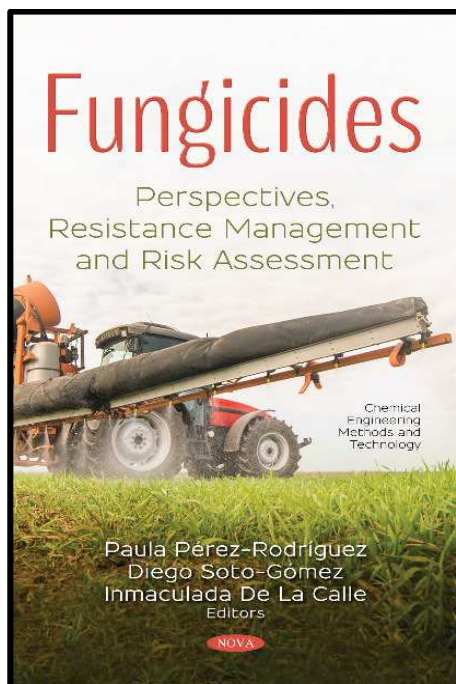


Molybdenum Disulfide Synthesis, Properties & Industrial Applications

Edited by Jeremiah McBride

Molybdenum disulfide (MoS_2) is a semiconductor which is composed of Mo atoms sandwiched between two layers of hexagonal close packed sulfur atoms in a structure similar to graphene. Traditionally, it has been used as a solid lubricant due to its low friction properties and as a hydrodesulfurization catalyst to lower the sulfur content in natural gas and fuels. Bulk MoS_2 were first examined as a possible hydrogen evolution reaction electrocatalyst as early as 1977 by Tributsch et al. However, it was not until about 20 years later that its potential in the hydrogen evolution reaction was fully unveiled. This book discusses the synthesis, properties and industrial applications of molybdenum disulfide.

April 2016 - 88 pages
HB (9781634850322) £95.99
Nova Science



Fungicides Perspectives, Resistance Management and Risk Assessment

Edited by Paula Perez Rodriguez, Diego Soto-Gomez, Inmaculada de la Calle

Fungi are responsible for a great number of diseases in plants and cause crop loss. The spread of fungal diseases can be controlled by crop management, rotation systems, the use of resistant cultivars and the application of fungicides. Fungicides are often employed by farmers due to their simplicity and efficiency. However, fungicides are expensive, and their effectiveness is reduced when the pathogen develops a resistance. Additionally, the excessive use of fungicides represents a potential risk for the environment and for human health. Apart from their use, the production generates pollution, and the natural degradation of the majority of fungicides is very complex. Due to the high persistence of fungicides, it is important to consider their residues in food. This book attempts to shed light on fungi biology, their ecology and their infection mechanisms; fungicide use and management, from their place in the market until their modes of action; the fungicide effects, the mechanisms of action and the way to increase their efficiency. In addition, other topics are considered such as the appearance of resistance, the causes and the methods employed to prevent or decrease their incidence. Finally, the latest trends in analytical determinations and new technologies are also included, like computer simulations that may help scientists to make predictions and act accordingly.

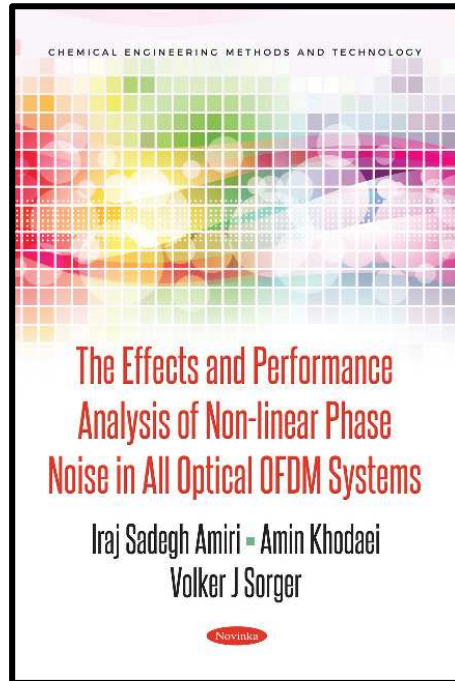
April 2018 - 280 pages

HB (9781536133073) £169.99

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The Effects and Performance Analysis of Non-linear Phase Noise in All Optical OFDM Systems

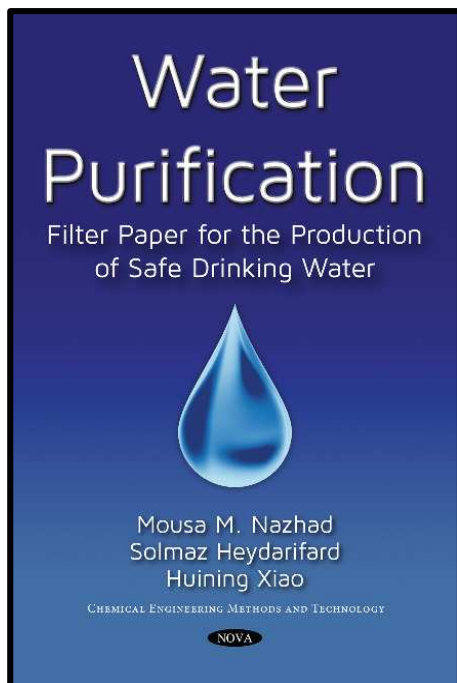
Iraj Sadegh Amiri, Amin Khodaei, Volker J. Sorger

Due to the limitation of the electrical OFDM signal and electrical Fast Fourier Transform (FFT), all-optical OFDMs have recently received much attention. Accordingly, this research study was conducted to investigate the effect of phase noise in the performance of an all-optical OFDM transmission system with 4-point FFT single mode fiber (SMF) links by considering the effects of fiber length, input laser power and a number of channels. In all optical systems, the transmitter side consists of a comb power generator, wavelength selected switch and an optical QAM generator. A comb power generator generates channels with a frequency separation of $\Delta f=25$ GHz. Subsequently, a Wavelength Selected Switch (WSS) was used to split subcarriers and then the subcarriers were modulated individually with Optical QAM modulators. As the results show, a higher number of channels led more phase noise in terms of XPM and FWM nonlinearities, and signal power was the main factor in nonlinear fiber optics. As a consequence, there is more phase noise distortion at a higher signal power for a higher number of channels rather than the lower number of channels.

March 2018 - 61 pages

PB (9781536131451) £71.50

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Water Purification Filter Paper for the Production of Safe Drinking Water

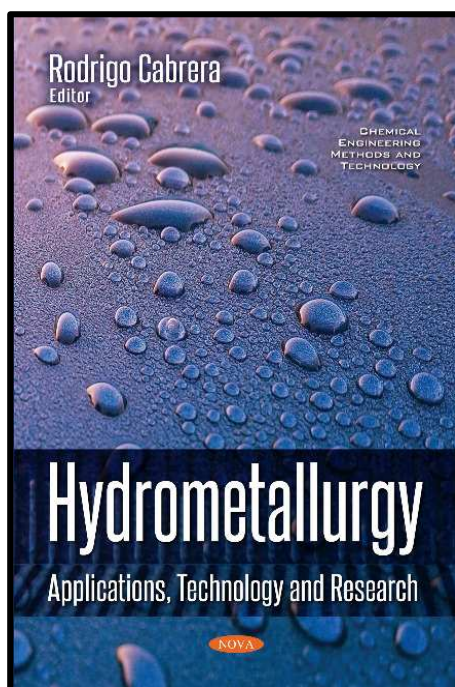
Mousa M. Nazhad, Solmaz Heydarifard, Huining Xiao

A large segment of the population in undeveloped and developing countries drink untreated or partially treated water. Annually, 6 to 60 billion cases of gastrointestinal illnesses are continuously reported due to safe drinking water, and over 1.6 million people die due to these water-borne diseases. Owing to increasing concern about global water-related diseases associated with drinking water, finding an affordable and suitable way of water treatment is of great importance. Filtration is a promising point-of-use water treatment. Currently, most water filtration membranes are made of synthetic polymers derived from non-renewable resources. Negative factors like climate change, many different environmental pollutants and the reduction of oil resources give rise to increase the demand of biodegradable products over non-renewable resources. This book introduces a novel, cost effective and biodegradable filter; a so-called cellulose foam filter. The cellulose foam filter is a novel porous cellulosic derivative made via a foam-laid process and modified in order to act as a water filter. Improvements of wet strength performance and the biocidal activity of filters are two main tasks presented in this book. Wet strength improvement is achieved through a furnish formulation, and the addition of agents and antimicrobial activity are preformed using polymeric antimicrobial agents, guanidine-based polymers and α -poly lysine.

October 2017 - 200 pages
PB (9781536124378) £71.50
Nova Science



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Hydrometallurgy Applications, Technology & Research

Edited by Rodrigo Cabrera

Hydrometallurgy is one of the main routes for obtaining metals that are needed for society development and for our everyday life. Chapter One presents the basics of hydrometallurgy, namely its main stages leaching, purification and/or concentration of pregnant leach solutions (PLSs), and metals' recovery. Chapter Two focuses on the gold extraction processes that involve the use or addition of industrial grade oxygen to optimise the processes. In particular, it looks at how oxygen can be used to increase the throughput and/or gold recovery and make the processes more flexible. Chapter Three gives an overview of the microbially-mediated metal transformations in which iron oxides potentially provide an applicable biotechnological method for efficient removal of pollutants from ground waters and wastewaters. Chapter Four assesses the hydrometallurgical process based on leaching, deironization, and purification of bis(trifluoromethylsulfonyl)amide salt including RE components.

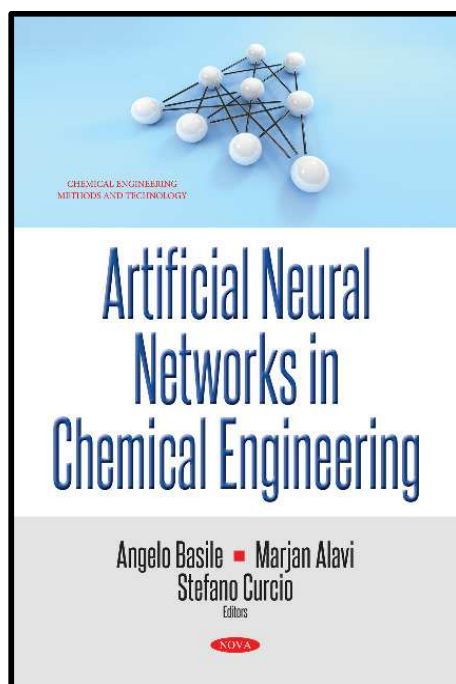
September 2017 - 129 pages

PB (9781536124170) £71.50

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Artificial Neural Networks in Chemical Engineering

Edited by Angelo Basile, Marjan Alavi, Stefano Curcio

This book introduces readers to the Artificial Neural Network (ANN) and Hybrid Neural (HN) models: two effective tools, which can be exploited to design and control industrial processes. Different topics including modeling, simulation and process design are covered. More efficient analyses and descriptions of real case studies, ranging from membrane technology to the obtaining of second-generation biofuels are also provided. One of the major advantages of the described techniques is represented by the possibility of obtaining accurate predictions of complex systems, whose behaviors might be difficult to describe by conventional first-principle models. One of the major impacts of the present book is to show the true interactions and interconnectivities among different topics belonging to chemical, bio-chemical engineering, energy, bio-processes and bio-technique research fields. Some of the main goals are here are to provide a deep and detailed knowledge about the main features of both ANN and HN models, and to iterate possible topologies to integrate in these ANN and mechanistic models; to cover a wide spectrum of different problems as well as innovative and unconventional modeling techniques; to show how various kinds of advanced models can be exploited either to predict the behavior or to optimize the performance of real processes.

June 2017 - 180 pages

HB (9781536118445) £82.99

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Chemical Engineering

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Fungicides

Perspectives,
Resistance Management
and Risk Assessment



Chemical
Engineering
Methods and
Technology

Paula Pérez-Rodríguez
Diego Soto-Gómez
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Editors

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