

The 4th International Scientific Conference of Alkafeel University

Selected peer-reviewed extended articles
based on abstracts presented at the
4th International Scientific Conference of
Alkafeel University (ISCKU2022)

Aggregated Book

Edited by

Prof. Ali Jasim Ramadhan and Prof. Nawras Al-Dahan

 **Scientific.Net**

Copyright © 2023 Trans Tech Publications Ltd, Switzerland

All rights reserved. No part of the contents of this publication may be reproduced or transmitted in any form or by any means without the written permission of the publisher.

Trans Tech Publications Ltd
Seestrasse 24c
CH-8806 Baech
Switzerland
<https://www.scientific.net>

Volume 66 of
Scientific Books Collection
ISBN 978-3-0364-0148-5

Full text available online at <https://www.scientific.net>

Distributed worldwide by
Trans Tech Publications Ltd
Seestrasse 24c
CH-8806 Baech
Switzerland
Phone: +41 (44) 922 10 22
e-mail: sales@scientific.net

Printed with permission by
Curran Associates Inc. (2023)

CURRAN ASSOCIATES INC.
proceedings
.com

Additional copies of this
publication are available from:

Web: www.proceedings.com/70289.html

Table of Contents

Preface	v
Chapter 1: Properties and Synthesis Technologies of Functional Nanomaterials	
Preparation and Investigation of Structural and Surface Morphology Properties of ZnO Nanorods for Possible Environmental Applications K.A. Mohammed.....	3
Study of the Effect of Ce³⁺ on the Gas Sensitivity and Magnetic Properties of Cu_xCe_{0.3-x}Ni_{0.7}Fe₂O₄ Ferrite Nanoparticles S.A. Kadhim and T.M. Al-Saadi.....	8
Effect of Sintering Temperatures on the Physical Properties of Bi-2223 System Prepared by Co-Precipitation Method Z.K. Alkaabi and E.K. Al-Shakarchi	18
Preparation of Calcium Titanate Nanoparticles with Investigate the Thermal and Electrical Properties by Incorporating Epoxy S.S. Abbas, R.M. Raouf and H.H. Al-Moameri	24
Influence of Sintering Temperature on the Structural and Electrical Properties of CeO₂ Nanoparticles Prepared by Hydrothermal Method H.A. Gatea.....	34
Study the Effect of Reaction Time on Preparation of Iron Oxide Nanoparticles by Hydrothermal Technique A.B. Taha, M.S. Essa and B.T. Chiad.....	41
Silver Nanoparticles for Ultrasonic Assisted Synthesis of Oxidant Agents in Micro-Reactor: Kinetic Analysis and Process Intensification G.H.A. Razzaq, K.I. Hamad and J.I. Humadi.....	49
Characteristics and Biological Applications of Green Nickel Oxide Synthesised by Hibiscus Sabdariffa Flowers I.A. Hameed, M.A. Abed and S. Mufeed.....	59
Preparation and Characterization of Silver Nanoparticles by Pulsed Laser Ablation and Investigation of their Effect on Bacteria Z.K. Alkaabi.....	69
Silver Prism Interface Plasmon Resonance for Biosensor in Ir-Visible Spectrum Region F.J. Kadhum, S.A. Mohammed, J.S. Alikan, S.H. Kafi, A.A. Al-Zuky and A.H. Al-Saleh.....	75
Experimental Investigation of Application Taguchi Method to Optimize Heat Treatment Parameters Using Nanofluids of AISI 52100 Steel W.N. Hasan and M.N. Al-Aaraji	87

Chapter 2: Thin Films and Coatings for Optics and Photovoltaics**Study the Effect of Deposition Time on Optical Properties of CdZnS Nanofilms**

K.A. Mohammed, R.S. Hessian, S.J. Musa, M.A. Alkhafaji and R.S. Zabibah 99

Optimization of Multilayer Antireflection Coatings for Visible and Infrared Regions

S. Abbas, A.A. Anber and A.A. Al-Azawy 107

Chapter 3: Ceramics**The Effect of Deposition Temperature on Ba_{0.8}Sr_{0.2}TiO₃ Films Prepared by Pulsed Laser Deposition Technique**

H.A. Gatea 119

Studying the Effect of Annealing Temperature and Thickness on Electrical Properties of PZT Films Prepared by Sol-Gel Technique

H.A. Gatea and F.K. Hachim 127

Investigation of Microstructure and Physical Properties of Nickel Ferrites, Synthesized via Sol-Gel Method

S.J. Kareem, M.N. Al-Aaraji and A. Hatem 134

Effects of La⁺³ and Sc⁺³ Ions on Structure and Microstructure of PZT Ceramics for Energy Storage Applications

M.N. Al-Aaraji, W.N. Hasan and K. Al-Marzoki 142

Improving Silica Sand Specifications for Making Colorless Glasses by Using Chemical and Physical Methods

W.R. Abdullah 154

Chapter 4: Materials and Technologies for Environmental Protection**Effect of Morphology on the Permeability of CO₂ Across PSF/FCTF-1 Mixed Matrix Membranes**

A.A. Abdulabbas, T. J. Mohammed and T.A. Al-Hattab 165

Removal of Textile Wastewater Pollutants Using Zeolite Mineral as Adsorbent: Isotherm Studies

A.M. Subhi, J.A. Al-Najar and W.A.H. Noori 176

Chapter 5: Heat and Mass Transfer, Engineering Thermodynamics**Assessment of Thermal Performance of Non-Evaporative Cooling System Assisted with TEC Models at High Temperature Climate**

H.H. Jabbar, M.A. Al-Tayyar, T.M. Mansoor and S.W.M. Ali 195

An Investigation into Burner Configuration Effects on Premixed Flame Characteristics for LPG Diluted with CO₂

M.A. Al-Tayyar, D. Alkhafaji and H.A.K. Shahad 207

CFD Assessment of the Bubble Flow in a 3D Rectangular Column

M.O. Ahmed, J.I. Humadi, A.A. Aabid, O.H. Kanam, M.A. Sanam, L.I. Saeed and A.H. Ibrahim 221

Keyword Index 237**Author Index** 239