

Proceedings of the
International Conference
on Recent Trends in Physical Sciences

RTPS 2022

Organised by



PG & Research Department of Physics
Arul Anandar College (Autonomous)

Reaccredited by NAAC at 'A' Grade with a CGPA of 3.66 in the 3rd Cycle

DST - FIST Sponsored College

Karumathur, Madurai - 625 514

17th & 18th February 2022

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CONTENTS

Recent Trends in Physical Sciences – Keynote Address 17 Feb 2022	1
<i>Rev. Dr. Francis P. Xavier SJ</i>	
A Simple Microstrip Patch Antenna for S-Band Applications at 2.40 GHz Frequency	10
<i>R. Albert William Raj, K. S. Joseph Wilson</i>	
Some Interplanetary Effects of Coronal Mass Ejections from the Sun	18
<i>P. Vijayalakshmi & A. Shanmugaraju</i>	
Design of superconducting nanocomposite photonic crystal for Detection of reproductive hormones in females	23
<i>V. Revathy, K S. Joseph Wilson</i>	
Anti microbial study on CuO integrated with Zn and ZnO	28
<i>S.Ramakrishnan, M.Revathi, S.Rajakarthiyan</i>	
First-principles study of the half-metallic and magnetic properties of Cobalt based Full-Heusler alloys Co_2YX (X = As, Sb)	36
<i>M. Santhosh, P. Dharmaraja, M. Manikandan, A. Amudhavalli and R. Rajeswarapalanichamy</i>	
Composite of melamine-formalin resin as a corrosion inhibitor in acid medium	40
<i>Dr. J. Thirupathy</i>	
Based on Electronic Waste Survey: Climate Change Due To Electronic Waste	64
<i>Ashish Bhatt, Kalpana Yadav, Anju, Deepshikha Yadav, Neelam, D D Shivagan, H K Singh</i>	
Structural and microstructural properties of Co doped ZnO nanoparticles by Chemical method	62
<i>Senthilkumar. G, Parameswari. P, Abdur Rahman. M</i>	
Electronic structure and Magnetic properties of Full-Heusler compounds Fe_2YAs and Fe_2YSb	71
<i>P. Dharmaraja^a, M. Santhosh^a, A. Amudhavalli^{a,b}, M. Manikandan^a and R. Rajeswarapalanichamy^a</i>	
Investigation of Zinc Silicate doped with lanthanum for LED Applications	75
<i>S. Sebastian, C.S.A Raj, P. Diana, S. Saravanakumar</i>	

Anti microbial study on CuO integrated with Zn and ZnO

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Abstract

An increasing interest in discovering new antimicrobial agents has grown in popularity as antibiotic resistance has increased. Surface to volume can identify bacterial and fungal cells from human cells and provide long-term antibacterial and bio – film prevention using metal – and metal oxide – based nanocomposites. The formation of reactive oxygen species (ROS) by these nanoparticles provokes bactericidal capabilities, which can target physical structures, metabolic pathways, and ultimately to cell death. A careful examination of existing literature on the antibacterial and antifungal effects of metal and metal oxide nanoparticles was examined in this progress report. Antimicrobial mechanisms of metal ions and a composite of two metal oxides were specifically studied. Nanomaterials' antimicrobial efficacy is attributed to structural and physical features such size, shape, and/or surface membranes. An examination of the current status of metal and metal oxide nano material research contributes to our understanding of how to prevent antibiotic resistance and provide alternatives to antibiotics in the fight against bacterial and fungal illnesses. Finally, new methods for detecting and minimising metallic toxicity, with a focus on biomedical activities, are examined.

Keywords: Zn, ZnO, CuO, Microbes

Introduction

From the past decades of our human life met with spreadable diseases for many deaths and are produced by viruses, fungi, bacteria, and parasites. Our immune system has the ability to shield the body from many infections. But infections can be transmitted from bacteria to our body by natural orifices cells resulting damage of tissues. The treatment of infectious diseases is

impeded by drug resistance, and need to develop new medicine which can overcome drug resistance [1]. From these aspects the new medical agents such as antibody-based therapeutics, metal oxide nanoparticles, etc has been developed for the treatment of spreadable diseases.

Metal oxide nanoparticles are characterized by small sizes and exhibit good interaction with bio molecules.