

**New Horizons of Teaching  
and Learning  
In the Light of NEP 2020**

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Editors —*

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**Ashish Books**

4435-36/7, Ansari Road, Darya Ganj,

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Phone: 011-23274050

e-mail: [aphbooks@gmail.com](mailto:aphbooks@gmail.com)

2022

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**Ideal Publishing Solutions**

C-90, J.D. Cambridge School,

West Vinod Nagar, Delhi-110092

*Printed at*

**BALAJI OFFSET**

Navin Shahdara, Delhi-110032

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## Gamification and Learning

*Dr. Ashish Samuel Huri\**

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Gamification is the application of the game design elements and its principles in a non-game setting. These games can be made up to educate, entertain and to engage the students. Gamification is a process to design gaming elements in a way through which a student can learn and engage himself in a non-real activity. Gamification creates a type of virtual world in which a student engages himself in various task and fun based activities and all. Gamification in education and in learning is a broader concept. This concept focuses on the activity done by student. Gamification is based on the concept of Dewey's concept of 'Learning by Doing' in which a student learns at his own pace. Learning by doing creates a motivation among the learners to do more and more effort to learn. Gamification in learning environment was developed in 1980's with videos and computer games. In 1985 gaming series Carmen San Diego was launched, which was published by Broderbund Software Co. This game used to teach geography and history. In this game a player has to act like a detective. This game has gained the popularity through its exploratory method which was used in this game. Through exploration a student or a player can learn various facts about the world. The historical facts and geographical contents can be presented to the players. Thus, activity creates a sense of motivation in the student to learn. Simply Gamification in learning helps to make out learning more simple, interesting and effective. Gamification in learning encourages the engagement of incorporating game design elements in educational

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\*Assistant Professor, Department of Teacher Education, Ewing Christian College, Prayagraj.

# NEP 2020

A Vision Document of 21st Century Bharat

*Edited by*  
Dr. Dhiraj Singh



**AKHAND PUBLISHING HOUSE**  
**DELHI (INDIA)**



*Published by*



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*Publisher, Distributor, Exporter having an Online Bookstore*

Head Office : L-9A, First Floor, Street No. 42,

Sadatpur Extension, Delhi-110094 (INDIA)

Phone No.: 9968628081, 9555149955 & 9013387535

E-mail : akhandpublishinghouse@gmail.com,

akhandpublishing@yahoo.com

Website : www.akhandbooks.com

**NEP 2022**

A Vision Document of 21st Century Bharat

© Dr. Dhiraj Singh

First Edition 2022

ISBN: 978-93-90870-69-1

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**Printed in India**

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Published by Jhapsu Yadav for Akhand Publishing House. Cover Designed and Laser Typesetting at VM Graphic and Printed at Aarna Enterprises, Delhi.

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## NEP-2020: Online and Digital Education “A Step Towards Progress”

*Dr. Ashish Samuel Huri*

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### Abstract

The emergence of COVID-19 pandemic has created an urge for the advancement and need of digitalization in the field of education. The National Education Policy-2020 is an icebreaker for making teachers aware of the digitalization in Education. When the world was going through the tremendous pressure of COVID-19 and everyone was working from home the significance of online & digital education has been understood. The National Education Policy which was approved by the Union Cabinet of India on 29th July, 2020 the policy has brought a change not only in the Educational Structure but it has also given a new insight to the people and paved the way for progress. Various suggestions were given and various changes which have to be implemented in the educational structure have been discussed in this paper. This research paper discusses the changes in the educational structure from traditional education to digital and online education.

**Keywords:** COVID-19 pandemic, digitalization, National Education Policy etc.

On 24th March, 2020 when Hon'ble Indian Prime Minister Shri Narendra Modi has announced a complete lockdown of 21 days





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# *Certificate of Publication*

*This certificate is proudly presented to*

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*who authored a chapter entitled*

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*This chapter has been published in the edited book title*

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Gonda, Uttar Pradesh

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# Emotional Intelligence & Teacher

Dr. Ashish Samuel Huri

Mahatma Gandhi once said that, "Education means all-round drawing out of the best in child and man-body, mind and spirit."

It is clear from the above statement that the job of a teacher is not only to develop the mind of the child but also to motivate his physical, intellectual and spiritual development. A teacher is not only an instructor, but from time to time he also acts as a friend, a philosopher and a guide. Therefore, at present the work of a teacher is becoming very complex because the expectations of the students and society are increasing from the teacher and the teacher has to develop not only the intellectual but also all round development of the child. If we discuss the intellectual development of a child, then (Goleman 1995) emotional intelligence predicts at least 80% success in one's life and general intelligence predicts at least 20%. If we consider, then emotional intelligence has a great influence on the life of a person.

## Emotions

According to Aristotle (384–322 BCE), "Emotions are all those feelings that so change men as to affect their judgments, and that are also attended by pain or pleasure. Such are anger, pity, fear and the like, with their opposites."

So, if we focus on the above mentioned statement we can see that there are several feelings a person portrays in his daily life and these feelings complete him. Basically there are four types of emotions i.e. happiness, sadness, fear and anger. These are the main emotions which include other emotions.

Emotions plays a vital role in a person's life as it includes:

1. The growth and development of the individual
2. It includes the higher levels of awareness





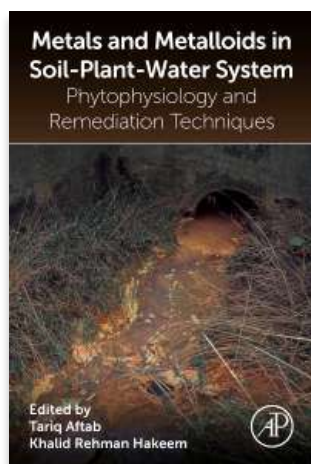
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## Metals Metalloids Soil Plant Water Systems

Phytophysiology and Remediation Techniques

2022, Pages 271-286

# Chapter13 - Physiological, morphological, and biochemical responses of metals and metalloids on algae

[Nivedita Singh<sup>a</sup>](#), [Shadma Afzal<sup>b</sup>](#), [Nand K. Singh<sup>b</sup>](#), [Saima Sohrab<sup>c</sup>](#), [Sanjay K. Mishra<sup>c</sup>](#), [Satish Chandra Agrawal<sup>a</sup>](#)

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### Abstract

Algae being the primary producers are the chief source of food energy of aquatic life. The water sources get polluted by the intervention of different anthropogenic causes such as industrial effluents, sewage waste, mining and many other sources. Hence, the algae get mainly encountered by pollutants as majority of them dwell in aquatic environment. Metals and metalloids for instance Copper (Cu), Zinc (Zn), Manganese (Mn), Vanadium (V), Chromium (Cr) are essential and crucial for carrying out different metabolic activities occurring in algal body and show positive effect on it by, whereas some of them such as Mercury (Hg), Arsenic (As), Lead (Pb), Cadmium (Cd) are highly toxic in nature and hinder metabolic processes in number of ways. However, both essential and nonessential metals and metalloids exceed the limit and present in high concentration in the water source, become toxic and adversely affect the normal physiological and biochemical pathways. Further, they accumulate in the algal body and get transferred to next level as a result of biomagnifications. This chapter focuses on the physiological, biochemical and morphological changes take place in different algal species under the stress and metal and metalloids and the mechanism involved in it and how these changes can be used optimistically for production of different target compounds and antioxidants as well.

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## Metals Metalloids Soil Plant Water Systems

Phytophysiology and Remediation Techniques

2022, Pages 199-216

# Chapter 9 - Effect of metals and metalloids on the physiology and biochemistry of medicinal and aquatic plants

Shadma Afzal <sup>a</sup>, Nand K. Singh <sup>a</sup>, Nivedita Singh <sup>b</sup>, Saima Sohrab <sup>c</sup>, Manjoo Rani <sup>a</sup>, Sanjay K. Mishra <sup>c</sup>, S.C. Agarwal <sup>b</sup>

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### Abstract

With increasing industrialization and other anthropogenic activities, the concentration of metals and metalloids in the aquatic and terrestrial biodiversity is increasing, which affects various physiological and biochemical parameters of life present therein. Metals like Co, Fe, Mn, Mo, Ni, Zn, Cu, Si, Se, and B are required by the plants for their normal metabolic activities while some metals such as lead, cadmium, mercury etc. are toxic for plants. Accumulation of metals whether essential or nonessential, beyond the threshold value produces negative response in the plants such as reduction in the cell division and rate of photosynthesis, damaging the chloroplast membrane structure, inhibition of photosystem of light-harvesting complex, inhibition of dark reaction, and production of reactive oxygen species (ROS). The biochemical parameters including replication of DNA, transcription and translation and enzymatic activities of RNAase, protease, alkaline pyrophosphatase enzyme also gets affected. Accumulation of proline and induction of antioxidant machinery viz., enzymatic defense system including superoxide dismutase (SOD), catalase (CAT), and ascorbate peroxidase enzyme (APX) and nonenzymatic defense molecules like tocopherol, ascorbate, glutathione S transferase gets stimulated due to metal stress. Hence, this chapter aims to acknowledge the physiological and biochemical mechanisms underlying metal toxicity and plant strategies to control and regulate metal and metalloid homeostasis, detoxification and tolerance in aquatic and medicinal plants.

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FOOD CHEMISTRY, FUNCTION AND ANALYSIS

# Bio- and Nano-sensing Technologies for Food Processing and Packaging

Edited by Ashutosh Kumar Shukla

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## About this book

The importance of processing and packaging food items so that they are safe for the consumer cannot be underestimated. Sensors have an important role to play in this, and sensing technologies have attracted the attention of the scientific community in view of increasing environmental and societal concerns.

This edited volume presents a collection of ten chapters discussing the current trends of bio- and nano-sensing technologies for processing and packaging of food items. Starting with an overview chapter which introduces the field, the book goes on to discuss novel applications related to preservation, authenticity and safety of foods. Intelligent food packaging and nano-based sensing are covered, and the book finishes with a look towards the pros and cons of how this will revolutionise sensing throughout the food sector. It will be of benefit to scientists and practising professionals conducting research in the areas of food processing, contamination and food safety, and academic researchers and graduate students studying food technology or food engineering.

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# Chapter 10: Precautionary Measures for Developing Nanosensors for the Food Industry



By Sharda Sundaram Sanjay

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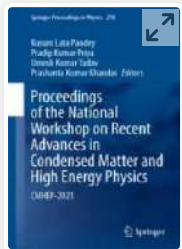
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Nanotechnology has the potential to alter the food system and have a substantial impact on food science, as it could lead to advances in food texture, flavour, processability, and shelf-life sustainability. Due to their outstanding properties, nanoparticles are increasingly being employed to develop monitoring tools for detecting contamination, adulteration, and the freshness of food products also. Intelligent packaging makes use of barcodes, time–temperature indicators, gas indicators, and biosensors, *etc.*, making sensing a crucial component of an intelligent packaging system. Despite its numerous advantages, the expanding use of nanotechnology in food technology has raised concerns about public safety, as well as ethical policies and regulatory issues. In fact, there is a scarcity of accurate knowledge on the potential safety risks linked with nanotechnology. Nanotechnology offers a great deal of potential for improving food products and opening up new avenues for food innovation at a breakneck rate, however it also raises concerns about safety and health. As a precaution, we must first analyse all of the advantages and disadvantages of modern technology while building nanosensors for the food business. To perform a comprehensive examination into preventive measures for producing nanosensors for the food business, we progress step by step, beginning with a quick introduction to sensors, nanosensors, and their uses in the food sector, followed by the outcomes of their exposure to human health, and then preventive measures.

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**Proceedings of the National Workshop on Recent Advances in Condensed Matter and High Energy Physics** pp 1–13

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# Ground State Properties of Spin-1/2 Falicov-Kimball Model on a Triangular Lattice with Uniform External Magnetic Field

[Umesh K. Yadav](#)  & [Pradip K. Priya](#)

Conference paper | [First Online: 02 September 2022](#)

**159** Accesses

Part of the [Springer Proceedings in Physics](#) book series (SPPHY, volume 278)

## Abstract

Electrons moving on a lattice in the presence of external magnetic field is always an interesting problem giving rise to many novel phenomena like flux quantization, quantum Hall effect and Hofstadter butterfly spectrum, etc. In addition to these exotic phenomena, inclusion of correlation between electrons moving on a triangular lattice makes the

problem more complicated and one expects fairly complicated phases in the ground state in result of many novel phenomena like charge and magnetic order, non-Fermi liquid behavior and metal-insulator transitions in the system. Therefore, we have studied the ground state properties of spin-1/2 Falicov-Kimball model on a triangular lattice with an external uniform magnetic field using the classical Monte Carlo simulation algorithm and numerical diagonalization technique. We have found various charge and magnetic orders in the ground state configuration accompanying the metal-insulator transition with change in the magnetic field. These results will be applicable for a class of layered systems with triangular lattice, e.g.,  $\text{GdI}_2$ ,  $\text{NaTiO}_2$  and  $\text{NaVO}_2$ , etc.

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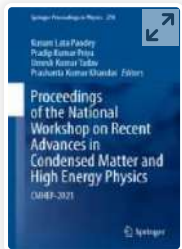
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## A Study of the Solar Cycle 21–24 and the Starting Phase of Solar Cycle 25

[Smriti Srivastava](#), [Sai Kumar Chirra](#)  & [Ashok Kumar Pathak](#)

Conference paper | [First Online: 02 September 2022](#)

**156** Accesses

Part of the [Springer Proceedings in Physics](#) book series (SPPHY, volume 278)

### Abstract

The manuscript deals with the study related to the last four solar cycles 21–24 along with the starting phase of solar cycle 25 based on online available astronomical data. Data related to solar cycles 21–24 (1976–2020) have been analyzed. And we could infer how the solar activities are affected with average sunspot counts. The results based on 27-day-averaged data of three parameters—10.7 cm

solar flux, sunspot number, and solar wind proton density—are reported to observe their dependence on each other and how they varied during the starting phase of solar cycle 25. The data for the daily total sunspot number for the 1st day of 2020 to 223rd day of 2020 have also been analyzed and reported. On the basis of our analysis, we observe that the variation in number of sunspots leads to the quasi-periodicity and the difference in the strength of the solar cycle.

### Keywords

[Solar cycle](#)    [10.7 cm solar flux](#)

[Sunspot number](#)    [Solar wind proton density](#)

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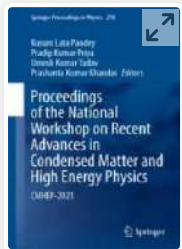
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# Effect of Varying the Grating Length in an Optical Readout Scheme Based on Grated Waveguide Cantilever Cavity Resonance

[Anil Kumar Singh](#), [Renil Kumar](#) & [Prem Prakash Singh](#) 

Conference paper | [First Online: 02 September 2022](#)

**151** Accesses

Part of the [Springer Proceedings in Physics](#) book series (SPPHY, volume 278)

## Abstract

In our earlier work, a novel design of an optical readout scheme based on a grated waveguide (GWG) resonator for interrogating microcantilever sensor arrays is presented. An analytical modelling of the transfer function of this scheme is described and it reasonably matches with the FDTD numerical solution performed using open-source software

MEEP. This readout scheme is designed on silicon optical bench platform which consists a monolithically integrated microcantilever in proximity to a grated waveguide (GWG). In analytical modelling, cavity formed between the microcantilever and the grated waveguide (GWG) is considered to be lossy, and it is studied using a Fabry-Perot (FP) interferometer model. An analytical expression is derived for the optical power transmission as a function of the grating length, periodicity of the grating, and grating efficiency. In this paper, effect of varying the grating length, FP cavity loss parameter, and reflectance parameter on power transmission is studied. Results show that analytical calculations reasonably match with FDTD numerical models.

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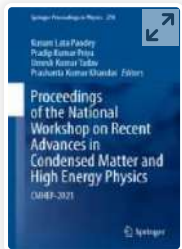
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## Investigation of Thermodynamical and Electro-Optical Properties of Nematic Liquid Crystals Dispersed with Low wt% BaTiO<sub>3</sub> Nanoparticles

[U. B. Singh](#) , [Dheeraj Kumar Pandey](#), [M. B. Pandey](#)  & [K. L. Pandey](#)

Conference paper | [First Online: 02 September 2022](#)

**165** Accesses

Part of the [Springer Proceedings in Physics](#) book series (SPPHY, volume 278)

### Abstract

Composite was prepared by dispersing barium titanate nanoparticles (BaTiO<sub>3</sub>–NPs) into a multi-component liquid crystalline material having wide range room temperature nematic phase. The thermodynamic and electro-optical properties of the composite sample were studied along with

pristine materials. Effect of BaTiO<sub>3</sub>-NPs dispersion on various display parameters of nematic liquid crystals, namely threshold voltage and splay elastic constant have been observed. The host liquid crystals have nematic ordering which supports alignment of BaTiO<sub>3</sub>-NPs parallel to the liquid crystals director, which consequently improves electro-optical parameters of the composite system.

Keywords

[Nematic liquid crystals](#)    [Nanoparticles](#)

[Composites](#)    [Display parameters](#)

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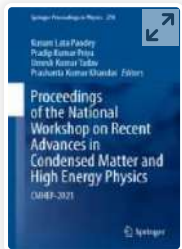
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## Identified Charged Particle Production in Pb + Pb Collisions at $\sqrt{s_{NN}} = 2.76$ TeV Using Tsallis Distribution Function

[P. Kumar](#), [P. K. Khandai](#) , [K. Saraswat](#) & [V. Singh](#)

Conference paper | [First Online: 02 September 2022](#)

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### Abstract

In the proceeding, we show the transverse momentum ( $p_T$ ) spectra of identified charged particles such as pion and kaon in Pb + Pb collisions at  $\sqrt{s_{NN}} = 2.76$  TeV using Tsallis distribution function. The power law of Tsallis/Hagedorn distribution function gives very good description of the hadron spectra in  $p_T$  range from 0.2 to



300 GeV/c in p + p collisions. Here, we use Tsallis distribution function as a fitting function to the data of invariant yield versus  $p_T$  of pion and kaon at various centralities in Pb + Pb collisions. These published data are taken from ALICE collaboration at mid-rapidity region. The Tsallis parameter  $T$  governs the soft bulk contribution to the spectra, and the parameter  $q$  shows the nonthermalization of the system. The data/fit shows deviations of the data from the Tsallis distribution. The parameters of such fittings are studied as a function of centralities.

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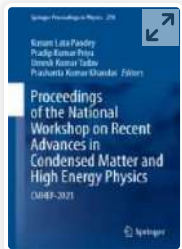
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## Multiplicity Features of the Grey Particles Emerged in $^{84}\text{Kr}_{36}$ + Em Interaction at 1 GeV per Nucleon

[M. K. Singh](#) , [P. K. Khandai](#) & [V. Singh](#)

Conference paper | [First Online: 02 September 2022](#)

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### Abstract

In this manuscript, we have focus on the target dissolution (mainly grey particles) emerged from the interactivity of the  $^{84}\text{Kr}_{36}$  and nuclear emulsion detector (NED). NED is a composite target detector. In this analysis, we have used NIKFI-BR-2 emulsion plates. This analysis shows that the emission feature of the grey particle is not depending on the projectile mass and strongly depends on the

various types of target groups of NED participating in the collisions.

## Keywords

[NED](#)   [Target fragmentation](#)   [Grey particle](#)

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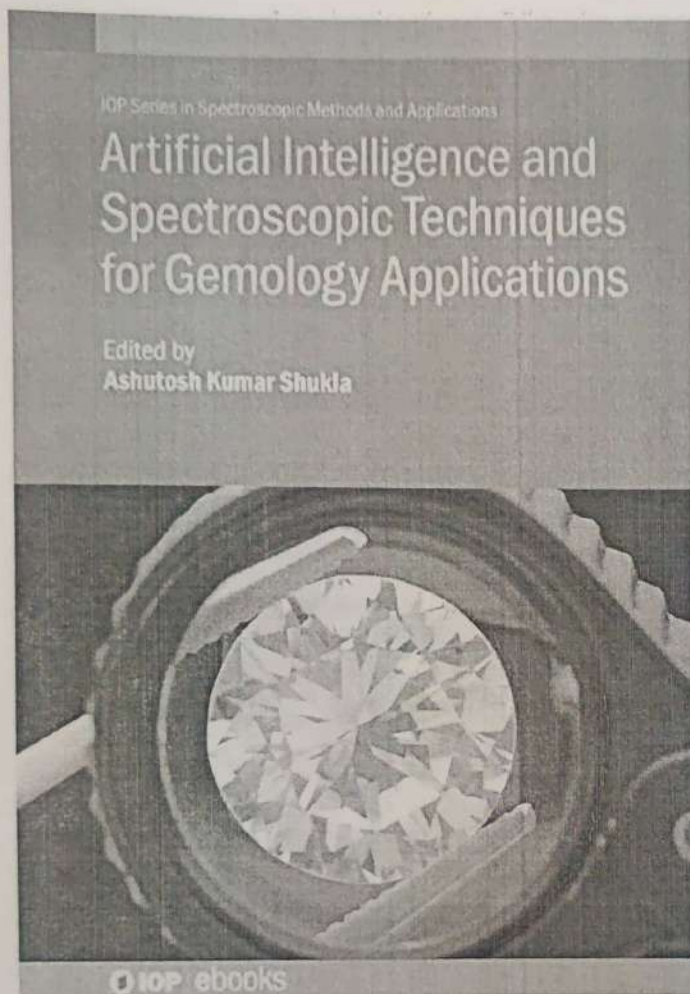
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BOOK INFORMATION:

**Bibliographic**

Hardback ISBN: 9780750339254

Ebook ISBN: 9780750339278

DOI: 10.1088/978-0-7503-3927-8

Publisher: Institute of Physics Publishing

Series: IOP Series in Spectroscopic Methods and Applications



### Book Details

Book Quality:

Publisher Quality

ISBN-13:

9789811671968

Related ISBNs:

9789811671951

Publisher:

Springer Singapore, Singapore

Date of Addition:

04/30/22

Copyrighted By:

The Editor

Adult content:

No

Language:

English

Has Image Descriptions:

No

Categories:

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## About this book

The importance of processing and packaging food items so that they are safe for the consumer cannot be underestimated. Sensors have an important role to play in this, and sensing technologies have attracted the attention of the scientific community in view of increasing environmental and societal concerns.

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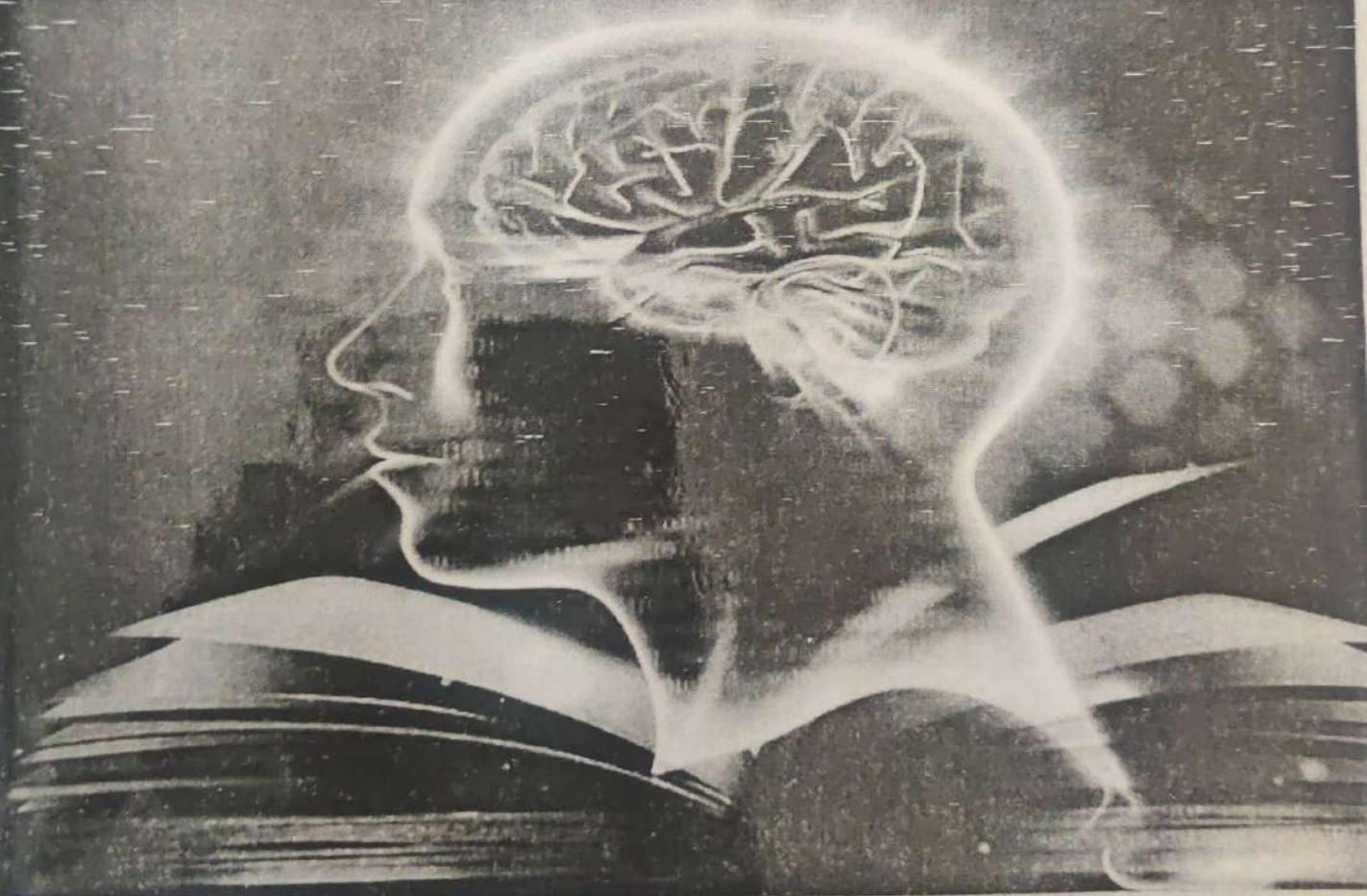


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# The Panorama of Indian Philosophers and Thinkers

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*Published by:*  
**Sanchi University of  
Buddhist-Indic Studies**

E1-141, Arera Colony  
Bhopal. 462016 (M.P)  
Phone +91-9825012984  
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**Edition: 2023**  
**ISBN: 978-81-8043-172-2**

*Typesetting by:*  
**PRIYANKA GRAPHICS**  
New Delhi

*Printed by:*  
**NICE PRINTING PRESS**  
Delhi



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## Rewati Raman Pandey (1942 – 2004)

### Early Life (2 April 1942)

Rewati Raman Pandey was born in a Village Mehandipur, district Jaunpur, Uttar Pradesh, India. His father Ramcharan Pandey was a traditional Sanskrit scholar. He has studied up to intermediate in Jai Hind College, Jaunpur and after that he did his graduation with the subject combination of English, Sanskrit and Philosophy and then obtained post-graduate degree in Philosophy and D.Phil. degree from Allahabad University. His dissertation topic was '*The Concept of Prakṛti in Indian Philosophy*' and his research supervisor was S. Datta. He was conferred the degree of Darshanacharya from Sampurnanand Sanskrit University, Varanasi. His first academic assignment was adhoc lecturer in Philosophy Department, Banaras Hindu University (1967) and within six months he was appointed temporary lecture in Philosophy Department, Gorakhpur University. He was awarded DAAD fellowship for higher study in Indology in West Germany (1972-74) and studied German language at the Goethe Institute in Iserlohn. Pandey did a philological study of '*Vedāntasiddhāntamuktāvalī*' along with Professor Lambert Schmithausen at the Universities of Münster and Hamburg. He was appointed Lecturer (1974) and later on Reader (1979) and Professor (1987) in the Department of Philosophy and Religion, Banaras Hindu University. It was during his headship several national and international conferences and seminars were conducted by the department. Pandey was appointed Visiting Professor to the Jawahar Lal Nehru Chair for Indian Studies at Mahatma Gandhi Institute, Moka, Mauritius (1995-97). He was joint secretary of Akhil Bhartiya Darshan Parishad (1980-86) and

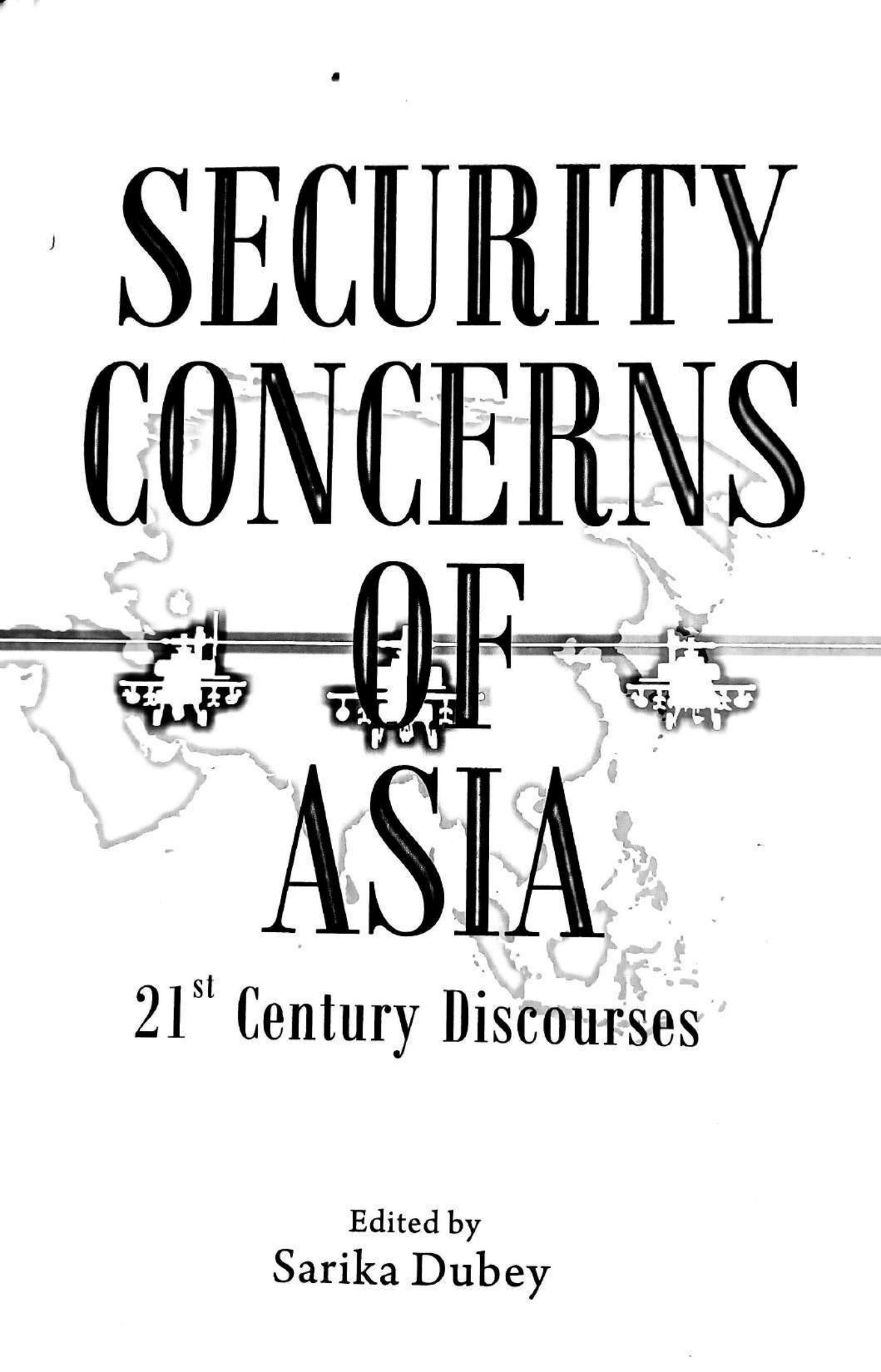


for conducting hermeneutical study of classical Indian texts. He also frequently employs the technique of comparative methodology in discussing and analyzing the relevant philosophical issues and problems.

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**SECURITY CONCERNS OF ASIA: 21<sup>st</sup> Century Discourses**  
*Edited by Prof. Sarika Dubey*

ISBN 978-93-90095-48-3

First Published in 2022

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*Published by*  
PENTAGON PRESS LLP  
206, Peacock Lane, Shahpur Jat  
New Delhi-110049  
Phones: 011-64706243, 26491568  
Telefax: 011-26490600  
email: [rajan@pentagonpress.in](mailto:rajan@pentagonpress.in)  
website: [www.pentagonpress.in](http://www.pentagonpress.in)

Printed at Aegean Offset Printers, Greater Noida, U.P.

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## Terrorism in Asia: Challenges for Security and Human Rights

*Ashima Ghosh*

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### Introduction

The scourge of terrorism has become a major security threat for countries all over the world. Terrorism is no more a regional phenomenon. Terrorist organizations have spread their tentacles to much wider areas. Modern technology and networking have made the operations of terrorist organizations more deadly, operating on trans-national and global levels. This challenge of trans-national terrorism requires concerted and coordinated response from the global community.

Acts of violence and subversion by terrorists create fear and panic among the people. Through their violent acts, they try to prove that the government is powerless to prevent terrorism and they seek publicity for their cause. Agreement and co-operation amongst the states is essential to fight against terrorism, so that their sources of funding, procurement of arms, and training camps can be curbed and those involved in acts of terror can be extradited for trial according to law.

The Asian continent, which has seen economic growth and progress in the 21st century, has been facing the challenge of terrorism. Terrorism has emerged as a major security threat for most of the countries in Asia.