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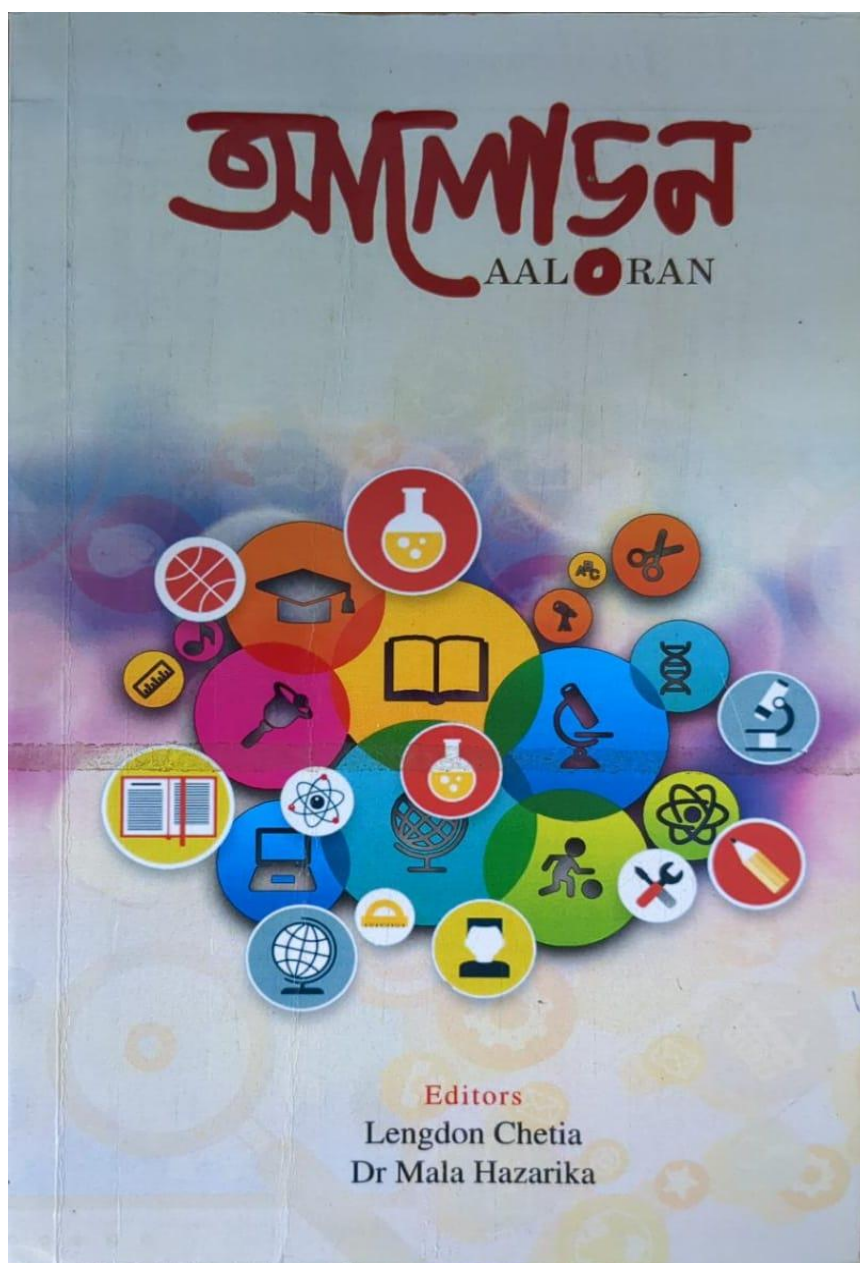
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Title: The Role of Digital Technology in Higher Education System

Author: Dr. Kshirod Sarmah



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The Role of Digital Technology in the Higher Education System

Dr Kshirod Sarmah*

1. Introduction:

Now-a-days we live in the most advanced scientific age which also known as information technology or digital technology age. Digital technology in higher education (HE) is constantly evolving. Understanding the effects of digital technology is important for higher education institutions in order to make good investments of digital technology. Therefore at present most of the educationist as well as teachers community especially in HE have always experimented with the state-of-art of teaching technology, which has evolved over centuries by adopting new approaches, methods and tools. The use of digital technology within HE changed significantly in the last decades. Predominantly analog technologies, such as whiteboards and handouts, has largely been replaced by digital ones, e.g. PowerPoint presentations, smartboards and online course platforms [1]. We have experienced as well as experimented a rapid growth in science and technology in the last century as a consequence of the greatest innovations and exciting new technologies. As always, these innovations create opportunities while posing new challenges. Pedagogical teaching and learning practices have been greatly affected by the advancement

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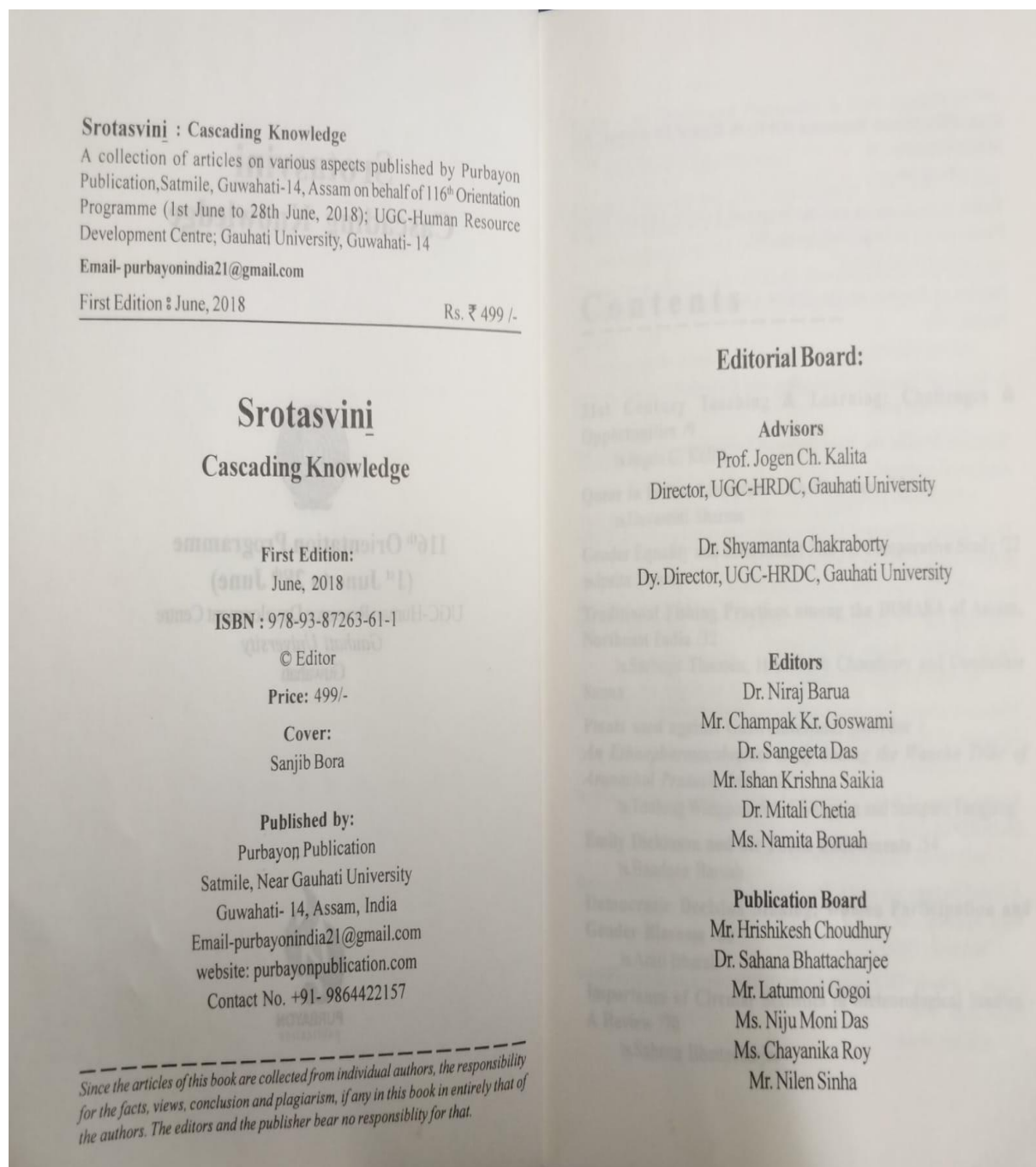


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Title: Toxicological effects of lead acetate exposure in a fresh water teleost fish, *Channapunctatus*

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Toxicological Effects of Lead Acetate exposure in a Fresh Water Teleost Fish, *Channa punctatus*

✉ Mitali Chetia¹ and Lakhyahira Baruah²

Abstract

The disposal of anthropogenic chemicals and wastes in the aquatic environment poses serious threat to the human health. The present study was aimed to evaluate the histopathological as well as genotoxic effects of heavy metal lead on *Channa punctatus*. The fishes were exposed to sub-lethal concentration of 5ppm of Lead acetate and were examined after 20 days of exposure. The results showed several pathological alterations in the liver cells which include loss of cellular architecture, cytoplasmic vacuolation, haemolysis in blood vessels and congestion of sinusoids. Presence of micronuclei in the peripheral blood

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was also observed in the treated fishes.

Keywords: Genotoxic, Histopathology, Lead acetate and *Channa punctatus*

Introduction

The aquatic environment plays a vital role for functioning of ecosystem and is intimately related with human health. The increasing human population and industrial development has worsened the problem of disposal of anthropogenic chemicals and wastes in the aquatic environment. Among all types of aquatic pollutants, heavy metals are of greatest concern because after reaching in the aquatic bodies they not only deteriorate the life sustaining quality of water but also cause damage to both flora and fauna by affecting various physiological, biochemical and cellular processes (Gupta & Srivastava, 2006; Agtas *et al.*, 2007; Shukla *et al.*, 2007). Metal pollution has increased with the technological progress of human society. Industry, mining, advanced agriculture, household waste, and motor traffic is all among the activities considered to be major sources of metal pollution. Metals can accumulate in aquatic organisms, including fish, and persist in water and sediments (Luoma & Rainbow, 2008). Since fish occupy the top of the aquatic food chain, they are suitable bioindicators of metal contamination.

Lead accumulation in sediment is of significance for aquatic organisms. Lead can induce oxidative damage through direct effects on the cell membrane, interactions between lead and hemoglobin, which increase the auto-oxidation of hemoglobin. The toxic effect of lead is primarily the inactivation of enzymes and proteins by the binding with sulphhydryl group etc. It is an immunotoxicant which through human exposure results in immune function changes and has the potential to adversely affect human health.

Fishes absorb lead by different ways through gills and skin or by ingestion of contaminated water and food; and may lead to high mortality rate or cause many biochemical and histological alterations in survived fish (Coetzee, 1998).

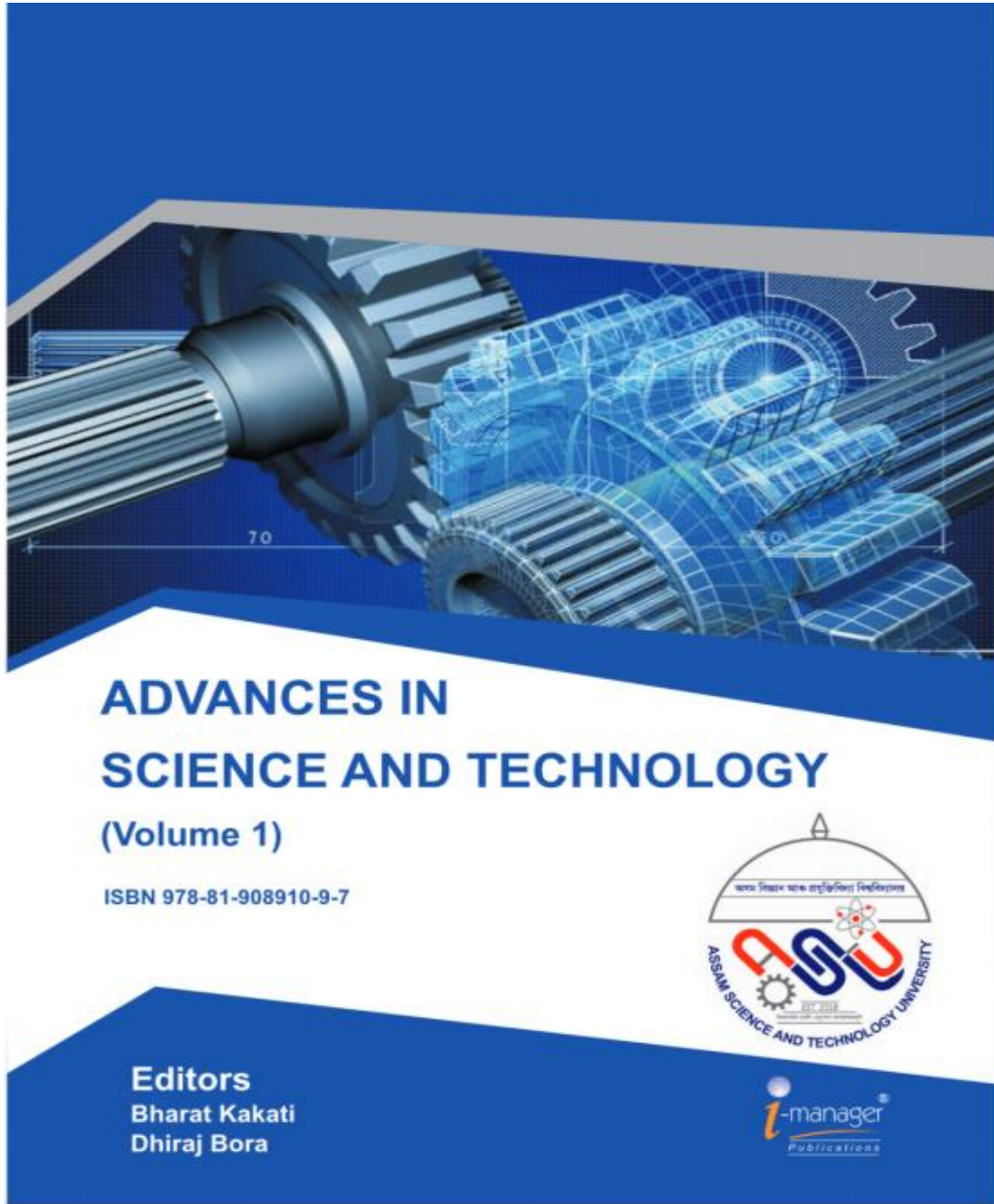
The accumulation of heavy metals in the tissues of fishes may cause various physiological defects and mortality (Torres *et al.*, 1987).



SI No. 3

Title: Some aspects of fuzzy power set

Author: **Sisir Kumar Rajbongshi**



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Some Aspects of L -Fuzzy Power Set

S. K. Rajbongshi¹

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Abstract

This paper proposes some important properties of L -fuzzy power set of a finite set. In this article we take a non-empty finite set E and an ordered subset M of the closed interval $[0,1]$, then the set of transformations from X to M denoted by F is defined as L -fuzzy power set. Hence, the fuzzy subsets of F are the L -fuzzy subsets. Considering the disjunctive union ' \oplus ' operations between fuzzy subsets of F , the structure (F, \oplus) forms a groupoid, which is defined as special fuzzy groupoid. Throughout this article different properties of the L -fuzzy power set and special fuzzy groupoid are studied.

Keywords: L -Fuzzy Power Set, Disjunctive Union Of Fuzzy Sets, Special Fuzzy Groupoid.

1. Introduction

The concept of fuzzy sets was introduced by Zadeh [13] is applied to many mathematical branches. This concept was adapted by Goguen [12] and Sanchez [1] to define and study fuzzy relations. L -fuzzy sets are the generalization of fuzzy sets was first considered in 1967 by Joseph Goguen. Since then studies on L -fuzzy sets have been carried out by many researchers. Rosenfeld [14] inspired the fuzzification of algebraic structures and introduced the notion of fuzzy subgroups.

Algebraic structures play an important role in mathematics with wide ranging applications in many disciplines, such as computer science, information technology, coding theory, and so on [9]. There are many researches which had given emphasis on the algebraic structures of the fuzzy sets [2, 6, 15, 16, 17].

Again, the concept of an L -set creates applications in many disciplines like mathematics, computer science, etc. In real processes there are often situations when the object is a set of "Washed Out" boundaries in the sense that a given element may belong to a given

element may belong to a given set to a greater or lower degree.

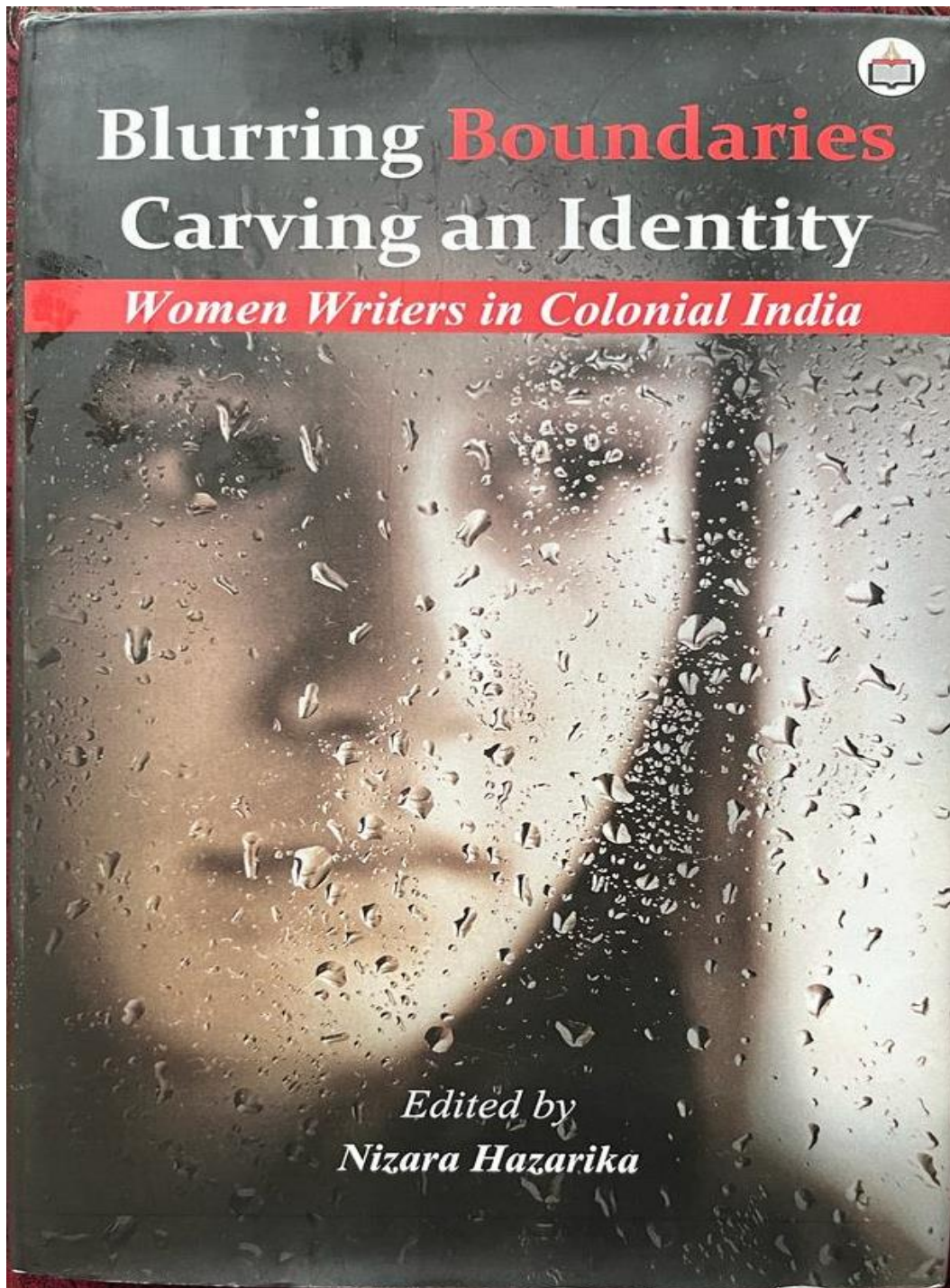
This provides sufficient motivation to researchers to review various concepts and results from L -valued fuzzy sets and formations of algebra from them. Lattice theory is one of structures that are most extensively used and discussed in computer science and engineering. Partially ordered set, po-set, Lattice theory and L -valued fuzzy sets are studied by many researchers in many articles [2, 5-9, 11-15]. Special Fuzzy Boolean algebra for the fuzzy subsets with their characteristics have been studied in some article [16,17].

In this article we introduce a special kind L -fuzzy power set. Then we introduce and study a new kind of groupoid formed by the L -fuzzy power set which is defined as the special fuzzy groupoid with the help of disjunctive union operation. Throughout the article, different properties of the special fuzzy groupoid are discussed.

SI No. 4

Title: "Positioning Women in Colonial India: Cornelia Sorabji's *Between the Twilight: Being Studies of Indian Women by One of Themselves*"

Author: **Dr. Sudipta Phukan**



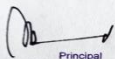
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**Positioning Women in Colonial India:
Cornelia Sorabji's *Between the Twilight:
Being Studies of Indian Women
by One of Themselves***

Sudipta Phukan

With the emergence of feminism, women fought against the patriarchal society throughout the world. It emerged in the form of feminist activity that occurred during the late 19th and early 20th centuries throughout the world. Its prime focus was on the legal equalities and right to vote which could not be enjoyed by women earlier. The publication of Mary Wollstonecraft's *A Vindication to the Rights of Woman* back in 1791 already worked as an eye-opener in the Western world. There was an urge to recover the lost identity of the female when Simone de Beauvoir published *The Second Sex* in 1949 to mark the beginning of the first wave of feminism. It was a difficult time for the female writers to publish their works back in 17th-18th centuries. There was always a threat coming from their male counterparts in every sphere of life starting from domestic, social, political and economic spheres. They were dominated, suppressed and oppressed both at home and outside as well. The conceptualisation of the female population as the 'other' gave them a liminal and marginalised position in society.

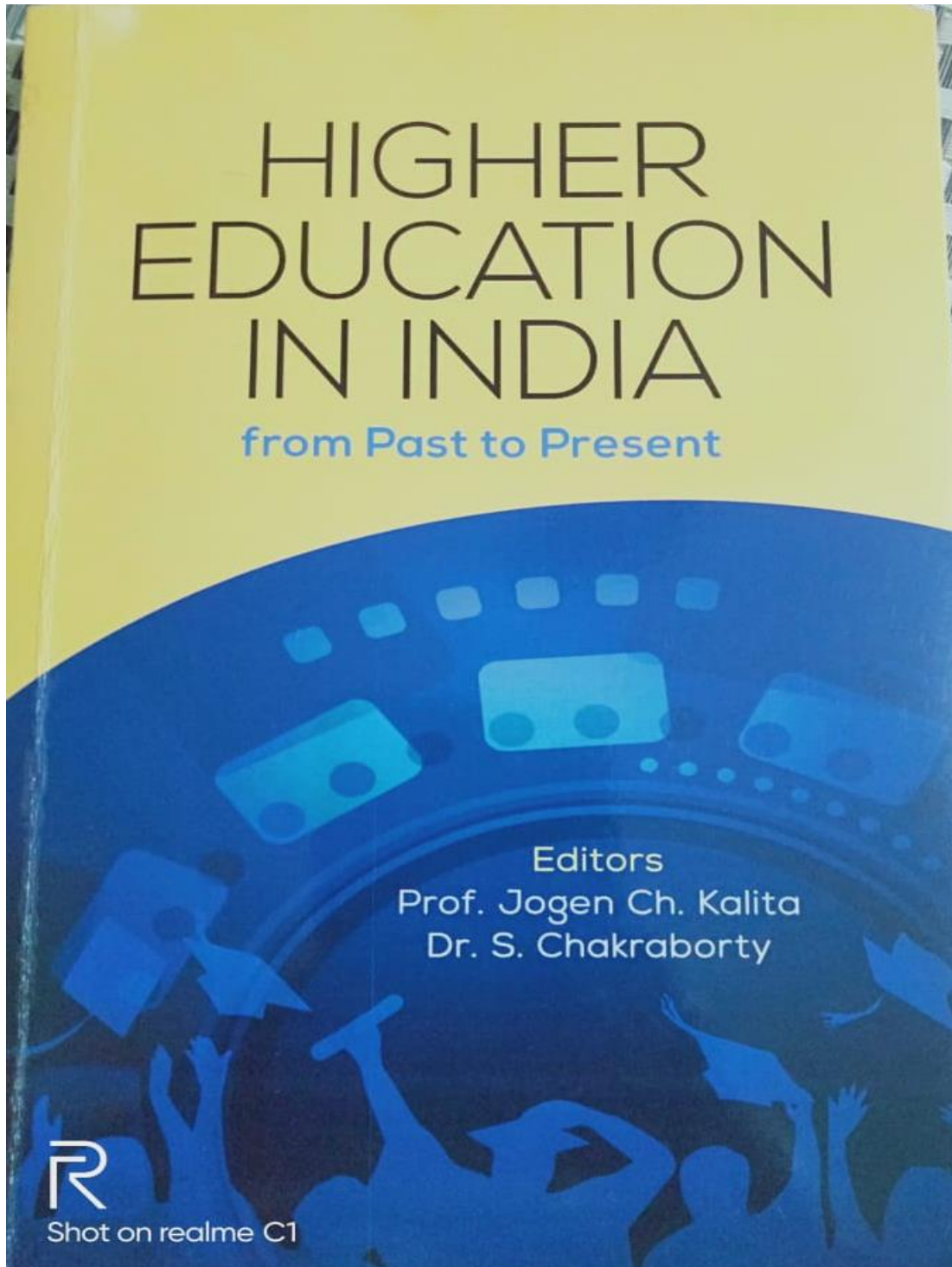
The pathetic condition of women writers got its reflection in Virginia Woolf's *A Room of One's Own* in 1929. Woolf critiques the society where women could not easily take up the profession of



SI No. 5

Title: Scientific Temper and the role of Teachers

Author: **Dr. Insan Ara Rahman**



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Higher Education in India:
from Past to Present
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Scientific Temper and the role of Teachers

Dr. Insan Ara Rahman*

The evolution of human race in the earth was the most significant part of the Earth's history. Human are the superior of all the living organisms so far. Superiority is due to the development of the most complex type of brain and nervous system ever unlike other organisms. This brain enables the human race to think and analyze the phenomena that occurs at one's surroundings. Thus the development of the livelihood together with the development of the socio cultural and scientific developments are the results of the thinking and execution capacity that the human race are gifted with by the evolutionary process of the brain. Now the human race is in 21st Century. This is the era of Science and technology. People are using products that are invented by using the ideas of scientific knowledge. But prior to the implementation of the Science which leads to invention, one should must observe, think and question. The Philosophers like Socrates, Plato, Aristotle; Scientist like Galileo, Newton or Mandel were not would had been so important for us if they would not had the quest to know and understand the phenomena of their surroundings and tried to analyze those.

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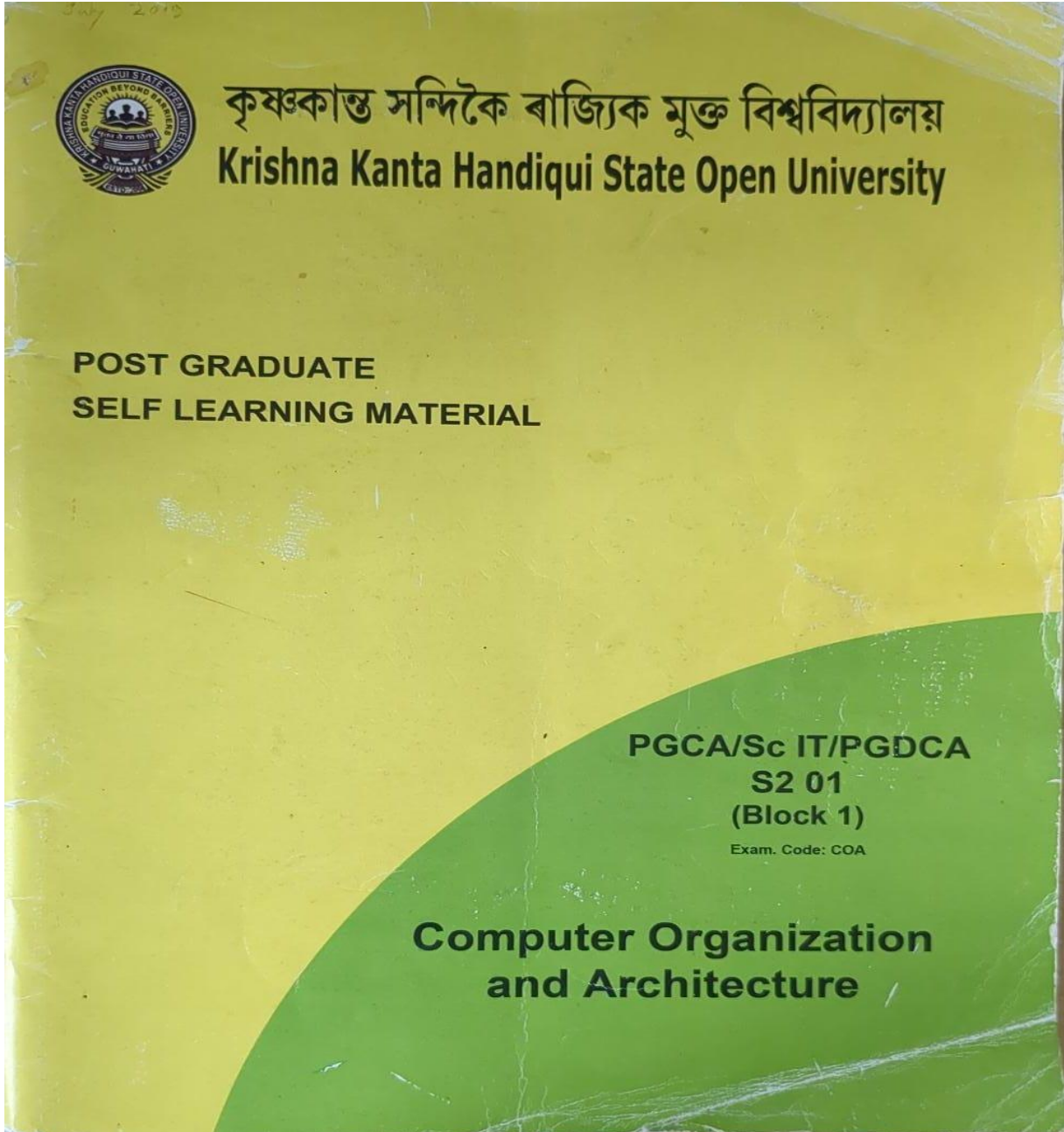
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Year: 2019-20

SI No. 1

Title: Data Representation

Author: Kshirod Sarmah



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UNIT 2: DATA REPRESENTATION

UNIT STRUCTURE

- 2.1 Learning Objectives
- 2.2 Introduction
- 2.3 Representation of Characters in Computer
- 2.4 Positional Numbering Systems
 - 2.4.1 Binary Number System
 - 2.4.2 Decimal Number System
 - 2.4.3 Octal Number System
 - 2.4.4 Hexadecimal Number System
- 2.5 Computer Arithmetic
- 2.6 Binary Arithmetic
 - 2.6.1 Binary Addition
 - 2.6.2 Binary Subtraction
 - 2.6.3 Binary Multiplication
 - 2.6.4 Binary Division
- 2.7 Control and Data Path
 - 2.7.1 Interaction between Control and Data Path
- 2.8 Central Processing Unit
- 2.9 Design of Arithmetic-Logic Unit
- 2.10 Control Unit
 - 2.10.1 Hardware Control Unit
 - 2.10.2 Microprogrammed Control Unit
- 2.11 Let Us Sum Up
- 2.12 Further Reading
- 2.13 Answers to Check Your Progress
- 2.14 Model Questions

2.1 LEARNING OBJECTIVES

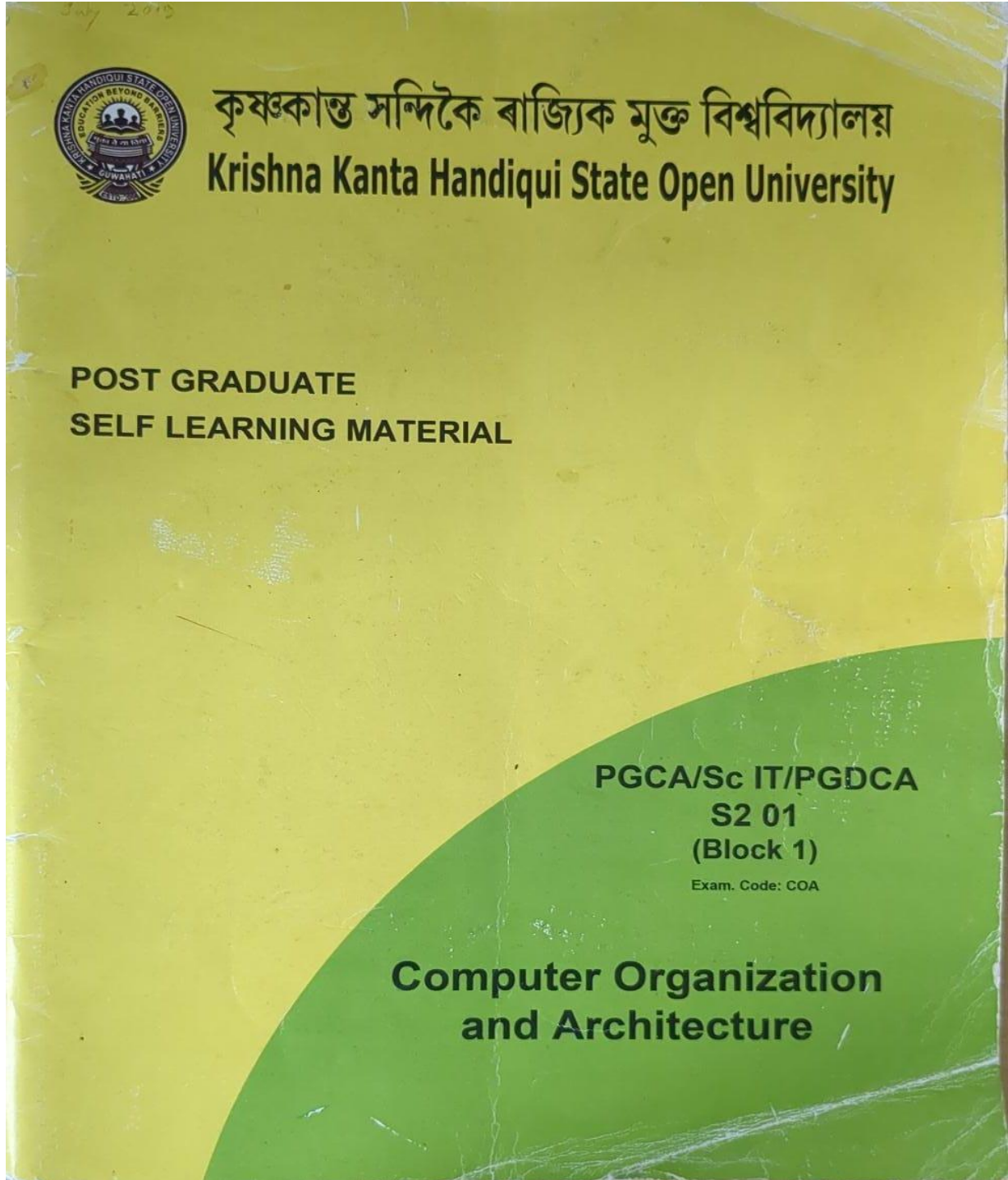
After going through this unit, you will be able to:

- learn to represent data in the computer system
- explain how different types of data stored and processed by digital computer system

SI No. 2

Title: Unit 3: Computer Arithmetic

Author: **Kshirod Sarmah**



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Dr. Jyotiprakash Goswami, Assam Engineering College
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UNIT 3: COMPUTER ARITHMETIC

UNIT STRUCTURE

- 3.1 Learning Objectives
- 3.2 Introduction
- 3.3 Integer Representation
 - 3.3.1 Signed Integer Representation
 - 3.3.2 Fixed Point Representation
 - 3.3.3 Floating Point Representation
- 3.4 Signed 0 Magnitude Form
- 3.5 The Concept of Complement
 - 3.5.1 Diminished Radix Complement
- 3.6 One's Complement
 - 3.6.1 One's Complement Arithmetic
- 3.7 Two's Complement Arithmetic
- 3.8 Let Us Sum Up
- 3.9 Further Reading
- 3.10 Answers to Check Your Progress
- 3.11 Model Questions

3.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- learn about integer both signed and unsigned representation
- learn how to represent both fixed point and floating point
- describe signed and magnitude form of integers.
- learn the concept of complements
- learn how to find 1's complement of binary numbers
- calculate 1's complement arithmetic
- learn how to find 2's complement and its arithmetic.

3.2 INTRODUCTION

Computer arithmetic is a branch of computer engineering that deals with methods of representing integers and real values in digital systems and

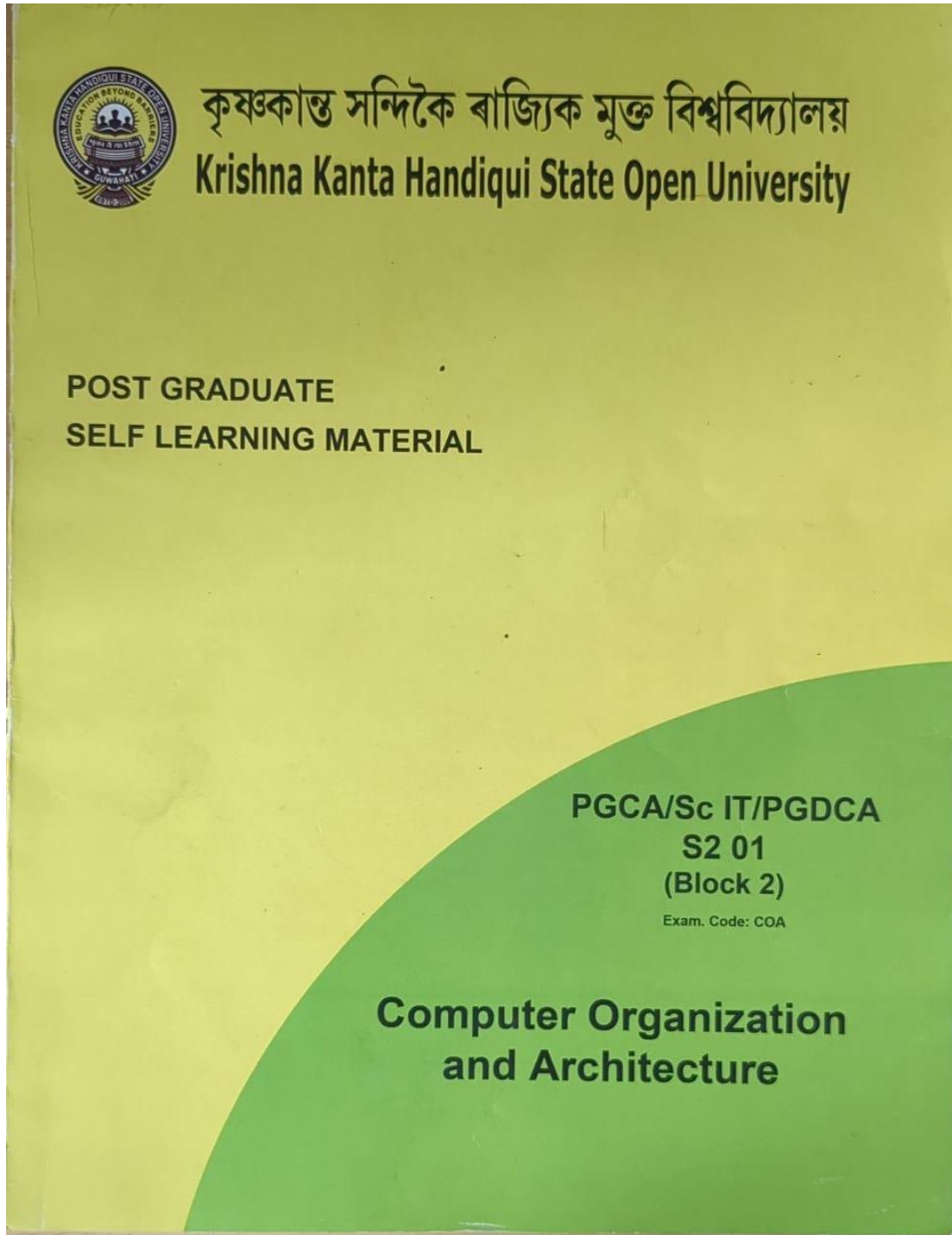
Computer Organization and Architecture

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SI No. 3

Title: Unit 10: Memory and I/O Interfacing

Author: **Kshirod Sarmah**



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UNIT 10: MEMORY AND I/O INTERFACING

UNIT STRUCTURE

- 10.1 Learning Objectives
- 10.2 Introduction
- 10.3 I/O Interface
 - 10.3.1 Functions of I/O Interfaces
 - 10.3.2 Connection of I/O Buses to I/O Devices
- 10.4 I/O Processor
 - 10.4.1 Block Diagram of I/O Processor
 - 10.4.2 CPU- I/O Processor Communication
- 10.5 Priority Encoder
 - 10.5.1 Definition of Encoder
 - 10.5.2 Priority Encoder and its features
 - 10.5.3 Applications of Priority Encoder
- 10.6 I/O Scheduling
 - 10.6.1 Techniques of I/O Operations
 - 10.6.2 Types of I/O Scheduling Techniques
- 10.7 Let Us Sum Up
- 10.8 Further Reading
- 10.9 Answers to Check Your Progress
- 10.10 Model Questions

10.1 LEARNING OBJECTIVES

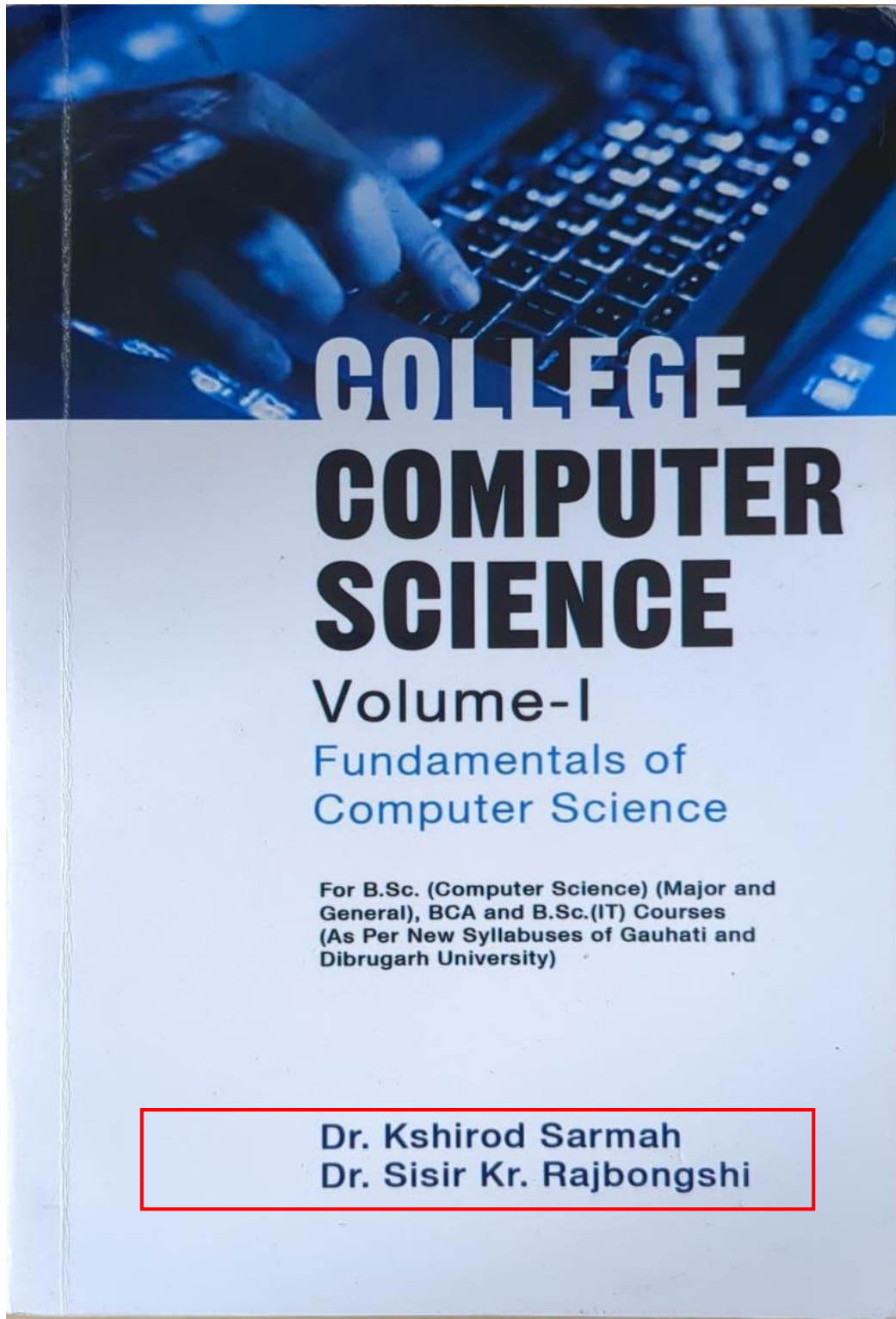
After going through this unit, you will be able to:

- learn about I/O interface and its different functions
- learn how I/O buses are connected to I/O devices
- learn about I/O Processor and its functionality with CPU
- learn about Priority encoder and its various features and applications
- learn about different types of I/O operations
- learn about I/O scheduling techniques and its different types.

Sl. No. 4

Title: Fundamentals of Computer Science

Author: **Kshirod Sarmah** and **Sisir Kumar Rajbongshi**



College Computer Science

A book on Fundamentals of Computer Science written by **Dr. Kshirod Sarmah** and **Dr. Sisir Kr. Rajbongshi** and published by Purbayon Publication, Guwahati-14, Assam.

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Dr. Kshirod Sarmah is a graduate in Mathematics did his M.Sc. in Computer Science from the Gauhati University and was awarded Ph.D. in Computer Science & Engineering from Rajiv Gandhi (Central) University. Presently, he is an Assistant Professor and HOD in the Department of Computer Science at Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya (A Govt. Model College), Amjonga, Goalpara, Assam, India. He has 12 years of teaching experience and more than 12 (twelve) of his research papers have been published in different reputed UGC approved International Journals and International Conferences. He is also the reviewer of some international journals of Computer Science. His research areas are Speech Processing, Speaker Recognition and Machine Learning.



Dr. Sisir Kr. Rajbongshi started his teaching career as an Assistant Professor in Information Technology at Rangia College, Rangia, Assam. After one and half year he joined Gauhati University. He has been a guest faculty member at GU IDOL, Gauhati University for more than seven years. He did his M.Sc. in Computer Science and Ph.D. in Information Technology from Gauhati University. More than 10 (ten) of his research papers have been published in International Journals of repute. He is also the reviewer of some international journals. His research areas are Fuzzy Algebra and Boolean Computing. Presently he has been working as an Assistant Professor, Dept. of Computer Science, PDUAM, Amjonga, Goalpara.

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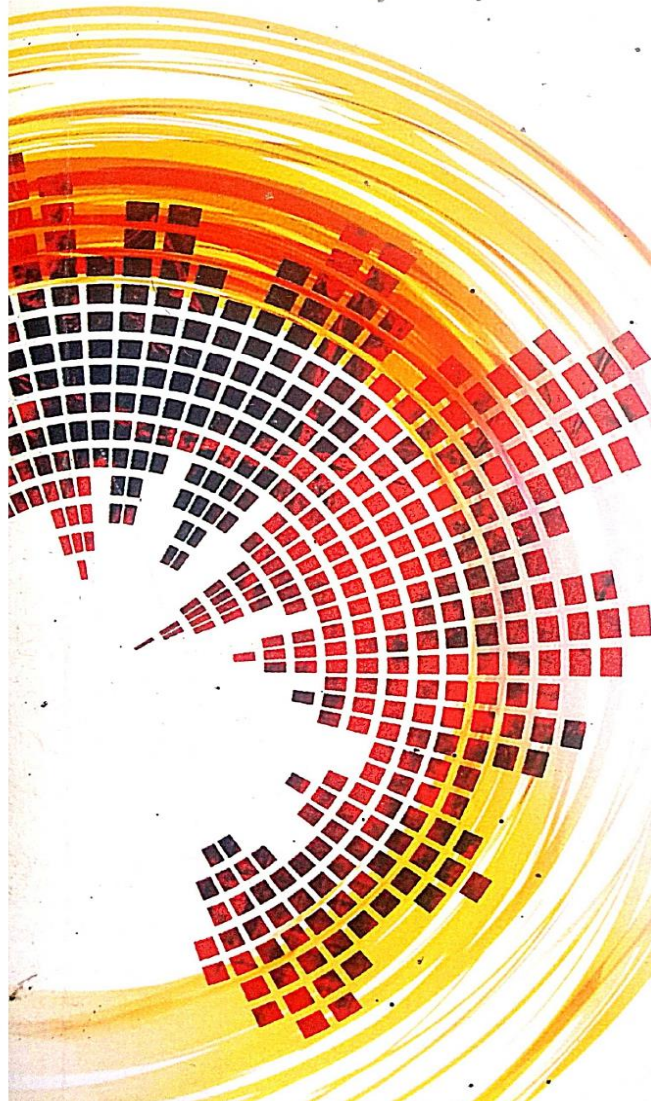
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SI No. 5

Title: Tips for Accomplish in Entrance Examination for Management course and placement

Author: Md Shahidul Islam Khan

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Tips for Accomplish in Entrance Examination for Management Course and Placement

Shahidul Islam Khan*

1. Introduction:

Management Education like Master of Business Administration (MBA) is a hot subject for several meritorious graduates in any discipline for higher study. Today some private Institutions offer management courses. They assure in their advertisement 100% job guarantee and some Institutions take responsibility of job to their students after completion of the course. In spite of their assurance, it is seen that the students do not get placement. Even if some get a placement, that too, is not up to their satisfaction. So, through this article we are trying to offset this, how one can do a better management course and how one can get an excellent placement.

Usually a graduate in any discipline with a minimum of 50% marks can join the stream of management studies. For entry into such management courses, one has to face a written test containing subjects such as data sufficiency and interpretation, reasoning quantitative aptitude, reading-comprehension and verbal-ability. Those who perform well in the written test is called for group

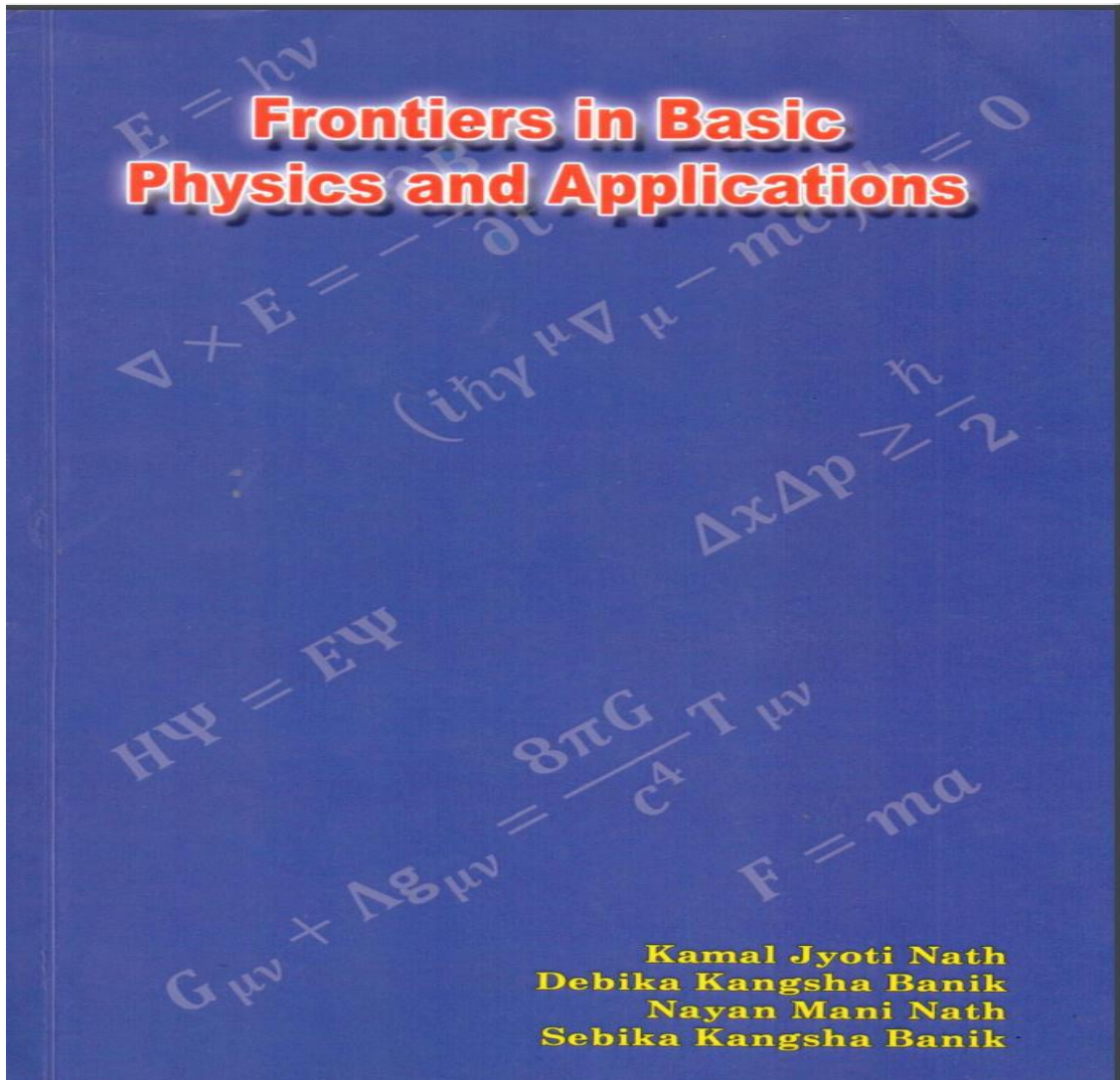
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SI No. 1

Title: Study of the neutrino parameters considering type I and type II seesaw models.

Author: **Dr. Rupam Kalita**



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Study of neutrino parameters considering Type I and Type II seesaw models

Rupam Kalita

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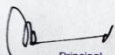
Abstract

We study to connect all the experimentally undetermined neutrino parameters namely lightest neutrino mass, neutrino CP phases and baryon asymmetry of the Universe within the framework of a model where both type I and type II seesaw mechanisms can contribute to tiny neutrino masses. In this work we study the effects of Dirac and Majorana neutrino phases in the origin of matter-antimatter asymmetry through the mechanism of leptogenesis. Type I seesaw mass matrix considered to a tri-zero reactor mixing angle. The type II seesaw mass matrix is then considered in such a way that the necessary deviation from TBM mixing and the best fit values of neutrino parameters can be obtained when both type I and type II seesaw contributions are taken into account. We consider different contribution from type I and type II seesaw mechanism to study the effects of neutrino CP phases in the baryon asymmetry of the universe. We further study to connect all these experimentally undetermined neutrino parameters by considering various contribution of type I and type II seesaw.

Keywords: Neutrino, neutrino mixing, seesaw model.

1. Introduction

In recent years origin of tiny neutrino masses and their large mixing [1-5] is one of the major observed phenomena which the SM fails to account for. Various Neutrino oscillation experiments namely T2K [6], Double ChooZ [7], Daya-Bay [8] and RENO [9] have made the earlier predictions for neutrino parameters more precisely and also predicted non-zero value of the reactor mixing angle θ_{13} . The latest



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Impact of COVID-19 on Economy, Health and Agriculture in Assam

Md. Shahidul Islam Khan

Assistant Professor, Department of Mathematics
Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya,
Amjonga, Goalpara, Assam

Abstract

The reverse migration will create excess pressure on the agriculture and rural economy which will result in a significant number of people to fall into abject poverty. COVID-19 will have both short and long-run effect on the rural economy in Assam. In this paper we study about impact of COVID-19 on economy, health and agriculture in Assam.

Keywords: COVID-19, Economy, Migrant Labourers, Health, Agriculture.

1. Introduction

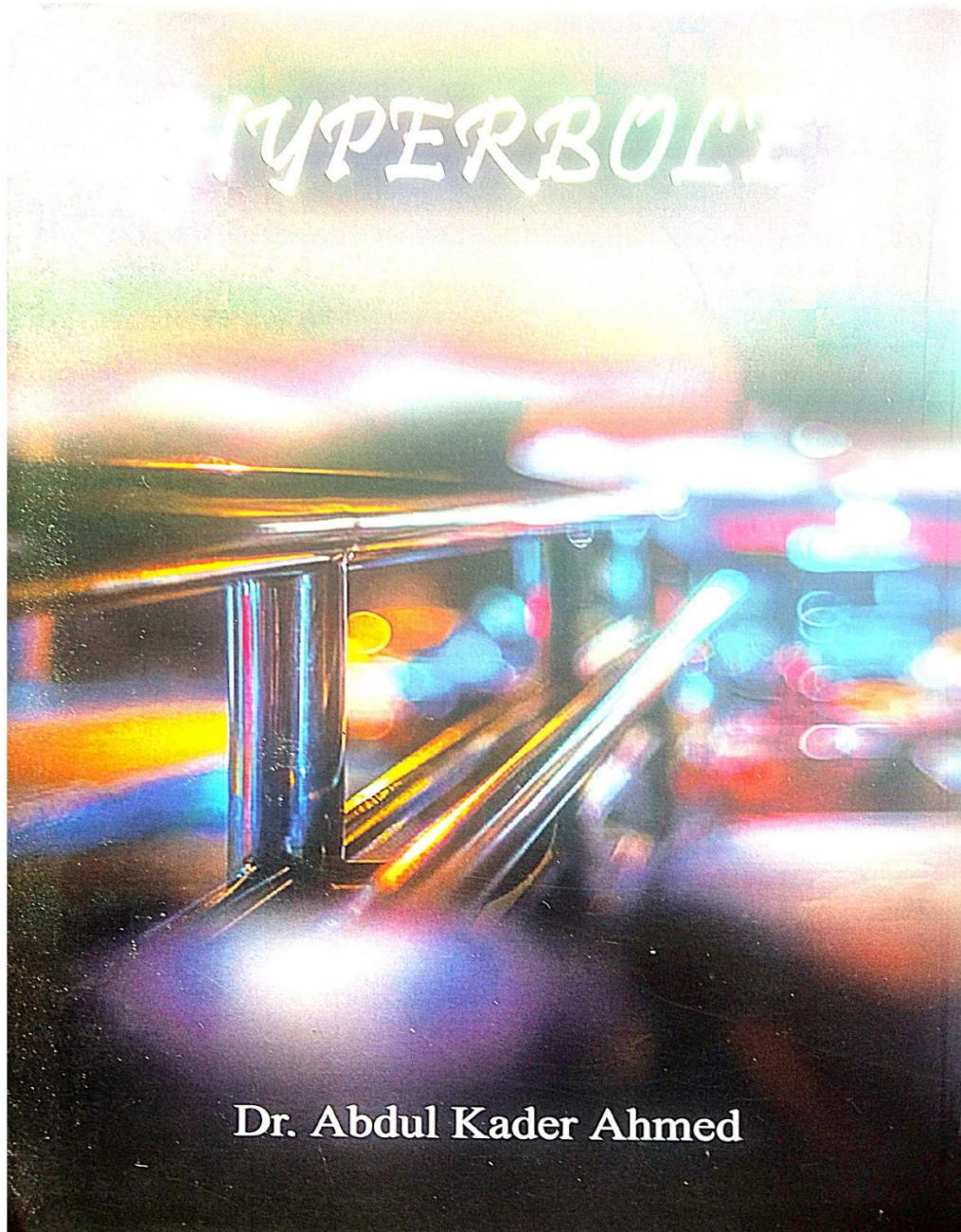
COVID-19 was first declared a public health emergency and later a pandemic by the World Health Organization (WHO). Currently, the spread of the novel virus is in more than 213 countries. There are a national emergency and lockdown in most of countries. Till date, more than 3 core 20 lac people across the globe are affected by COVID-19 virus and around 9 lac 65 thousand people lost their life. The pandemic is not new for India, the Plague (1896 to 1939) and Spanish flu (1918) in the past caused 1 core 2 lac deaths in just three months. So far more than 55 lac cases are reported in India from COVID-19 and more than 87 thousand people have lost their lives. In Assam, near 1 lac 60 thousand peoples are affected by COVID-19 and more than 548 peoples lost their life. However, the lockdown came on economic cost and cascading impact on all the sections of society. The coronavirus pandemic has triggered a massive reverse migration from the urban to rural areas in large parts of the state. Assam roads are flooded approximately 50 thousands of

Year: 2021-22

SI No. 1

Title: Research work through Multidisciplinary Group

Author: Md Shahidul Islam Khan



Dr. Abdul Kader Ahmed

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RESEARCH WORK THROUGH MULTIDISCIPLINARY GROUP

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Introduction

Multidisciplinary research is an accomplishment of truth with the help of numerous specialized branches of learning which aims at achieving a common aim with the aid of knowledge of other disciplines.

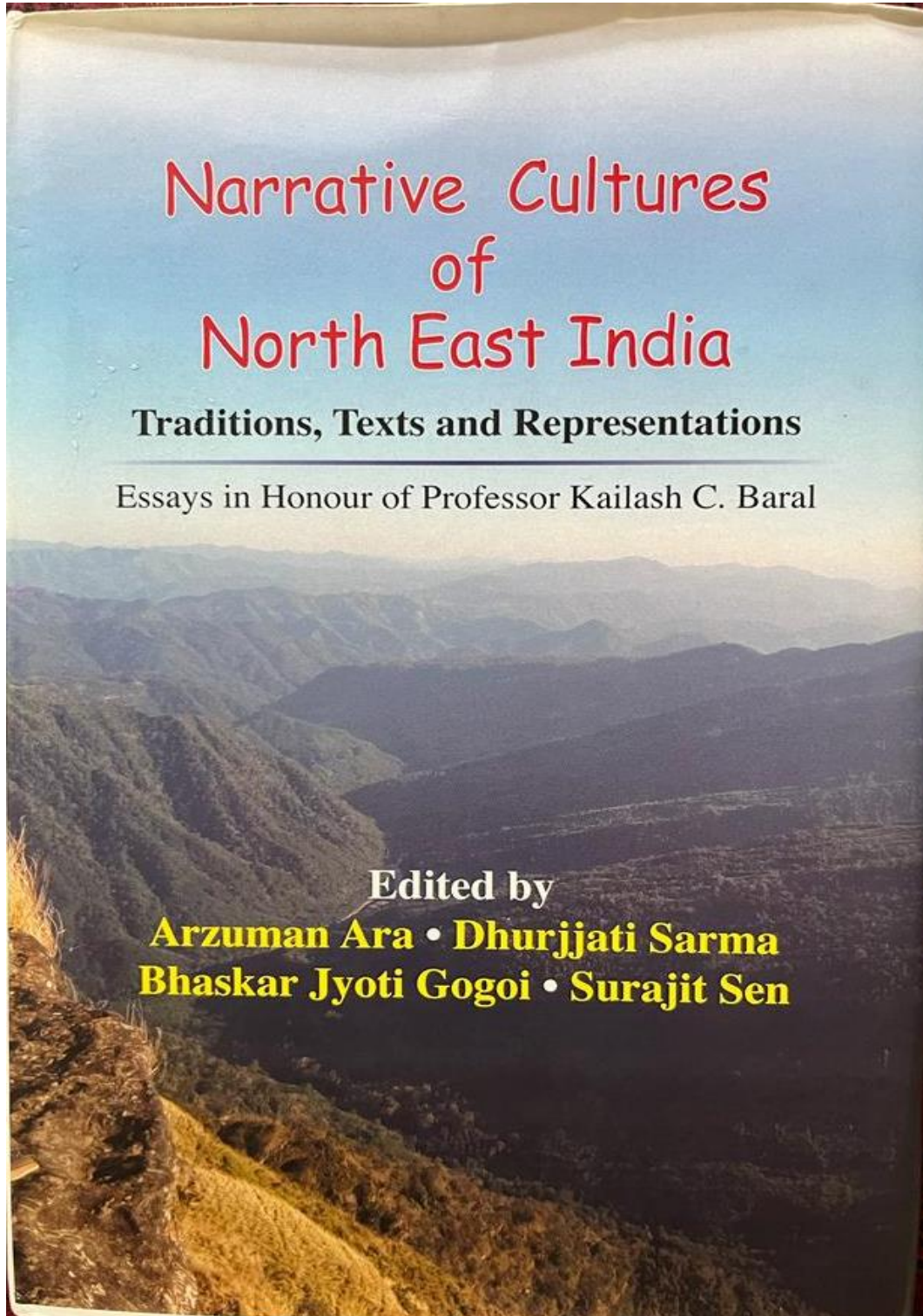
Multidisciplinary research is an investigation or inquiry to a problem for ascertaining the hypothesis combining many academic approaches, fields or methods. Further, it can be defined as a search for knowledge through objective and systemic method for an original contribution to the existing stock of knowledge involving a combination of several disciplines and methods.

Multidisciplinary approach means that knowledge of several disciplines are used to a given problem and are supplementary to one another in such a way that it is possible to draw clear cut conclusion, free from being branded as isolated or partial one. In multidisciplinary research a number of fields are involved in a certain line of inquiry which is specific to a problem or region. But the individual findings of the disciplines involved are only brought together in a cumulative. Therefore, modern research is tending to be more and more multidisciplinary.

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Title: "The Native 'Other' under Female Gaze: A Reading of Mildred Marston's KornoSiga, The Mountain Chief or Life in Assam"

Author: **Dr. Sudipta Phukan**



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The Native 'Other' under Female Gaze: A Reading of Mildred Marston's *Korno Siga, The Mountain Chief; or Life in Assam*

Sudipta Phukan

The idea of 'other' has always been problematic and multi-dimensional. 'Other' is someone who is separate from one's self as well as a part of it. The existence of the 'other' is crucial in defining the 'self' and in locating one's own place in the world. 'Other' connotes many things simultaneously as — the other to the self, as the other of the self and as part of the process of otherisation; it is socially, politically and psychologically constructed and reproduced. In the theoretical contexts, the concept of the 'other' keeps on changing. Moreover, the term 'other' plays a highly ambiguous role in defining identity, location and human relation in the world.

The self and the other are inextricably connected in Western culture, in dominant ideologies as they find reflection in relation to a subordinated other. From the postcolonial perspectives, the colonizers act as the Self while considering the colonized as the Other. In colonial discourse, the subjectivity of the colonized is continually located in the gaze of the imperial other, the great Other as stated by Lacan. Racial differences have been ruthlessly harnessed to the construction of social identities and related power structures. The more remote, primitive and exotic a colonized population is made to appear, the more legitimate its exploration and oppression has been. Postcolonial studies show that there is a binary opposition between the colonizer and the colonized.



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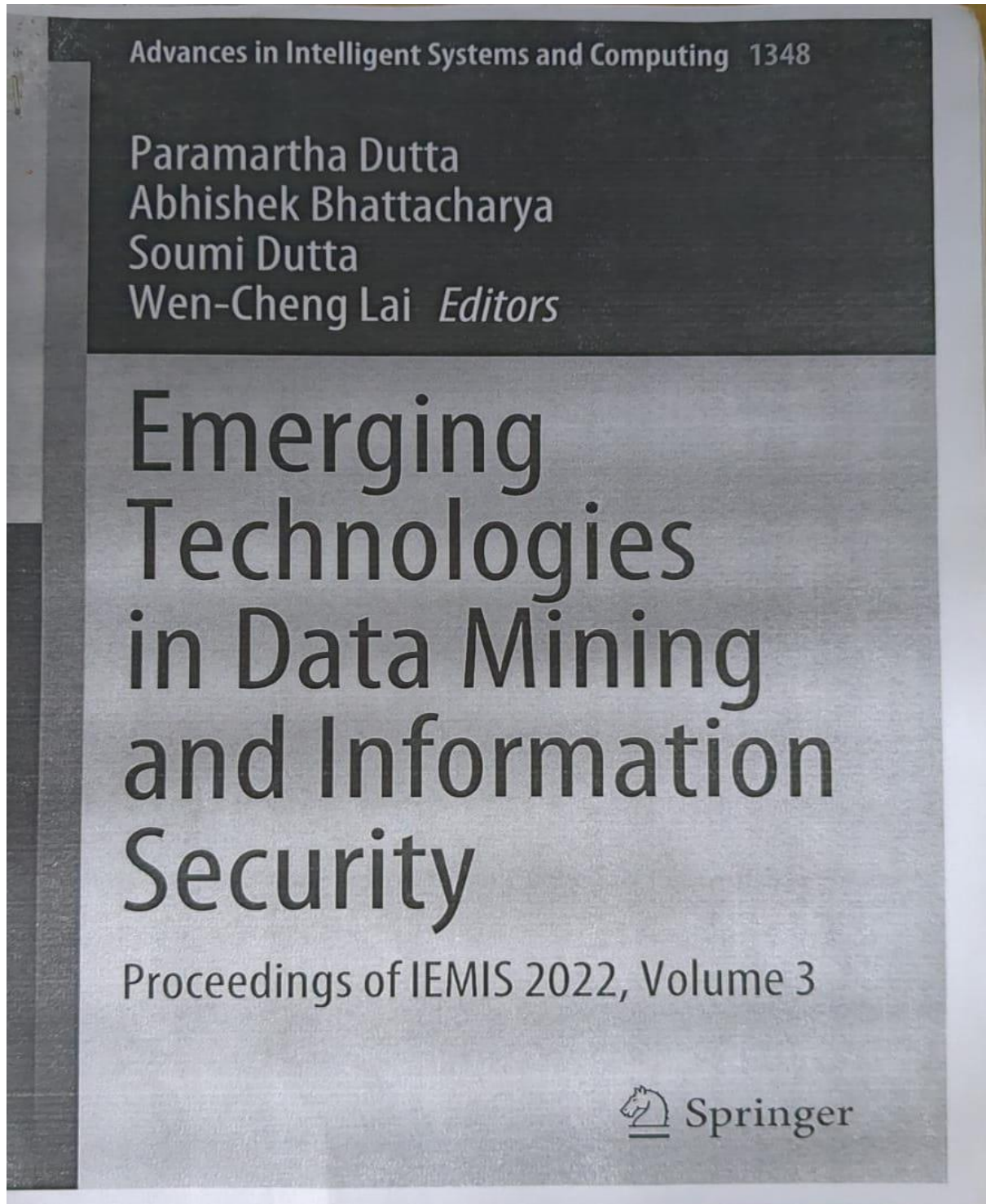
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Year: 2022-23

SI No. 1

Title: Improvement of Speaker Verification Using Deep Learning Techniques

Author: **Kshirod Sarmah**



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Improvement of Speaker Verification Using Deep Learning Techniques



Kshirod Sarmah

Abstract Deep learning (DL) has been used to solve a range of real-time artificial intelligence (AI) challenges with great success. This is a cutting-edge area of machine learning (ML) that has been rapidly evolving. As a result, deep learning is quickly becoming one of the most popular and well-defined machine learning techniques, with applications in a wide range of fields, including image processing, computer vision, speech and speaker recognition, emotion recognition, natural language processing, hand-written character recognition, cyber-security, and many others. Over other prevalent methods, DL approaches have demonstrated superior performance in speech processing areas like as voice recognition and speaker recognition. We describe an experimental setup for speaker verification (SV) utilizing DL techniques, and discuss its performance and findings, as well as how it outperformed established approaches such as HMM, GMM-UBM, and SVM. In this research works, we analyse and review deep neural network (DNN) approaches employed in SV systems. With a 1.51% equal error rate (EER), the final result is the best performance of the SV systems of restricted Boltzmann machine (RBM)-based DNN.

Keywords Speaker verification · Machine learning · Deep learning · Deep neural network · MFCC

1 Introduction

Speaker verification (SV) can be defined as the process of determining the speaker's identification based on the speech or utterance he or she delivers. SV system works on the principle that every speaker's utterance is unique like finger prints; thus, it can be used to identify the speaker or authenticate his/her claim. These systems in general analyse the characteristics or features in the speech signals which are different among speakers and are used in applications for speaker authentication, surveillance, and forensics. Depending upon the applications, speaker recognitions (SR) may be

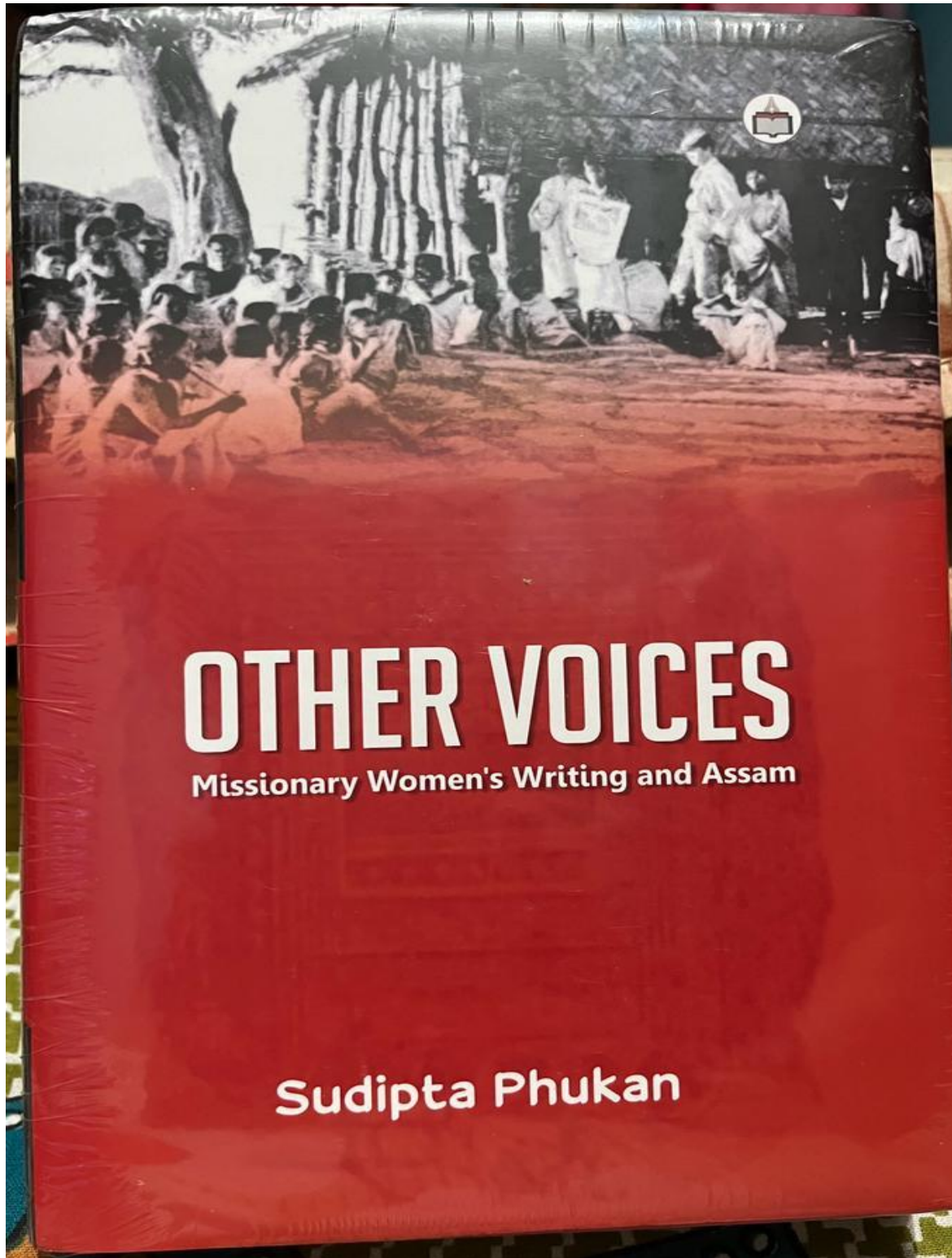
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SI No. 2

Title: **Other Voices: Missionary Women's Writing and Assam**

Author: **Dr. Sudipta Phukan**



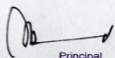
OTHER VOICES

Missionary Women's Writing and Assam

Sudipta Phukan



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OTHER VOICES

Missionary Women's Writing and Assam

Sudipta Phukan

Dr Sudipta Phukan, presently working as an Assistant Professor of English in Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Amjonga, Goalpara from Assam, has more than 12 years of teaching experience. Earlier she worked in reputed institutions like S.B. Deorah College, Guwahati and Sonapur College, Sonapur. She has her Master's degree in English from the Gauhati University, Assam and M. Phil degree from The EFL University, Hyderabad. She has obtained her Ph. D in English from North Eastern Hill University, Meghalaya, India. She has published 15 research and translated articles from Assamese to English in UGC approved/Care listed/ peer reviewed reputed journals and edited books. She has participated and presented her research papers in more than 15 National and International Conferences and Seminars and attended several academic workshops and faculty development programmes. Her research interests include women's writing, postcolonial literature, memory studies, space, place and landscape, literature from north-east India and South Asian literature.



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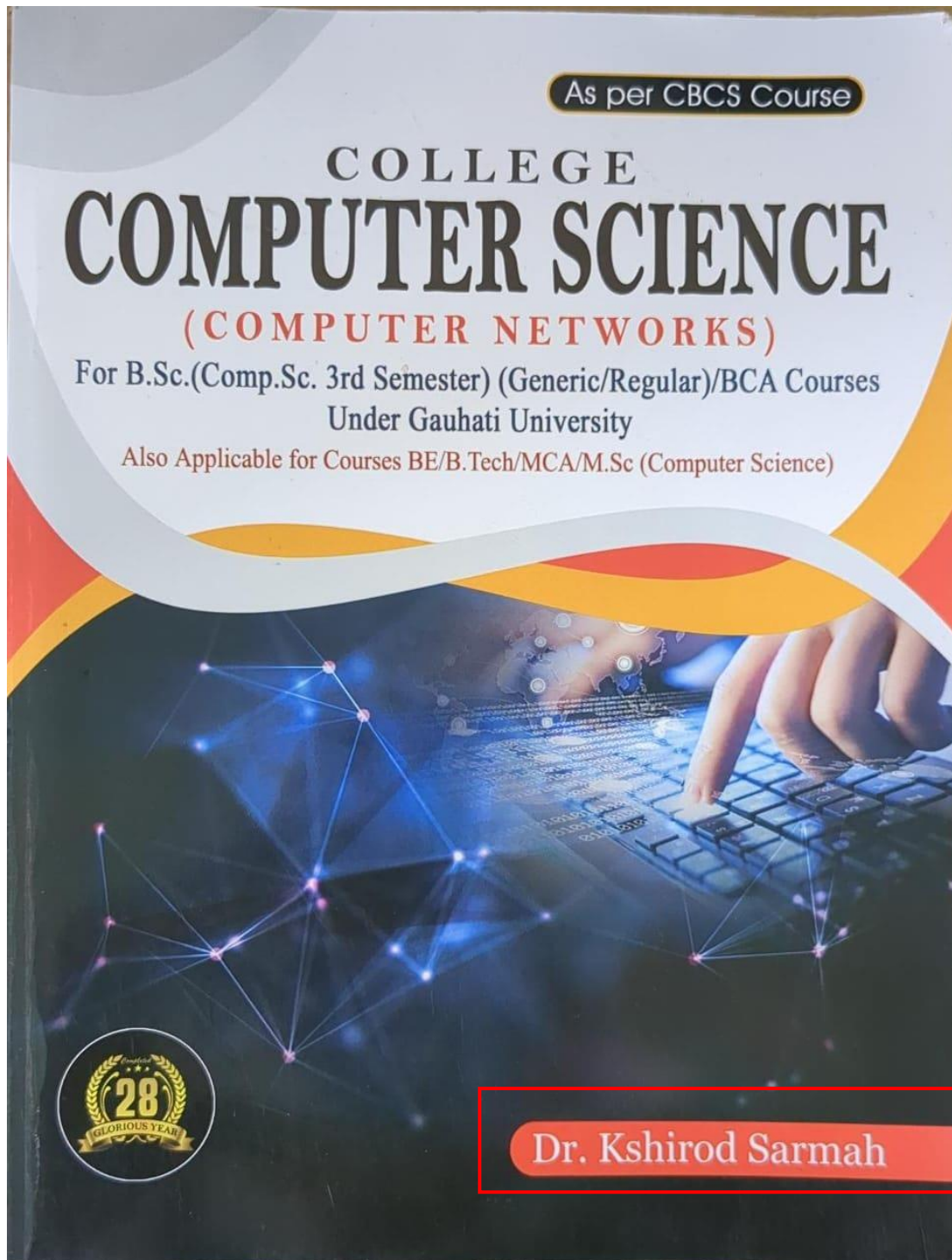
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SI No. 3

Title: College Computer Science (Computer Networks), Vol. 1

Author: **Kshirod Sarmah**



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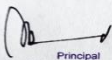


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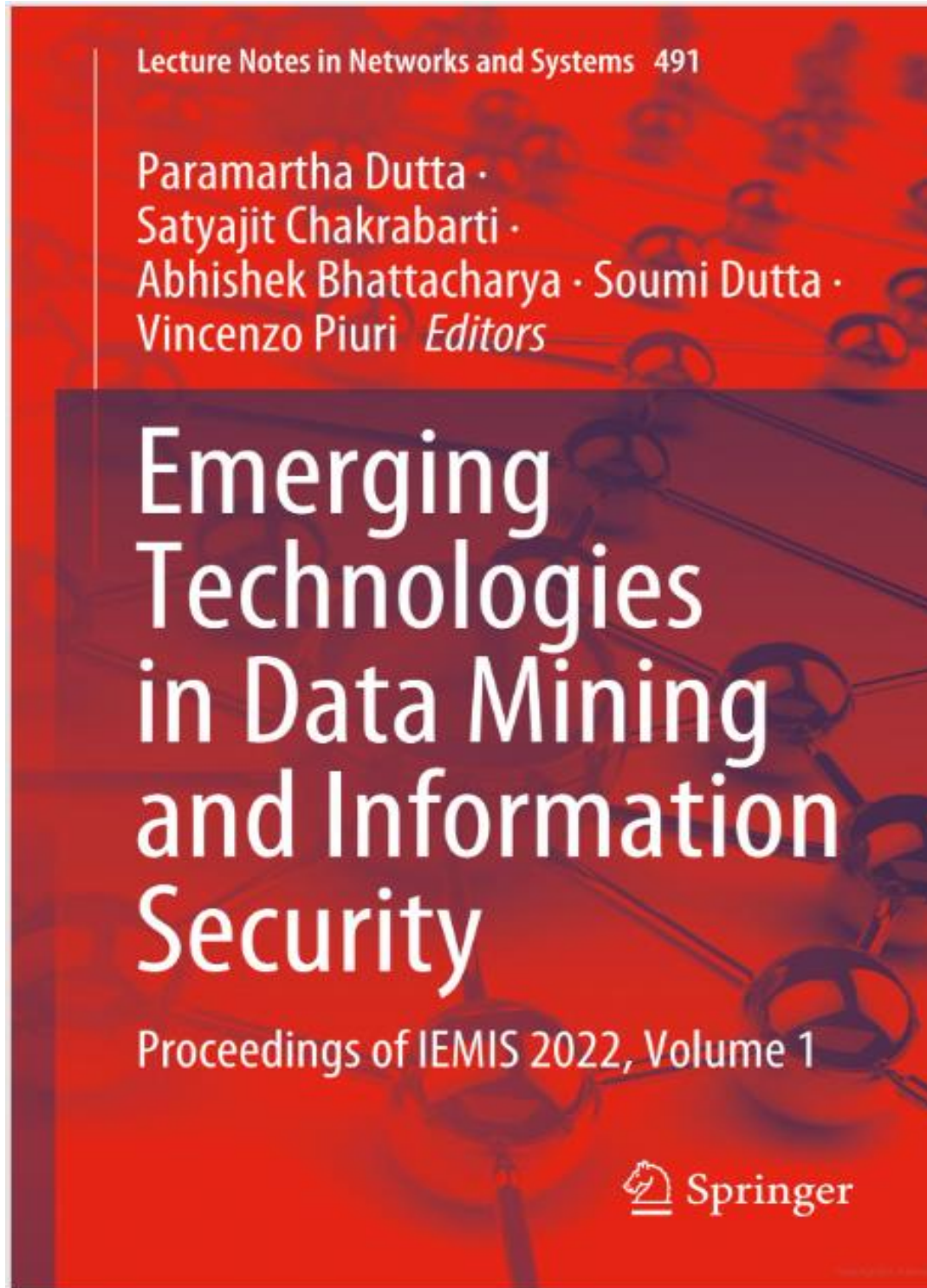


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Author: Debasish Dey, Rajesh Kumar Das, and Rupjyoti Borah



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A Simulation of Nanofluid Flow with Variable Viscosity and Thermal Conductivity Over a Vertical Stretching Surface



Debasish Dey, Rajesh Kumar Das, and Rupjyoti Borah

Abstract An effort has been put numerically to explore the nanofluid flow in porous medium past a vertical elongating surface with thermal and mass transportations by considering the non-homogeneous flow factors. In methodology, adopting some pertinent similarity conversions, the nonlinear governing PDE's are converted into its corresponding ODE's, and this system of ODE's are solved numerically utilizing MATLAB built in `bvp4c` solver scheme. The results are displayed through pictorial mode in terms of velocity, thermal, and mass fractions of the nanofluid. This fluid model has imperative applications in the modern times due to the presence of non-homogeneous flow factors and nanoparticles. Due to the presence of nanoparticles, the Brownian motion and thermophoresis parameter have played a great rule during the flow.

Keywords Nanofluid · Variable viscosity · Variable thermal conductivity · MHD · Heat transfer · Mass transfer

Nomenclature

a, b, c	Constant
B_0	Strength of magnetic field
C	Concentration of the fluid
C_p	Specific heat at constant pressure
D_B	Brownian diffusion parameter
D_T	Thermophoretic diffusion parameter
M	Magnetic parameter
N_b	Brownian motion parameter

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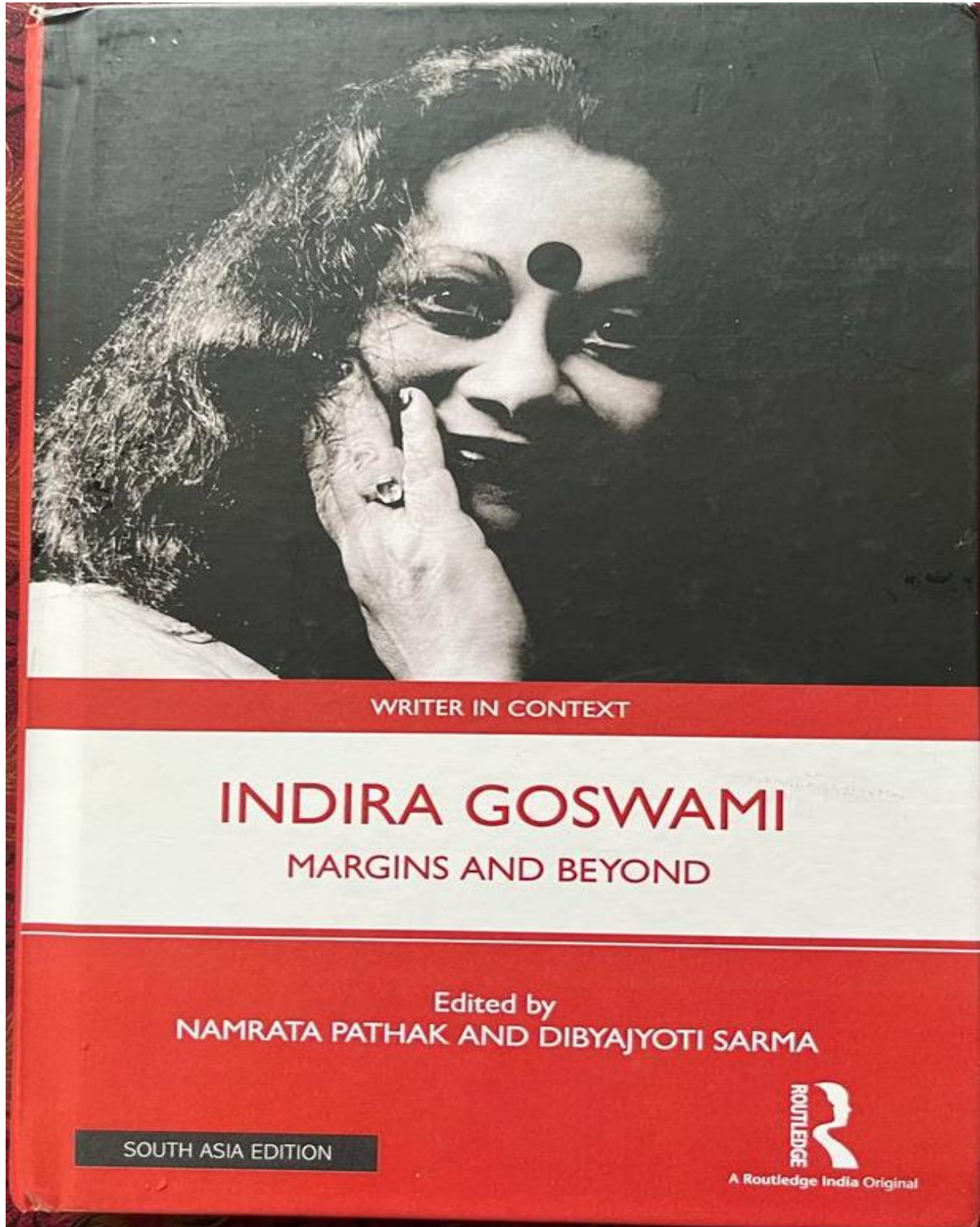
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Lecture Notes in Networks and Systems 491,
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SI No. 5

Title: 'From the creative point of view, I differ completely from others'

Author: **Dr. Sudipta Phukan**



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‘From the creative point of view,
I differ completely from others’

Indira Goswami in conversation with Kushal Dutta
Translated by Sudipta Phukan

[The interview was conducted after Indira Goswami won the 36th Jnanpith Award in 2000.]

Kushal Dutta: In which areas or creative ventures do you consider yourself different from other Assamese as well as Indian writers?

Indira Goswami: Assamese as well as other Indian writers, this is a very big thing! Suppose Phanishwar Nath Renu and I are almost the same; *Maila Anchal (The Soiled Linen 1954)* by Phaniswar Nath Renu is a famous book and the setting of the novel is in Purniya, Torai area of Bihar. Likewise, I have written *Datal Hatir Uye Khowa Howdah*, based on the village localities of South Kamrup. But I am different from him in the sense that I have moved outside my motherland. I have quite a number of experiences of going outside, to places like Kashmir, Uttar Pradesh. These might not have happened with other Assamese as well as Indian writers. They are also reputed writers, but such experiences were alien to them and therefore, they engage themselves in their creative works, remaining inside a fixed surrounding.

Kushal Dutta: As you went out of Assam, this might have surely influenced you.

Indira Goswami: Yes, indeed it influenced me, and moreover, I am more worldly wise in my perspective. Whether from Assam or elsewhere, people are the same everywhere. In that aspect, from the creative point of view, I differ completely from others, especially from Indian writers.

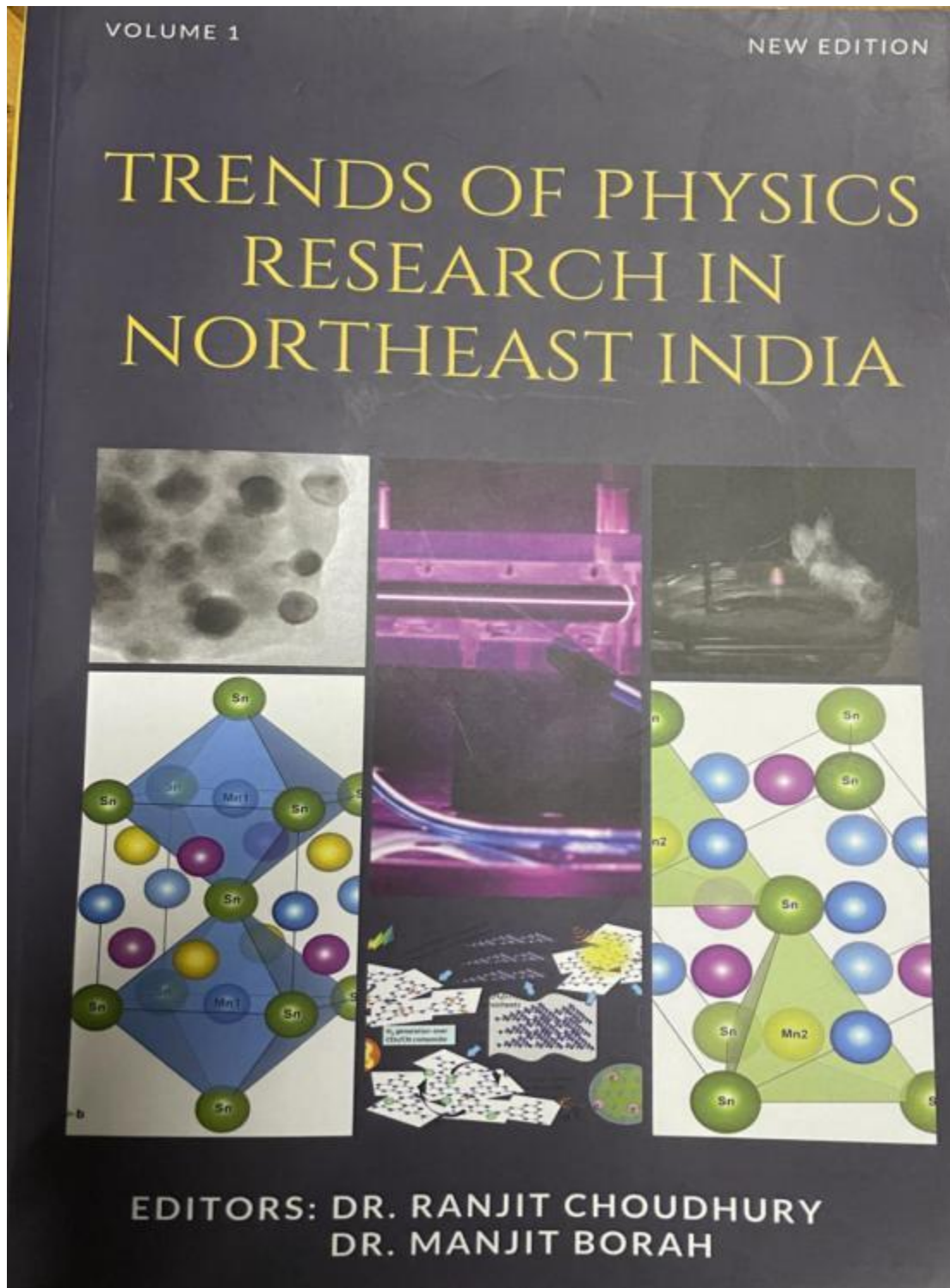
Kushal Dutta: Being a woman writer do you feel privileged in the Indian set up?

Indira Goswami: Oh! Yes. One of the reputed women writers from Delhi mentioned me. I will let you know the details regarding her bio. But the attractive thing is that in Australia, autobiographies by women writers: these have become tremendously popular and for that reason, one autobiographical novel written by a man in a female pseudonym has become

SI No. 6

Title: Study of neutrino mixing angles considering scaling and hybrid texture neutrino models

Author: **Dr. Rupam Kalita**



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Study of neutrino mixing angles considering scaling and hybrid texture neutrino models

Rupam Kalita*

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Abstract

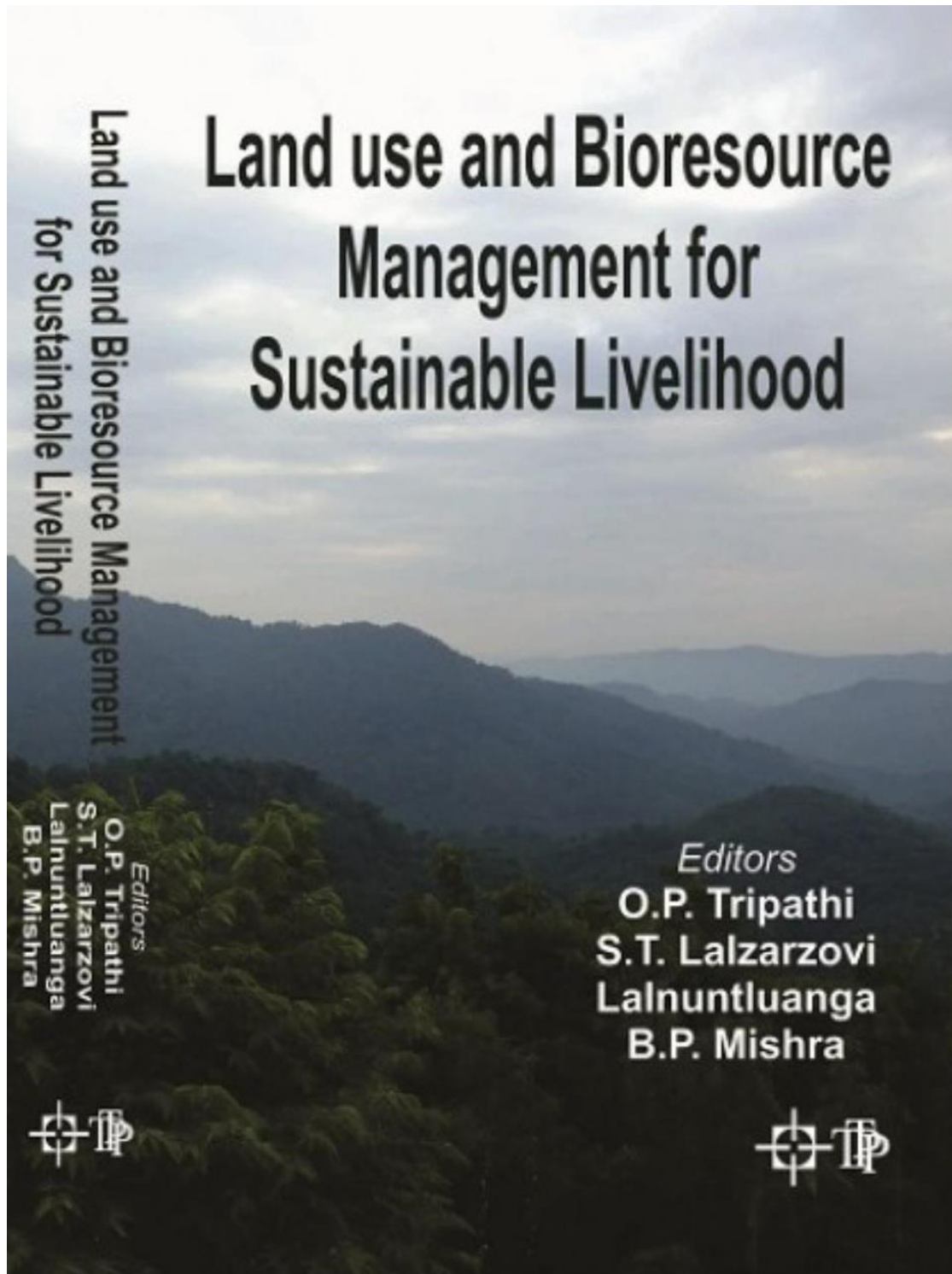
In this work we discuss the possible origin of different neutrino mixing angle considering two different types of neutrino mass matrix. We consider type I seesaw and type II seesaw neutrino mass matrix to originate neutrino mixing angles and mass hierarchy. We consider type I seesaw as hybrid texture neutrino model and type II as scaling mass matrix. We try to give a brief scenario of neutrino mass models considering latest neutrino data.

Keywords: neutrino, seesaw, scaling, mixing

SI No. 7

Title: Litter production, decomposition and nutrient release in selected agroforestry systems of Papumpare district, Arunachal Pradesh

Author: Tajo L, **Deka S**, Bordoloi R, Paul A, Sharma CL, Lalruatkimi C, Debi B, Mishra BP and Tripathi OP



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Chapter-4

Litter production, decomposition and nutrient release in selected agroforestry systems of Papumpare district, Arunachal Pradesh

Tajo L¹, Deka S², Bordoloi R³, Paul A³, Sharma CL³, Lalruatkimi C⁴, Debi B⁴, Mishra BP⁴ and Tripathi OP⁴

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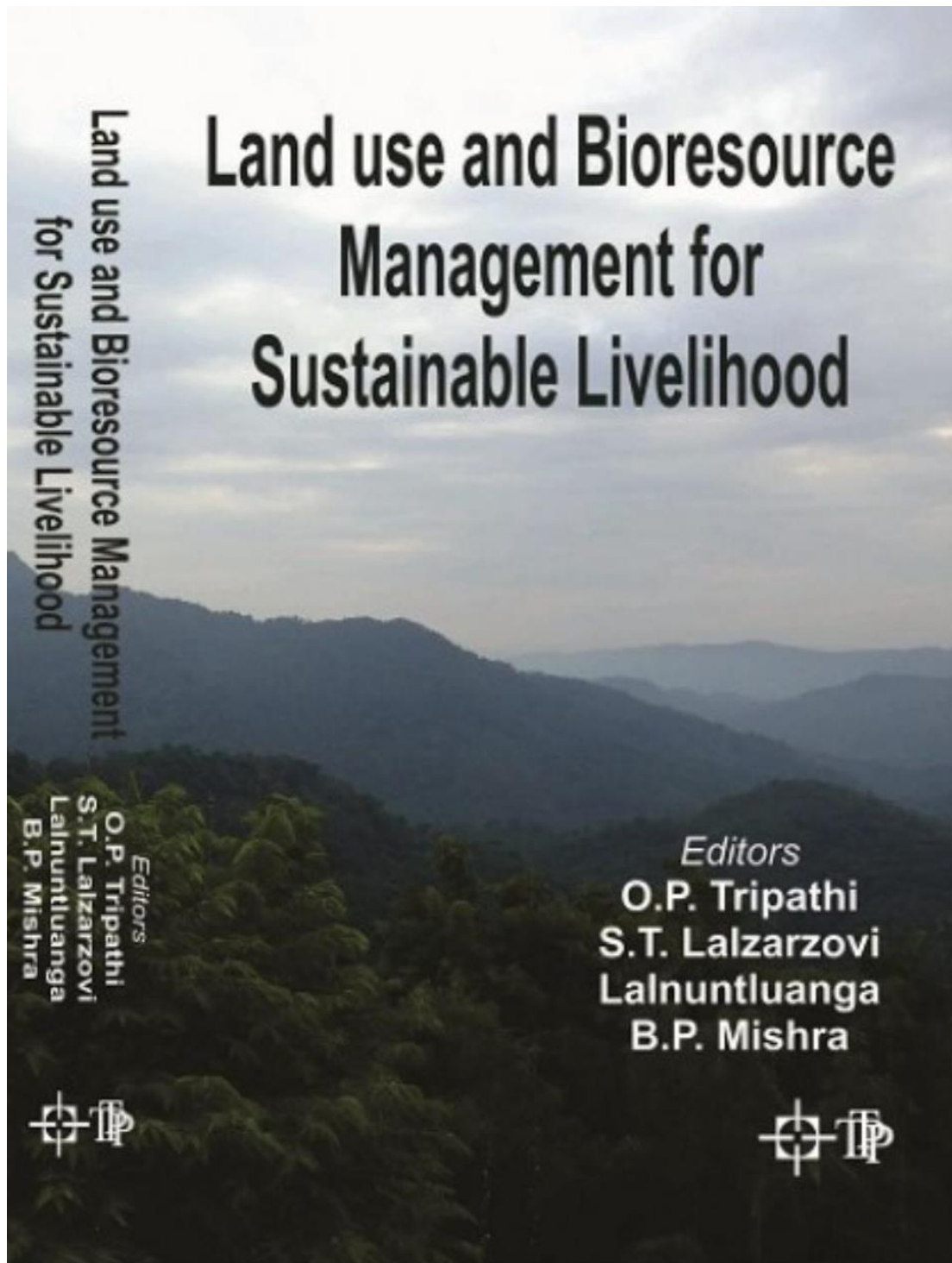
Abstract

Agroforestry systems have inherent capacity to restore and maintain the soil fertility and improve the overall crop productivity from the land although integration of crops may lead to either positive or negative interactions. Thus site-specific crop selection is very important hence present study aims to understand litter production and nutrient release in selected agroforestry systems for better crop productivity. The experimental design of the study was set up in two types of Agroforestry systems (Citrus based and Rubber based) in Papum Pare district, Arunachal Pradesh. Litter production and decomposition was studied using litter trap/bag method and it was observed that annual litter production of the Citrus based AFS was 518.48 g m⁻² while 317.58 g m⁻² in Rubber based AFS. In both the AFS, leaf component contributed the maximum litter input and the maximum litter production was observed in dry season. The maximum weight loss was noticed in the month of July 2020 in Citrus based AFS (17%) while it was in the

No. 8

Title: Study on land use capability of Changlang district of Arunachal Pradesh for sustainable management of agricultural crops

Author: Ronrang, N, Deka, S, Tripathi O.P , Paul, A, Saikia U.S , Hota, S and Mourya, K.K

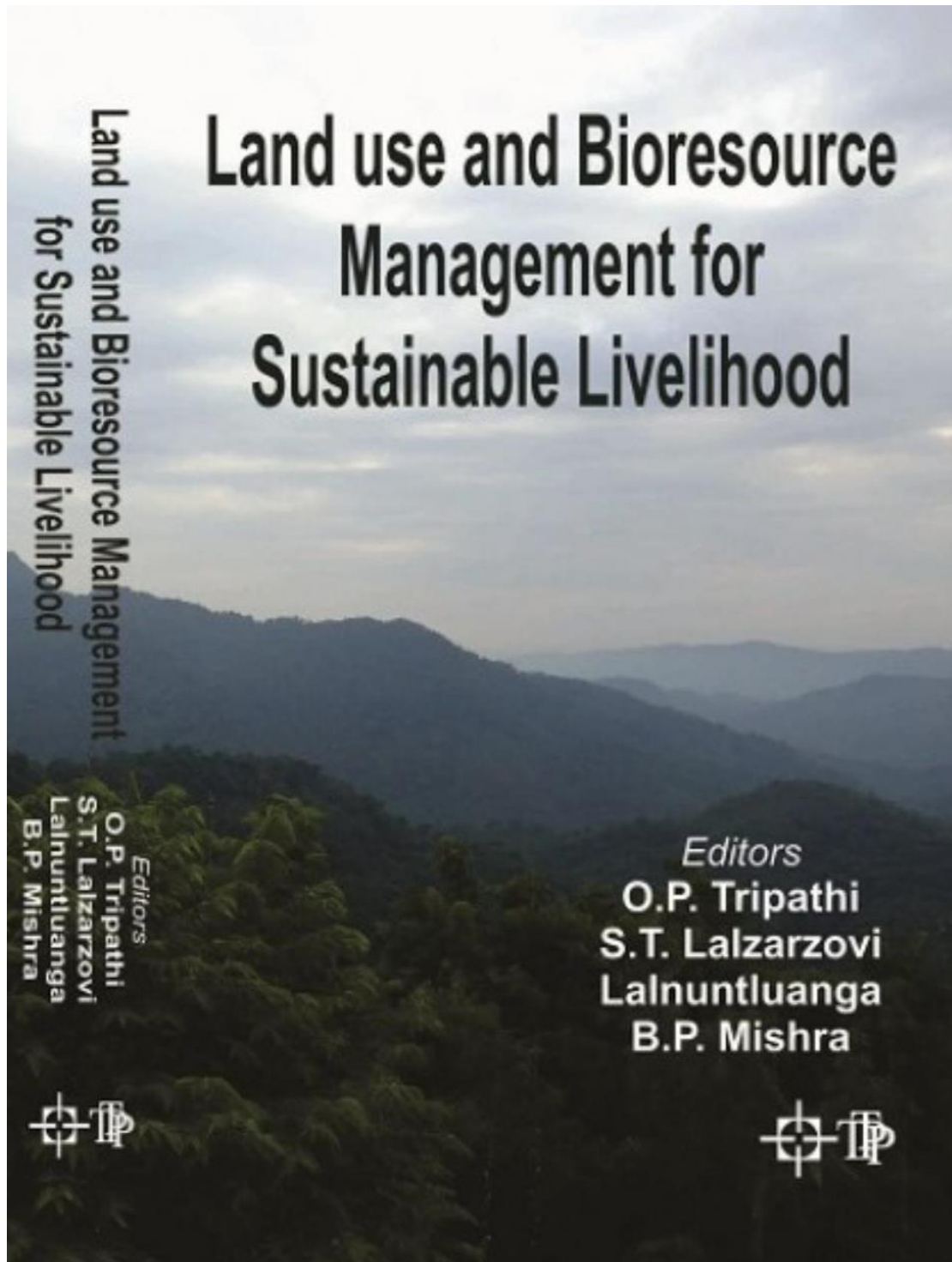


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Title: Implications of anthropogenic activities on ecosystem services: a case studies from Goalpara district, Assam, North-East India

Author: Sangeeta Deka, Susheel Kumar and Om Prakash Tripathi



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Chapter-18

Implications of anthropogenic activities on ecosystem services: a case studies from Goalpara district, Assam, North-East India

1

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Abstract

Anthropogenic activities have been proven to be the most detrimental factor for global environmental degradation. The present approach was to highlight the major threats to the environment, identified from the Goalpara district based on case studies. Transformation of land uses, human-induced forest fire and developmental schemes etc. were among the major identified threats to biodiversity and other services of the present study area. Land use change from natural forests to monoculture patches such as rubber plantations, palm oil and other cash crops have declined the bio-diversity services enormously over the last few years. Secondly, a human-induced forest fire is dilapidating and controlling the luxuriant growth of species diversity in the forests of Goalpara and thereby limiting the availability of ecosystem services (ES) to mankind. Case studies were carried out from time to time in recent years to make an in-depth study of the drivers concerning environmental degradation. The drivers were qualitatively and quantitatively assessed to bring to light the intensity and severity of their impact on the ecosystem's well-being. Land-use change has