3.4.5	**Number of books and chapters in edited volumes published per teacher during the last five years**

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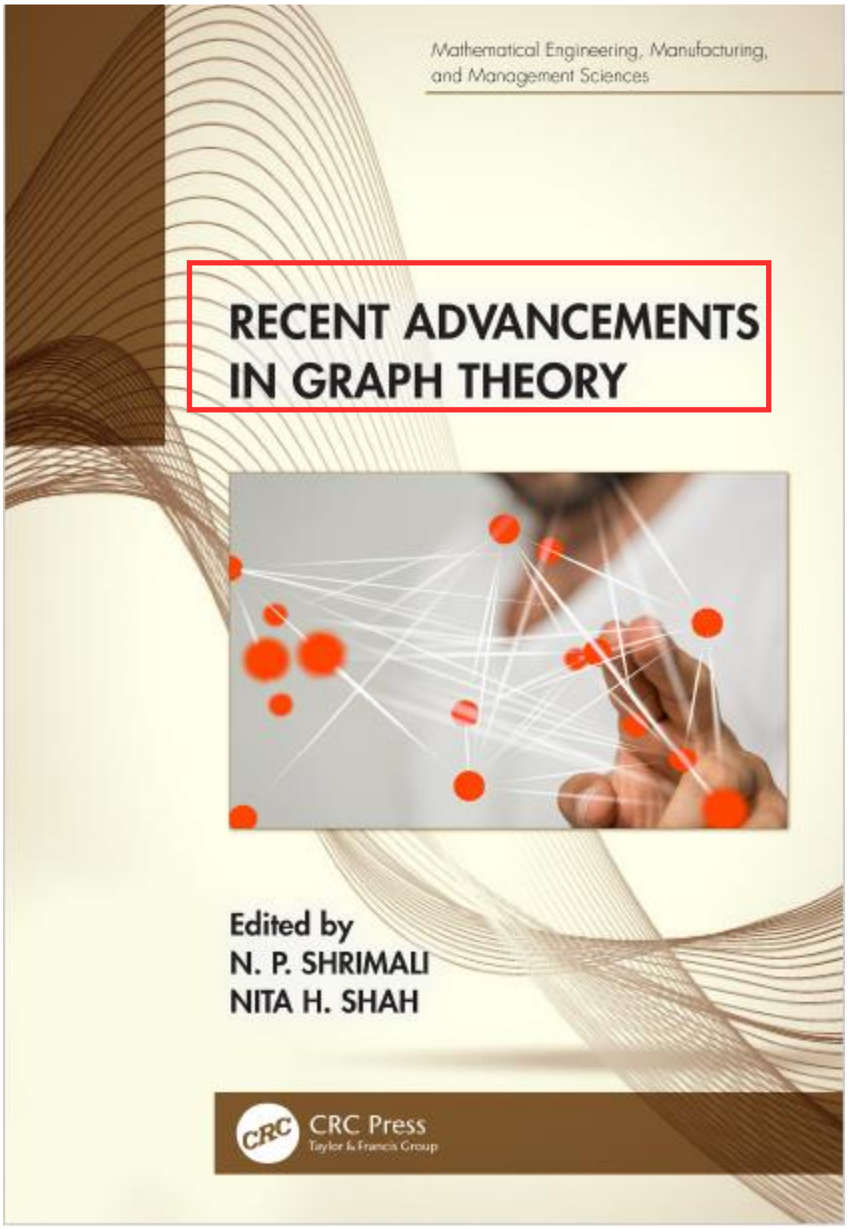
Author	Title	ISBN No.
Parag D. Ajani	Some New Results in Restrained Edge Domination Number of Graphs	9781003038436



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24 Some New Results on Restrained Edge Domination Number of Graphs

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For a graph $G = (V, E)$, a subset D of E is a restrained edge dominating set of G if every edge not in D is adjacent to an edge in D as well as an edge in $E - D$. The restrained edge domination number of G, denoted by $\gamma_{re}(G)$ is the minimum cardinality of a restrained edge dominating set of G. In this chapter, we characterize a restrained edge dominating set and also investigate a restrained edge domination number of book graph B_n, crown Cr_n, armed crown ACr_n and friendship graph F_n.

24.1 INTRODUCTION

The concept of domination in a graph is one of the fastest growing areas within and outside of graph theory. It has received considerable attention due to its diversified applications and its potential to handle real life situations. We begin with the simple, finite, connected and undirected graph $G = (V, E)$ of order n, where V is the set of vertices and E is the set of edges of G. The open neighbourhood $N(v)$ of $v \in V$ is the set of vertices adjacent to v and the closed neighbourhood of v is the set $N[v] = N(v) \cup \{v\}$. The minimum degree among the vertices of graph G is denoted by $\delta(G)$ while the maximum degree among the vertices of graph G is denoted by $\Delta(G)$ and the maximum degree among the edges of graph G is denoted by $\Delta'(G)$. An edge e of a graph G is said to be incident with vertex v if v is an end vertex of e. Two vertices u and v of G are said to be adjacent vertices, if there is an edge between u and v. Two edges e and f of G having a vertex v in common are called adjacent edges. In a graph G, a vertex of degree one is called a pendent vertex and an

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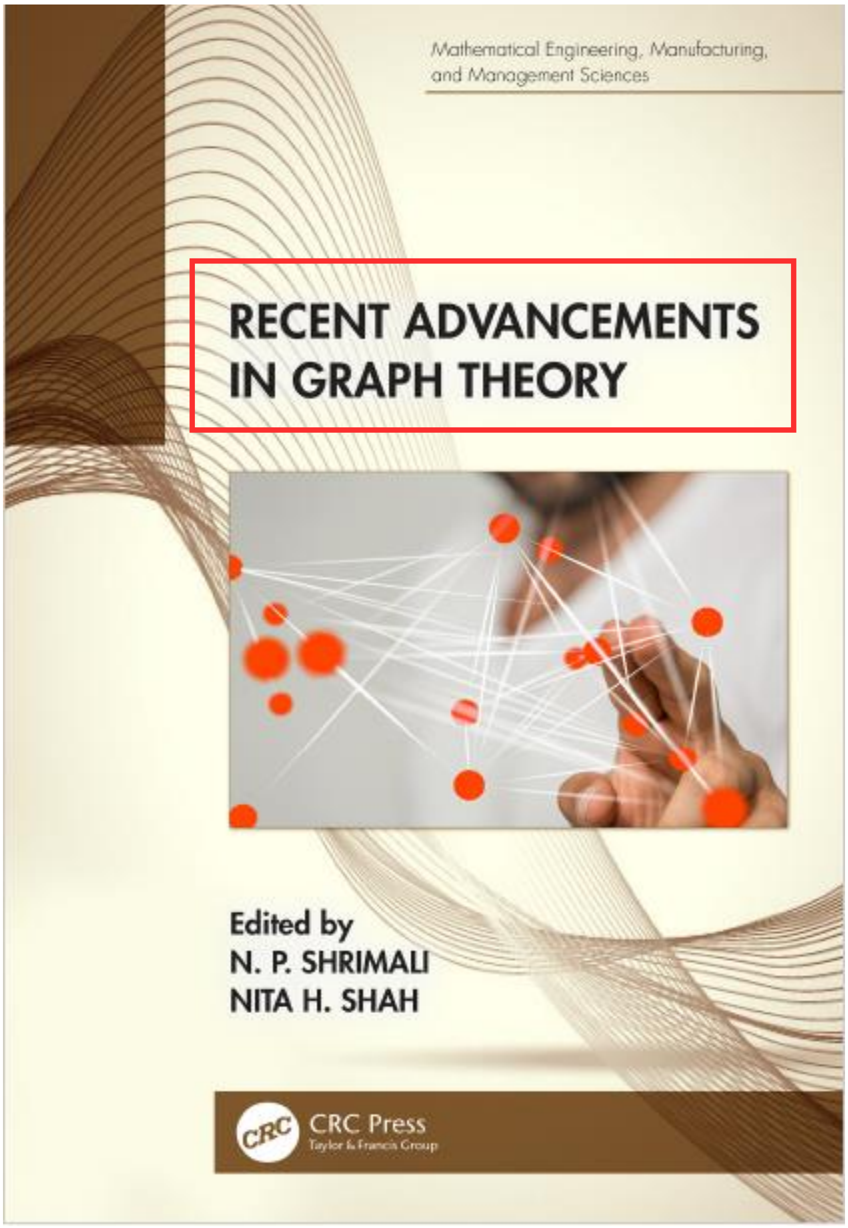
Manoharsinh R. Jadeja	Wiener Index of some zero-divisor graph	9781003038436



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21 Wiener Index of Some Zero-Divisor Graphs

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The Wiener index of a graph is defined as the sum of the distance between all pairs of vertices in the graph. The zero-divisor graph $\Gamma(R)$ of a commutative ring R is a graph whose vertices are non-zero zero-divisors of R and two vertices are adjacent if their product is zero. Here we investigate the Wiener Index for some zero divisor graphs.

21.1 INTRODUCTION

The concept of the zero-divisor graph of commutative ring R was first introduced by I. Beck [5] in 1988. According to him all elements of R were vertices of the zero-divisor graph. Anderson and Naseer [2] continued with the same definition. Then in 1999 Anderson and Livingston [3] redefined the concept in which the vertices of the zero-divisor graph are non-zero zero-divisors. We continue with the definition and notation introduced in [3].
We consider that the ring R means commutative ring with unity. If R is a ring then $Z(R)$ and $Z^*(R)$ denote the set of zero-divisors and set of non-zero zero-divisors of the ring R respectively.

Definition. A *zero-divisor* in a ring R is an element x for which $\exists y \neq 0$ in R such that $xy = 0$.

Definition. The *zero divisor graph* of a ring R, denoted as $\Gamma(R)$, is a graph with $V(\Gamma(R)) = Z^*(R)$ and $x, y \in V(\Gamma(R))$ are adjacent if $xy = 0$.

Illustration 21.1.1. Let $\mathbb{Z}_{12}$ be a ring; then $Z^*(\mathbb{Z}_{12}) = \{2,3,4,6,8,9,10\}$ and $\Gamma(\mathbb{Z}_{12})$ is shown in Figure 21.1

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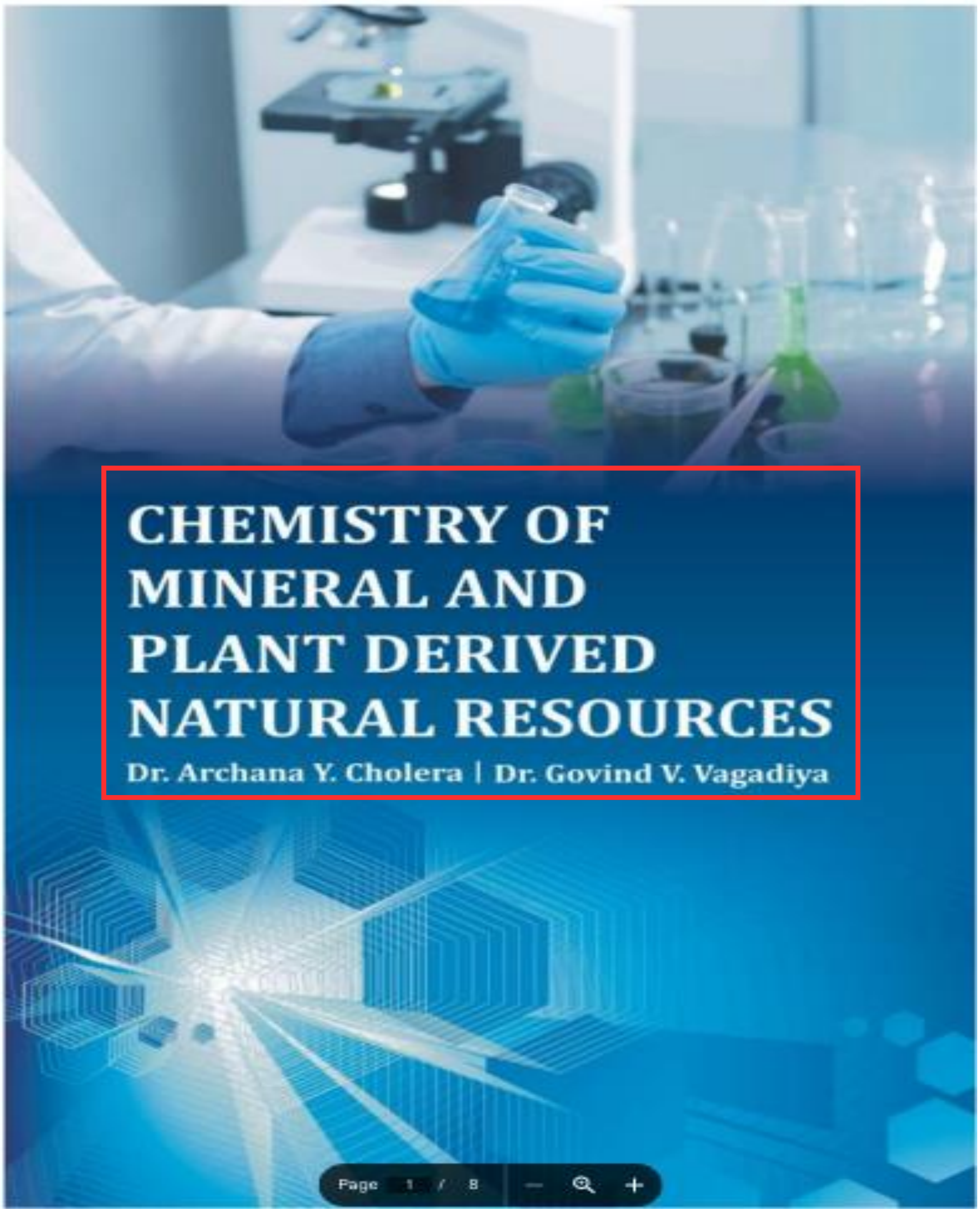
Author	Title	ISBN No.
Dr. Archana Cholera	CHEMISTRY OF MINERAL AND PLANT DERIVED NATURAL RESOURCES	978-81-945432-8-2



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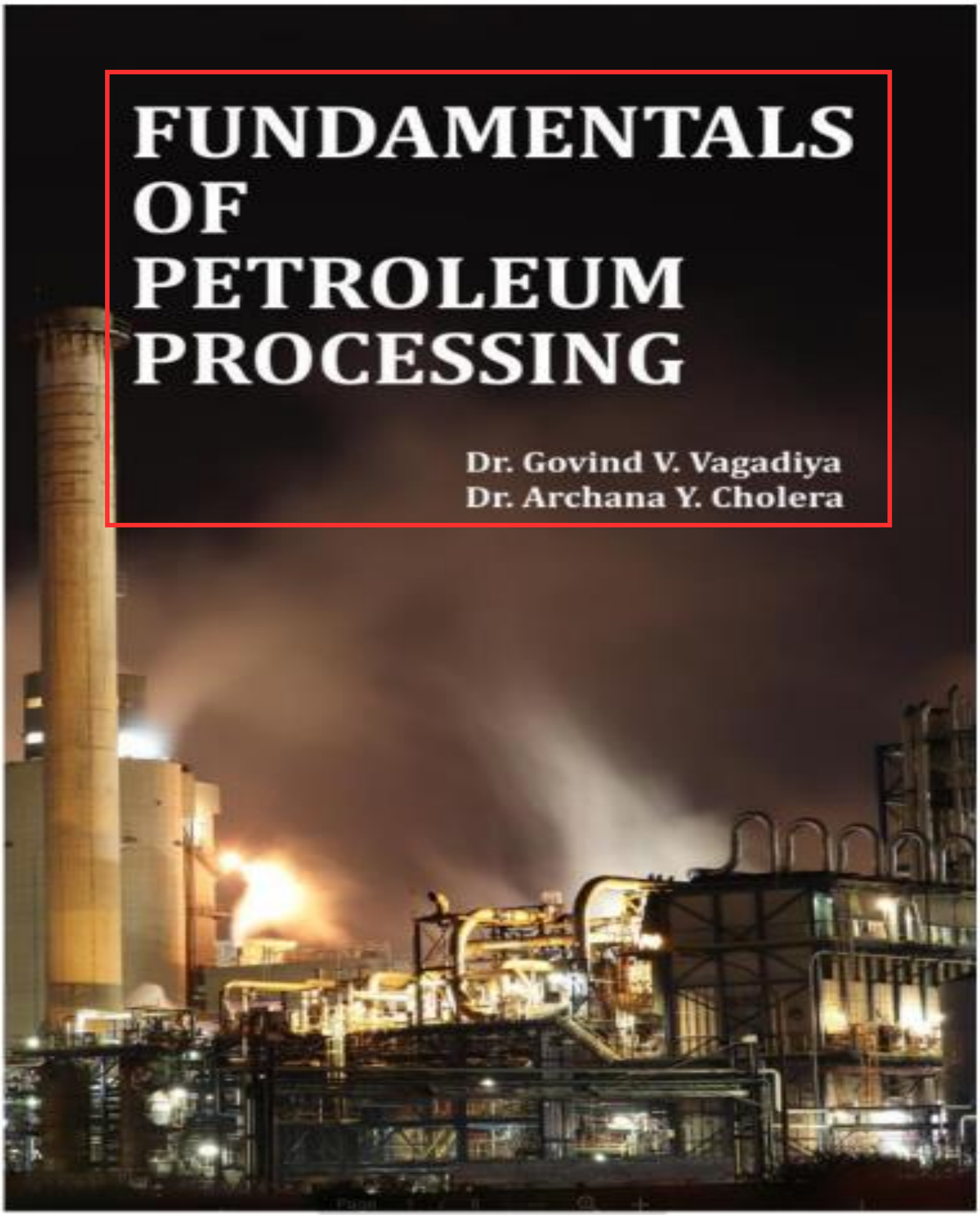

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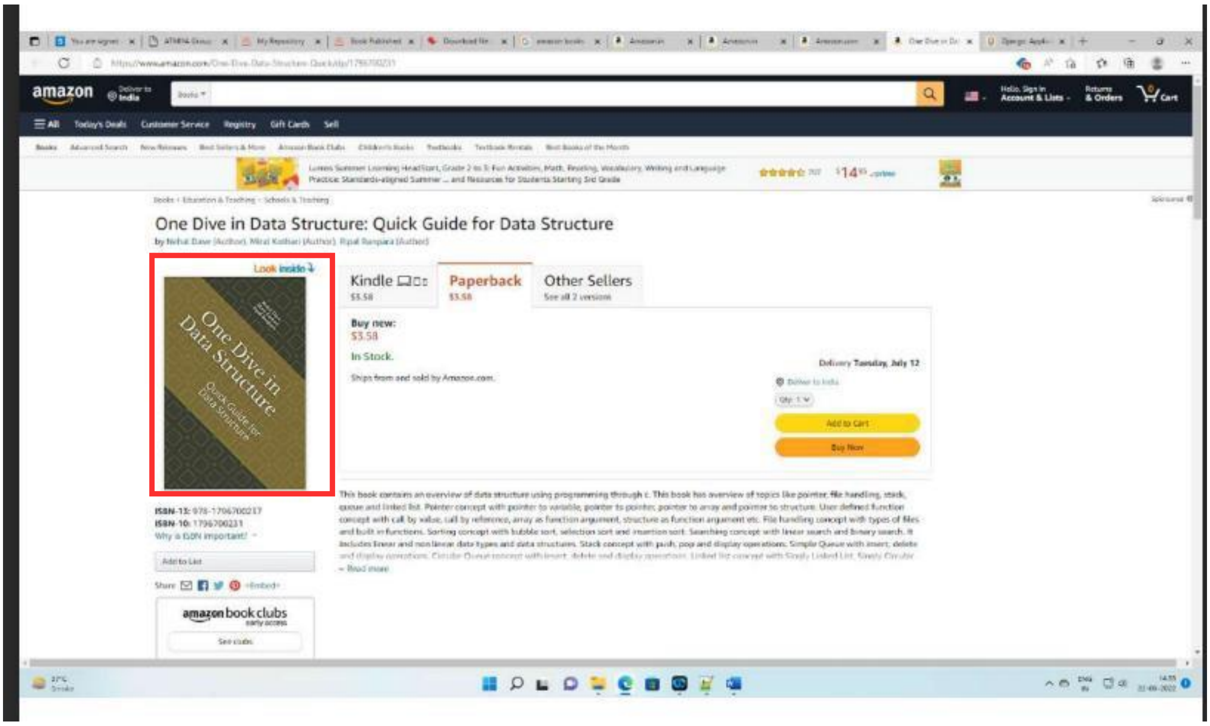

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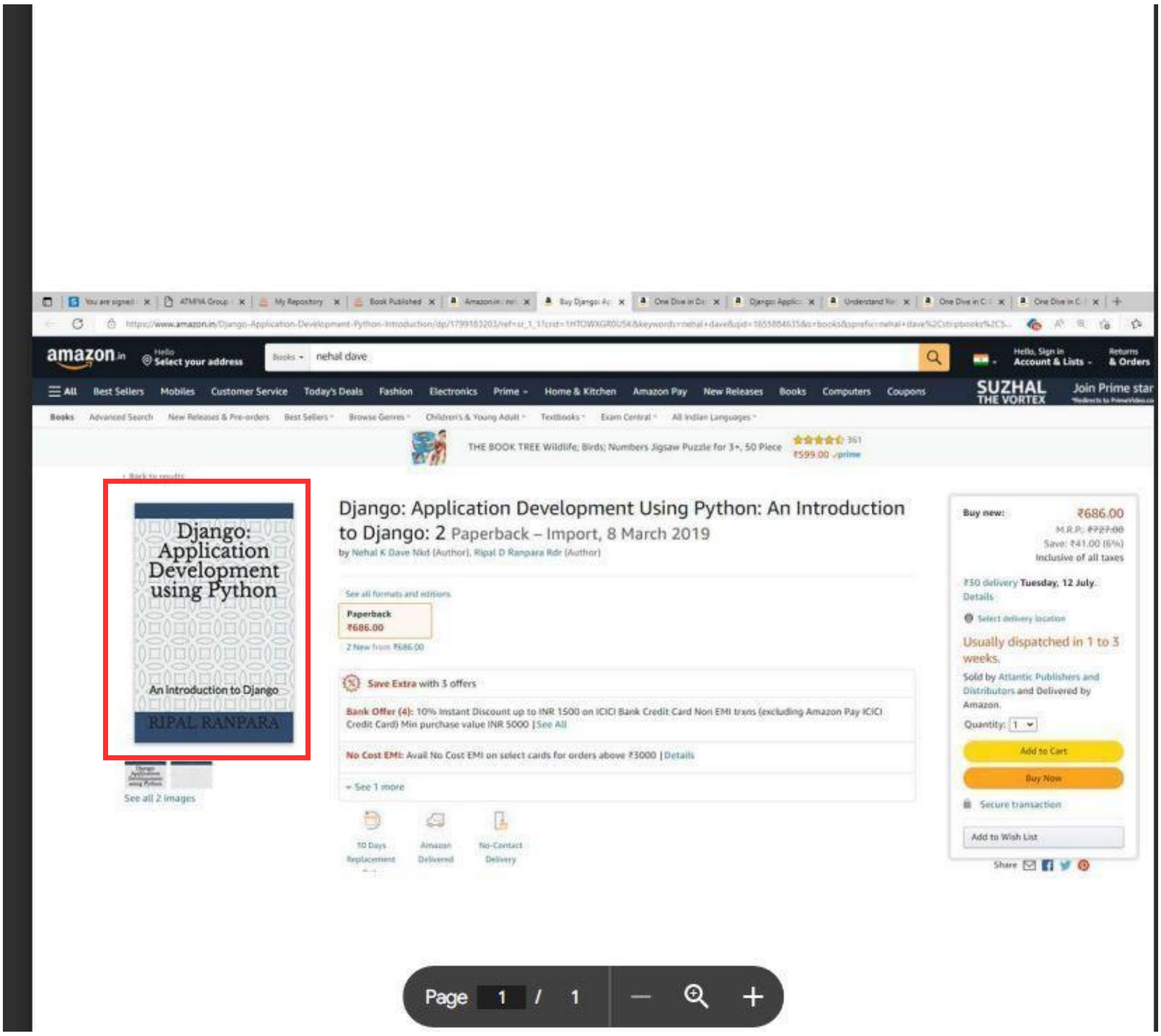

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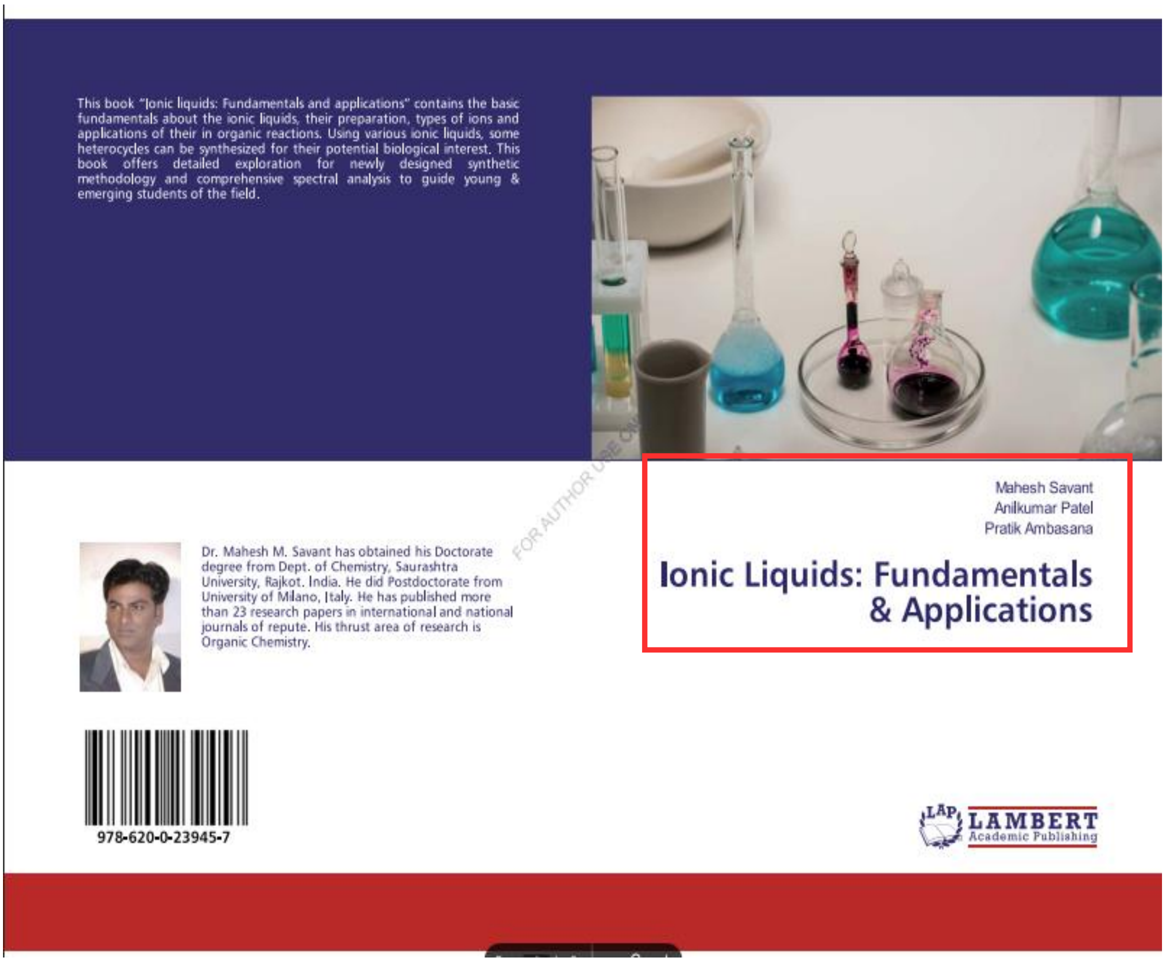

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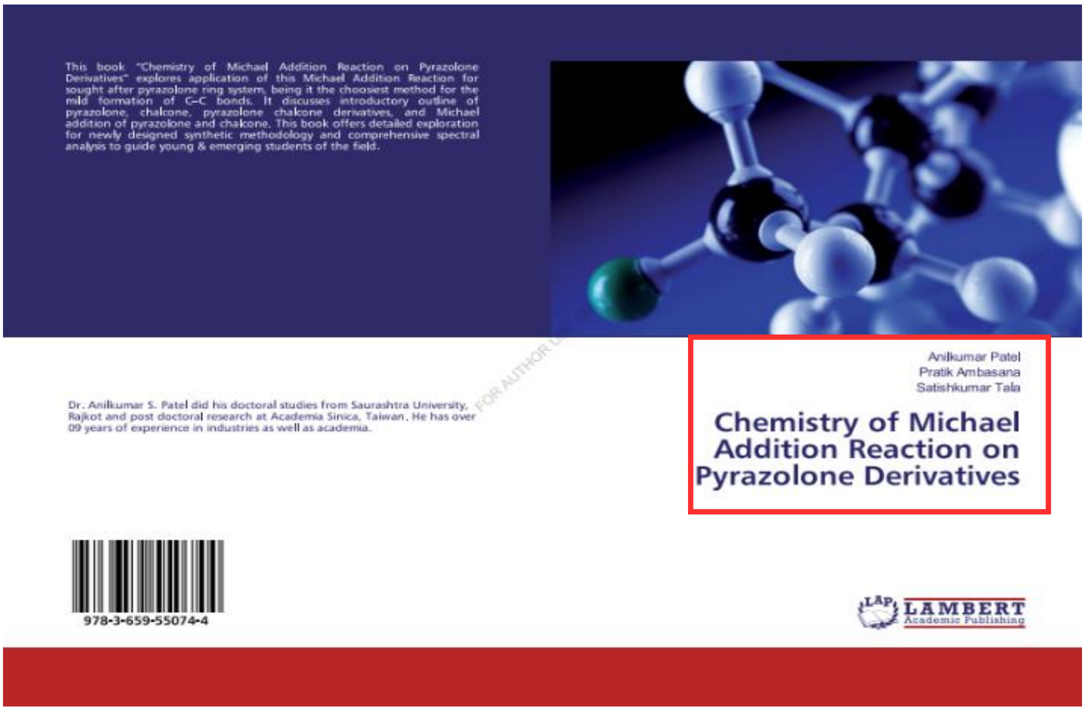

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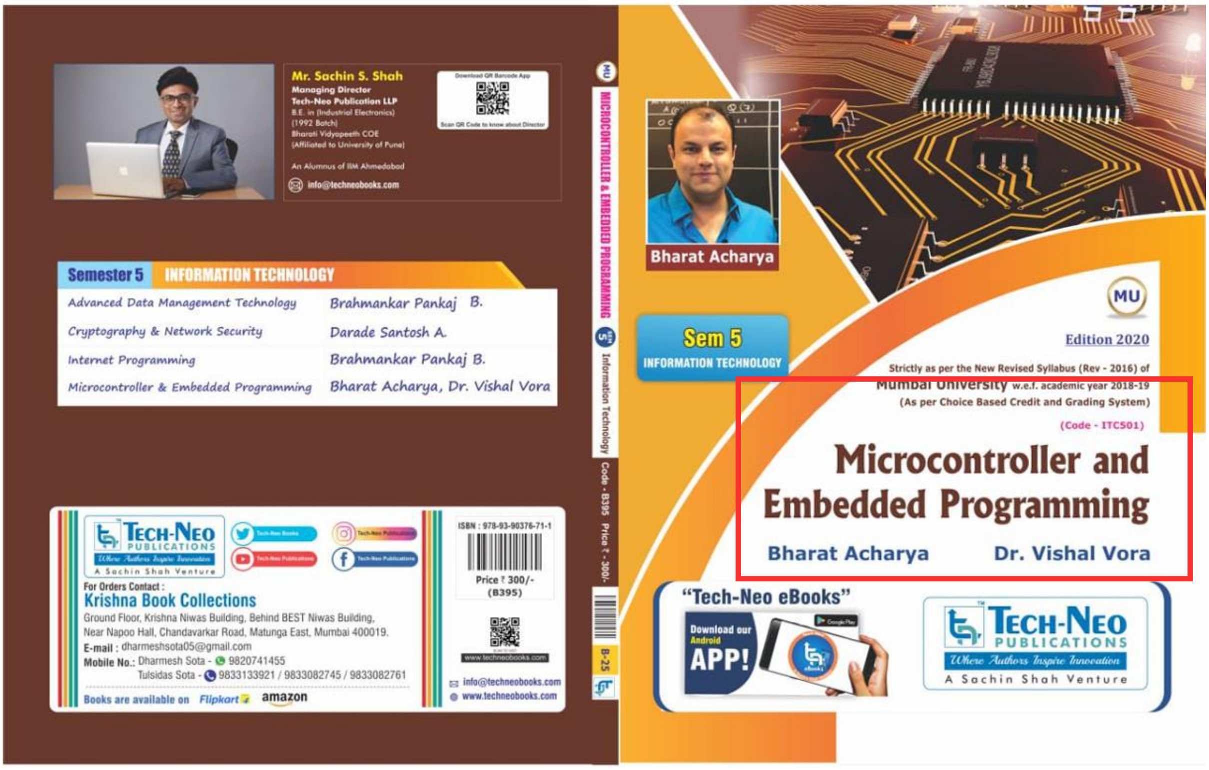

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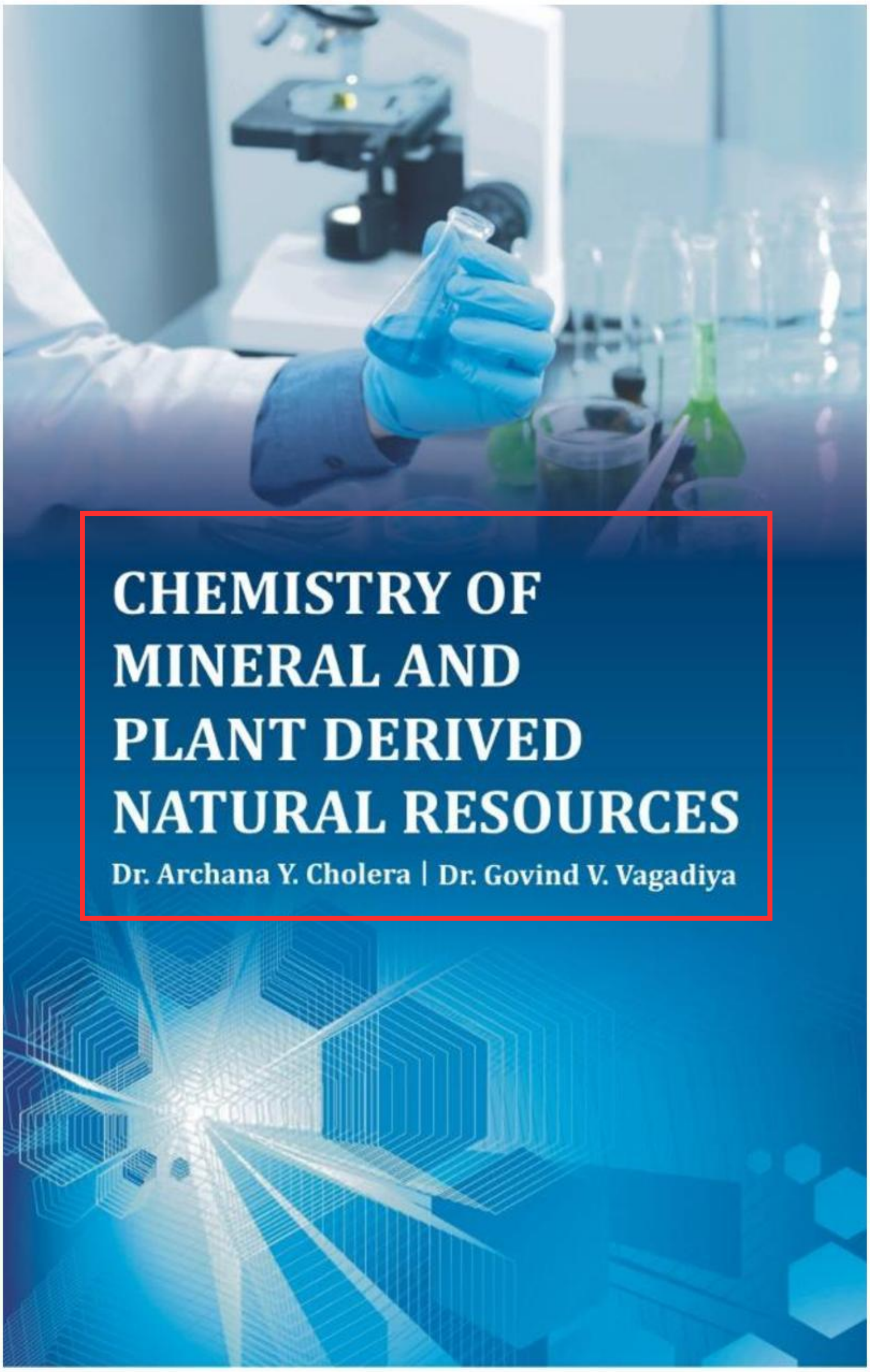

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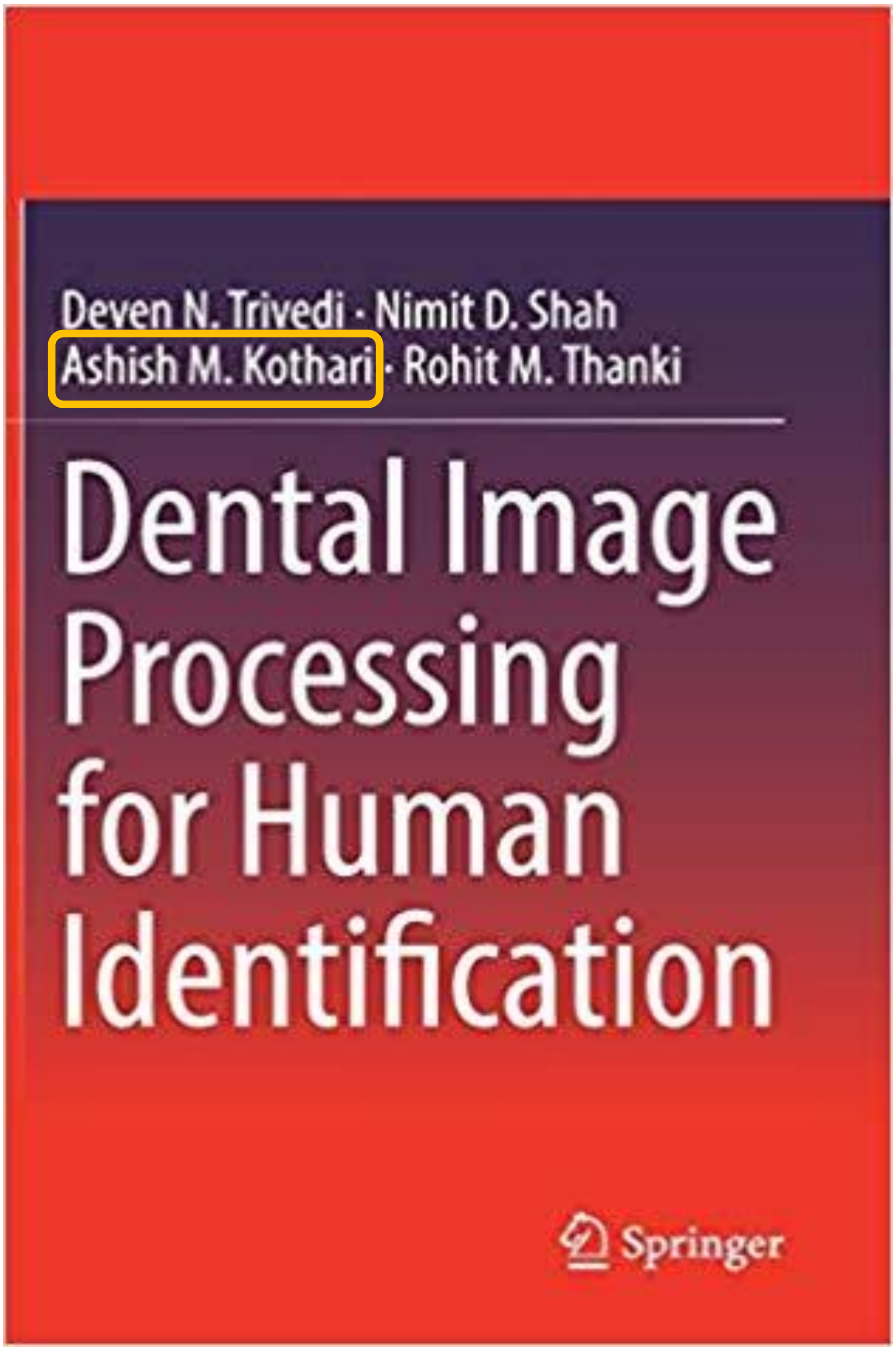

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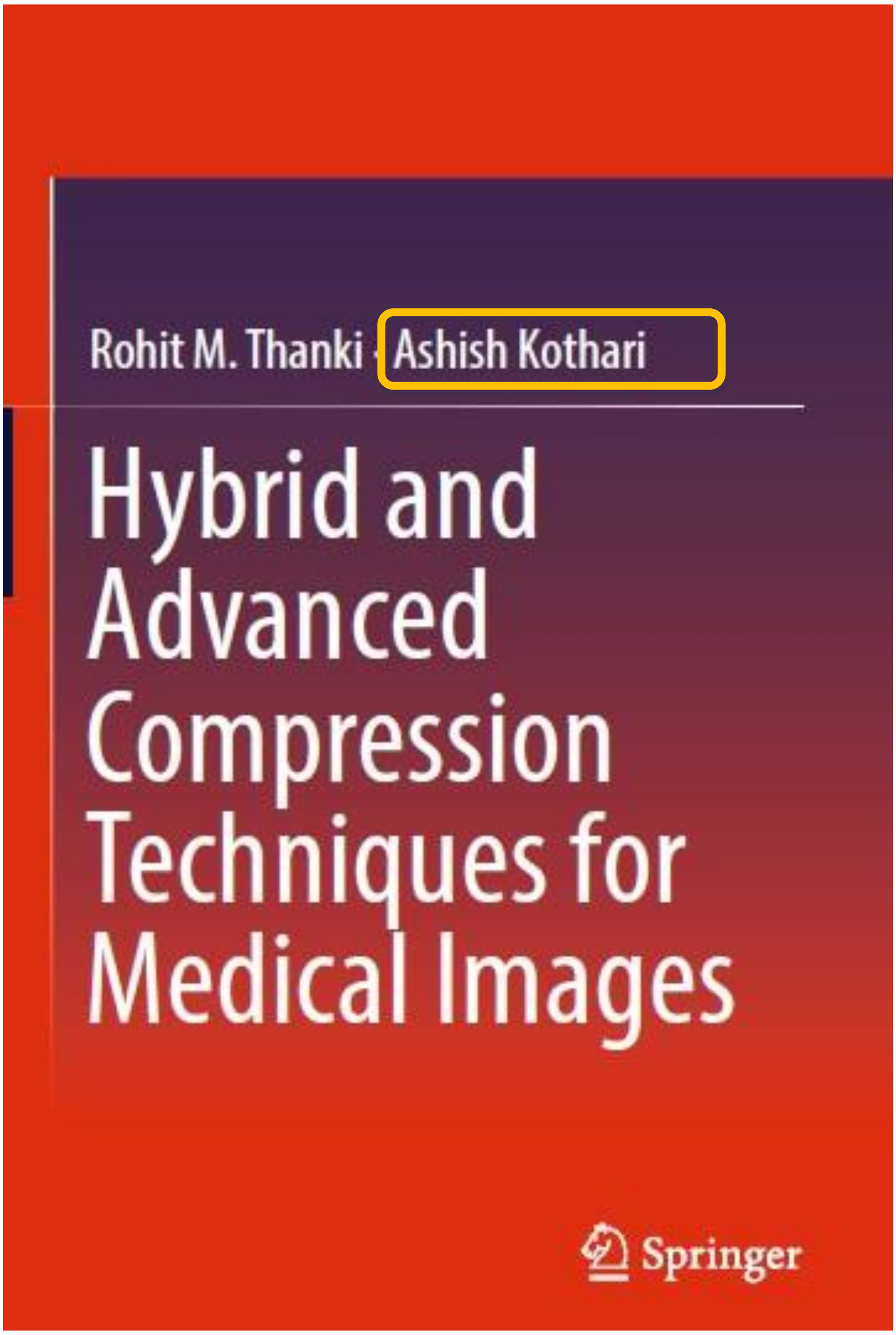

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Security Analysis of Visual Transformation Based Image Encryption Using Compressive Sensing

Rohit Thanki and Ashish Kothari

Abstract In the last 20 years, many different image encryption algorithms have been proposed by researchers in the literature. While any algorithm proposed as an encryption algorithm and undergoes the security analysis of it, many of it is not fulfilled the security requirements. In this paper, the new image encryption algorithm based on compressive sensing over traditional cryptography-based encryption algorithm is discussed. The paper demonstrates the several experimental tests which are commonly used for security analysis of an encryption algorithm. The experimental results show this new encryption algorithm well and/or pass several security analysis tests. In conclusion, these tests can give necessary checking of algorithms, but by no means, these tests are sufficient parameters for checking the security of the algorithm.

Keywords Compressive sensing · Encryption · Image · Security analysis

1 Introduction

While there is a rapid sharing of a large number of images using the Internet or wireless system it cannot be shared due to the limited bandwidth of communication channel. Also, the security of this information is questionable when it is transferred through channel [1, 2]. To solve these mentioned problems, researchers are introduced various methodologies based on compression and encryption. The basic model for secure image over a communication channel is shown in Fig. 1 [3]. The basic block of this model is encrypter and decrypter. The function of encrypter is an encrypted image into a set of symbols. After transmission of these symbols through a channel, it is fed to the decrypter which decrypts image from these symbols.

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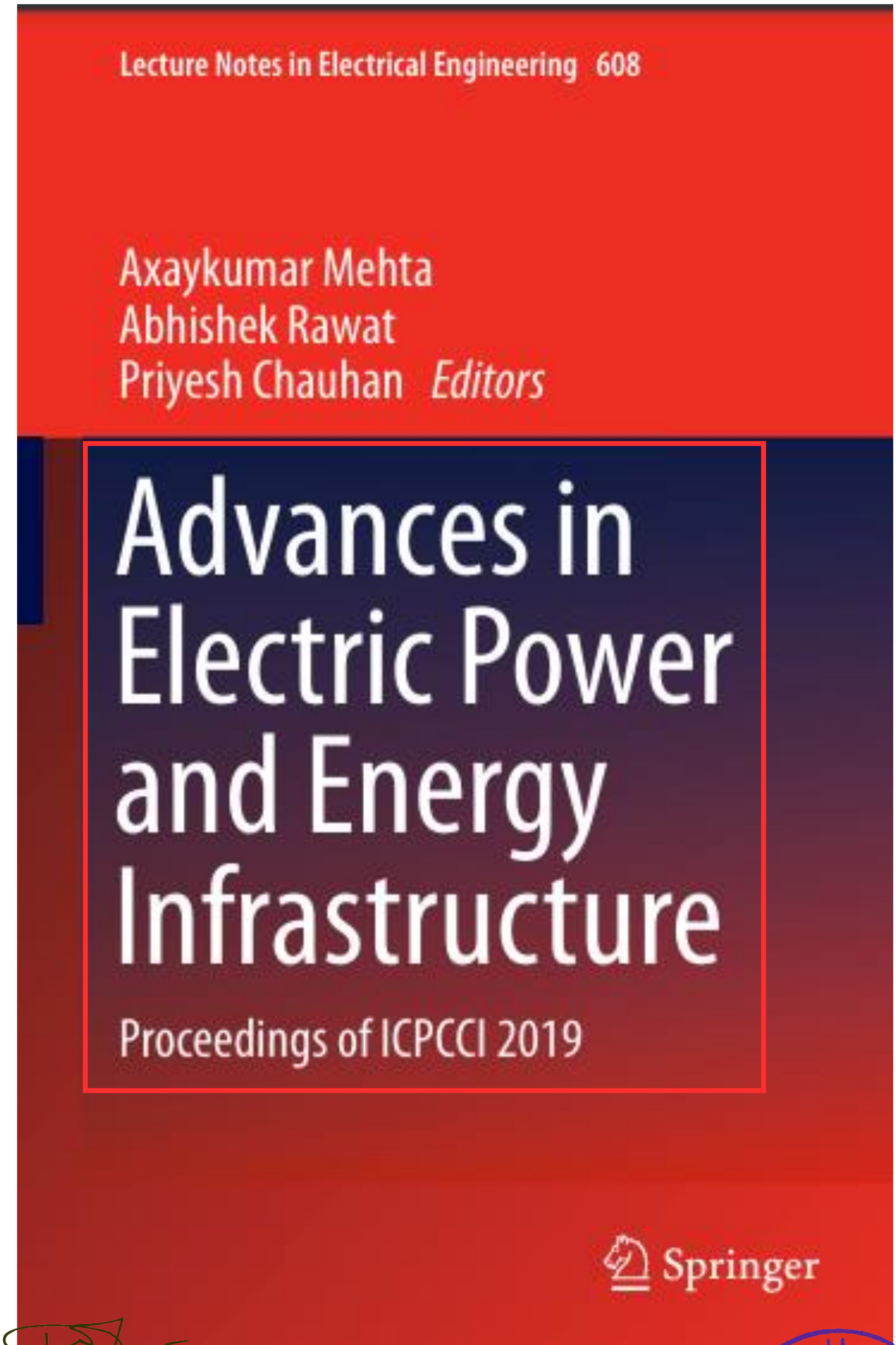

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Investigation on Impact of Rooftop Solar System on LV Distribution Network

Dhaval Y. Raval and Saurabh N. Pandya

Abstract Energy is prime requirement to have prosperous and convenient life. Diversified use of electrical energy is due to its transferability and storability. Solar energy is being promoted worldwide to meet increasing electricity demand and to cope with spoiling environment. Consumer participation is key to achieve large scale power generation using compact photovoltaic (PV) systems. Grid-integrated PV system introduces power quality issues like local voltage rise, voltage unbalance, reverse power flow (RPF) and neutral to ground voltage rise (NGV). PV-integrated LV distribution network has been analyzed to recognize the seriousness of negative impact of PV generation in conventional radial distribution network. Simulation study has been carried out using MATLAB/Simulink.

Keywords Photo-voltaic · Power quality · Voltage rise · NGV · Reverse power flow

1 Introduction

Grid-connected photovoltaic (PV) system extracts power from the PV array and feeds it to the grid. First component of this PV plant is PV cell which converts solar energy into electrical energy. Efficiency of this solar cell is varying from 3 to 15%, generally depends on material, temperature, surface deposits, tilt angle, light spectrum [1]. PV cells are grouped to make PV module and PV modules are grouped to make PV array. Various PV array topologies are available like series-parallel, total cross-tied and bridge linked. Series-parallel is most favorable among them [2, 3]. DC-to-DC converter, isolated or non-isolated with various MPPT algorithms are used to linearized PV source, as PV is a non-linear source of energy [4].

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