INSECT

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PHEROMONES FOR INSECT PEST MANAGEMENT

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ABSTRACT

Repeated applications of insecticides to control pests may not be cost efficient in the long run; as it may cause natural balance to upset in the orchard ecosystem (reducing the populations of natural enemies, triggering populations build-up of secondary pests; besides the research demonstrated that neonicotinoid seed treatments do not provide consistent return on investment (Philpott 2016). Several methodologies are being applied as an integrated pest management programme (IPMP) to obstacle the pest damage. Among various applied strategies of IPMP, application of sex pheromones as mating disruption is regarded as one of the best approach (Ashraf *et al*., 2007). While as, the competitive disruption i,e. ratio of dispensers to females and traps is highly consequential and renders the control pest-density-dependent (Miller and Gut, 2016). Pheromones are chemical substances released or emitted by individual insects elicit behavioural response in the individuals belonging to the same species. A variety of approaches employed in pheromone technology include detection and monitoring, mating disruption, autodetection (Holdcraft *et al*., 2016) mass trapping and lure and kill method (Welter *et al*., 2005) e.g., mating behavior in *D. suzukii* is characterized by distinct elements of natural (male) or artificial, leading to female acceptance for mating (Revadi *et al*., 2015).

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INSECT ORIGIN AND EVOLUTION

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INTRODUCTION

Evolution has produced astonishing variety in insects, like some possible shapes of antennae. Based on genome sequencing data, it is estimated that the class of insects originated on Earth about 480 million years ago, in the Ordovician, at about the same time terrestrial plants appeared. Insects evolved from a group of crustaceans. They were the first animals to develop flight, about 400 million years ago in the Devonian period. The oldest definitive insect fossil, *Rhyniognatha hirsti*, is estimated to be 407 to 396 million years old. Global climate conditions changed several times during the history of Earth, and along with it the diversity of insects. The Pterygotes (winged insects) underwent a major radiation in the Carboniferous (356 to 299 million years ago) while the Endopterygota (insects that go through different life stages with metamorphosis) underwent another major radiation in the Permian (299 to 252 million years ago). Most extant orders of insects developed during the Permian period. Many of the early groups became extinct during the mass extinction at the Permo-Triassic boundary, the largest extinction event in the history of the Earth, around 252 million years ago. The survivors of this event evolved in the Triassic (252 to 201 million years ago) to what are essentially the modern insect orders that persist to this day. Most modern insect families appeared in the Jurassic (201 to 145 million years ago). In an important example of co-evolution, a number of highly successful insect groups- especially the Hymenoptera (wasps, bees and ants) and Lepidoptera (butterflies) as well as many types of Diptera (flies) and Coleoptera (beetles)- evolved in

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INTRODUCTION

Insects (from Latin *insectum*, a Calque of Greek ἔντομον [*éntomon*], means "cut into sections"). Scientifically, the macro organism insect is classified: Kingdom- Animalia, Phylum- Arthropoda, Clade- Parncrustacea, Subphylum- Hexapoda, (Unranked--Ectognatha, class-Insects (Linnaeus, 1758). Insects are a class of invertebrates within arthropod phylum that have a chitinous exoskeleton, three-part body (head, thorax and abdomen), three pairs of jointed legs, compound eyes and one pair of antennae. They are the most diverse group of animals on the planet, including more than a million described species and representing more than half of all known living organisms. The number of exact species is estimated at between six and ten million and potentially represent over 90% of the differing animal life forms on Earth. Insects may be found in nearly all environments, although only a small number of species reside in the oceans, a habitat dominated by another arthropod group, crustaceans. Till date total of 950000 species of insects have been described by Entomologists, USA.

The life cycles of insects vary but most hatch from eggs. Insect growth is constrained by the inelastic exoskeleton and development involves a series of well-organized phases. The immature stages can differ from the adults in structure, habit and habitat, and can include a passive pupal stage in those groups that undergo 4-stage metamorphosis (in holometabolism). Insects that undergo 3 stages metamorphosis lack a pupal stage and adults develop through a series of nymphal

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ABSTRACT

The strategies for Codling moth (*Cydia pomonella*) control are undergoing the major changes brought about by a need for more IPM- selective control tactics like, resistance development and regulatory restrictions. The pheromonal control technologies are ready to replace the organophosphates insecticides which have been the backbone of codling moth control for many years. The pheromonal control includes the use of mating disruption or attracts and kill and autoconfusion, whileas the other control strategies comprise of insect growth regulators and microbial agents. In contrast to synthetic chemical control, the future control programs will likely include a variety of tactics merged into a unified program to achieve population reduction and economic control without impacting biological control of other pests. Monitoring efforts of codling moth populations in commercial orchard must be intensified through mating disruption to make these programs successful and reduce the risk of unacceptable fruit damage. Considering the high annual control costs, a sterile insect release program may be economical in the long run to deal with the most important insect pests of apples and pears.

Key words: Pest, *Cydia pomonella*, Management, Orchard, Fruit

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WHAT IS AN INSECT PEST?

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INTRODUCTION

Humans are fascinated by the living organisms that share their environment; they love to watch an ant groom itself, a bee gather nectar, or a spider build its web. But this interest is seldom encouraged in our busy society. Adult attitudes toward insects (and related arthropods) are generally negative -- the ant is a nuisance, the bee might sting, and the spider... well just look at what happened to little Miss Muffett (daughter of Muffett, T. Entomologist). Through these attitudes we send our children a clear, subconscious message that insects (and most other parts of the natural environment) are unsafe, unclean, and unappealing. Most children adopt this viewpoint before they leave elementary school; they grow up, like their parents, convinced that the "only good bug is a dead bug". The mass media continually reinforces this belief with reports about killer bees, giant grasshoppers, poisonous spiders, and crops destroyed by marauding bands of insects. This cultural indoctrination has produced a society that seems to be increasingly consumed by efforts to eliminate insects from all facets of daily life. Pest control has become big business. Nearly 75 million pounds of broad-spectrum insecticides are manufactured and sold each year for use in American homes and gardens. Annual revenues from insecticide sales to homeowners exceed 450 million dollars.

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Dodecagonal Space Vector PWM for Cascaded H-Bridge based STATCOM

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***Abstract*—This paper proposes a new circuit topology for Cascaded H-bridge based static compensator (STATCOM). The proposed circuit consists of H-bridge cells with asymmetric capacitor voltages. However, the difference in voltage among the H-bridge cells is less than 10% leading to a modular design. The space vector diagram formed by proposed circuit consists of six twelve sided polygons (dodecagons). Dodecagonal Space Vector diagram offers increased modulation range as compared to conventional hexagonal space vector diagram. The increased voltage obtained can be used suitable in static compensators as shown in this paper. Additionally decagonal space vector pulse width modulation on this dodecagonal space vector diagram offers several advantages like reduction in harmonics, reduction in dv/dt rating of switches, complete elimination of 6n±1 harmonics (for n= odd) etc. Simulation results demonstrating the benefits of Dodecagonal Space Vector PWM in STATCOM application are also presented.**

Index Terms*— Cascaded H-bridge (CHB); STATCOM; Flexible AC transmission Systems (FACTS); Dodecagon, Space Vector Pulse Width Modulation (SVPWM); Voltage Source Converter (VSC)

I. INTRODUCTION

Static compensator (STATCOM) is a member of flexible AC transmission systems (FACTS) device family. These are shunt connected devices based on voltage source converters (VSC) and have been widely used in transmission and distribution system for reactive power compensation, regulating grid voltages, mitigating faults etc. [1]-[2]. With ever increasing use of renewable energy resources, the use of STATCOM has become absolutely essential. For decades these have been used at transmission and distribution level for reactive power compensation. A ±100MVA STATCOM was installed at the Sullivan substation of Tennessee Valley Authority (United States) in 1995[3].

Voltage source converter (VSC) forms the back bone of a STATCOM. The VSC of STATCOM can either be multi-pulse or a multilevel converter. Recently multilevel converters have become an important technology in high-power applications [1]. With modularity and flexibility, multilevel converters have shown superiority in high-power applications like medium voltage drives and FACTS controllers. Akagi [2] has presented a review of multilevel converter topologies in such applications.

Cascade H-bridge converter based STATCOM are among the most commercialized FACTS devices. Major companies in electric power industry like Siemens , ABB, Alstom, General Electric are currently using Cascaded H-bridge based STATCOM's [4]-[5] .The Cascade H-bridge converters using self-commutating devices like IGBT's combines isolated voltage levels to generate nearly sinusoidal voltages . With large voltage levels almost sinusoidal voltages can be generated even when semiconductor devices are operated at the low frequency. This minimizes switching system losses and output filter requirement.

Among modulation techniques phase shifted PWM, level shifted PWM and space vector pulse-width modulation (SVPWM) are more common in case of multilevel converters [6]-[12]. SVPWM offers significant advantages over phase shifted PWM and level shifted PWM in terms harmonic performance, ease of implementation in DSP, dc bus utilization. Dodecagonal Space Vector PWM an extension of SVPWM has been reported in literature for quite some time. This modulation technique because of closely spaced voltage vectors offers several advantages like lower dv/dt rating of switches, lesser harmonics, complete elimination of 6n±1(for odd values of n), maximum dc bus utilization etc. [13]-[15].

The present work proposes a new circuit topology for the Cascaded H-bridge Converter. A Simulink model of grid connected CHB is developed and dodecagonal space vector PWM is used for reactive power compensation. Simulation results have been presented to demonstrate efficacy of the proposed concept.

II. ANALYSIS OF PROPOSED TOPOLOGY

A. Circuit Topology

The proposed topology is a cascaded H-bridge converter with four cells in each phase. Three of the cells have capacitor voltages of 0.333 V_{dc} while the fourth one has a capacitor voltage of $0.366V_{dc}$ as shown in Fig. 1. Due to less than 10% difference in cell voltages, identical cells can be used to make the converter, leading to a modular design. If V is capacitor voltage of a cell, then depending upon the status of switches of

Almas Zaidi · Mohammad Saghir Khan
Javed Musarrat *Editors*

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Preface

Globally, farming communities are finding it difficult to fulfill food demands of human populations due largely to declining crop production. The crop production is dwindling due to declining cultivable lands, fluctuating environments, and excessive usage of chemical fertilizers in order to optimize crop yields. Apart from these, the nutrient pool of soil is deteriorating rapidly, which further intensifies agricultural problems. Due to these, there is a pressing need to find solutions to expensive and environmentally disruptive problems. To solve these problems, soil microbiota have been found as inexpensive and environmentally sustainable options as organic fertilizers in providing adequate nutrients to growing crops including legumes. Legumes grown in many countries improve soil quality by increasing soil organic matter and soil structure and porosity, recycling nutrients, decreasing soil pH, diversifying the rhizosphere microbes, and decreasing disease incidence. The application of rhizobial inoculants and other free-living/associative plant growth-promoting rhizobacteria (PGPR) and mycorrhizal fungi in legume production has been found extremely useful.

Microbes for Legume Improvement (second edition) written by qualified teachers and scientists presents exceptional, recent, and wide-ranging information on the use of beneficial soil microbiota in legume production across different production systems. The revised edition presents the current status on the taxonomy of bacteria able to establish nitrogen-fixing legume symbiosis. Recent developments in the active biomolecules involved in rhizobia-legume symbiosis are highlighted. The importance of flavonoids and nod factors in legume-microbe interactions and their role in legume improvement is dealt separately. The advances made in recent times on the role of ethylene and bacterial ACC deaminase in legume-*Rhizobium* interactions are also included in this second edition. The latest developments in the field of some novel rhizobial exopolysaccharides and their role in legume-rhizobia symbiosis and environmental monitoring in legume improvement are discussed separately. The rhizobial diversity for tropical pulses and forage and tree legumes in Brazil is discussed separately. The book further describes the potential of rhizobia as plant growth-promoting rhizobacteria for enhancing the production of legumes in different agronomic regions. The deficiency of phosphorus restricts the legume production severely. To address and resolve such problems, meaningful and extensive information on the role of phosphate-solubilizing bacteria in the improvement of legumes is highlighted. The mycorrhizosphere interactions involving mycorrhizal

establishment, mycorrhizal management for improving legume productivity, and interactive influence of mycorrhiza on legume development are described. The role of associative plant growth-promoting rhizobacteria especially *Azospirillum* used either alone or as mixture with other PGPR in increasing the productivity of legumes is highlighted. Also, endophytic microbes affecting legume performance are included in this second edition. This book further provides some novel microbial strategies and proposes alternative solution, which if properly applied could help to boost the overall performance of legumes growing under various stressed environments including salt, drought, and heavy metal-polluted soils. Also, this book gives information on how rhizobia abate metal toxicity and consequently enhance legume production in metal-contaminated soil, when used as metal-tolerant inoculants. The information and strategies described in this second edition are very useful which may serve as an important and updated reference material. This revised edition provides an elaborate overview for persons interested in legume research. This revised edition will, therefore, be of great practical interest to research scientists, postgraduate students, bioscience professionals, decision-makers, and farmers who aim to apply microbes for enhancing legume production. It is also likely to serve as a precious resource for agronomists, soil microbiologists, soil scientists, biologists, and biotechnologists involved in legume research.

We are extremely grateful to our well-qualified and internationally renowned colleague authors from different countries for providing their important, authoritative, and cutting-edge scientific information to upgrade this book. All chapters presented in this revised edition have the latest information with well-placed tables and figures and most recent references. The timely help and generous support extended by our loyal and trusted research scholars in revising this book are commendable. We are indeed very thankful to our family members for their unconditional and constant support, who, in their own ways, motivated us to complete this herculean task. We must also appreciate the honest efforts of the book publishing team in responding to all our queries very promptly and without any delay. Finally, if any one finds any mistake, factual or otherwise, or printing errors in this book, they may inform us so that the same is corrected and improved in subsequent print/edition.

Aligarh, UP, India — Almas Zaidi
Aligarh, UP, India — Mohammad Saghir Khan
Aligarh, UP, India — Javed Musarrat

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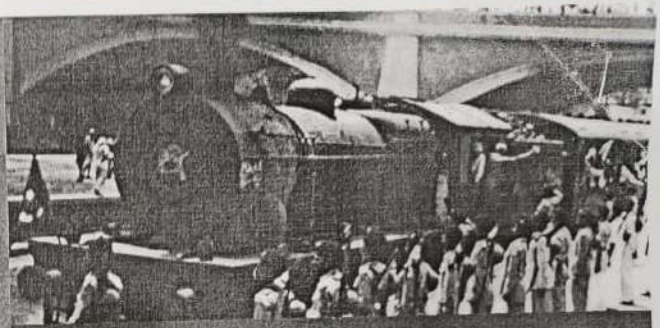

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Untying the Tongue: the Trauma and Triumph in Mahesh Dattani's *Final Solutions*

Shachi Sood

This chapter delves into the thematic realms of Partition Literature which recognized Dattani as a literary genius of twenty first century with the production of his magnum opus *Final Solutions* which is the first Indian English drama to be awarded the coveted Sahitya Akademy.

Partition as an experience of ruinous corollary has maintained its pre-eminence even today, despite two wars on the borders and wave after wave of communal violence. The mass genocide was defined by massacres, bloodshed, looting, arson, forced conversions but perhaps the ugliest ramification of India's Partition is the horrifying violence that ensued against women. The play *Final Solutions* is written keeping in view the historical background of the partition of India which is an important facet interwoven with the nerve-racking account of man-woman relationship. The play talks about the events that took place at partition along with their consequence which have lingered in collective memory. Ritu Menon and Kamla Bhasin, have written about Partition as an event whose

> terrible stunning violence and silencing pall descended like a shroud over it, always hovered at the edges of

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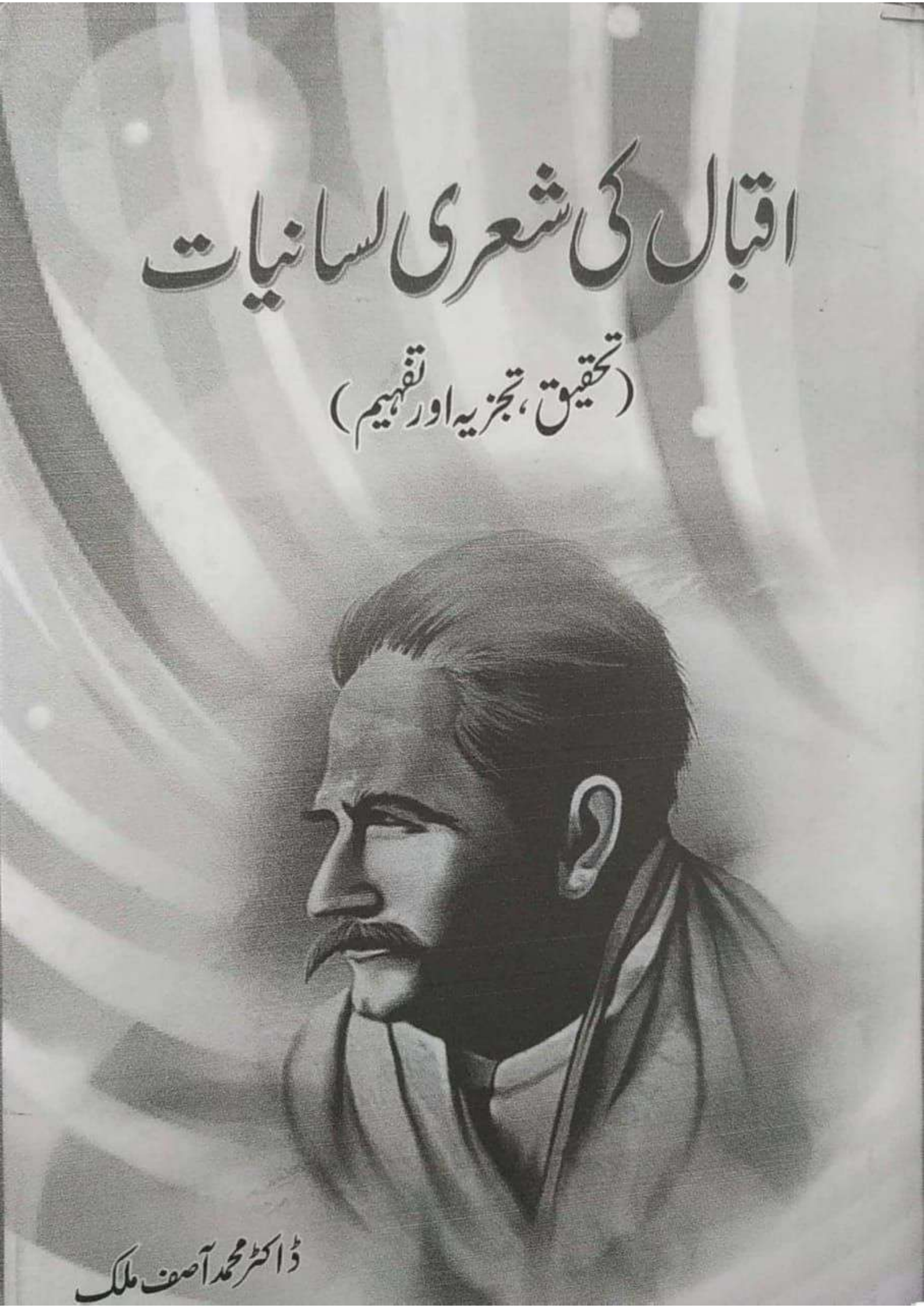

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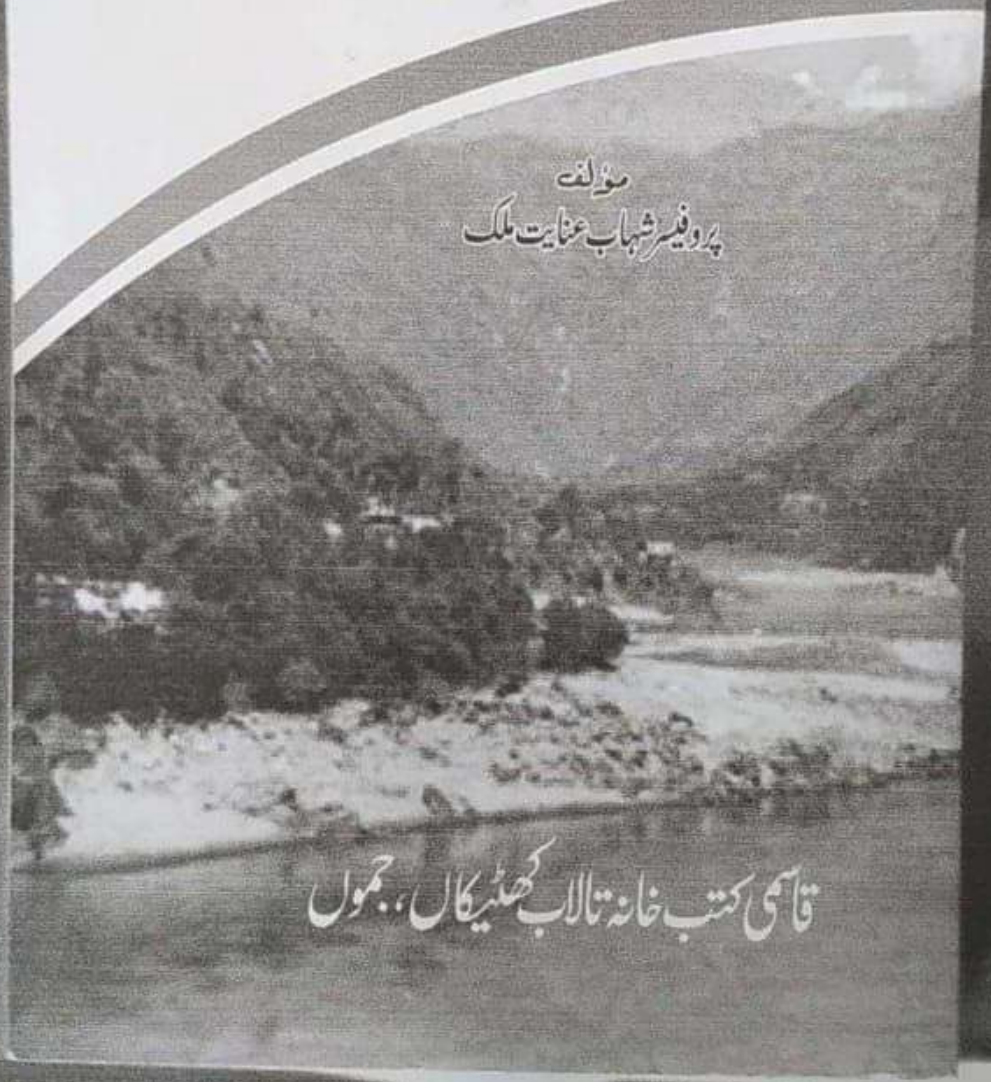

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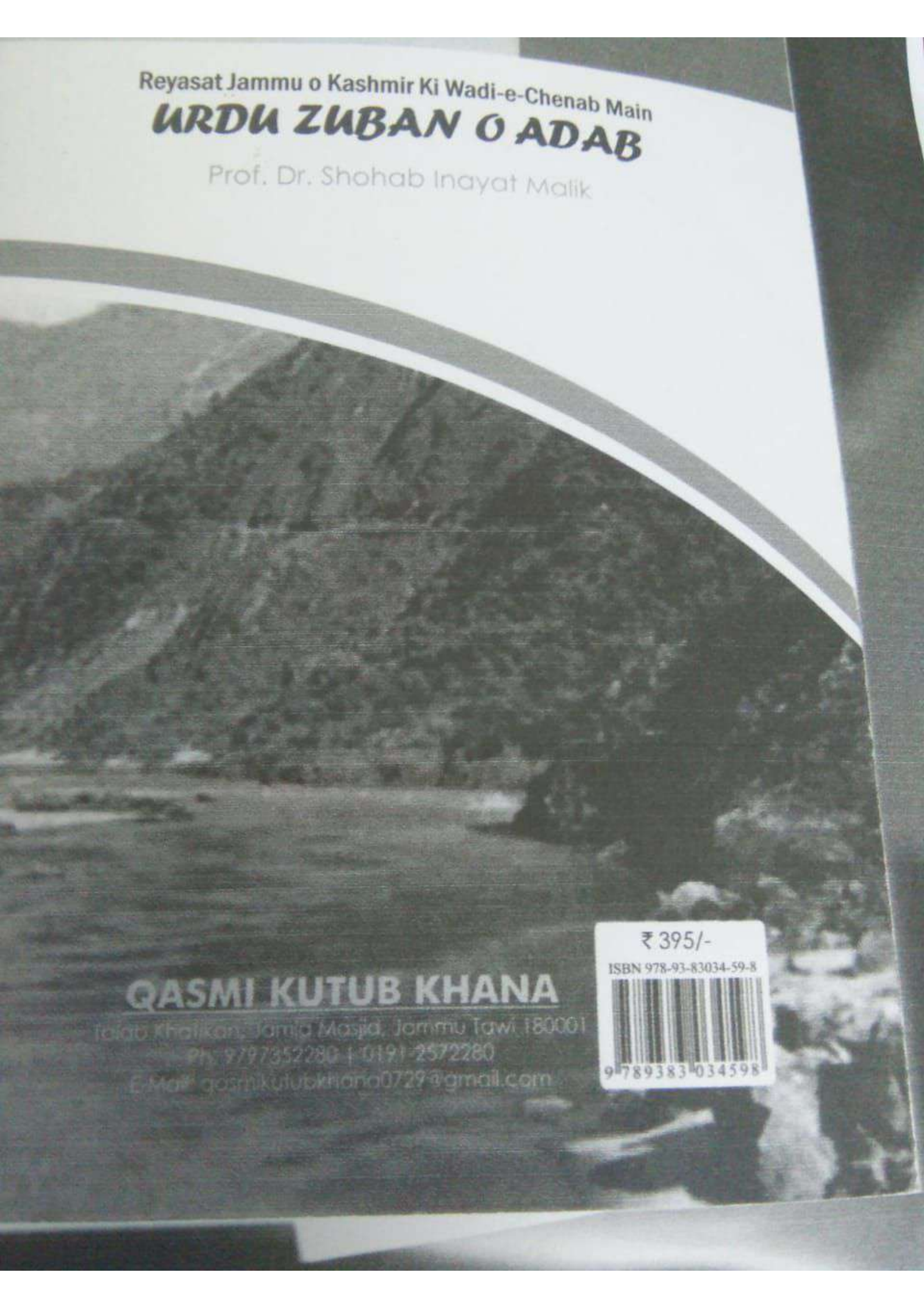

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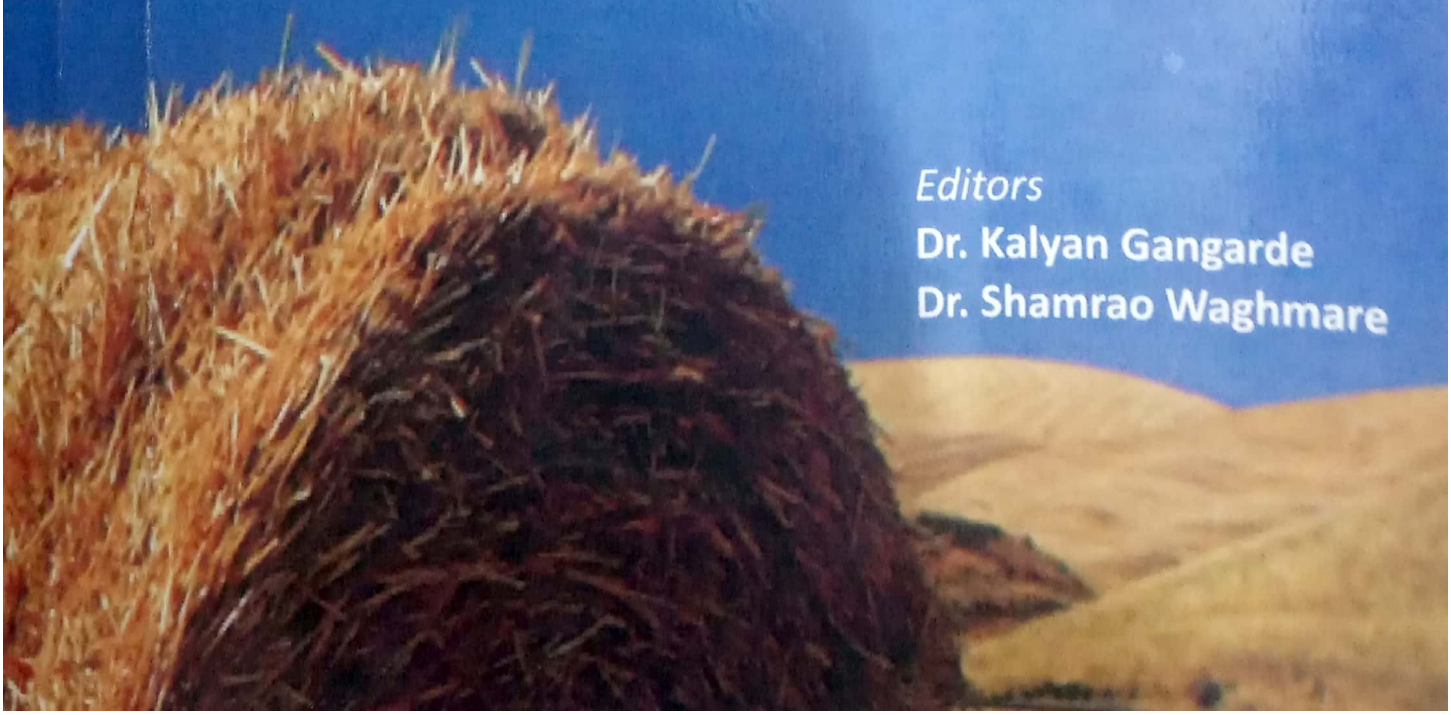

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Marlene as a New Woman in Caryl Churchill's *Top Girls*

Dr. Shachi Sood
Assistant Professor
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Dr. Romina Rashid
Assistant Professor
BGSB University

Caryl Churchill, one of the most noteworthy British dramatists of the late twentieth century is concerned with the subjugation of women, the poor and the powerless. The play *Top Girls* was written in an era when Queen Elizabeth II and Margaret Thatcher were the two most important political figures in the Great Britain. The play celebrates the accomplishments and achievements of women and their role in breaking the taboos driven by the patriarchal society. The characters in the play are unconventional and are depicted as liberated from the age old prejudices and bonds. The women in the play belong to different cultural, social and economic backgrounds and they all have framed their own strategies to cope up with the clutches of patriarchy.

The play opens with a dinner party thrown by the protagonist Marlene to celebrate her promotion to the Managing Director of Top Girls, the employment agency where she works. The guests are all extraordinary women from history, art or literature of different time periods like Victorian traveler Isabella Bird, thirteenth century Japanese courtesan Lady Nijo, the ninth century Pope Joan, Chaucer's Griselda. They all have refused to play the assigned roles and have emerged as rebels in their respective societies.

Marlene, the main protagonist in the play epitomizes the new woman, liberated and empowered by the Women's Liberation Movement. The Women's Liberation Movement (1960) raised women's self consciousness against sexual discrimination. They started liberating themselves from the restrictions of family, domestic identity and familial responsibilities. The term New Woman was used at the end of the nineteen century to represent those women who were pushing against the restrictions which were imposed by society on women. Gall Finney briefly describes a New Woman:

> The New Woman typically values self-fulfillment
> And independence rather than the stereotypically
> Feminine ideal of self-sacrifice; believing in legal
> And sexual equality; often remains single because
> Of the difficulty of combining such equality with marriage

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Abstract—*The success stories of modern business are visible to everyone, but the main concern is that, whether the business houses are fulfilling their social responsibilities. In order to avoid the wrongdoings in the organisations or by the organisations, in recent years much emphasis is given on Business ethics, corporate social responsibility & to execute these two functions, the corporate governance. Every organisation now-a-days has the well defined Code of Ethics, defining the role, function and boundaries within which each individual can perform within the organisation. Every organization has one function associated with their core business functions as Social Corporate Responsibilities which in its theoretical terms explain the role of these business houses in solving the issues & problems of society. Many companies are now a days are publishing their data related to social corporate responsibility which sometime my lead to increase in their goodwill among the customers as well as society. As per the data given by Reliance industries Limited, it is providing benefit to almost 150,000 individuals every month. Tata group of companies' have spent on an average of Rs. 1000 crores per annum. As per the data provided by futurescape on India's top companies for sustainability & CSR, the Tata Steel Ltd is at the first rank & GMR Infrastructure Ltd occupies the 100th rank. Comparatively many companies are now scaling up for their contribution towards Corporate Social Responsibilities in recent past but surprisingly it has also been found that most of the companies are not meeting the 2% norm for CSR spending. So this paper has made an attempt to understand the concept of Social corporate responsibility & how various organisations whether public or private are contributing towards the welfare of the society.*

Keywords*: Corporate Social Responsibility, Business Ethics, Business Sustainability*

1. INTRODUCTION

Corporate social responsibility (CSR) refers to business activities that resulted in the welfare of the society. The CSR activities can include number of tactics ranging from parting away from the part of the profit of the organisation for charity, helping the poor's in uplifting their life style to implementing the environmental protective business measures.

In the recent past the concept of CSR has got an so much importance and many deliberations have been done to study & research the importance & contribution of business organisations towards the welfare of the society. It has now got an unique importance from business & societal perspectives. Many matching and similar concepts such as corporate citizenship, business ethics, stakeholder management and sustainability, have emerged in place of the CSR. In other words these concepts are substituting the word CSR. The Indian economy is showing the good growth rate of the Business & now it has become the need of the hour to pay attention towards the social & environmental performance long with the financial performance. Thus the CSR concept says that an enterprise is accountable not only for their financial performance but for its all stakeholders including customers, employees, suppliers and society at large. CSR represents the constant commitment of the business organisations to behave in a fair and responsible way for the economic development of the country while improving the quality of life of the employees and their families in particular & local community & society at large.

Accordingly the Companies Act, 2013 and the CSR Rules (The Act) were formulated that came into effect from 1 April 2014. As per the Act, companies having a net worth of INR 500 crore (Cr.) or more, or a turnover of INR 1000 Cr. or more, or a net profit of INR 5 Cr. or more in a given financial year are required to spend 2 per cent of their profits on CSR programmes.

There are a few broad categories of social responsibility that many of today's businesses are practicing:

1. **Environmental efforts:** One prime focus of today's business is to protect & safeguard the environment while providing the best quality products & Services to the customers.
2. **Philanthropy:** Many business organisations are now moving towards philanthropic activities by making available the funds for the public at the time of exigencies & other similar times.
3. **Ethical labour practices:** Organisations can also play a vital role by treating every employee in a fair & ethical way especially in localities where we have diverse workforce.
4. **Volunteering:** Many organisations now volunteer themselves in providing the full support for the good

INDIAN ENGLISH DRAMA

Themes and Techniques

Edited by

Dipak Giri

Dipak Giri- M.A. (Double), B.Ed. - is a Ph. D. Research Scholar in Raiganj University, Raiganj, Uttar Dinajpur (W.B.). He is working as an Assistant Teacher in Katamari High School (H.S.), Cooch Behar, West Bengal. He is an Academic Counsellor in Netaji Subhas Open University, Cooch Behar College Study Centre, Cooch Behar, West Bengal. He was formerly Part-Time Lecturer in Cooch Behar College, Vivekananda College and Thakur Panchanan Mahila Mahavidyalaya, West Bengal and worked as a Guest Lecturer in Dewanhat College, West Bengal. He has the credit of qualifying U.G.C.-N.E.T. two times. He has attended seminars on national and state levels sponsored by U.G.C. He is a well-known academician and has published many scholarly research articles in books and journals of both national and international repute. His area of studies includes Post-Colonial Literature, Indian Writing in English, Dalit Literature, Feminism and Gender Studies.

The book *Indian English Drama: Themes & Techniques* is a volume of research articles on contemporary Indian dramatists and their works starting from Rabindranath Tagore to nearly all present generation of dramatists like Girish Karnad, Vijay Tendulkar, Mahesh Dattani, Badal Sirkar, Habib Tanvir, Utpal Dutt, Mahasweta Devi, Usha Ganguli, Manjula Padmanabhan, Mahesh Elkunchwar and Manoj Mitra. The book will be helpful in giving critical insight to understand the art and vision of contemporary Indian dramatists both from thematic and technical points of view. The introductory chapter of the book is very resourceful to understand the growth and development of Indian English drama. Authors have presented their critical viewpoints on almost every aspect of dramatic arts, themes and techniques pertaining to Indian playwrights and their works. The book will give many ground breaking concepts and ideas on Indian English drama and is useful for both researchers and learners.

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TAPPING THE ANXIETY OF THE WORLD OF HIV POSITIVES AS A SUBSUMED TERRITORY: A FEMINIST STUDY OF MAHESH DATTANI'S *EK ALAG MAUSAM*

Dr. Shachi Sood

The present chapter, "Tapping the Anxiety of the World of HIV Positives as a Subsumed Territory: A Feminist Study of Mahesh Dattani's "*Ek Alag Mausam*" attempts to highlight Dattani's concern for female body which has always been "more body than soul, more soul than mind" and is the "Sexual Object sought by all men" and her "value is solely attested by the demand she excites in others" (Greer 63-67). The playwright's revelation of the exploration for an enlightened self other than the one imposed upon women by the society and culture initiates when women start defying the societal stereotypes.

In the play discussed in this chapter, Dattani as a staunch votary of liberated female self portrays the dilemma of female body which is subjugated at various stages and due to diverse reasons. The female protagonist Aparna in *Ek Alag Mausam* questions the

About the Editors

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Preface

India is one of the fastest growing economies of the world with the majority of its population, approximately 68.84%, still living either in villages or in small towns. The country has achieved success in taming many macroeconomic variables like GDP, inflation, fiscal deficit, poverty, micro-financing, forex reserves, BoP etc. and have done well in the field of space, health, energy, food security after independence. Many economists criticize the growth story of the country and consider it far from being inclusive. They are of the opinion that the major growth centres of the country are still located in big cities, and the country is unable to exploit the potential of rural areas and rural population fully. This book has been designed to give an insight into various ever-changing aspects in the arena of socio-economic development. The critical analysis presented in the book covers critical dimensions of growth and development including tourism, PDS, skill development, MSME, banking, micro-financing, telecom, entrepreneurship etc. The areas covered will be beneficial for the scholars, faculty and society at large in guiding them about various hindrances to the inclusive growth of the country as well as simultaneously providing strategies to overcome them. Addressing the challenges and surpassing the impediments will promote not only economic growth, employment generation and better standards of living in the urban areas, but also stimulate economic activities and innovations in the rural areas.

Developing a comprehensive and holistic book is an integral part of the conference for which we have worked really hard. We are highly indebted to Professor R.D Sharma, Vice Chancellor, University of Jammu, without whose blessings and support the project would not have been possible. We are also grateful to Professor G M Bhat. It is only due to his out of the box thinking and continuous encouragement that has stimulated us to undertake this endeavour. We sincerely acknowledge the consistent support

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Editors

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Evaluation of Impact of Education Facilities on Social Status of Migrant Families

Jatinder Kumar Gupta Dr. Radha***

ABSTRACT

Education serves as a symbol of social status and a source of white-collar jobs. It is due to such social and economic utilities of education that the desire to achieve it usually entails migration. The incentives in education create a self-motivated desire among the young people to be educated. Education helps in sharpening the abilities, increasing the knowledge, improving the communication skills and brings change in one's behavior to be more participative which in turn helps in attaining respect in the society. The study has been evaluated the level of education change in migrants after migration and impact of migration on social status of migrant families. By use of statistical tool like average mean and chi- square test it has been evaluated that the level of education has increased after migration and showed significant impact of education facilities on social status of migrant families.

Keywords: *Education, social status, migration, level of knowledge and level of confidence.*

INTRODUCTION

Human migration is a universal phenomenon. It is frequent feature of a vibrant population all over the world. Migration is the process through which people move from one area to another area with the purpose of settling in the new area temporary or permanent.

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(ناقدین کے تنقیدی اور تاثراتی مضامین سے انتخاب)

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عورت اپنی ذات وصفات کے لحاظ سے گوناگوں مسائل کی آماجگاہ ہوتی ہے۔ ماں، بہن، بیٹی اور بیوی اس کے وہ روپ ہیں جن سے گزرنے کے دوران اسے کئی طرح کی ذہنی الجھنوں، کوفتوں اور صبر آزمائی کے امتحان دینے پڑتے ہیں۔ عورت کی حیات اور اس کی وجودی حیثیت پہ غور وفکر کریں تو دکھ درد کا ایک لامتناہی سلسلہ ہمارے ذہن ودل کو جھنجھوڑتا ہوا گزر جاتا ہے۔ مرد بہت حد تک آزاد ہوتا ہے لیکن عورت ہر وقت ایک نیا اور دلکش جہاں آباد کرنے کی فکر میں رہتی ہے۔ عصری سماج میں عورتوں نے بہت حد تک زندگی کے ہر میدان میں اپنی ذہنی صلاحیتوں اور نفاستوں کا اظہار مختلف صورتوں میں کیا ہے۔ سیاسیات، سماجیات اور ادبیات کے شعبوں میں عورتوں کی دلچسپی اور ان کے کارہائے نمایاں اس بات کی روشن دلیل ہیں کہ وہ کسی بھی صورت میں مردوں سے کمتر نہیں ہیں۔ صادقہ نواب سحر کا شمار بھی انہی باصلاحیت عورتوں میں ہوتا ہے جنھوں نے اپنی دیانتداری، ہوشیاری، سنجیدگی محنت ولگن اور ذوق وشوق کے جذبے سے شرشار ہوکر نہ صرف اپنے گھر آنگن کو چار چاند لگائے بلکہ گوناگوں مسائل سے نپٹنے کے بعد شعروادب میں بھی نام کمایا۔

صادقہ نواب سحر بمقام گنٹور (آندھرا پردیش) میں پیدا ہوئیں۔ انھوں نے اردو میں ایم اے اور پی ایچ ڈی کی ڈگری حاصل کرنے پر ہی اکتفا نہیں کیا بلکہ علم وادب کے نئے آفاق معلوم کرنے کی چاہت میں ہندی اور انگریزی میں بھی ایم اے کی ڈگریاں حاصل کیں۔ اردو ادب کی دنیا میں وہ ایک ناول نگار، افسانہ نگار، شاعرہ، ڈراما نگار، تنقید نگار، مترجم اور بچوں کی ادیبہ کی حیثیت سے معروف ہیں۔ حیرت اس بات کی ہے کہ موصوفہ نے ان ڈھیر ساری ادبی اصناف پہ اس طرح اپنا تخلیقی تسلط جمایا ہے کہ اردو ادبی حلقوں میں ان کے ناولوں، افسانوں، ڈراموں اور شاعری کو نہایت دلچسپی سے پڑھا جارہا ہے۔ ادب سماج کا آئینہ ہوتا ہے؛ اس بات کو ذہن میں رکھتے ہوئے وہ اپنے سماج ومعاشرے میں

اور درد و محبت میں ذرا سا افاقہ ہو۔

آخر میں اس بات کا اظہار لازمی معلوم ہوتا ہے کہ صادقہ نواب سحر ملازمت، ازدواجی مسائل اور گھریلو ذمہ داریوں کو احسن طریقے پر نبھانے کے ساتھ ساتھ چمنستان ادب میں نئے نئے گل کھلا رہی ہیں۔ اردو ادب میں قرت العین حیدر کی طرح کچھ اور بھی خواتین ہیں جن کا بہت بڑا نام و مقام ہے لیکن یہ خواتین ازدواجی زندگی سے پرے رہ کر ادب کی خدمت کرتی رہیں۔ کمال یہ ہے کہ ایک شادی شدہ خاتون بہت سے گھریلو مسائل اور معاملات کو انجام دینے کے بعد ادب کی خدمت کرے، یہ بڑی بات ہے۔

(روزنامہ 'لازوال'، جموں، ۲۸ مئی ۲۰۱۷)

☆☆

تاریخ ادب عربی

(زمانۂ جاہلیت سے اموی دور تک)

تالیف

پروفیسر احمد امین، احمد اسکندری

ترجمہ

ڈاکٹر شمس کمال انجم

تاریخ ادب عربی

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ترجمہ ڈاکٹر شمس کمال انجم

Tareekh-E-Adab-E-Arabi

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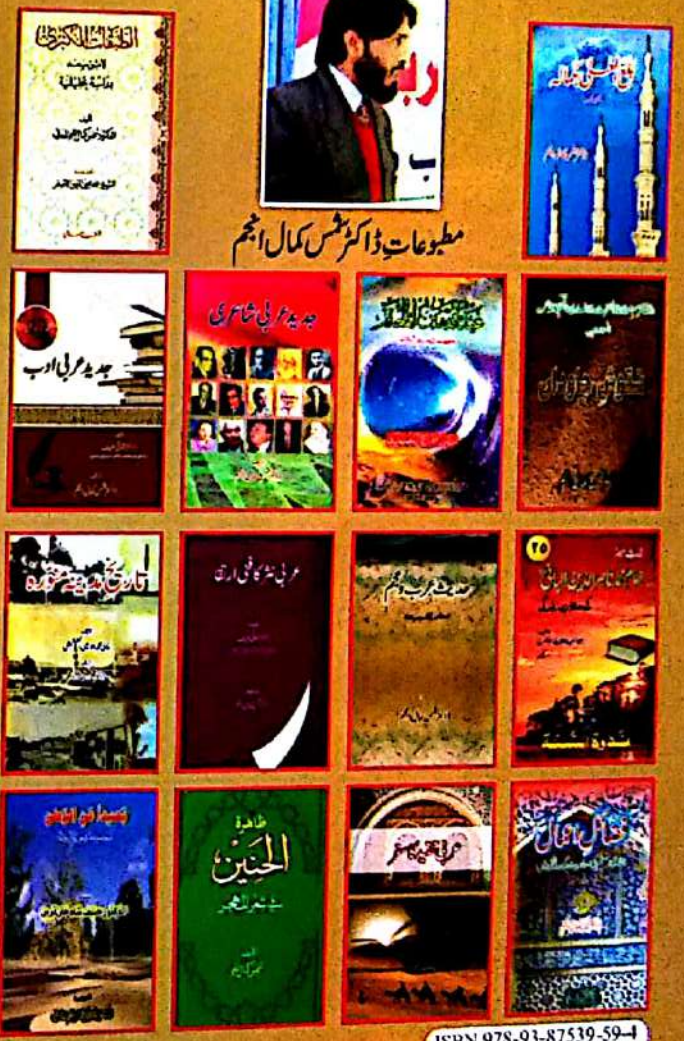

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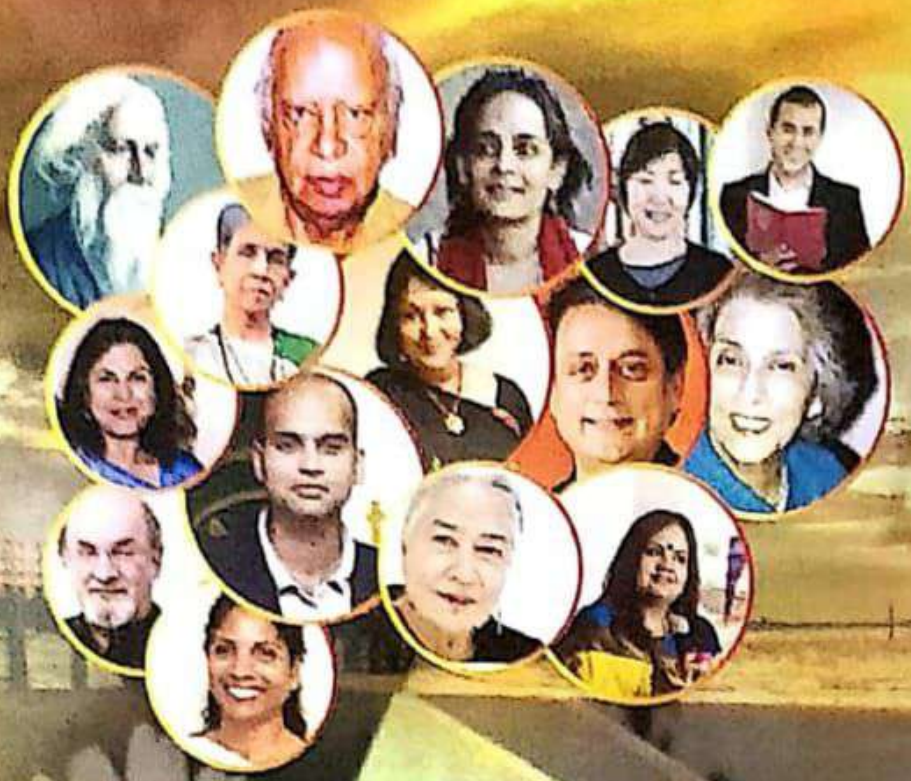
INDIAN ENGLISH NOVEL

Styles & Motives

Edited by

Dipak Giri



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5

THE QUEST FOR IDENTITY IN MARIAM KARIM'S NOVEL *MY LITTLE BOAT*

Dr Romina Rashid & Tanvir Ahmad

Existentialism came into fashion after the Second World War, though the existential problems had been receiving attention of philosophers since times immemorial. Jean –Paul Sartre and Albert Camus won world wide recognition for their thought provoking literary genres focusing on man's existential predicament. They carried forward the ideas of their predecessor Soren Kierkegaard .The existential movement gained momentum with the contribution of Karl Jaspers and Martin Heidegger during the period of disillusionment following First World War. The most important claim in existentialism is that we as human beings exist without justification in a world into which we are thrown condemned assuming full responsibility for our free actions and for the very values according to which we act. It stresses the anguish of freedom by assuming that man freely chooses his goals and is thus condemned to freedom as there is no justification in adopting any value in this world and absolute subjectivity and the price of human existence is alienation from society.

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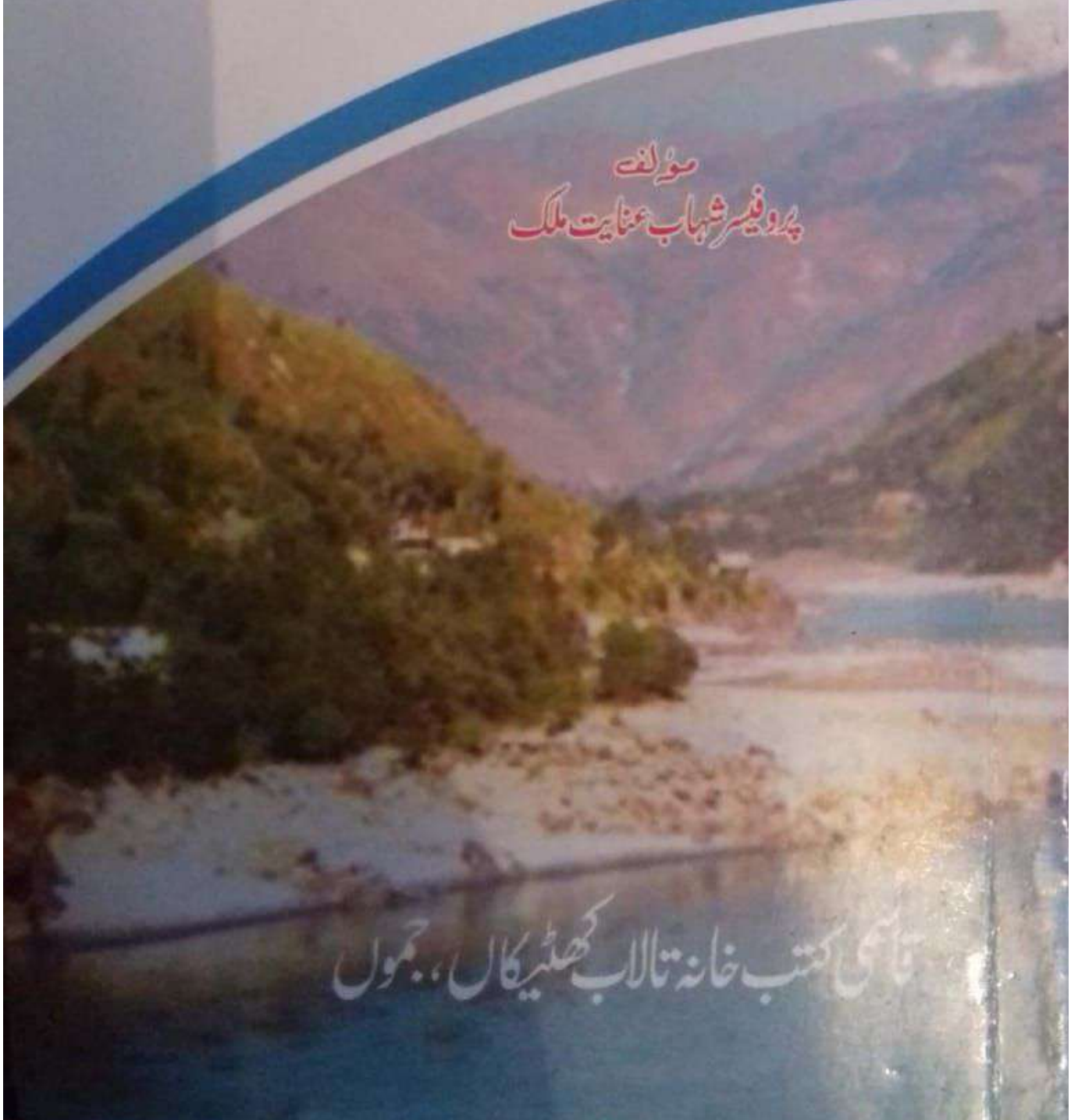

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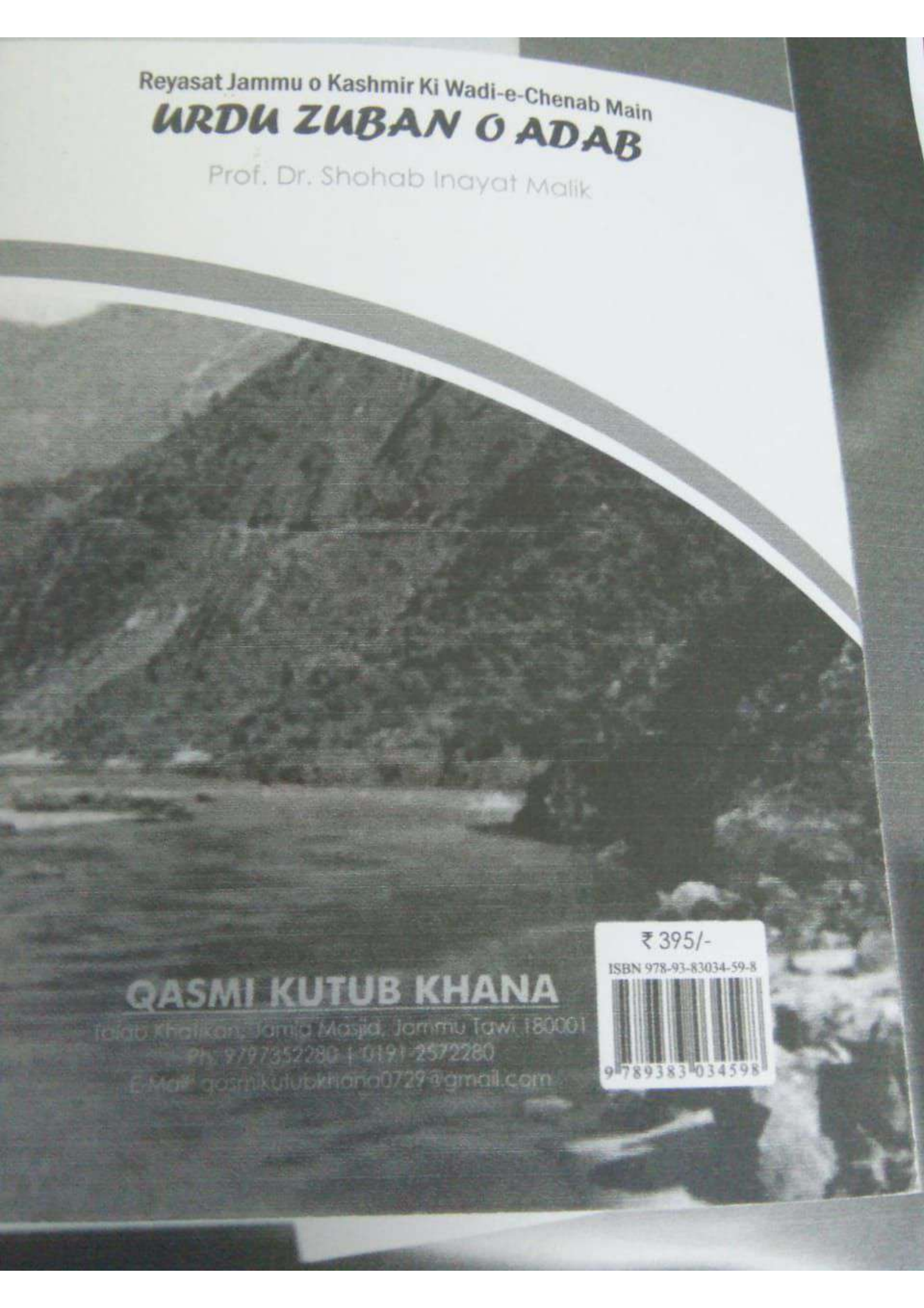

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وفا بھدرواہی کی شاعری و شخصیت کے آئینے میں

رضوانہ شمسی
اسسٹنٹ پروفیسر شعبہ اُردو
سنٹرل یونیورسٹی آف الہ آباد یوپی

ریاست جموں وکشمیر کی اُردو ادب کی تاریخ میں خطہ چناب کے ادیبوں، شاعروں، نقادوں اور قلمکاروں کا ہمیشہ کلیدی رول رہا ہے۔ گذشتہ ایک صدی کے دوران اس خطہ میں جو اُردو ادب تخلیق ہوا وہ ہماری ریاست کی ادبی تاریخ کا ایک قیمتی اور منفرد اثاثہ ہے۔ باوجود اس بات کے کہ اس خطہ کے لوگوں کی مادری زبان اُردو نہیں اور یہ خطہ مختلف بولیوں اور سماجی وتہذیبی اقدار کا سنگم ہے، جس طرح ریاست کا یہ خطہ اپنے محل وقوع، طویل ترین صحراؤں، آسمان کی بلندیوں کو چھوتی چوٹیوں، کوہستانوں، سبزہ زاروں اور دریائے چناب کی روانی وبل کھاتی وارتعاش پیدا کرتی لہروں کے باعث اپنی ایک خاص پہچان رکھتا ہے۔ اسی طرح اس خطہ نے اپنے دامن میں اُردو ادب کی ہر صنف کو پروان چڑھانے میں بھی ہمیشہ ایک امتیازی مقام بنائے رکھا ہے۔ اس وقت میرے مقالے کا موضوع اس خطہ کے چھوٹا کشمیر وادی بھدرواہ کے ایک اہم شاعر شاعر مرحوم غلام محی الدین خطیب جن کا قلمی نام وفا بھدرواہی ہے کی شاعری وشخصیت ہے۔ عربی کا ایک مشہور مقولہ ہے کہ المرء یعرف من کلامہ آدمی کا تعارف اس

M. Naeem · Abid A. Ansari
Sarvajeet Singh Gill *Editors*

Essential Plant Nutrients

Uptake, Use Efficiency, and Management

Springer

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Chapter 7
Understanding the Dynamics of Phosphorus Starvation and Plant Growth

Tariq Ahmad Dar, Moin Uddin, Akbar Ali, M. Masroor A. Khan, and Tanvir ul Hassan Dar

Abstract Phosphorus is one of the essential macronutrients required in relatively large quantities by the plants for normal growth and development and to complete their life cycle. It is an important constituent of biomolecules like nucleic acids, phospholipids, enzymes and adenosine triphosphate. Phosphate signaling allows higher plants to respond and adapt to the phosphate-deficient conditions efficiently. Phosphorus deficiency in the soil produces responses and adaptive changes in the plants like changes in root morphology and architecture, improved uptake and utilization of P, metabolic changes, exudation of organic acids, and numerous enzymes for the solubilization of the inorganic and organic reserves of P in the rhizosphere (phosphate mobilization). Therefore, the understanding of the proper mechanisms of the adaptation of plants to low P availability will help in the selection and breeding to improve productivity under P-limited environments. The present review gives an overview of the plant responses to P-limited environments and the developments made so far in this area of study.

Keywords Plant development • Root architecture • Phosphate mobilization and transporters • Phosphate signalling

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Tanvir-Ul-Hassan Dar · Reiaz-Ul Rehman

Polyploidy: Recent Trends and Future Perspectives

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M. Iqbal R. Khan · Nafees Khan *Editors*

Reactive Oxygen Species and Antioxidant Systems in Plants: Role and Regulation under Abiotic Stress

Springer

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Preface

The increase in abiotic stress factors has become a major threat to the sustainability of crop production. This situation has led to thinking of ways which can help to come up with potential measures. It is, therefore, necessary to understand the influence of abiotic stress factors on crop performance and the mechanisms by which these factors impact plants. It has now become evident that abiotic stress impacts negatively on plant growth and development at every stage of the plant's life. Plants adapt to the changing environment with the adjustment at physiological, biochemical and molecular levels. The primary possible mechanism involved in the negative effects of abiotic stress factors is the excess production of reactive oxygen species (ROS). They alter physiological and molecular mechanisms leading to poor performance of plants. Plants, however, are able to cope with these adverse effects by inducing antioxidant systems as the priority. Nevertheless, the dual role of ROS has now also been ascertained which provides an evidence for the regulation of plant metabolism positively on a concentration-dependent manner. Under conditions of high ROS production, the antioxidant system plays a major role in diminishing the ROS effects. Thus, ROS production and antioxidant system are interwoven with abiotic stress conditions. The antioxidants have the capacity to hold the stability in metabolism in order to avoid disruption due to environmental disturbances.

The present edited book is an attempt to update the state of art of the knowledge on metabolism of ROS and antioxidants and their relationship in plant adaptation to abiotic stresses involving physiological, biochemical and molecular processes. The chapters are also focused on the current climate issues and how ROS metabolism can interact with the antioxidant system to accelerate detoxification mechanism. It will enhance the mechanistic understanding on ROS and antioxidant systems and will pave the path for agricultural scientists in developing tolerant crops to achieve sustainability under the changing environmental conditions. Additionally, the present book could provide an excellent material for undergraduate, postgraduate and doctoral students to understand fundamentals of ROS metabolism and antioxidant system under both optimal and stressful environments.

Los Banos, Philippines — M. Iqbal R. Khan
Aligarh, India — Nafees A. Khan

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Contribution of Glutathione in Heavy Metal Stress Tolerance in Plants

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Abstract

Plants are exposed to myriad of abiotic stresses such as salt stress, heavy metal, ozone, UV-B radiation, low and high temperatures, drought, and many more which are posing threats to agricultural soil. Among these abiotic stresses, the heavy metal pollutants, added by anthropogenic activities, had enormous impact on different ecosystems including plants. The increment of toxic heavy metals in the atmosphere is a serious problem to living organisms. Heavy metal induces excess generation of reactive oxygen species (ROS) which in turn is responsible for oxidative stress and impairs processes at physiological, biochemical, and molecular level resulting in loss of crop productivity. Plants possess well-organized antioxidant defense system to mitigate oxidative stress. The plant antioxidant system constitutes various antioxidant enzymes and metabolites. Reduced glutathione (GSH) is an important constituent of ascorbate (AsA)-GSH (AsA-GSH). Glutathione consists of Glu-Cys-Gly with GSH-related enzymes such as GSH reductase (GR), GSH peroxidase (GPX), and GSH

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Salicylic Acid and Nutrients Interplay in Abiotic Stress Tolerance

11

Tasir S. Per, Mehar Fatma, Mohd. Asgher, Sofi Javied, and Nafees A. Khan

Abstract

Abiotic stress factors, such as cold, heat, drought, flood, salinity, or oxidizing agents, are the major threats to agricultural system that affect the economic yield of crop plants. Phytohormones, the chemical messengers, play a vital role in resistance of plants to the changing environments by regulating physiological and molecular processes. Salicylic acid (SA) regulates photosynthetic events, nutrient metabolism, osmotic relations, and defense mechanisms in plants growing under optimal and changing environmental conditions. The role of SA in the regulation of nutrients metabolism and their interplay for abiotic stress tolerance is in infancy stage. Few reports are available on the interaction between SA and macro- and micronutrients and the influence of nutrients on SA biosynthesis and

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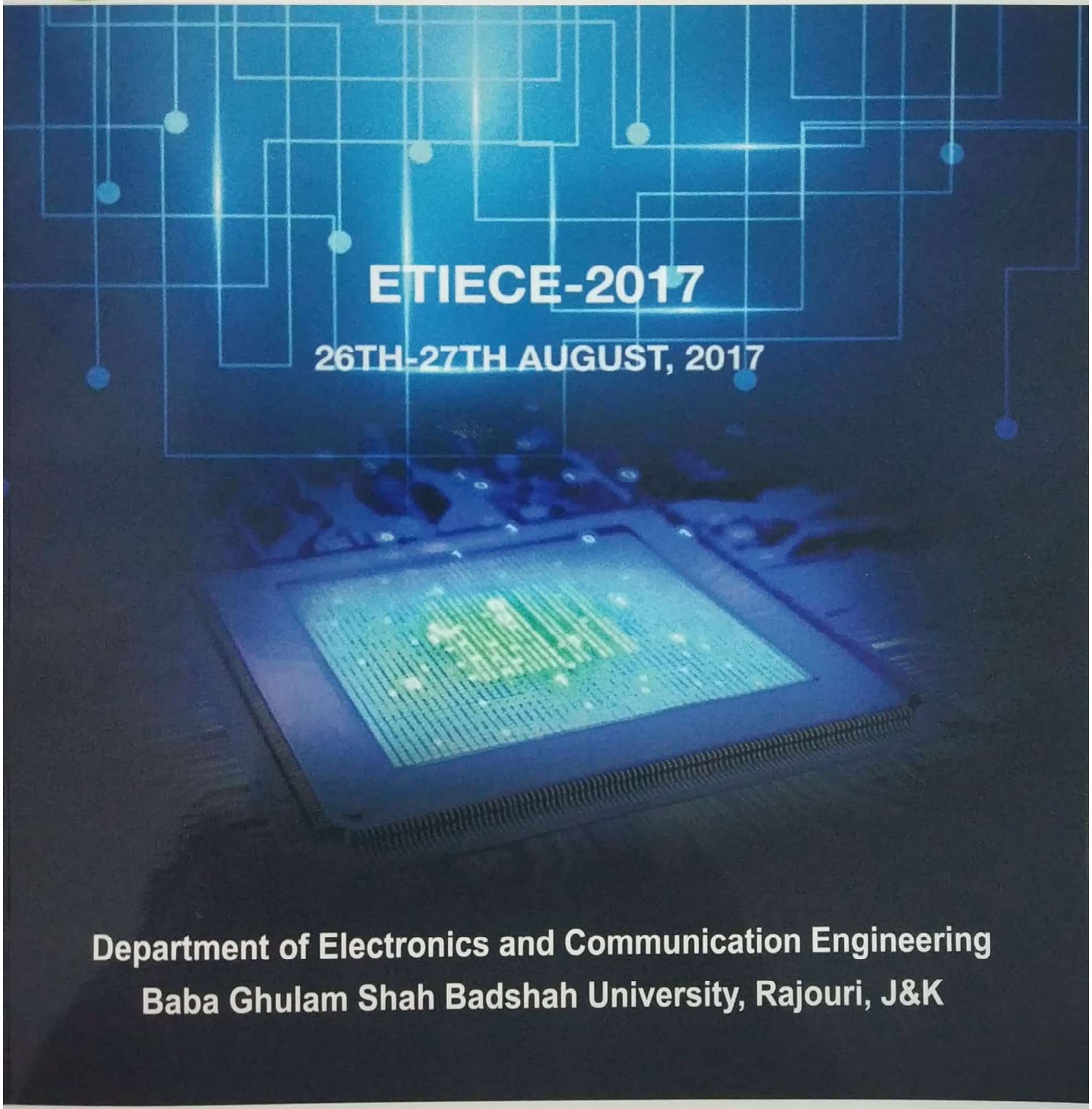

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PERFORMANCE IMPROVEMENT OF FREE SPACE OPTICAL COMMUNICATION (FSOC) SYSTEM USING RELAY ASSISTANCE

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ABSTRACT

In this paper, we investigate the performance improvement of free space communication based on relay assistance. This method seems to be one of the powerful mitigation tools in combating with the adverse effects of atmospheric turbulence on FSO communication. FSO communication refers to the transmission of information in the form of light through the open medium without using optical fiber cable. It is an emerging technology having huge bandwidth and capacity with regard to data transmission. It has attracted a good interest within the research community and the technology behaves fit for the future generation networks. Here we consider a channel model and took into account the atmospheric turbulence effect on it. The behaviour of the system is investigated before and after implementing the relay assistance. It has been established that there is a significant performance improvement while using the relay assistance.

KEYWORDS

Free-space optical systems, relay assistance, atmospheric turbulence, fading channels.

SIDELOBE SUPPRESSION USING AIC TECHNIQUE IN OFDM-BASED COGNITIVE RADIOS

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ABSTRACT

Orthogonal frequency division multiplexing (OFDM) is an efficient and effective transmission technique for Cognitive radio (CR) systems but it suffers from out-of-band (OOB) radiations due to high spectral sidelobes. This is one of the major drawback of OFDM scheme especially in cognitive radios where it is important to prevent secondary user's interference into the primary licensed user's (LUs) frequency band. In this paper, we investigate the already existing technique called *Active Interference Cancellation (AIC])* to overcome the sidelobe problem in OFDM using different system parameters. In this technique, a few tones at both edges of the spectrum hole and in the PU band are used to cancel the interference to LUs. Two special tones are called Active interference edge tones. The motto of all this is to cancel interference in that band. Unlike other methods, this technique does not affect receiver and need small alterations in the receiver and also there is no need of side information to be sent to the receiver.

KEYWORDS

OFDM, tones, CR, OOB.

DESIGN AND PERFORMANCE ANALYSIS OF FSO (FREE SPACE OPTICAL) NETWORKS

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ABSTRACT

In today's world, the communication has become an integrally of every human. FSO is a line of sight wireless communication system in which the data is transmitted in the form of laser beams. FSO is one of the best communication system because of its highest bandwidth, no need of licensing, maximum transmission data rates with very high security. Since the signal is transmitted via free space, the laser beams are degraded due to turbulent atmosphere. The main aim of this module is to first design a single channel FSO trans-receiver system and then upgrade it to higher number of channels (up to 30 channels). After the design is done and validated multiple simulations are carried out to evaluate the effects/phenomena that limit the performance of the proposed designs and extend their effects on performance evaluating parameters. Then different techniques are proposed that improve the performance evaluating parameters and either eliminate or minimize the effect of noise and distortion effects onto system performance.

KEYWORDS

FSO, channel, wireless.

DESIGN AND PERFORMANCE IMPROVEMENT OF OPTICAL TRANSRECEIVER SYSTEM

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ABSTRACT

While optical networking had its origin in the research community a quarter of a century ago, the realization of the vision has not had a straight trajectory. The main focus of this paper was first to design a general bidirectional Trans-receiver system using fibre. After validating the design the dependence of various performance evaluating parameters onto various system parameters was evaluated. The dependences/effect of various noise source was also evaluated for validated design. After that, some techniques were proposed that if incorporated in our predesigned setup would improve the performance evaluating parameters and also their dependencies on the various system parameters.

KEYWORDS

Networking, Bidirectional, Transreciever

Review of methods for Voltage Control in AC Inverters

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ABSTRACT

DC-AC inverters are electronic devices used to produce mains voltage AC power from low voltage DC energy (from a battery or solar panel). This makes them very suitable for when you need to use AC power tools or appliances but the usual AC mains power is not available. Examples include operating appliances in caravans and mobile homes, and also running audio, video and computing equipment in remote areas. Most inverters do their job by performing two main functions: first they convert the incoming DC into AC, and then they step up the resulting AC to mains voltage level using a transformer. And the goal of the designer is to have the inverter perform these functions as efficiently as possible. So, that as much as possible of the energy drawn from the battery or solar panel is converted into mains voltage AC, and as little as possible is wasted as heat. One of the key factors pertaining to AC inverters is output regulation. We take for granted the fact that our mains power is very well regulated. So, you can plug almost any appliance into a standard point outlet, and it will operate correctly. That's because the electricity supplier has enormous generating plants, with automatic regulation systems to keep the mains voltage and frequency very close to constant, despite load variations of many megawatts. Inevitably you can't get this kind of performance from a much smaller electronic inverter, connected to a modest battery or solar panel as the energy source. However most modern inverters can provide reasonably good regulation for loads of up to their rated capacity (given in watts) assuming of course that they are running from a well-charged battery. In this paper a brief review of most widely used methods for voltage regulation in AC inverters is explain and a mutual comparison is also drawn.

KEYWORDS

AC Inverters, PWM Inverters, Voltage Regulation.

DISTRIBUTED BIG TABLE FOR RELATIONAL DATABASES.

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ABSTRACT

Big table is a varied storage system for managing distributed data that is designed to scale to a very large size of data across numerous servers. The tasks at MNC'S that work with data store data in Big table, including web indexing. These applications place very different demands on Big table, both in terms of data size and latency requirements. Despite these varied demands, Big table has successfully provided high-performance solution for all of these Google products. Here, the aim is to provide the simple data model provided by Big table, which gives clients dynamic control over data layout and format, and we describe the design and implementation of Big table. Data is indexed using row and column names that can be arbitrary strings. Big table also treats data as unusual strings, although clients often serialize various forms of clustered but structural and clustered semi-structured data into these strings. Clients can control the locality of their data through careful choices in their schemas. This design decision makes it easier for clients to reason about the system's behavior in the presence of concurrent updates to the same row. Big table maintains data in alphabetical order by row key. The row range for a table is dynamically partitioned. Each row range is called a tablet which is the unit of distribution and load balancing. The aim is to provide efficiency in terms of availability and performance.

KEYWORDS

Big table, Tablet, Structured Data, Strings, Distributed Data.

A NOVEL APPROACH FOR HARMONIC ANALYSIS USING MATLAB

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ABSTRACT

A harmonic analyzer is used to obtain data in terms of electrical parameters for any point we are interested in for the application of harmonic filters. This device not only shows data on the spot but can also store data digitally which can later be retrieved using computer and a software provided by the harmonic analyzer manufacturer. Here In this paper, an attempt has been made to under the concept of harmonics, their causes and effects. Also, various methods adopted for harmonic analysis are described. Finally, a MATLAB based analysis is derived using various networks to efficiently perform harmonic analysis.

KEYWORDS

Harmonics, Analyzer, MATLAB.

FPGA IMPLEMENTATION OF ZERO-FORCING PRE-CODING FOR MIMO WIMAX TRANSCEIVERS

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ABSTRACT

Next generation wireless communication networks are expected to achieve increasing data rates. To obtain the expected performance Multi-User Multiple–Input–Multiple–Output (MU–MIMO) is a key technique. In MU–MIMO systems, the base stations transmit signals to two or more users over the same channel, because of which every user can experience inter-user interference. In Multiuser MIMO (MU-MIMO) systems, pre-coding is essential to eliminate or minimize the multiuser interference (MUI). The design of a suitable pre-coding algorithm with good overall performance and low computational complexity at the same time is quite challenging, especially with the increase of system dimensions. In this paper, FPGA implementation of a novel low-complexity high-performance pre–coding algorithm that is able to mitigate the multi–user interference of the MU-MIMO systems in the context of a realistic WiMAX application scenario is proposed.

KEYWORDS

Zero-Forcing Algorithm, Pre-coding, MU- MIMO, SVD, CORDIC

PERFORMANCE ANALYSIS AND ENHANCEMENT OF WDM OPTICAL NETWORKS

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ABSTRACT

In this digital era, the communication demand has increased from previous eras due to introduction of new communication techniques. As we can see there is increase in clients day by day, so we need huge bandwidth and high speed networks to deliver good quality of service to clients. Fiber optics communication is one of the major communication systems in modern era, which meets up the above challenges. This utilizes different types of multiplexing techniques to maintain good quality of service without traffic, less complicated instruments with good utilization of available resources. Wavelength Division Multiplexing (WDM) is one of them with good efficiency. It is based on dynamic light-path allocation. Here we have to take into consideration the physical topology of the WDM network and the traffic. We have designed here an 8-channel WDM system and carried out detailed analysis to evaluate the dependencies of the performance evaluating parameters onto the various system parameters. This paper focuses on design of a multi-channel WDM trans-receiver System and then optimizing its performance parameters. Simultaneously evaluation of dependencies of various performance evaluating parameters onto various system parameters was obtained. Moreover, effect of optical amplification was obtained onto system performance.

KEYWORDS

WDM, Optical Networks, Optical Amplification, FWM.

SPEECH BASED GENDER CLASSIFICATION

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ABSTRACT

It has been seen that a wide variety of systems or spaces require efficient gender recognition schemes so as to ensure their usage by a designated gender and hence to safe guard such sensitive systems and spaces from the wiles of an impostor. The aim of this this paper is to introduce such system of gender classification and that the rendered services of these sensitive systems are only used by a legitimate gender. One of the most unique characteristic of a person is his\her speech. Speech based gender classification aims at extracting various features of human speech and dictates, how these features can be used for gender classification. This paper gives an in-depth analysis as to how human speech can be used for gender classification.

KEYWORDS

Speech, gender, classification.

MULTIMODAL BIOMETRICS FOR ENHANCEMENT OF SECURITY SYSTEMS

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ABSTRACT

Biometrics simply means to recognize a person based on his behavioral or physiological characteristics. Biometrics is the key characteristics which is extensively used for person identification for various security applications. However existing systems using single biometric modality do not provide required level of accuracy and robustness. Authentication systems built on only one biometric modality may not fulfil the requirements of demanding applications in terms of properties such as performance, acceptability and distinctiveness. Even the best Unimodal biometric traits till date are facing numerous problems due to singular features and resemblances, accuracy issues, ambiguities etc. Majority of unimodal systems are found inefficient due to inherent ambiguities and singular feature causing false results. Most of the unimodal biometrics systems have problems such as noise in collected data, intra-class variations, inter-class variations, non-universality etc. With the increase in security requirements and increase in forging of data, a single fold or unimodal biometric verification is not of much accuracy. Hence, there is a revolutionary implementation of combination of more than one biometric data which is called multimodal biometrics. Personal identification systems based on biometrics are employed in many applications to enrich the security of person identification systems and it has been attracting extensive attention due to the ever growing demand on access control, public security, forensics and e-banking. With the fast development of biometric data acquisition sensors and data processing algorithms, diverse biometric systems have been now widely used in various applications. These systems have greater advantages over traditional systems that are difficult to break and provide good anti-spoofing abilities. In this paper we discuss the various ways in which multimodal systems increase the security where otherwise unimodal systems would have failed.

KEYWORDS

Biometrics, Unimodal, Multimodal, Security.

COMPARATIVE ANALYSIS OF ROUTING PROTOCOLS USING VARIOUS PERFORMANCE PARAMETERS

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ABSTRACT

Wireless linked Mobile ad hoc network (MANET) is an autonomous system of mobile nodes. Each node in this system operates not only as an end system, but also as a router to forward packets. These nodes organize themselves and are free to move about into a network. The position of these nodes change frequently. To accommodate the changing topology special routing algorithms are needed. In this paper comparison of performance of DSDV (Destination Sequenced Distance Vector) and AODV (Ad hoc On-Demand Distance Vector) routing protocols is done on the parameters that include packet delivery ratio, throughput, and average end-to-end delay.

KEYWORDS

AODV, DSDV, Throughput, Delivery ratio.