

# Abstracts of Published Papers 2015, Vol.10



East West University Center for Research and Training  
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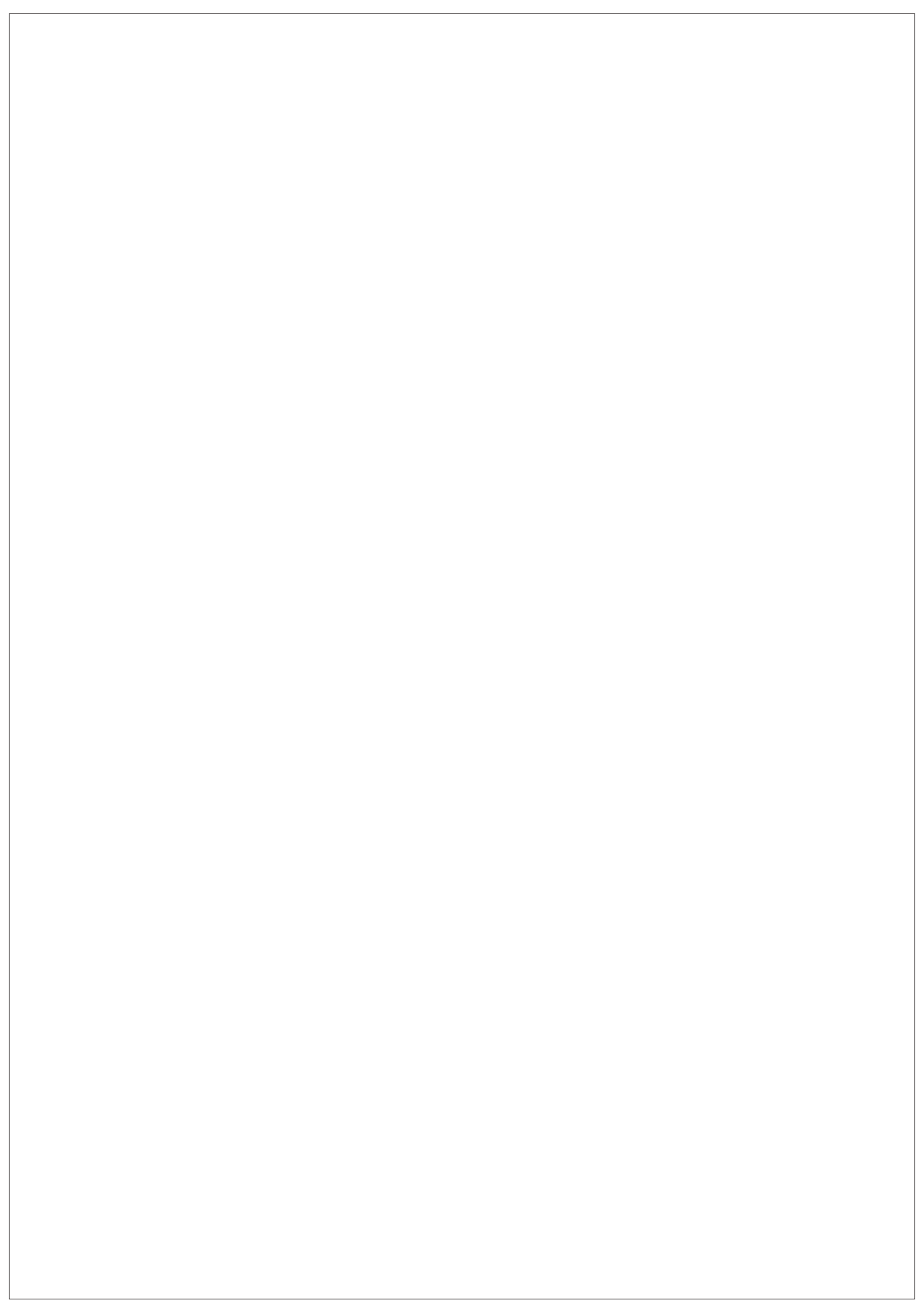
## PREFACE

It is my pleasure to write this introductory note for the tenth volume of the *Abstract of Published Papers 2015*. The *Abstract of Published Papers* is an annual production of East West University Center for Research and Training (EWUCRT) with an objective to keep an official log of academic publications of the faculty members of East West University. It includes the abstract of published research articles, book chapters, books, and conference papers of our colleagues.

It is indeed a matter of great satisfaction for East West University Center for Research and Training (EWUCRT) to publish the tenth volume of the *Abstract of Published Papers*, which contains abstracts of the academic publication published in 2015. This publication is a collective effort of the faculty members of the university. Our scholars have enthusiastically and immensely contributed in areas of business, economics, social sciences, engineering, telecommunications, liberal arts and literature, population health, computer science, pharmacy, and technology. This volume contains abstracts of 86 research articles. Among them, 41 articles were published in international and eight in national journals, four book chapters were published abroad, as well as 33 papers were published in international conference proceedings. Considering their academic achievements, we sincerely congratulate all the research scholars.

The Center expresses its sincere thanks to Dr. Rafiqul Huda Chaudhury, Chairperson of EWUCRT and Member, Board of Trustees, and all the members of the Research Committee (RC) for their support and encouragement. Furthermore, thanks are also due to all the personnel of EWUCRT involved in this publication. The publication of tenth volume of the *Abstract of Published Papers* is partially funded by UGC under HEQEP Sub-project: Knowledge Transfer and Capacity Development of Academic Staff.

Professor Muhammed Shahriar Haque, PhD  
Executive Director  
EWUCRT, 2016



# Table of Contents

## Faculty of Business and Economics

### *Book/Book Chapter*

1	Behavioral Outline of Individual Investors in Stock Market: A Study on Dhaka Stock Exchange.....	1
2	CSR Practices in Banking Industry: an Exploratory Study in Bangladesh.....	2
3	A Case Approach to Test the Potentials of Transformation from Informal in to Formal Sector- a Snapshot from Dhaka Metropolis.....	3
4	Market Orientation and Informal Street Food Business: A Snapshot from Dhaka.....	4

### *International Journal*

1.	Testing knowledge sharing effectiveness: trust, motivation, leadership style, workplace spirituality and social network embedded model.....	5
2.	Disclosure of Green Banking Issues in the Annual Reports: A Study on Bangladeshi Banks..	6
3.	Behavioral analysis of investors' attitude towards dividend declaration in developing country A case of Bangladesh.....	7
4.	How the Remittances from Bangladeshi Migrant Workers are being utilized by their Families at home?.....	8
5.	Competencies needed for 2015: Employers Preference in Business Graduate Selection.....	9
6.	Cash Compensation of CEO or All Employees? Which Affect the Profitability of Private Commercial Banks' of Bangladesh.....	10
7.	Exploring the Potential to Improve Energy Saving and Energy Efficiency using Fertilizer Deep Placement Strategy in Modern Rice Production in Bangladesh.....	11
8.	Productivity and efficiency impacts of Urea Deep Placement technology in modern rice production: An empirical analysis from Bangladesh.....	12

***National Journal***

1.	Employee Turnover: It’s Impact on Four Ps’ in the Organizations.....	13
2.	Work-Family Conflict and Non Sharing Jobs: The Link explored for Dhaka.....	14
3.	Factors Influencing Consumers’ Choice Of Ice-Cream: A Study On Impulse Buying Behavior.....	15
4.	Assessment of Consumers’ Loyalty and Switching Behavior: A Study on Selected Tea Brands in Bangladesh.....	16
5.	Rural Credit in Bangladesh: Trends, Structure and Growth Performance.....	17
6.	Willingness to Pay for Solid Waste Management System in Dhaka City, Bangladesh: A Socio-Economic Analysis.....	18

***International Conference***

1.	Employee Engagement: An Empirical Study on Telecom Industry in Bangladesh.....	19
2.	Biometrics: A New Horizon to Corporate World.....	20
3.	Rethinking higher education branding: Determining the role of online marketing communication in brand image and brand equity development.....	21
4.	Employers Preferred Competencies for Business Graduate Selection.....	22
5.	Scrutinizing the Relationship between CEO’s Compensation and Banks’ Profitability: An Analysis on Private Commercial Banks of Bangladesh.....	23

**Faculty of Sciences and Engineering**

***International Journal***

1.	Comparative study on physicochemical properties of some HYV and local Aman cultivars in Bangladesh.....	24
2.	Generalized Linear Model for Binary Data with Missing Values: An EM Algorithm Approach.....	25
3.	Quality of Service Aware Reliable Task Scheduling in Vehicular Cloud Computing.....	26
4.	Analysis of Sleep Window of IEEE802.16m Network Based on State Transition Chain.....	27
5.	A Computer Technique for Duality Theory in Linear Programs.....	28

6.	Performance Evaluation of Two-Hop Wireless Network under Asymmetric Fading Environment.....	29
7.	Numerical Solution of a Fluid Dynamic Traffic Flow Model Associated with a Constant Rate Inflow.....	30
8.	A Novel WLAN Roaming Decision and Selection Scheme for Mobile Data Offloading.....	31
9.	A Key Management Scheme for Secure Communications of Information Centric Advanced Metering Infrastructure in Smart Grid.....	32
10.	Collaboration between Network Players of Information Centric Network: An Engineering-Economic Analysis.....	33
11.	Corporate Business and International Standards Education at Waseda University.....	34
12.	Modulation of a Compressional Electromagnetic Wave in a Magnetized Electron-Positron Quantum Plasma.....	35
13.	Modulation of a quantum positron-acoustic wave.....	36
14.	Quantum effects on compressional Alfvén waves in compensated semiconductors.....	37
15.	Modulation of electrostatic Langmuir waves in quantum electron-hole semiconductor plasmas.....	38
16.	Selection of the best two-hop AF wireless link under multiple antenna schemes over fading channel.....	39
17.	Identification of Fingerprint using Discrete Wavelet Packet Transform.....	40
18.	Performance Evaluation of Voice Traffic of IEEE 802.16e Under Femtocellular Network.....	41
19.	Medium Access Probability of Cognitive Radio Network at 1900 MHz and 2100 MHz.....	42
20.	Overtaking collision and phase shifts of dust acoustic multi-soliton in a four component dusty plasma with non-thermal electrons.....	43
21.	Analysis of nonlinear dust-acoustic shock waves in an unmagnetized dusty plasma with q-nonextensive electrons where dust are arbitrarily charged fluid.....	44
22.	Nonplanar wave propagation in plasma systems with nonextensivity.....	45

### ***National Journal***

1. Dietary administration of rice in improving the antioxidant status in Long-Evans Rat. 46
2. Physicochemical properties of Aus cultivars in Bangladesh..... 47

### ***International Conference***

1. Generalized Linear Model for Binary Data with Missing Values: An EM Algorithm Approach..... 48
2. A Review of Congestion Controlling Algorithms and Comparison using Simulation..... 49
3. A Poisson-Poisson Model to analyze congestion data..... 50
4. Comparative Study on Chemical Properties in Bangladeshi Rice Varieties..... 51
5. Bi-directional Traffic Management Support System with Decision Tree based Dynamic Routing..... 52
6. Real Time Bi-directional Traffic Management Support System with GPS and WebSocket.. 53
7. Reversible Logic Based Mapping of Quaternary Sequential Circuits Using QGFSOP Expression..... 54
8. Test implementation of a sensor device for measuring soil macronutrients..... 55
9. High Quality Location Controlled Poly-crystalline Silicon Nanowires For Biosensors and Cytokine Binding Kinetics..... 56
10. Electrical characteristics tuning of silicon nanowires through backgate bias arrangement and feasibility of its application as biosensors..... 57
11. Effect of Lightly Doped Drain on the Electrical Characteristics of CMOS Compatible Vertical MOSFETs..... 58
12. Extraction of interface trap densities in high-mobility semiconductor MOSFETs..... 59
13. Single-Electron Transistor Based Implementation of NOT, Feynman, and Toffoli Gates..... 60
14. Low Cost Proton Therapy for the Cancer Patients..... 61
15. Locating the content in the locality: ICN caching and routing strategy revisited..... 62
16. Seamless Mobility in Data Aware Networking..... 63
17. Proactive-caching based information centric networking architecture for reliable green communication in intelligent transport system..... 64

18.	An Optimal Information Centric Networking Model for the Future Green Network.....	65
19.	A New Planar Printed Antenna with Band-notch Characteristics for UWB Applications.....	66
20.	Solving Maximum Clique Problem using a Novel Quantum-inspired Evolutionary Algorithm	67
21.	Fermentative Potency of Yeasts Isolated from Bangladeshi Honey.....	68

## **Faculty of Liberal Arts and Social Sciences**

### ***International Journal***

1.	Diasporic Comparison: The Namesake AND Brick Lane.....	69
2.	Gradual Shift in Treatment of the Character of “Ravan” of the Ramayana.....	70
3.	Rereading Ngugi wa Thiong’o, Chinua Achebe and Wole Soyinka: A Critical Analysis of African Postcolonial Literature.....	71
4.	Imperialism in Disguise: (Re)cognizing the Imperialist Attitude of the United States of America in Bangladesh.....	72
5.	(T)Roll, Camera, Action: Negative Publicity in the Countries of South Asia: (T/S)elling Ads or (S/T)elling Fables.....	73
6.	Women's Coping Strategies and Help-Seeking Practices: Some Observations on Domestic Violence In Rural Bangladesh.....	74
7.	Consequences of Domestic Violence against Women: Some Reflections from Rural Bangladesh.....	75
8.	Who Is Old and When Is a Woman Old? Cultural, Social and Economic Meanings.....	76
9.	Gender and Diaspora: The Bihari Community in Bangladesh.....	77
10.	Domestic Violence against Women in Bangladesh: A Review of the Literature and the Gaps to fill-in by Future Interventions.....	78
11.	A Chronicle of the Global Movement to Combat Violence against Women: The Role of the Second-Wave Feminist Movement and the United Nations: The Perspective of Bangladesh	79



### *International Conference*

1.	Krashen’s Monitor Model Theory: A Critical Perspective.....	80
2.	Anticolonial Indigenous Karen Education and Development in Myanmar.....	81
3.	Rural Participatory Research and collective Learning in Subaltern Contexts in India and Bangladesh.....	82
4.	“Sexual & Reproductive Health and Rights: How much the undergraduate students know?.....	83
5.	Social Entrepreneurship for Sustainable Development in Bangladesh.....	84
6.	Using Social Media in Higher Education: A Case of Bangladesh.....	85
7.	Violence Against Women: Policies, Practices and Challenges in Bangladesh.....	86

# Faculty of Business and Economics

*Contemporary Issues in Business and Research*, Vol. 1, December, 2015, pp. 155-81. ISBN -978-984-33-9383-8

**Behavioral Outline of Individual Investors in Stock Market: A Study on Dhaka Stock Exchange**

**Jannatunnesa\***

**ABSTRACT**

Behavioral finance has been an important part in the arena of financial literature and providing evidence that investors' financial decisions are affected by internal and external behavioral factors. This study attempts to outline the behavior of individual investors investing in the stock market of Bangladesh, especially in the DSE. In this endeavor, the research intends to employ specific focus on their demographic features such as age, gender, education, etc. as well as general investment behavior embodied by their investment size, investment duration (experience), forms of financing used, etc. Another objective of the study is to examine whether there is any significant differences among the investors in terms of the variables that influence their investment decisions in stock market. The study is exploratory in nature and uses mainly primary data, especially in the context of Bangladesh. It involves univariate, bivariate and multivariate analysis and employs a number of statistical tools such as frequency distribution, chi-square test, cross tabulations and ANOVA test (one way). Investment volume is found to have significant relationship with investors' education, average income, average savings, investment experience, occupation, form of financing, type of trading account and expected gain. According to ANOVA tests, investors from diverse occupations and having different levels of experience in stock market have notable difference in their investment size, forms of financing, types of trading account and gain expectations. Moreover, depending on different occupation and educational level, investors also vary in terms of their stock market investment experience. This research demonstrated general behavior of investors in their security selection process with respect to their demographic features. Findings of this research offer important connotations to investors, brokerage houses, corporations' management, regulators, and government, which lead them towards forming a stable stock market through appropriate and effective decisions.

**Key words:** Investors' behavior, Behavioral Finance, Demographic features, Investment volume.

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December 2015

**CSR D Practices in Banking Industry: an Exploratory Study in Bangladesh**

**Naharin Binte Rab\*** and **Tanjila Hossain\*\***

**ABSTRACT**

Corporate Social Responsibility Disclosure (CSR D) has been in the limelight by different quarters; i.e. government, non-governmental bodies, academicians as well as corporate. Banking is a business which runs on the confidence and the trust of people that enables the bank to mobilize funds from various sources. The profitability of a bank always depends on the efficient management of fund and exploring the genuine avenues in which its resources are invested to produce the maximum income. Long-term sustainability and economic viability are bi-directional in nature. CSR literature from the landscape of Bangladesh is still tiny whereas most of the CSR researches have covered issues from developed part of the world. This study is qualitative and exploratory in nature. The very objective of this paper is to investigate the prevalence of CSR D practices in the banking industry of Bangladesh. This paper has based the design on the framework provided by Ahmad et al (2010) where the authors proposed 3 broad categories; namely: environmental, human resource, and community issues which are further sub-categorized in to a total of fifteen. The study revealed CSR D practice on a sample of 20 banks whereas this study took 15 listed commercial banks. It is noteworthy that we took 50% of total sample frame (15 out of 30 DSE enlisted banks). Bangladesh Bank has expressed serious concern over CSR. In 2008, the BB issued a comprehensive guideline where banks have been called on to concentrate hard on linking CSR at their highest corporate level. Bangladesh Bank's position on environmental issue is vivid as she has developed an indicative Green Banking Policy and Strategy framework for the banks to be covered through 3 different phases with the 3<sup>rd</sup> phase already expired on 30 June 2015. The paper of Ahmad et al used annual report of 2008 as the study vehicle whereas we used 2013 annual reports. The study approaches to sort out the policy impact on CSR D practices. This paper observes that CSR D practices do exist but scanty; disclosure is found to be highest in the HR category. The major finding of this paper is: the disclosure practice has improved significantly now than earlier in both environmental and community issues. From the macro-economic perspective, the importance attached to CSR D is indeed high. Non-compliance to CSR D may be attributed to ineffectiveness in the regulatory frame work in Bangladesh. This study would give a first-hand insight into the CSR D practices which is expected to add value to the quarters of academics as well as non-academics.

**Key words:** Bangladesh Bank, Banking Industry, CSR D, DSE

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*Contemporary Issues in Business Research* . pp 61-72, ISBN 978-984-33-9383-8

**A Case Approach to Test the Potentials of Transformation from Informal in to Formal Sector- a Snapshot from Dhaka Metropolis**

**Kohinoor Biswas\* and M Sayeed Alam\*\***

**ABSTRACT**

Branding has traditionally been perceived as correlated to bigness of enterprises with an image of ‘superhero’ frequently giving references to giant corporations; like Nike or McDonalds. While literature on branding does not show much optimism about its role for SMEs; for informal sector it is understandably even far remote. This paper attempts to connect the dots between informal sector and branding. Contribution from informal sector is great in job creation as visible in academic research for around 4 decades. The huge margin of contribution draws light from different quarters; like: politicians, sociologists and academicians. They all agree on the point that transformation of informal sector in to formal would produce double benefits; i.e. tax revenue for the government and further growth for the informal business. This small case based in-depth study from Dhaka, Bangladesh is qualitative and exploratory in nature. Authors attempt to explore on the idea that - could branding play a role of catalyst in the process of transformation from informal into formal business? We chose 5 informal business owners in the stratum namely- roadside processed food vendors, from a busy office neighborhood, who have been in business for a minimum of 3 years. The study reveals: the owners of informal business have good sense of customer knowledge, maintain closeness to the customers, responsive to changing patterns of customers’ needs and wants, capable of creating “brand distinctiveness” through product differentiation, aware of pricing tricks and above all possess the willingness and motivation to transform and grow further. The 3 sets of problems faced by the informal sector, namely: infrastructure issues, institutional issues, and economic issues, are deeply rooted, hence uprooting would be a gradual process.

**Key words:** branding, informal sector, formal sector, transformation

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***Retailing :Trends in the New Millennium***, MJP Publishers, Chennai, India. pp 59-63, ISBN 978-81-8094-165-8

**Market Orientation and Informal Street Food Business: A Snapshot from Dhaka**

**Kohinoor Biswas\* and M Sayeed Alam\*\***

**ABSTRACT**

Market orientation is a business philosophy that stirred both the grounds of theoreticians and practitioners of Marketing since the early 1990s. This roots back to marketing philosophy, but broader, holistic than the earlier. Market orientation is simply to put as “– caring, thinking and serving your markets in a coherent and complete way. Informal sector was first “discovered” in the early 1970s. Informal sector is defined as unregistered or unreported activities in the economy. Informal processed /street food has omnipresence in the in big cities where they sell a variety of wares ranging from snacks and drinks to full meals. Recently, governments and various international agencies are turning focus to this informal sector due to their growing visibility in the urban areas in the developing world. Informal processed street food vendors are a potential source of income and employment for the urban poor. Moreover, the demand for street foods within a country is relatively inelastic with respect to income. This small scale exploratory research connects the dot between these two arenas: market orientation and informal street food business in Dhaka. The businesses found to have insignificant market orientation as manifested with little product differentiation, insignificant growth, non-existent innovation.

**Key Words:** Market Orientation, Dhaka, Informal Street food Business

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*Management & Marketing. Challenges for the Knowledge Society* (Vol. 10, No. 4), 2016, ISSN No: 1842-0206

**Testing knowledge sharing effectiveness: trust, motivation, leadership style, workplace spirituality and social network embedded model**

**Md. Abdul Momen\***, Muhammad Sabbir Rahman\*\* and Aahad M. Osman-Gani\*\*\*

**ABSTRACT**

The aim of this inquiry is to investigate the relationships among the antecedents of knowledge sharing effectiveness under the position of non-academic staff of higher learning institutions through an empirical test of a conceptual model consisting of trust, extrinsic and intrinsic motivation, leadership style, workplace spirituality and online social network. This study used the respondents from the non-academic staff of higher learning institutions in Malaysia (n = 200), utilizing a self-administered survey questionnaire. The structural equation modeling approach was used to test the proposed hypotheses. The outcomes indicate that all the antecedents play a substantial function in knowledge sharing effectiveness. In addition, perceived risk plays a mediating role between trust and knowledge sharing effectiveness. On the other hand, this research also proved the communication skill also plays a mediating role between leadership style and knowledge sharing effectiveness. This study contributes to pioneering empirical findings on knowledge sharing literature under the scope of the nonacademic staff perspective.

**Keywords:** Knowledge sharing effectiveness, higher learning institutions, trust, motivation, leadership style, workplace spirituality and social network

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**Disclosure of Green Banking Issues in the Annual Reports: A Study on  
Bangladeshi Banks**

Dewan Mahboob Hossain, Ahmed Talib Sadiq Al Bir, Kazi Md. Tarique and

**Abdul Momen\***

**ABSTRACT**

These days, the concept of green banking is becoming popular in the financial sectors. This paper deals with the reporting on green banking issues by the banking companies in a developing country - Bangladesh. Through content analysis of the annual reports of ten sample banks, the research finds that Bangladeshi banks are reporting on green banking issues even in the absence of any specific reporting guideline. The nature of the language used for green banking reports was also analyzed through discourse analysis. It was found that after the introduction of the green banking program of Bangladesh Bank (the central bank of Bangladesh) in 2011, the banks started reporting on their green banking activities. The level of disclosure is increased over the years up to 2013. The study concludes that though the banks started reporting on this issue, their reports lack consistency because of the absence of a standardized reporting guideline. They wanted to report that they are performing according to the suggestions of Bangladesh Bank. From this, it can be said that the banking companies consider the central bank as a powerful stakeholder. The banks mostly provided 'good news' in their reports. This kind of reporting helps the banks to gain greater legitimacy in the eyes of the regulator, Bangladesh Bank, and to the public.

Key words : Green banking, social and environmental reporting, content analysis, banks, Bangladesh.

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**Behavioral analysis of investors' attitude towards dividend declaration in developing country – A case of Bangladesh**

**Leo Vashkor Dewri\***, **Md. Rashidul Islam\*\*** and S. M. Arifuzzaman

**ABSTRACT**

Dividend paying on share is one of the most significant topics of behavioral finance and Capital Market literature. Previous research attempts to evidence on dividend declaration and investors' perception based on developed economies. This research attempts to fill the gap between developed and developing economies on dividend declaration of investors' perception. The aim of this research is to investigate empirical facts on dividend clientele in Bangladesh Capital Market as well as scrutinize the correlations among various dividend expectation and the diverse attributes of investors' community in Bangladesh on dividend payment. Also, it aims to test theories those have previously been built concerning on dividends paying stock of investor perceptions. The study has been conducted on 250 active stratified random samples of Bangladeshi investors who provided data related to dividends preferences by conducting face to interview with structured questionnaires. This research support that there is negative association between stipulate for dividend paying stocks and investors demographic attributes in the Bangladesh Capital Market. We find that corporate managers do not consider investors expectation on dividend paying stock. The study also reveals that one of the most important determinants of dividend initiations among Bangladeshi firms are the value-weighted dividend yield in the industry. As well as investors' perception depends on different attributes of investors' and dividend preference.

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**How the Remittances from Bangladeshi Migrant Workers are being utilized by their Families at home?**

**Leo Vashkor Dewri \***, S.M. Arifuzzaman, Dr. Syed Abdulla Al Mamun and Noman H Chowdhury

**ABSTRACT**

This research aims to find out the true extent of remittance utilization on household exploring through three factors: consumption, savings and finally investment. Furthermore, this research work seeks to identify the paradox between motivational aspects of migration and intends to locate the pathway for remittance utilization of household. We have found that migrants we have surveyed are middle aged, mostly illiterate with not much professional or technical training. Also, most of the migrants have utilized the remittance for increasing their well being and not much they have invested or saved in productive sectors.

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*Review of Integrative Business and Economics Research*, Vol 4(3), 2015, ISSN number: 2304-1013 (Online); 2304-1269 (CDROM); 2424-6722 (Print)

**Competencies needed for 2015: Employers Preference in Business Graduate Selection**

**Laila Zaman\***

**ABSTRACT**

Now a day's employers don't search for traditional employees rather recruit human resources with divergent competencies. Globalization of competition and internationalization of human resources language adds extra momentum to this search. Thus the demanded competencies from business graduates receive extra attention to the talent practitioners and researchers. This paper puts an honest attempt to highlight the expected competencies in business graduates by surveying the employers of 27 different organizations through a structured questionnaire as a pilot study. Different descriptive and non-parametric tests are applied to bring holistic approach in research methodology. The result shows that personal competency, work habit, dynamic attitude etc. are preferred competencies of Bangladeshi employers. The outcome of the study will have policy implications to regulators, educators, talent practitioners, graduates and other related parties.

**Key Words:** business graduates, competencies

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**Cash Compensation of CEO or All Employees? Which Affect the Profitability of Private Commercial Banks' of Bangladesh**

**Quazi Sagota Samina\* and Laila Zaman\*\***

**ABSTRACT**

**Purpose:** This paper aims to examine the impact of cash compensation of CEO and all employees on banks' profitability. **Design/methodology/approach:** The study uses the Annual Reports of 10 private commercial banks of Bangladesh over the period of 2001-2013 available on websites as source of data. Regression analysis is used to test hypotheses where ROE and NIM are considered as dependent variable and CEO compensation, total salary expense of the bank, total asset, number of employees and number of branches are considered as independent variables. **Findings:** The study found rather than CEO's cash compensation, total compensation of all the employees of the bank has statistically significant impact on banks' profitability. **Research limitations/implications:** This study gives result based on the monetary benefits given to CEO and all employees in banks. Thereby further analysis on the same issue can be done incorporating the other benefits (non-monetary) given to CEO (if any) and all other employees. The finding of the study is representative of the banking sector of the country which may help the policymakers to decide about the compensation package for CEO and employees of the organization. Besides the current study can be a guideline for similar studies for other industries in Bangladesh. **Originality/value:** This study compares the impact of total compensation of all the employees of bank and CEO cash compensation on banks' profitability.

**Keywords:** Chief Executives Officer (CEO), Compensation, Bank

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**Exploring the Potential to Improve Energy Saving and Energy Efficiency using Fertilizer Deep Placement Strategy in Modern Rice Production in Bangladesh**

Sanzidur Rahman and **Basanta Kumar Barmon\***

**ABSTRACT**

Nitrogen (N) fertilizer plays an important role in modern rice production and is required in large amount because it is the most limited nutrient as well. The fertilizer deep placement (FDP) strategy is developed to improve efficiency of N fertilizer use and rice productivity. The present study estimates the extent of energy saving, productivity and efficiency impacts of FDP strategy in modern rice cultivation at the farm level in Bangladesh using a stochastic production frontier approach. A total sample of 200 rice farmers (100 FDP users and 100 conventional urea users) from a village of Jessore District is utilized. Results reveal that FDP strategy significantly improves energy balance, energy ratio, energy productivity and technical energy efficiency. Relative gains are higher for *Boro* (dry winter) season than the *Aman* (monsoon) season. The key policy implication is that a widespread diffusion of FDP strategy should be pursued with priority as it holds the potential to significantly reduce energy use from a scarce, finite and renewable resource (i.e., urea fertilizer) while supporting growth in rice-based agriculture of Bangladesh. Government should also support entrepreneurs to invest in briquetting urea into urea super granules (USG) in order to effectively improve uptake of FDP strategy nationwide.

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**Productivity and efficiency impacts of Urea Deep Placement technology in modern rice production: An empirical analysis from Bangladesh**

Sanzidur Rahman and **Basanta Kumar Barmon\***

**ABSTRACT**

Rice is the most dominant field crop in Bangladesh covering 75% of the total cultivated area and consumes 80% of the total fertilizers alone. Nevertheless, the productivity of rice in Bangladesh remains one of the lowest in the world. Urea, the main source of nitrogen (N), plays a key role in rice production, is required in large amount, is the most limited nutrient and also suffers from heavy system losses when applied in the puddle field. A worldwide crisis of urea fertilizer in 2008 spurred the need to economize on its use with urgency. The Urea Deep Placement (UDP) technology is aimed at increasing N fertilizer use efficiency in rice production and thus holds the promise to economize on the use of a very important but finite resource (i.e., urea) while improving rice productivity. The present study econometrically measures the impact of recently introduced UDP technology on productivity and efficiency of modern rice cultivation at the farm-level in Bangladesh using a stochastic production frontier approach. Data were collected from Shimlagachi village in Sharsha upazilla (sub-district) of Jessore district, located 225 km southwest of capital Dhaka. A total of 100 farmers using UDP technology and another 100 farmers using conventional urea to produce rice in both Boro (dry winter) and Aman (monsoon) seasons were randomly selected. Detailed input-output data including socio-economic information of the farmers were collected through administering a pre-tested structured questionnaire. The survey was conducted during May-June 2013. Results reveal that net profit, productivity and technical efficiency are significantly higher for the farmers using UDP technology as compared with the conventional urea users. On average, productivity of UDP farmers is 13% higher (estimated at 7164 kg/ha and 5242 kg/ha for Boro and Aman seasons, respectively) than the conventional urea users. Profitability is also higher for UDP farmers (BCR estimated at 1.36 and 1.08 for Boro and Aman seasons, respectively) than the conventional urea users (BCR estimated at 1.17 and 0.99 for Boro and Aman seasons, respectively). Finally, technical efficiency is 12% higher (estimated at 0.93) for the UDP farmers. However, the relative gain from UDP technology adoption is significantly higher in Boro season as compared with Aman season. The key policy conclusion is that the UDP technology should be disseminated widely with urgency so that Bangladesh can improve its food security by significantly increasing rice productivity while at the same time economize on the use of N fertilizer nutrient.

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**Employee Turnover: It's Impact on Four Ps' in the Organizations**

Dr. Mohammad Ahsan Ullah\*, Md. Kafil Uddin\*\* and **Sharmin Akther\*\*\***

**ABSTRACT**

Few extant studies have attempted to investigate affects of employee turnover on the productivity of organization rather than little focusing internal and external factors of employee turnover .These factors can be associated with the processes of employee selection, economic conditions, relationship between workers and management etc. The current study is designed to address the impact of turnover in the different functional areas of the organization. In the context of Bangladesh, corporate results have demonstrated a strong bridge between employee turnover, worker performance and business outcomes. This paper examines the effects of turnover on four (4) P's - Productivity, Production cost, Performance of employees, Psychological intention in the operation of the organization.

**Keywords:** Employee, Turnover, Productivity, Performance, Management, Human Resource Management.

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**Work-Family Conflict and Non Sharing Jobs: The Link explored for Dhaka**

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**ABSTRACT**

Work family conflict is an area of growing interest to the duo; i.e.: the Government and employers alike. According to Greenhaus and Beutell (1989) work family conflict is defined as a form of inter-role conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. The focus on this arena is gaining momentum due to the fact that women play a critical combination of roles ‘caring’ at home and ‘working’ at the workplace. As governments and employers are becoming increasingly dependent on the contribution from women workforce, this dilemma of work-family balance and the resultant conflict appears to be a serious concern. This phenomenon surfaces as ubiquitous in developing as well as developed countries. Watchdogs in Bangladesh are also showing greater interest in this. The aim of the present study is to understand the nature of work-family conflict of a specific cluster in Bangladesh – the female school teachers. This particular cluster of white collar professionals has been selected due to the nature of their job as being non-sharing type. School teachers lack ‘flexibility’ in their profession as the timings are rigid and the scope of alternative arrangements for service delivery is limited. These aspects are stated to lead to heightened level of stress among the professionals. A sample of 120 female school teachers has been selected through stratified random sampling from four different strata (Pre School, Mid School and Senior School, including administrators) for the study. A structured questionnaire was used to collect information from the sample and the data collected were analyzed using various statistical techniques. The study revealed the presence of high degree of work-family conflict among the female professionals. Further it had negative effect on the level of performance, both at work and home. Another major finding is that the children of the professionals suffer the consequences of the work-family conflict.

**Key words:** Work Family conflict, Dhaka, School teachers.

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**Factors Influencing Consumers' Choice Of Ice-Cream: A Study On Impulse Buying Behavior**

**Shahpar Shams\*** and Md. Samiul Hasan Babu\*\*

**ABSTRACT**

Impulsive purchasing is an emotional and cognitive reaction of a consumer to stimulus in purchase environment when demographic profile (like- age, gender), situational, social, economic, complexity of decisions (ambiguity in decision process), psychological factors and product attributes are important to influence the behavior. Impulse purchase is also the individual's internal differences with regard to impulsive acts. So, it is an important task for marketers of ice cream to determine and assesses the factors that influence the consumers' impulse buying behavior. This study attempted to evaluate the factors influencing consumers' impulse buying behavior for ice-cream. Consumption of ice-cream is influenced mostly by the attractiveness of the product attributes like taste, flavor, quality, creaminess of ice-cream, availability at convenient location, packaging etc. along with demographic profile, situational, social, economic, complexity of decisions, psychological factors also influence consumers' impulse buying behavior for ice-cream. It may be relevant to managers to identify the most combination of product attributes as well as other important factors in their promotional activities to induce the consumers' desire for ice-cream.

**Key Words:** Impulse buying behavior, Consumer choice, Ice-cream.

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**Assessment of Consumers' Loyalty and Switching Behavior:  
A Study on Selected Tea Brands in Bangladesh**

**Shahpar Shams\***

**ABSTRACT**

Many people perceive tea as an important drink in daily life and want to have a good cup of tea in the morning for a good start of the day. Consumption of tea in our domestic market is increasing day by day. Hereby competition has been increased rapidly and different companies are trying to capture consumers' loyalty day by day. Different consumers have different expectation and different perception regarding different tea brands. When consumers' perception matches with the expectation, consumers get satisfaction. Satisfied consumers repurchase the brand and may become loyal toward the brand. When consumers' perceptions do not match with their expectation they become dissatisfied and in many cases they tend to switch the brand. To increase consumers' loyalty and to decrease switching possibility, marketers need to ensure that their product deliver the attributes that was promised to fulfill consumers' desired need.

**Key Words:** Loyalty, Switching behavior, Tea Brand.

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**Rural Credit in Bangladesh: Trends, Structure and Growth Performance**

**Basanta Kumar Barmon\***, Umme Fatema and Gazi Esha Islam

**ABSTRACT**

The present study aims at analyzing and comparing the trends, patterns, performance of growth and their nature, and structural change of rural credit among state-owned, specialized, and private banks in Bangladesh during the periods of 1981-82 to 2011-12. The data accommodated in this study has been deliberately subdivided in two equal time spans: 1981-82 to 1999-2000 and 2000-2001 to 2011-2012. Secondary data was collected from various organizations and reports of findings that suggest that growth performances of disbursement targets, actual disbursements and recovery of agricultural credit increased significantly either at an increasing or decreasing rate from the FY 1981-82 to 2011-12. The results from the stability test explain that there are no significant differences in the growth of disbursement target performance and recovery of rural credit within the types of banks being studied. Interestingly, according to actual disbursement, there were no significant differences in terms of growth in performance within specialized and private banks. On the contrary, state-owned banking institutions clearly outperformed during the second sub-period in comparison to the first portion of the timeframe. Therefore, it has been evidenced that growth performances relative to disbursement targets, actual disbursement and recovery of rural credit had significance throughout the entire period of study. However, the second sub-period (2000-2001 to 2011-2012) reflects no significance in the improvement of growth performances in comparison to the first sub-period (1981-82 to 1999-2000) but, the actual disbursement of rural credit in state-owned banks showed significance.

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**Willingness to Pay for Solid Waste Management System in Dhaka City, Bangladesh:  
A Socio-Economic Analysis**

**Basanta Kumar Barmon\***, Kazi Mohiuddin, Gazi Esha Islam and Nawshin Laila

**ABSTRACT**

The present study attempts to analyze the relationship between socio-economic factors and willingness to pay (WTP) for solid waste management in Dhaka city. Primary data were randomly collected from 120 households through comprehensive questionnaire. Four areas with varying income levels – Mirpur, Mohammadpur, Banani and Khilgaon - were purposely selected, because this study aimed to find a relationship between WTP and income of the households. Compared to Mirpur and Khilgaon, households with higher income reside in Banani and Mohammadpur. The findings of the study show that there is a positive relationship between household income and WTP for waste management. The residents in all four areas showed concern about solid waste management and the negative impacts waste accumulation has on the environment. Residents in unison also expressed their dissatisfaction with the quality of the existing solid waste management system. The study concluded that residents indeed are willing to pay more for better waste management, and this higher payment can then be used to enhance the existing solid waste management system - resulting in cleaner and more hygienic environment in Dhaka city.

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**Employee Engagement: An Empirical Study on Telecom Industry in Bangladesh**

Md. Kafil Uddin\* and Sharmin Akther\*\*

**ABSTRACT**

Employee engagement appears to be a combination of job satisfaction, organizational commitment, organizational performance and intention to stay within organizations. An engaged employee is aware of business context, and works with colleagues to improve performance within the job for the benefits of the organization. The purpose of this study is to locate the reasons of employee engagement in the telecommunication industry of Bangladesh. A 20-items questionnaire with the Likert-type scale was used for collecting data in this study. In data collection, this study used convenience sampling technique. Data were collected from 310 employees who, are working at different telecommunication companies in Bangladesh, were asked to rate themselves on the printed survey materials. ANOVA test was applied for inferential analysis of data. The study tried to trace out whether clear idea about the employees' role, inspiration of the employees, concentration on employees' role, participation in decision making, willingness of the employees, skills of the employees and commitment of the employees have any influence on employees engagement in the telecommunication industry of Bangladesh. An important implication of the study is that employee engagement has a strong and negative relationship with the organizational productivity. The most important limitation was in using convenience samples that might limit the generalizability of the results. Recommendations and future research directions were also discussed.

**Keywords:** Employee engagement, Employee commitment, Employee engaged drivers, Organizational performance.

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**Biometrics: A New Horizon to Corporate World**

Md. Kafil Uddin\* and Sharmin Akther\*\*

**ABSTRACT**

The word “Biometrics” is derived from the Greek words “bio” (life) and “metrics” (to measure). This directly translates into “life measurement”. “Biometrics is the automatic identification of a person based on his or her physiological or behavioral characteristics” (Chirillo & Blaul, 2003, P.2). The term, biometric, can be used as a noun in reference to a single technology or measure (e.g., finger scan is a commonly used biometric) or as an adjective as in “a biometric system uses integrated hardware and software to conduct identification or verification” (Nanavati, Thieme, & Nanavati, 2002). Biometrics technology is used as a powerful tool for solving identification and authentication issues for buddy punching, increased productivity, PC-based biometric time clock software, superior customer service platform, surveillance society, membership management, operational efficiency, superior customer service platform etc. Information security technologies continually evolve to meet new security threats. As a reflection of the increased need to protect organizations’ information from both internal and external threats, many organizations have begun investigating the adoption of biometric security technologies as a significant component in their overall security architecture.). It involves measuring one or more unique physiological human characteristics the shape of a body, fingerprints, structure of the face, DNA, hand/palm geometry, iris patterns, typing rhythm, voice and even odor/scent be used because they can never be forgotten, lost or copied, unlike the current methods of smart card and passwords. The potential for biometrics is ever swelling in the business areas for ensuring efficient management through minimizing cost in accordance with maximizing profit. In such a context, this study is conducted to identify the application of biometrics in the formulation of management policy and business of the corporate sector. The focal point of this study is to investigate the factors that influence managers to recommend biometric security technologies in their organizations. The paper has been designed to illustrate the use of biometric security solutions in corporate sectors of Bangladesh. The study is based largely on secondary data from published sources including websites of different organizations and primary data. Data and information from secondary sources were collected by consulting various relevant journals, studies conducted by various donor and development agencies, and publications of Information Technology Review, International Biometric Group (IBG) etc. and primary data collected through the questionnaire the different private service and business organization. This paper also attempts to focus on some implications of biometrics technology in the corporate sector of Bangladesh as well as salient factors allied with the selection of appropriate biometrics technology in different organizations.

**Keywords:** Biometrics, Security, Identification, Business, Management policy.

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**Rethinking higher education branding: Determining the role of online marketing communication in brand image and brand equity development**

**Md Abdul Momen\*** , Seyama Sultana\*\* and Muhammad Sabbir Rahman\*\*\*

**ABSTRACT**

Internet based marketing communication has been an important element for organizations to build brand image and brand equity. Higher education is not an exception. However, configuring the right mix in the age of social networking sites, various online displays and constantly changing the algorithm in search engine optimization has become the major challenges today. Hence, the purpose of this study is to configure integrated online marketing communication for the development of brand image and brand equity for higher educational institutions. The study is quantitative in nature. A responsive group of 370 students was chosen from different educational institutions in Malaysia via stratified random sampling techniques. Both exploratory and confirmatory factor analyses were used for interpreting the data. To test the derived hypotheses, structural equation modelling was used. In line with the contemporary literature, the study revealed positive relationships between brand image and brand equity, search engine and brand image, and between social media and brand image. The relationship between online display and brand image was not found significant. Since history and tradition are no more single tool to attain and retain the positive image and customer-based brand equity, this study can help the stakeholders to configure integrated online communication in the age of internet media. Future research can be done considering both online and conventional marketing communications for the same purpose. This approach can also be used for private and public institutions separately, considering their differences in nature.

**Key Words:** Education Branding, Internet based marketing communication, Higher education, Brand Image, Brand Equity

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### **Employers Preferred Competencies for Business Graduate Selection**

**Laila Zaman\*** and **Nikhil Chandra Shil\*\***

#### **ABSTRACT**

Today's talent hunters don't search for traditional employees rather recruit human resources with divergent competencies. Globalization of competition and internationalization of the human resources language adds extra momentum to this search. Thus the demanded competencies from business graduates receive extra attention to the talent practitioners and researchers. As Bangladesh is witnessing rapid growth in recent years and graduates are coming out from higher education institutions (HEI) in abundance, a study is demanded to find out the quality of graduates to the satisfaction of employers which has a serious policy implications to the regulators and others. This paper puts an honest attempt to highlight the expected competencies in business graduates by surveying the employers through a semi-structured questionnaire as a pilot study. In addition to the skills, the survey also results some other choices in terms of medium of school, types of university, gender profile, major area of study and results etc. Different descriptive and non-parametric tests are applied to bring holistic approach in research methodology. The outcome of the study will have policy implications to regulators, educators, talent practitioners, graduates and other related parties.

**Key Words:** employers, business graduates, competencies.

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**Scrutinizing the Relationship between CEO's Compensation and Banks' Profitability: An Analysis on Private Commercial Banks of Bangladesh**

**Quazi Sagota Samina\* and Laila Zaman\*\***

**ABSTRACT**

**Purpose:** This paper aims to examine the impact of CEO compensation on banks' profitability. **Design/methodology/approach:** The study uses the Annual Reports of 15 private commercial banks of Bangladesh over the period of 2009-2013 available on websites as source of data. Regression analysis is used to test hypotheses where ROE is considered as dependent variable and CEO compensation, CEO tenure, CEO total experience in financial industry, total salary expense of the bank, total asset, no. of employees and number of branches are considered as independent variables. **Findings:** The study found statistically significant relationship between CEO compensation, tenure and experience of CEO in the industry and banks' profitability. The study reveals that the compensation of CEO negatively affect the banks' profitability. **Research limitations/implications:** This study gives result based on the monetary benefits given to CEO and thereby further analysis on the same issue can be done incorporating the other benefits (non-monetary) given to CEO (if any). The finding of the research could be considered as representative of the banking sector of the country which may help the policymakers to decide about the compensation package for CEO and valuing CEO's experience to enhance profit. Besides the current study can be a guideline for similar studies for other industries in Bangladesh. **Originality/value:** This study examines the impact of CEO compensation on banks' profitability.

**Keywords:** Chief Executives Officer (CEO), Compensation, Bank.

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**Comparative study on physicochemical properties of some HYV and local Aman cultivars in Bangladesh.**

**Saima Jahan\***, Shakir Hosen, Muhammad Ali Siddiquee, Nilufa Ferdous and Habibul Bari Shozib

**ABSTRACT**

A total of 11 aman rice varieties including 6 local cultivars, Pukki, Sadaberuine, Binnafol, Surjamokhi, Lohasail, Kalaberuine and 5 HYV, BR5, BR11, BRRI dhan34, BRRI dhan37, BRRI dhan38 were studied for a comparative study on physicochemical properties. The highest milling outturn 72% was found in the variety BRRI dhan37 and lowest in sadaberuine (68.5%). Grain length and L/B ratio of the varieties range from 3.6 mm to 6.3 mm and 2.0 to 3.4 respectively. The highest length (6.3 mm) was Sadaberuine and the highest length-breadth ratio (3.4) was found in BRRI dhan38. Lowest grain length was found in BR5 and lowest length-breadth ratio were found in Pukki, Lohasail, Surjamukhi, Kalaberuine. Apparent Amylose content (AAC) of the varieties range from 7.3 (kalaberuine) to 27.5 (Lohasail). All the varieties contain more than 7% of protein. Maximum cooking time (20 min.) were require in the variety of BRRI dhan37 and minimum (11min) in Binnafol. Elongation ratio of grains of local and modern Aman rice cultivars varied between 1.2 to 1.5 and 1.2 to 1.6 respectively. Highest imbibitions ratio (4.0) was found in BRRI dhan34.

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# Faculty of Sciences and Engineering

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**Generalized Linear Model for Binary Data with Missing Values: An EM Algorithm  
Approach**

**Nazneen Sultana\***

**ABSTRACT**

A procedure is derived for estimating the parameter in case of missing data. The missing data mechanism is considered as missing at random (MAR) and non-ignorable. Here we use EM algorithm for logit link approach in generalized linear model. The logit link approach shows that it can effectively estimate the value of a categorical variable when we have information on the other categorical variables. In this method the variable with missing values is considered as dependent variable. In addition a real data set for low birth weight is presented to illustrate the method proposed.

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### **Quality of Service Aware Reliable Task Scheduling in Vehicular Cloud Computing**

Tamal Adhikary, **Amit Kumar Das\***, Md Abdur Razzaque, Ahmad Almogren, Majed Alrubaian and Mohammad Mehedi Hassan

#### **ABSTRACT**

Vehicular Cloud Computing (VCC) facilitates real-time execution of many emerging user and intelligent transportation system (ITS) applications by exploiting under-utilized on-board computing resources available in nearby vehicles. These applications have heterogeneous time criticality, i.e., they demand different Quality-of-Service levels. In addition to that, mobility of the vehicles makes the problem of scheduling different application tasks on the vehicular computing resources a challenging one. In this article, we have formulated the task scheduling problem as a mixed integer linear program (MILP) optimization that increases the computation reliability even as reducing the job execution delay. Vehicular on-board units (OBUs), manufactured by different vendors, have different architecture and computing capabilities. We have exploited MapReduce computation model to address the problem of resource heterogeneity and to support computation parallelization. Performance of the proposed solution is evaluated in network simulator version 3 (ns-3) by running MapReduce applications in urban road environment and the results are compared with the state-of-the-art works. The results show that significant performance improvements in terms of reliability and job execution time can be achieved by the proposed task scheduling model.

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**Analysis of Sleep Window of IEEE802.16m Network Based on State Transition Chain**

**Md. Asif Hossain\***, M. Imdadul Islam\*\* and **M. Amin\*\*\***

**ABSTRACT**

Energy efficiency plays vital roles in wireless communication system due to the “energy limited battery service” of a mobile station (MS). To ensure longer battery life in WiMAX, a new protocol has been introduced in its IEEE802.16m version. This new sleep mode has extended listening window and adjustable sleep cycle length. In this paper, we analyze the probability of attaining at three states: serving state, state of timer inactivity and silent state in a simplified statistical model using traffic parameters of arrival rate, pdf (probability density function) of interarrival time and its threshold value. Finally we developed a new state transition chain of the above three states of a MS of IEEE802.16m and solved the chain in closed form.

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(Online)

**A Computer Technique for Duality Theory in Linear Programs**

**A. K. M. Nazimuddin\* and Ahsan Ali\*\***

**ABSTRACT**

The aim of this paper is to develop a computer oriented program for analyzing duality of a Linear Program (LP) by the programming language MATHEMATICA. Also we will show the efficiency of our program by analyzing the duality with numerical examples.

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**Performance Evaluation of Two-Hop Wireless Network under Asymmetric Fading Environment**

**Sarwar Jahan\***, **M. R. Amin\*\*** and Md. Imdadul Islam

**ABSTRACT**

To enhance the reliability of long wireless link, a relay is placed between transmitter and receiver which break the link into two parts: transmitter to relay called 1st hop and relay to receiver called 2nd hop; such arrangement is called two hop wireless links. In two-hop wireless communication sometimes 1st and 2nd hops are affected by different types of fading called asymmetric fading environment. In this paper we consider four different combinations of Rayleigh and Nakagami-m fading on 1st and 2nd hop to observe the profile of combined pdf (probability density function) and cdf (cumulative distribution function). With the help of cdf we determine the variation of outage probability of mixed fading. Finally we plot the SER (symbol error rate) against the SNR (signal to noise ratio) of the 2nd hop for all possible combinations of the two fading taking the SNR of 1st hop as a parameter. Although recent literature deals with asymmetric fading environment but in this paper instead of details statistical model of such fading we provide the relative scenario of mixed fading on 2-hop wireless link.

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**Numerical Solution of a Fluid Dynamic Traffic Flow Model Associated with a Constant Rate Inflow**

**Ahsan Ali\***, Laek Sazzad Andallah and Zakia Hossain

**ABSTRACT**

In this paper, a modification of a macroscopic traffic flow model has been presented. In most cases, the source terms that have been appeared in traffic flow equations, represent inflow and outflow in a single-lane highway. So, to demonstrate the effect of inflow, a constant source term has been introduced in a first-order traffic flow equation. Inserting a linear velocity-density relationship, the model is presented. In order to incorporate initial and boundary data, the model is treated as an Initial Boundary Value Problem (IBVP). We describe the derivation of a finite difference scheme of the IBVP which leads to a first order explicit upwind difference scheme. Rigorous well-posedness results and numerical investigations are presented. This paper contains the implementation of the numerical schemes by developing computer programming code and numerical simulation. Numerical schemes are implemented in order to bring out a variety of numerical results and to visualize the significant effects of constant rate inflow.

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**A Novel WLAN Roaming Decision and Selection Scheme for Mobile Data Offloading**

Nam Nguyen, **Mohammad Arifuzzaman\*** and Takuro Sato

**ABSTRACT**

The existing IEEE and 3GPP standards have laid the foundation for integrating cellular and WiFi network to deliver a seamless experience for the end-users when roaming across multiple access networks. However, in recent studies, the issue of making roaming decision and intelligently selecting the most preferable Point of Service to optimize network resource and improve end user's experience has not been considered properly. In this paper, we propose a novel cellular and Wi-Fi roaming decision and AP selection scheme based on state of the art, 3GPP TS24.312 and IEEE 802.11u, k standards. Our proposed scheme assists the mobile nodes to decide the right timing to make roaming decision and select preferable point of service based on the operator's policies and real-time network condition. We also introduce our simulation model of a heterogeneous network with cellular and WiFi interworking as well as 3GPP ANDSF, TS24.312. It is a complete end-to-end system model from application to physical layer with considering user's mobility and realistic traffic model. The proposed scheme outperformed the conventional Wi-Fi selection scheme in terms of dynamically steering mobile node's data traffic from macrocell to available Access Points. The proposed scheme increased the utilization and balanced the traffic load of access points and improved user's experienced throughput.

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**A Key Management Scheme for Secure Communications of Information Centric  
Advanced Metering Infrastructure in Smart Grid**

Keping Yu, **Mohammad Arifuzzaman\***, Zheng Wen, Di Zhang and T. Sato

**ABSTRACT**

Advanced metering infrastructure (AMI), as the totality of systems and networks to measure, collect, store, analyze, and use energy usage data, is supposed to be the core component in smart grid. In AMI, there are numerous challenges among which cyber security is a major one that needs to be addressed with priority. The information centric networking (ICN) is a promising architecture for the future Internet that disseminates content based on named data instead of named hosts. The congestion control and self-security can enable more scalable, secure, collaborative, and pervasive networking, these make the ICN a potential network architecture for smart grid. This paper aims to apply the ICN approach on AMI system, which we termed as information centric AMI (ICN-AMI). To the best of our knowledge, this is the first attempt to distribute contents (or requests for contents) based on ICN in AMI system. Moreover, a simulation-based performance evaluation is employed to evaluate the effectiveness of the proposed ICN-AMI approach in traffic control for developing AMI system in smart grid. In addition, we proposed a novel key management scheme (KMS) for a large number of smart meters in this system to ensure confidentiality, integrity, and authentication. To validate the scheme, the security analysis, comparisons are done to demonstrate that the proposed information centric KMS (ICN-KMS) is possible and a promising solution for ICN-AMI system.

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**Collaboration between Network Players of Information Centric Network: An Engineering-Economic Analysis**

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**ABSTRACT**

Internet use is dominated by content distribution and retrieval. As there is a rapid explosion of web-based content, it becomes challenging to provide quality of experience to the end-user. To efficiently handle the utmost growth of the Internet content, in business perspective, there is a clear increase in Content Delivery Networking (CDN). On the other hand, in research perspective it is the Information Centric Networking (ICN) which emerged as an alternative to the current host-to-host communication paradigm and has the potentials of distribution and retrieval of contents more efficiently. This article is an initiative to find some rooms where the ICN and the CDN can meet together. In ICN, a potential strategy by the publisher ignores CDN providers and has direct connections with ISPs. However we believe that, at the stage of incremental deployment of ICN, there is no scope of ignoring CDN. Besides, it is true that it will take time to deploy ICN in Internet scale. So, for achieving big economy of scale publisher will choose CDN as a means for its content distribution. In this paper we present two possible content distribution models for ICN. We formulate game theoretic model for the network players for ICN architecture based on our proposed content distribution model. Firstly, we present two player game model between Publisher and Telco CDN. And we discuss the way of Revenue sharing between Telco CDN and Telco CDN (or Telcos or ISPs); where we assume that interconnection among Telco CDNs is possible. Following, we enhance the game among three major network players (Publisher, Global CDN and Telco CDN) of ICN to analyze the way of the economic incentives sharing among them. We also present a solution for Live Streaming Media broadcast in ICN and analyze the economic part with a decision tree. Besides, we identify some standardization issue in ICN architecture and we emphasize on the need for a common standard for content routers (CR) so that as a node in the ICN, CR ensure scalable content delivery as well as its functionalities match with the Internet open standard philosophy.

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**Corporate Business and International Standards Education at Waseda University**

**Mohammad Arifuzzaman\***, K. Yu and Takuro Sato

**ABSTRACT**

This paper aims to focus on the standardization process and its consequences in the field of information and communication technologies (ICT) , with a view to understanding the significance of the standardization in academia and inclusion to this subject in academic curricula. Particularly, we take the scenario of cellular communication industry and as an evolutionary technology we take CDMA (Code Division Multiple Access) as a case study. Game theory is chosen as a tool for analysis of the business decision of stakeholder of an innovative technology. CDMA' s spread spectrum approach was unique. However, the good technology doesn't always win out. A good example is VHS ; which is successful and won out the market though technically inferior to Betamax. For the case of CDMA, we explain the case of good technological innovation, strategic management by the innovator and the role of standardization as a pre-requisite to win the market. We designed the game based on the scenario while a technology licensor (Qualcomm) simultaneously works as a product manufacturer and make a role overlapping with the licensee (Motorola, Nokia, Ericson etc) . We also give a brief mathematical analysis with the Stackelberg leadership Game Model for the Qualcomm's Royalty and Chip business.

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**Modulation of a Compressional Electromagnetic Wave in a Magnetized Electron-Positron Quantum Plasma**

**M. R. Amin\***

**ABSTRACT**

Amplitude modulation of a compressional electromagnetic wave in a strongly magnetized electron-positron pair plasma is considered in the quantum magnetohydrodynamic regime. The important ingredients of this study are the inclusion of the external strong magnetic field, Fermi quantum degeneracy pressure, particle exchange potential, quantum diffraction effects via the Bohm potential, and dissipative effect due to collision of the charged carriers. A modified-nonlinear Schrödinger equation is developed for the compressional magnetic field of the electromagnetic wave by employing the standard reductive perturbation technique. The linear and nonlinear dispersions of the electromagnetic wave are discussed in detail. For some parameter ranges, relevant to dense astrophysical objects such as the outer layers of white dwarfs, neutron stars, and magnetars, etc., it is found that the compressional electromagnetic wave is modulationally unstable and propagates as a dissipated electromagnetic wave. It is also found that the quantum effects due to the particle exchange potential and the Bohm potential are negligibly small in comparison to the effects of the Fermi quantum degeneracy pressure. The numerical results on the growth rate of the modulation instability is also presented.

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**Modulation of a quantum positron-acoustic wave**

**M. R. Amin\***

**ABSTARCT**

Amplitude modulation of a positron acoustic wave is considered in a four-component electron-positron plasma in the quantum magnetohydrodynamic regime. The important ingredients of this study are the inclusion of the particle exchange-correlation potential, quantum diffraction effects via the Bohm potential, and dissipative effect due to viscosity in the momentum balance equation of the charged carriers. A modified nonlinear Schrödinger equation is derived for the evolution of the slowly varying amplitude of the quantum positron acoustic wave by employing the standard reductive perturbation technique. Detailed analysis of the linear and nonlinear dispersions of the quantum positron acoustic wave is presented. For a typical parameter range, relevant to some dense astrophysical objects, it is found that the quantum positron acoustic wave is modulationally unstable above a certain critical wavenumber. Effects of the exchange-correlation potential and the Bohm potential in the wave dynamics are also studied. It is found that the quantum effect due to the particle exchange-correlation potential is significant in comparison to the effect due to the Bohm potential for smaller values of the carrier wavenumber. However, for comparatively larger values of the carrier wavenumber, the Bohm potential effect overtakes the effect of the exchange-correlation potential. It is found that the critical wavenumber for the modulation instability depends on the ratio of the equilibrium hot electron number density and the cold positron number density and on the ratio of the equilibrium hot positron number density and the cold positron number density. A numerical result on the growth rate of the modulation instability is also presented.

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*Physics of Plasmas*, vol. 22, no. , pp. 032303(1-10), March 2015

**Quantum effects on compressional Alfvén waves in compensated semiconductors**

**M. R. Amin\***

**ABSTRACT**

Amplitude modulation of a compressional Alfvén wave in compensated electron-hole semiconductor plasmas is considered in the quantum magnetohydrodynamic regime in this paper. The important ingredients of this study are the inclusion of the particle degeneracy pressure, exchange-correlation potential, and the quantum diffraction effects via the Bohm potential in the momentum balance equations of the charge carriers. A modified nonlinear Schrödinger equation is derived for the evolution of the slowly varying amplitude of the compressional Alfvén wave by employing the standard reductive perturbation technique. Typical values of the parameters for GaAs, GaSb, and GaN semiconductors are considered in analyzing the linear and nonlinear dispersions of the compressional Alfvén wave. Detailed analysis of the modulation instability in the long-wavelength regime is presented. For typical parameter ranges of the semiconductor plasmas and at the long-wavelength regime, it is found that the wave is modulationally unstable above a certain critical wavenumber. Effects of the exchange-correlation potential and the Bohm potential in the wave dynamics are also studied. It is found that the effect of the Bohm potential may be neglected in comparison with the effect of the exchange-correlation potential in the linear and nonlinear dispersions of the compressional Alfvén wave.

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**Modulation of electrostatic Langmuir waves in quantum electron-hole semiconductor plasmas**

**M. R. Amin\***

**ABSTRACT**

Amplitude modulation of electrostatic Langmuir waves in a quantum electron-hole semiconductor plasma is considered in the quantum magnetohydrodynamic regime. The important ingredients of this study are the inclusion of the particle degeneracy pressure, exchange-correlation potential, and the quantum diffraction effects via the Bohm potential. A nonlinear Schrödinger equation (NLSE) is developed for the evolution of the amplitude of the electrostatic wave by employing the standard reductive perturbation technique. The dynamics of the wave in the slow space-time scales is governed by the NLSE. Typical values of the parameters for GaAs, GaSb, and GaN semiconductors are considered in analyzing the nonlinear dispersion of the electrostatic wave. Detail analysis of the nature of the modulation, here modulation instability, in the long-wavelength regime is presented. For some parameter ranges of the semiconductor plasmas, and at the long-wavelength regime, it is found that the electrostatic wave is modulationally unstable. Effects of the exchange-correlation potential and the Bohm potential are also studied. It is found that the exchange-correlation potential has profound effects compared to the Bohm potential in the amplitude modulation of the electrostatic wave.

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**Selection of the best two-hop AF wireless link under multiple antenna schemes over fading channel**

Abu Sayed Rahaman, Md. Imdadul Islam and **M. R. Amin\***

**ABSTRACT**

In evaluating the performance of a dual-hop wireless link, the effects of large and small scale fading has to be considered. To overcome this fading effect, several schemes, such as multiple-input multiple-output (MIMO) with orthogonal space time block codes (OSTBC), different combining schemes at the relay and receiving end, and orthogonal frequency division multiplexing (OFDM) are used in both the transmitting and the relay links. In this paper, we first make compare the performance of a two-hop wireless link under a different combination of space diversity in the first and second hop of the amplify-and-forward (AF) case. Our second task in this paper is to incorporate the weak signal of a direct link and then by applying the channel model of two random variables (one for a direct link and another for a relayed link) we get very impressive result at a low signal-to-noise ratio (SNR) that is comparable with other models at a higher SNR. Our third task is to bring other three schemes under a two-hop wireless link: use of transmit antenna selection (TAS) on both link with weak direct link, distributed Alamouti scheme in two-hop link and single relay antenna with OFDM subcarrier. Finally, all of the schemes mentioned above are compared to select the best possible model. The main finding of the paper is as follows: the use of MIMO on both hops but application TAS on both links with weak direct link and the full rate OFDM with the sub-carrier for an individual link provide a better result as compared to other models.

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**Identification of Fingerprint using Discrete Wavelet Packet Transform**

Fahima Tabassum, Md Imdadul Islam and **M. R. Amin\***

**ABSTRACT**

Objective of this paper is to identify a person taking fingerprint as a biometric parameter using wavelet packet transform. Here both conventional discrete wavelet transform (DWT) and discrete wavelet packet transform (WPT) are used considering special basis function/matrix to extract the coefficients of basis functions those convey the most of the energy of the signal or image. Here top 5% coefficients are chosen which actually convey the characteristics of an image. The outcome of the paper is to determine the set of energetic coefficients of basis functions which carry the features of an image hence storage required to preserve the template of images will be reduced considerably.

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**Performance Evaluation of Voice Traffic of IEEE 802.16e Under Femtocellular Network**

Jesmin Akhter, Md. Imdadul Islam and **M. R. Amin\***

**ABSTRACT**

The paper deals with the packet scheduling of voice traffic of IEEE 802.16e under femto cellular network where the length of wireless link is few meters. Instead of distribution of MCS (Modulation and Coding Scheme) levels of previous literature, only availability of traffic channel is considered in packet scheduling since the short wireless link of femto cell is not affected by multipath fading like the link of micro cellular network. The steady probability states of the proposed model is compared with the existing model of WiMAX under Rayleigh fading environment. Finally the performance of the network is measured based on throughput, mean queue length and blocking probability.

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**Medium Access Probability of Cognitive Radio Network at 1900 MHz and 2100 MHz**

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**ABSTRACT**

Conventionally fading analysis of wireless LAN or MAN means small scale fading i.e. wide fluctuation of received signal with small variation of time and distance. In analysis of fading channel we consider the received signal in power, voltage or SNR as a random variable then statistical probability density function (pdf) like Rayleigh, Rician or Nakagami-m is used to get the probability of different phenomena. Most of the pdf is governed by two parameters: mean and variance of the random variable. In recent literature the mean value is taken constant but in this paper we consider the mean value as a slowly varying random variable and depend on the parameters of large scale fading. In this paper the concept of large and small scale fading is combined, in analysis of performance of cognitive radio network in context of medium access probability specially at 1900MHz and 2100MHz.

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**Overtaking collision and phase shifts of dust acoustic multi-soliton in a four component dusty plasma with non-thermal electrons**

**Gurudas Mandal\***, Kaushik Roy\*\*, **Anindita Paul\*\*\***, Asit Saha\*\*\*\* and Prasanta Chatterjee\*\*\*\*\*

**ABSTRACT**

The nonlinear propagation and interaction of dust acoustic multi-solitons in a four component dusty plasma consisting of negatively and positively charged cold dust fluids, non-thermal electrons, and ions were investigated. By employing reductive perturbation technique (RPT), we obtained Korteweg–de Vries (KdV) equation for our system. With the help of Hirota's bilinear method, we derived two-soliton and three-soliton solutions of the KdV equation. Phase shifts of two solitons and three solitons after collision are discussed. It was observed that the parameters  $\alpha$ ,  $\beta$ ,  $\beta_1$ ,  $\mu_e$ ,  $\mu_i$  and  $\sigma$  play a significant role in the formation of two-soliton and three-soliton solutions. The effect of the parameter  $\beta_1$  on the profiles of two soliton and three soliton is shown in detail.

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**Analysis of nonlinear dust-acoustic shock waves in an unmagnetized dusty plasma with  $q$ -nonextensive electrons where dust are arbitrarily charged fluid**

**Gurudas Mandal\*** and N. Y. Tanisha\*\*

**ABSTRACT**

The nonlinear propagation of dust-acoustic (DA) shock waves in three-component unmagnetized dusty plasma consisting of nonextensive electrons, Maxwellian ions and arbitrarily charged mobile dust grain has been investigated. It is found that the presence of  $q$ -nonextensive electrons and ions can change the nonlinear behavior of shock wave. The standard reductive perturbation method is employed to study the basic features (phase speed, amplitude and width) of DA shock waves (DASWs) which are significantly modified by the presence of Maxwellian ions and nonextensive electrons. The present investigation can be very effective for understanding the nonlinear characteristics of the DASWs in space and laboratory dusty plasmas.

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**Nonplanar wave propagation in plasma systems with nonextensivity**

S Ashraf\*, Gurudas Mandal\*\* and A A Mamun\*\*\*

**ABSTRACT**

It has been shown that the combined effects of nonextensive electron distribution and coefficient of ion viscosity significantly modify the behavior of SWs and ShWs. It has been also found to exist for positive and negative potential with cylindrical and spherical geometry in our this assumed plasma model.

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**Dietary administration of rice in improving the antioxidant status in Long-Evans Rat**

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**ABSTRACT**

Excessive free radicals trigger oxidative stress which implicates the pathogenesis of various physiological disorders. Maintenance of oxidative balance in the brain is tightly regulated by antioxidants. An overall antioxidant status can be evaluated by clinical parameters like TIBC, transferrin, iron, uric acid and albumin in blood serum. Based on different level of TPC, FRAC and TAC, a total number of four HYV rice like BR5, BR16, BRRI dhan28 and BRRI dhan29 were selected to investigate the effect of dietary administration of these rice varieties in improving the antioxidant status in rat model. Different level of antioxidant enriched HYV rice varieties like BR5, BR16, BRRI dhan28 and BRRI dhan29 were systematically fed to Long Evan rats for four weeks under clinical experiment and data revealed that antioxidant status measuring parameters like serum TIBC, transferrin, uric acid and albumin were persisted the most elevated level in BR5 rice treatment among other rice varieties which positively correlate healthy antioxidant status in rat blood serum. Thus we concluded that antioxidant enrich rice in dietary pattern improve the antioxidant status in rat.

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### **Physicochemical properties of Aus cultivars in Bangladesh**

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#### **ABSTRACT**

A total of 17 Aus rice cultivars including 10 (ten) local cultivars like Surjamukhi, Burikatari, SadaDumra, Chakilla, Agaua, BirMadla, Panki Raj, Tubri, PhulDumra, Kasalath and 7 (seven) modern HYV rice varieties like BR20, BR21, BR24, BR26, BRRI dhan42, BRRI dhan43, BRRI dhan48 were studied for a comparative study on physicochemical and cooking properties. The highest milling outturn 72.22% was found in the traditional variety Chakilla and lowest in Kasalath (65.43%). The highest milled rice length (6.5 mm) was BRRI dhan42 and the highest length-breadth ratio (3.8) was found in both BR24 and BR26. The lowest grain length was found in BR20 (5.0 mm) and lowest length-breadth ratio were found in PhulDumra (2.0). Apparent Amylose content (AAC) of these cultivars range from 22.0% (Surjamukhi) to 27.0% (BR24, BRRI dhan43 and BRRI dhan48). All the varieties contain more than 7.6% of protein. Traditional Aus cultivars possess more protein content than BRRI varieties. Maximum cooking time (23:30 mins.) were required for PhulDumra and minimum (15:30 mins) for BR21 rice. Elongation ratio (ER) of grains of local and modern Aus rice cultivars varied between 1.1 to 1.2 and 1.3 to 1.6 respectively. The highest imbibition ratio (IR) of 4.4 was found in BRRI dhan43. Among all studied cultivars, Surjamukhi has aroma and it has yellowish grain color with red pericarp. Chakilla has black grain color with red pericarp and rest of the traditional cultivars have white grain color and red pericarp. Modern HYV rices have white grain color and white pericarp.

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**Generalized Linear Model for Binary Data with Missing Values: An EM Algorithm Approach**

**Nazneen Sultana\***

**ABSTRACT**

A procedure is derived for estimating the parameter in case of missing data. The missing data mechanism is considered as missing at random (MAR) and non-ignorable. Here we use EM algorithm for logit link approach in generalized linear model. The logit link approach shows that it can effectively estimate the value of a categorical variable when we have information on the other categorical variables. In this method the variable with missing values is considered as dependent variable. In addition a real data set for low birth weight is presented to illustrate the method proposed.

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**A Review of Congestion Controlling Algorithms and Comparison using Simulation**

Afsana Al Sharmion, Farzana Jahan, **Nazneen Sultana\*** and Shamima Hossain

**ABSTRACT**

The performance of computer networks and internet technologies are constantly being questioned because of their rapid growth. Congestion is one of the major problems that challenge network performance. Congestion occurs when buffers of the network routers can no longer handle the incoming packets, as the amount of incoming packets exceeds the available network resources. While a number of proposed TCP enhancements have made their way into implementations, TCP connections still experience high packet loss rates and service delay. Among the many proposed algorithms, mostly used ones are based on Random Early Detection of TCP/IP congestion. Some of the methods being employed currently are: RED, ARED, GRED, DGRED, SARED. In our study, we review the aforementioned methods and compare the performance of different algorithms in controlling congestion by simulation.

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**A Poisson-Poisson Model to analyze congestion data**

Farzana Jahan, **Nazneen Sultana\***, Borhan Siddika and M. Ataharul Islam

**ABSTRACT**

Congestion in internet network often worsens the performance of the network. To control congestion in TCP/IP network, many algorithms have been proposed such as RED, ARED, SARED, DGRED and many more. In this study, an attempt is made to use a Poisson-Poisson Model for packet arrival and departure from the network. Using simulation, the goodness of fit of this conditional-marginal model will be assessed to find the best fit model. By changing the values of the parameters, the models are checked in terms of observed and expected no. of packet drops, throughout at a time duration/point. Using the best fitted model, one would be able to find the feasible threshold values for a particular network buffer to avoid congestion, rather choosing them arbitrarily. The proposed technique is elaborated in this paper and estimation and test procedures are illustrated using simulation procedure. This technique is expected to simplify the analysis of big data stemming from the congestion in TCP/IP network.

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*The 2<sup>nd</sup> International Conference on Theory and Application of Statistics, 2015***Comparative Study on Chemical Properties in Bangladeshi Rice Varieties**

**Saima Jahan\***, Habibul Bari Shozib , M.H.M. ImrulKabir and Muhammad Ali Siddiquee

**ABSTRACT**

Bangladesh has enormous biodiversity characteristics in rice considering size, shape, aroma and seasonal variation. Rice is a major source of carbohydrate. Cooking and eating characteristics of rice are influenced by the amount of amylose and protein. Our aim is to strengthening the rice breeding program through accumulation of scientific information on chemical properties like Apparent Amylose Content (AAC) and Protein content of diverse rice germplasm in Bangladesh. AAC and Protein percentage contribute significant role in grain quality and nutrition of rice. In the present study, a total of 218 rice cultivars of Bangladesh were selected and later on divided into 5 sub-groups including BRRI High Yielding Variety (HYV) rice, Traditional aromatic rice, Hilly sticky rice, Balam rice and Traditional rice. We are interested in determining whether the means of amylose and protein of the five rice groups are equal or not. Analysis of variance (ANOVA) was performed to test whether the difference in means is statistically significant. Duncan's multiple range test (DMRT) was applied on ACC % and Protein content (%) parameter for multiple comparison. Our study revealed that both BRRI HYV and traditional rice group possess significantly higher AAC percentage 25.9% and 25.6% respectively compare to traditional aromatic rice, Hilly sticky rice and Balam rice. Traditional aromatic and Balam rice have intermediate amylose of 21.1% and 23.6% respectively. Hilly sticky rice group contains the lowest AAC percentage (16.28%). Protein percentages did not differ significantly among sub-groups of rice except traditional rice group which contain less protein (7.7%) compare to other subgroups. This scientific study might play a useful information for further developing new HYV varieties through breeding program in Bangladesh.

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**Bi-directional Traffic Management Support System with Decision Tree based  
Dynamic Routing**

Md. Rahatur Rahman and **Shamim Akhter\***

**ABSTRACT**

Road traffic management is an ongoing challenge. Machine vision (image processing), RFID gates, aerial surveillance, and/or remote sensors technologies are usually used to reduce traffic management problems. However, their major drawbacks are installation difficulties, maintenance over the time, error handling, coverage and cost effectiveness. Thus, low-cost, flexible, easily maintainable and secure traffic management support systems are in demand. Internet-based real time bidirectional communication can be an alternation to solve most of the addressed problems. It also provides significant benefits over the existing surveillance technologies in use to monitor road traffic condition. However, dynamic routing is a vital requirement to make the proposed system more realistic. Therefore, decision tree based logic is applied to calculate the route weights and provide dynamic routings. The results indicate that the proposed traffic management support system/tool with dynamic routing (weights) is much more effective to find the optimal routes.

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**Real Time Bi-directional Traffic Management Support System with GPS and WebSocket**

Md. Rahatur Rahman and **Shamim Akhter\***

**ABSTRACT**

In this paper, we present the principles of a low operational-cost but flexible Internet-based traffic management support system. Most of the past systems were implemented with machine vision (image processing), RFID gateways, aerial surveillance, and/or remote sensors technologies. However, the major drawbacks of the above mentioned systems are their installation difficulties, maintenance over the time, error handling, coverage and cost effectiveness. Nevertheless, they consist unicast/one way communication (client to server only). The proposed system will bring real time bidirectional communication between the clients and the servers. Accurate and real-time traffic situation can be plotted at any given time. In addition, it would make better utilization of the existing technologies to achieve the goals. Users will be able to get help/advice from the system to find the optimized and cost effective way to reach from source to destination or vice versa.

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**Reversible Logic Based Mapping of Quaternary Sequential Circuits Using QGFSOP  
Expression**

**Mozammel H A Khan\*** and Himanshu Thapliyal\*\*

**ABSTRACT**

Quaternary encoded binary circuits are more compact than their binary counterpart. Although several methods for designing binary reversible sequential circuits are presented, to the best of our knowledge, no design method for quaternary reversible sequential circuits has yet been reported in the literature. In this paper, we propose a design method for quaternary sequential circuits, where the present state outputs are directly fed-back to the next state determination circuit and that circuit is realized using QGFSOP expression as a cascade of one-digit, M-S, Feynman and Toffoli gates. We also develop methods for making the sequential circuit falling-edge triggered and pre-settable using a quaternary Fredkin gate. As design examples, we present designs for up/down counters and universal registers. As there is no previous designs of quaternary sequential circuits, the closest comparison is made with designs of two-digit quaternary counter and universal register with designs of equivalent four-bit binary counter and universal register, respectively. In comparison to the equivalent binary designs the proposed method requires less ancilla inputs with an increase in quantum cost.

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**Test implementation of a sensor device for measuring soil macronutrients**

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**ABSTRACT**

Continuous cropping without adequate measurement and provisioning of soil nutrient may endanger the sustainability of agriculture. Soil nutrient measurement is greatly required for proper plant growth and effective fertilization. Existing methods of soil testing are costly and time consuming. In this paper, we have developed a sensing system using high precision, wide spectral range Photo Diode (PD), low spectral-width Light Emitting Diode (LED), micro-controller, analog-to-digital converter (ADC) for measuring soil macro-nutrients. We have integrated a GPRS modem with our sensing unit for remote data collection to a server. A cell of 5.5 mm path length is used to contain soil solutions. The resolution of 0.1-20 mg/100g has been used as standard solution. The test samples are taken from different farmlands and the results are compared with those obtained by a color chart judgment after laboratory analysis. The results found from our proposed system has good level of agreement with the laboratory results.

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**High Quality Location Controlled Poly-crystalline Silicon Nanowires For Biosensors and Cytokine Binding Kinetics**

**M. M. A. Hakim\***, M. Lombardini, Kai Sun\*\*, M. R. R. de Planque\*\*, H. Morgan\*\*\* and P. Ashburn\*\*\*

**ABSTRACT**

Polysilicon nanowire have been fabricated using a top-down process and were used to determine the binding kinetics of two inflammatory biomarkers. A very low cost nanofabrication process was developed, based on simple and mature photolithography (minimum linewidth 3 $\mu$ m), thin film technology and plasma etching, enabling an easy route to mass manufacture. The polysilicon nanowires are rectangular in shape, with excellent control of nanowire width, which is essential for reproducible sensitivity of top-down fabricated nanowires. Antibody-functionalized nanowire sensors have been used to measure the proteins interleukin-8 (IL-8) and tumor necrosis factor-alpha (TNF- $\alpha$ ), two established markers for inflammation. Real-time detection is demonstrated over a wide range of concentrations, with excellent sensitivity and selectivity, exemplified by a reliability of detection of 10fM in the presence of a 100,000-fold excess of a non-target protein. Nanowire-generated titration curves gave antibody-antigen dissociation constants which are in good agreement with low-salt enzyme-linked immunosorbent assays (ELISAs). Our fabrication process thus results in high-quality nanowires that are suitable for low-cost mass production, providing a realistic route to the realization of disposable nanoelectronic Point-of-Care devices.

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**Electrical characteristics tuning of silicon nanowires through backgate bias arrangement  
and feasibility of its application as biosensors**

**M. M. A. Hakim \***, Kaishar Uddin, Rouzatun Rafiue and Asrarul Haque

**ABSTRACT**

We performed a feasibility study of Si nanowire as a biosensor by tuning its electrical characteristics through backgate bias arrangement. 75nm, 50nm and 25nm thick silicon (Si) nanowires (NW) having channel length of 1 $\mu$ m with doping concentrations of 10<sup>16</sup>cm<sup>-3</sup>, 10<sup>17</sup>cm<sup>-3</sup> and 10<sup>18</sup>cm<sup>-3</sup> respectively were investigated for different backgate voltages. It is found that backgate bias has a significant effect on the electrical characteristics of p-type Si-NW. Generally p-type NW's characteristics show degraded behavior upon application of negative backgate voltages. This degradation can be explained by hole accumulation due to negative backgate voltage in the body of NW. For positive backgate voltage strong depletion in p-type Si reduces effective doping thereby improves sub-threshold characteristics of NW. 75nm thick NW shows sub-threshold slope of 70.36 mV/dec, 79 mV/dec and 3402.2 mV/dec at doping values of 10<sup>16</sup>cm<sup>-3</sup>, 10<sup>17</sup>cm<sup>-3</sup> and 10<sup>18</sup> cm<sup>-3</sup> respectively. This result shows that 75nm thick Si NW's sensor characteristics degrade with the increase of body doping values. Application of backgate bias has been found to significantly affect NW's sub-threshold characteristics for body doping values of 10<sup>16</sup>cm<sup>-3</sup> and 10<sup>17</sup>cm<sup>-3</sup> whereas for a body doping of 10<sup>18</sup>cm<sup>-3</sup> an insignificant effect is observed with a degraded sub-threshold slope around 3402.2 mV/decade for all backgate voltages. This result indicate that 75 nm thick Si NW can be used as biosensor with a body doping of 10<sup>16</sup>cm<sup>-3</sup> or 10<sup>17</sup>cm<sup>-3</sup> but a body doping of 10<sup>18</sup>cm<sup>-3</sup> is not suitable for biosensor fabrication at this NW thickness even though NW's electrostatics is tuned by backgate voltages. An almost similar result is also observed for 50 nm NW thickness. A drastic change in behavior is observed for 25nm thick Si NW which exhibits excellent sub-threshold slopes of 64mV/dec, 65.49mV/dec and 66.96mV/dec for body doping values of 10<sup>16</sup>cm<sup>-3</sup>, 10<sup>17</sup>cm<sup>-3</sup> and 10<sup>18</sup>cm<sup>-3</sup> respectively which implies that 25 nm Si NW can be used as biosensor for all body doping values of 10<sup>16</sup>cm<sup>-3</sup>, 10<sup>17</sup>cm<sup>-3</sup> and 10<sup>18</sup>cm<sup>-3</sup> and sensor operation of 25nm thick NW will be much better in comparison to 75 nm and 50 nm thick Si NW with its superior sub-threshold slope values. In contrast to 75 nm and 50 nm thick Si NW, 25 nm thick NW's sub-threshold characteristics also found to be significantly affected by backgate bias for all body doping values of 10<sup>16</sup>cm<sup>-3</sup>, 10<sup>17</sup>cm<sup>-3</sup> and 10<sup>18</sup>cm<sup>-3</sup> and at +7V of positive backgate bias the 25nm thick NW exhibits sub-threshold slopes of 62mV/dec, 62mV/dec and 63.11mV/dec for doping values of 10<sup>16</sup>cm<sup>-3</sup>, 10<sup>17</sup>cm<sup>-3</sup> and 10<sup>18</sup>cm<sup>-3</sup> respectively. This result implies that scaling of NW thickness at 25 nm and/or below would allow NW biosensor fabrication with body doping values as high as 10<sup>18</sup>cm<sup>-3</sup> and excellent sensitivity for single molecular level detection can be achieved by a proper combination of body doping and backgate bias arrangement. A typical less sensitive NW can be converted into a sensitive one by choosing the appropriate backgate voltage at NW thickness 25 nm or below. This result is very significant for choosing body doping, NW thickness and appropriate bias arrangement for single molecule detection.

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**Effect of Lightly Doped Drain on the Electrical Characteristics of CMOS Compatible Vertical MOSFETs**

**M. M. A. Hakim\***, D. H. Rubel\*\*, Kai Sun, S. Hall\*\*\* and P. Ashburn\*\*\*

**ABSTRACT**

Effects of lightly doped drain (LDD) on the 100 nm CMOS compatible vertical MOSFETs are investigated for different body doping. It is found that with the increase of LDD doping drive current of vertical MOSFET increases whereas sub-threshold performance is degraded. The degradation of sub-threshold performance is found to be more prominent at low body doping values. In addition, the threshold voltage of vertical MOSFET is found to decrease with the increase of LDD doping. These effects are explained by the reduction of the effective channel lengths and decrease in the source/ drain series resistances with the increase of LDD doping. This analysis reveals that the body doping of 100 nm vertical MOSFETs should be around  $6 \times 10^{17} / \text{cm}^3$  to  $1 \times 10^{18} / \text{cm}^3$  with an appropriate anneal to deliver a LDD doping around  $5 \times 10^{19} / \text{cm}^3$  for a good sub-threshold characteristics which is very significant for choosing appropriate body doping and LDD doping values for fabricating 100nm CMOS compatible vertical MOSFETs.

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**Extraction of interface trap densities in high-mobility semiconductor MOSFETs**

**Anisul Haque\***

**ABSTRACT**

The existing techniques used for extracting the density of interface states in Si-SiO<sub>2</sub> devices are not directly valid in high-mobility semiconductor-high-K dielectric structures because many of the underlying assumptions do not remain true. The limitations of the existing methods are discussed. A recently proposed technique, based on the low-frequency C-V method, which overcomes many of these limitations, is reviewed.

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**Single-Electron Transistor Based Implementation of NOT, Feynman, and Toffoli Gates**

**Mozammel H A Khan\***

**ABSTRACT**

NOT, Feynman, and Toffoli gates are the practical building blocks of reversible circuit synthesis techniques. NOT and Feynman gates are primitive quantum gates. Toffoli gates are macro-level gates and realized using various primitive quantum gates. In reversible circuit design papers, logic level circuits are first realized using NOT, Feynman, and Toffoli gates and then the Toffoli gates are decomposed into primitive quantum gates. However, realizations of reversible circuits using electronic devices are not given adequate emphasis. In this paper, we propose preliminary ideas of implementations of NOT, Feynman, and Toffoli gates using single-electron transistor (SET), which is a nano-electronic quantum tunneling device. NOT gate implementation requires one SET and one pull-up resistor. Feynman gate implementation requires two SETs and two pull-up resistors. Three-input Toffoli gate implementation requires three SETs and two pull-up resistors. The average static power consumptions of NOT, Feynman, and three-input Toffoli gate realizations are 0.091 nW, 0.497 nW, and 0.504 nW, respectively. The proposed implementations will open a facet of nano-electronic low-power realizations of reversible circuits.

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**Low Cost Proton Therapy for the Cancer Patients**

**Mahmud Hassan\***

**ABSTRACT**

Although photon therapy saves lives of millions of cancer patient over the globe, the quality of life of a patient can be compromised as the high energy photon beam (x-ray or gamma ray) can damage adjacent tissues as it crosses the tumor. For particular types of cancer (eye, brain, liver, lungs etc.) or for children or young adults photon therapy is not preferable. On the other hand proton therapy can be a much better choice for these groups as protons slow down relatively fast when entering biological tissues, and most of their energy is deposited, with little scatter, at the end of their path in a peak called a Bragg peak. Proton therapy is however very expensive and available in only about 50 facilities around the world compared to several thousand photon therapy centres. Laser driven proton beams can reduce the cost of proton therapy by at least ten times in future. When high intensity laser beam ( $I > 10^{19}$  W/cm<sup>2</sup>) is incident on a thin (few 10's of microns) metal film, MeV proton beam comes out of the other side through a process known as TNSA. We used Halbach permanent quadrupole magnets for focusing the proton beam. Initially GEANT4 and Tosca Opera simulations were carried out to determine the positioning of the quadrupole magnets. The quadrupole arrangements were used in the Forschungszentrum Rossendorf Tandem Accelerator in Dresden, Germany and could successfully focus the beam. The quality of the beam was checked using the VULCAN petawatt laser beam in the Rutherford Appleton Lab, Didcot, Oxfordshire, UK and we could produce up to  $10^{11}$  protons per shot. Although the proton beam was not mono-energetic, simulations show that at higher intensities, RPA (radiation pressure acceleration) can produce quasi mono-energetic protons beams. With ELI (extreme light infrastructure) to start in 2018, we expect to see GeV proton beam as a result of direct acceleration from the intense ( $10^{22}$  W/cm<sup>2</sup>) laser beam. Together with the Halbach quadrupole magnet arrays we expect to see tabletop low cost proton accelerators for proton therapy in not so distant future.

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Paris, France

**Locating the content in the locality: ICN caching and routing strategy revisited****Mohammad Arifuzzaman\***, Yu Keping, Quang N Nguyen and Sato Takuro**ABSTRACT**

In Information Centric Networking (ICN), besides Off-path caching, On-path caching is an integrated caching solution with-in an ISP's local network. However, in On-path caching, content is cached en-route in the backward path towards the Interest generator and local RENE/NRS (in routing through name resolution) or FIB (in name-based routing) is not aware of the cached data. Hence, the most widely used intra-domain routing protocol and their forwarding strategy cannot address all available temporary cached copies of content. Thus, on-path caching strategy usually suffers from either of the two drawbacks- (1) too many replications within AS (Autonomous system) which do not add substantial value in terms of cache resource utilization. (2) An attempt to minimize redundancy ends up with the cost of fetching more copy of the same content from the repository (i.e., the closest cache copy is unknown/ not en-route). We propose an integrated routing and caching solution which reduces the caching redundancy and maximize the probability of finding nearby cached content, resulting in efficient utilization of available cache resources of ISP's as a whole. We introduce novel concepts of naming the content router and caching the content's cache-route to address the issue. We leverage NDN node architecture and the forwarding plane/strategy (of routing) as well to achieve our goal.

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Barcelona, Spain

**Seamless Mobility in Data Aware Networking**

Jairo E. López, **Mohammad Arifuzzaman\***, Li Zhu, Zheng Wen and Sato Takuro

**ABSTRACT**

The underlying networks (of the Internet) have been reworked to make way for new technologies, some serious inefficiencies and security problems have arisen. As a result, over the past years, fundamentally new network designs have taken shape and are being tested. In ITU Recommendation Y.3001 [1], four objectives are identified in line with the requirements for Future Network; one of them is data awareness. In ITU Recommendation Y.3033 [2], the 'Mobility' is addressed as one of the key problem spaces of data aware networking (DAN). This paper proposes Named-Node-Networking (3N), a novel architecture for DAN. We design a simulator (nnnSIM) [3] for evaluating our proposed 3N architecture which is the second major contribution of this paper. The nnnSIM simulator is written in C++ under the ns-3 framework [4] and has been made available as open-source software for the scientific community. Considering the importance of a unique DAN architecture, we propose a study for standardization work in the ITU as an initiative which can lead to its rapid adaptation

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Barcelona, Spain

**Proactive-caching based information centric networking architecture for reliable green communication in intelligent transport system**

Quang. N. Nguyen, **Mohammad Arifuzzaman\*** and Takuro Sato

**ABSTRACT**

In this article, we construct a concrete model as the prototype of efficient and reliable wireless Information Centric Networking (ICN) within the context of Intelligent Transport System (ITS). This research proposes a novel proactive-caching technique in ICN providing the robust and effective content delivery to the mobile nodes (commuters) for transportation system and fitting numerous ICN mobility scenarios of transportation system thanks to our "smart scheduler". We also propose a wireless ICN architecture which can adapt the power consumption of network nodes to the actual values of their optimized utilizations for greening the transportation communication network. Moreover, we identify that there are currently various ICN-based models and emphasize the need of an official international standard for wireless communication in general and transportation system in particular. Then by evaluating our proposal, we show that our proposal is a promising and feasible contribution for the ITU standardization process of Data Aware Networking (DAN) by integrating Green networking into DAN to combine the benefits of innovated rate-adaptivity and proactive-caching based schemes for achieving highly scalable, reliable and energy-efficient network performance in future transportation Information-centric communication system with data-awareness.

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**An Optimal Information Centric Networking Model for the Future Green Network**

Quang. N. Nguyen, **Mohammad Arifuzzaman\***, T Miyamoto and Takuro Sato

**ABSTRACT**

In order to address the energy flow and enhance the energy efficiency of Information Centric Networking (ICN) Architecture, this research proposes an innovated optimal ICN model with adaptive power consumption ability based on the popularity of the content to adapt content router link rate to its real-time utilization for optimizing the ICN router operating power value and based on the interest traffic to the server to select the optimal working mode for the server/content provider. With this dynamic control/adaptive mechanism, the proposed architecture can provide higher reliability with dynamic energy efficiency consumption and better cost-effectiveness for the future ICN infrastructure system to reduce electricity usage, cost and greenhouse gases, then solve global warming issues.

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**A New Planar Printed Antenna with Band-notch Characteristics for UWB Applications**

M A Matin and **M. Mofazzal Hossain\***

**ABSTRACT**

This paper presents a new small-size microstrip-fed UWB (ultra wideband) planar monopole antenna with band notch properties. The presented antenna comprises of trapezoid shape with tapered end radiating patch and a  $50\Omega$  microstrip line that are etched on the upper surface of the FR-4 substrate whereas the ground plane is etched on the bottom surface of the substrate. The antenna covers the UWB frequency range and the radiation pattern looks like similar to a monopole antenna. With the insertion of a U-shaped slot, the notch characteristics can incorporate in the proposed design which can reject the frequency band 5-6 GHz. Simulation results validate that the antenna is feasible for UWB applications due to its compactness and stable radiation pattern and gain.

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**Solving Maximum Clique Problem using a Novel Quantum-inspired Evolutionary Algorithm**

Pronaya Prosun Das\* and Mozammel H A Khan\*\*

**ABSTRACT**

Maximum Clique Problem (MCP) is one of the most important NP-hard problems in the area of soft computing and it has many real world applications in numerous fields ranging from coding theory to the determination of the structure of a protein molecule. Different heuristic, Meta heuristic and hybrid solution approaches have been applied to obtain the solution. In this paper, we demonstrate a Quantum-inspired Evolutionary Algorithm (QEA) to solve MCP. We have used one dimensional arrays of Q-bits called Q-bit individuals to produce binary individuals. After production of binary individuals, we have repaired and improved them. Here, Q-gate is the main variation operator applied on Q-bit individuals. Our algorithm was tested on DIMACS benchmark graphs and 40 of them were tested. The results obtained here are extremely encouraging. For almost all of the datasets, we get the optimal results reported on DIMACS benchmark and also compared our results with other related works. For some cases we get better results than other works.

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### **Fermentative Potency of Yeasts Isolated from Bangladeshi Honey**

**Roushney Fatima Mukti\***, Md. Miraj Kobad Chowdhury\*\* and Md. Aftab Uddin\*\*

#### **ABSTRACT**

Since honey can be utilized as a potential source for the isolation of local fermentative yeast strains for efficient bioethanol production to meet the increasing demand of biofuel, isolation and characterization of yeasts from seven different honey samples, following the determination of their fermentation capacity were performed in this study. Total eight yeasts were isolated from the honey samples and five of them were attributed to very high fermentation capacity. Yeast 2 showed the highest fermentative potency yielding 33.48% (v/v) ethanol. Yeast 1, yeast 3, yeast 5 and yeast 6 also showed high fermentative potency, yielding 23.91% (v/v), 31.31% (v/v), 23.91% (v/v), 24.35% (v/v) and 20.44% (v/v) ethanol, respectively. Plasmid profiling of the isolated honey yeasts was performed. Yeast isolate 8 was plasmid-free and other seven yeast isolates possessed plasmids with molecular weights ranging from around 2 kb to 12 kb as extrapolated from 1kb+ DNA ladder for electrophoresis. Further studies on plasmid and molecular identification of yeast isolates from honey could be carried out to understand these yeasts more. Information regarding their plasmid profile from this study can be helpful to determine their molecular relatedness and hopefully to reveal the reasons behind their efficient ethanol fermentation also.

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# Faculty of Liberal Arts and Social Sciences



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**“Diasporic Comparison: The Namesake AND Brick Lane”**

**Chowdhury Omar Sharif\***

**ABSTRACT**

Jhumpa Lahiri (1967- ) and Monika Ali (1967- ) are two transnational writers on post-colonialism. Both the writers are diaspora personalities. Jhumpa Lahiri was born in London and later her family moved to America. She is a daughter of Indian parents. Similarly, Monika Ali is a British writer of Bangladeshi origin. The Namesake by Jhumpa Lahiri and Brick Lane by Monika Ali are the novels which tell about two immigrant families, their wishes, and their problems in a foreign land. A large number of people from South Asia have been migrating themselves to America and to England. The paper deals with the cultural dislocation and identity crisis of these diasporic people in the multicultural communities. Then the paper discloses the immigrants' nostalgic feeling for their homeland and the struggle to adjust themselves with the new society because they are an alien community in a new country which constantly makes them suffer and remind that they are homeless and rootless. All these things, which are faced by the immigrants, have been discussed in the paper with comparing the themes and the characters of The Namesake and Brick Lane.

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**“Gradual Shift in Treatment of the Character of “Ravan” of the Ramayana”**

**Chowdhury Omar Sharif\***

**ABSTRACT**

This dissertation gets the opportunity to focus on the gradual shift in treatment of the character of “Ravan” of the Ramayana since its creation till now. Here, the term “postmodern” works as the driving force behind the attempt of putting the character of “Ravan” within a postmodern framework where the boundary, between the hero and the villain, struggles to find its existence. Some crucial aspects have been brought into focus for the better understanding of the title. These aspects have been arranged with utmost carefulness. Two important texts (The Ramayana of Valmiki and Madhushudan’s Meghnadbodh Kabbo) and a film (Mani Ratnam’s Raavan) have been scrutinized with sheer seriousness in order to prove the title as authentic.

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**“Rereading Ngugi wa Thiong’o, Chinua Achebe and Wole Soyinka: A Critical Analysis of African Postcolonial Literature/religion”**

**Ariful Islam\***

**ABSTRACT**

Behind the backdrop of today’s Africa and its history of struggle against colonial discourses that have mythologized Africa as ‘dark’ and ‘savage’ set against Western ‘civilization,’ the readers of African postcolonial literary works shall always find religion in different forms and modes of operation. Far from being naïve, religions have always been the door to get out of and/or get into another world with different values, beliefs and practices. Cultural, historical, and theoretical readings of African postcolonial literature are good to explore and identify the what and how of Africa and the Africans. This paper argues that the study of religion, a kind of study which is often overlooked, in African postcolonial literatures may answer to many whys as it deconstructs Enlightenment-influenced reasoning because, the Gods of Africa are always there to confront the other God(s) for power, authority and knowledge. Developed through a library research, the present paper reads representation of religion in some select postcolonial novels including Chinua Achebe’s *Things Fall Apart*, Ngugi wa Thiong’o’s *Petals of Blood* and Wole Soyinka’s *The Trials of Brother Jero*. The paper shows that postcolonial writers treat religion not simply as a spiritual gateway to and thus an agent to revive indigenous belief system but also as a geopolitical force to strengthen or withstand cultural and political aggression.

**Key-words:** Post-colonialism/postcolonialism, religiosity, power, politics, hegemony, and colonial discourses.

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**Imperialism in Disguise: (Re)cognizing the Imperialist Attitude of the United States of America in Bangladesh**

**Mohammed Mizanur Rashid\***

**ABSTRACT**

This research paper examines the various class-room training projects and developing ventures facilitated by the Embassy of the United States of America in Bangladesh and investigates the prevailing colonial and imperialist aspects which dominate the scenario. The paper demonstrates the Imperialist attitude of the United States and how it is affecting Bangladesh. Imperialism as we know it is the formation and/or maintenance of an uneven economic, cultural and territorial relationship, usually between states and often in the form of an empire, based on dominance and subordination. Imperialism is usually autocratic and sometimes monolithic – which is having a massive unchanging structure that does not allow individual variation. The imperialism that prevails in Bangladesh, motored by the United States Embassy is slightly different from the direct form of the concept and I would more like to call it as – “Imperialism in Disguise” as will be portrayed in my paper. The training programs which are facilitated by the U.S. Embassy are full of imperialist strategies as are the development programs. These training programs also have an economic and socio-cultural impact on our country and this paper will focus on that issue as well. Therefore, this research is an attempt to depict the United States of America’s imperialist forces at work in Bangladesh and similar Asian countries

**Key words:** Colonial Politics, Imperialism, Economy, Socio-cultural phenomenon.

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**(T)Roll, Camera, Action: Negative Publicity in the Countries of South Asia:  
(T/S)elling Ads or (S/T)elling Fables**

**Mohammed Mizanur Rashid\***

**ABSTRACT**

In the simplest of words, trolling is the deed, in whatever way that may be, of distracting, upsetting, deceiving or disturbing an individual or a group of people for the pleasure, amusement, or fun of a different individual or another group of people, mostly on cyberspace. By cyberspace, this paper mostly understands the different social networking sites on the Internet. Now, these acts of trolling have led to a number of social phenomena and selling the negative publicity is one of them. The troll culture does not only degrade an individual in front of a large audience but in the act of doing so possesses a potential to actually make that person noticeable who, otherwise, would have gone unobserved by a large crowd. Therefore, on one hand, these images work as catalyst of advertisements for the person, place or object it is trying to ridicule and on the other hand, some images work as agents of storytelling, which, like the famous Aesop's fables, were told to carry out social reform. This paper focuses on troll culture from both these viewpoints to acquire a better understanding of this modern phenomenon.

**Key words:** Troll-Culture, Cyberspace, Virtual Consumerism, Negative Publicity.

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doi.org/10.1080/12259276.2015.1072941, ISSN 1225-9276 (Routledge  
Publications)

**Women's Coping Strategies and Help-Seeking Practices: Some Observations on  
Domestic Violence In Rural Bangladesh**

**Anisur Rahman Khan\***

**ABSTRACT**

This article examines the coping strategies and help-seeking practices of women victims of domestic violence perpetrated by their husbands in rural Bangladesh. By drawing on 39 semi-structured in-depth interviews, conducted in eight rural settings in Netrokona and Mymensingh districts, it was found that the abused women tried to cope with domestic violence in many ways. Making their marriages work at any cost was their prime motivation in coping with violence. Moreover, they tolerated domestic violence because they were concerned about their own future and that of their children. At times, some women spoke back to their husbands. In extreme cases, some left the abusive relationships. With regard to helpseeking, they largely sought assistance from informal networks, such as parents, relatives, neighbors, community leaders and community-based NGOs and only a few sought formal support from legal and institutional agencies. It was noted that the dynamics of both the coping strategies and help-seeking practices were very complex. Women's vulnerabilities were well-exposed in both cases. Neither informal nor formal support could ensure sufficient protection for women. Sometimes, seeking help aggravated women's condition in many ways. It is, therefore, suggested that the existing drawbacks in both informal and formal support mechanisms must be eliminated in order to render appropriate services to the victims.

**Keywords:** Bangladesh; domestic violence against women; coping strategies; help-seeking practices; informal support; formal support

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doi:10.1111/aswp.12059, ISSN 1753-1411 (Wiley Publications)

**Consequences of Domestic Violence against Women: Some Reflections from  
Rural Bangladesh**

**Anisur Rahman Khan\***

**ABSTRACT**

The aim of this study was to explore the consequences of domestic violence against rural Bangladeshi women. Drawing on in-depth qualitative phenomenological interviews with 39 female victims of domestic violence from 8 rural settings of the Netrokona and Mymensingh districts, it was found that domestic violence not only causes serious consequences to the overall health and wellbeing of victims, it also causes negative impacts to their children and family members. For victims, consequences were physical, sexual, reproductive, psychological, and economic. For the children of the victims, consequences were mostly behavioral and psychological, while for family members of the victims, consequences were mainly economic and psychological. This study has significant academic implications because it could trace the consequences of domestic violence in a three dimensional manner. Based on empirical findings, this study proposes policy recommendations, such as campaigning against domestic violence and the proper implementation of laws related to domestic violence.

**Keywords:** Bangladesh; children; consequences; domestic violence against women; family members; victims

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*Thai Journal of Public Administration*, Vol 13(2): 131-146, ISSN 0859-418X

**Who Is Old and When Is a Woman Old? Cultural, Social and Economic Meanings**

**Anisur Rahman Khan\***

**ABSTRACT**

The definition of old age is very much problematic since it varies across and within a particular culture and society. It has no absolute definition or meaning. It is difficult to define old age on the basis of chronological and physiological degeneration of a certain person. Different socio-cultural and economic factors should be considered to label someone as old. On the other hand, a woman does not become old at the same time as a man. It is the society where she lives and the culture to which she belongs that specify the parameters for her to be labelled as old. A woman may become older in a number of ways that are different from a man. This article examines the ways in which we can enrich our understanding of the definitional complexities surrounding the question of who is old and when is a woman old.

**Key words:** Old age, old men, old women, chronological and physiological meanings, cultural, social and economic meanings

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### **Gender and Diaspora: The Bihari Community in Bangladesh**

**Anisur Rahman Khan\***

#### **ABSTRACT**

The Urdu-speaking Biharis are descendants of Muslim refugees who migrated from India to East Pakistan (now Bangladesh) after the partition of 1947, primarily fearing communal riots. During the Liberation War of Bangladesh in 1971, the Biharis supported and acted in favour of the West Pakistan. After the independence of Bangladesh, they moved into refugee camps and continue to live in an extremely dilapidated situation without a clear identity and political status. The Biharis in Bangladesh belong to a typical diasporic community since they consider Pakistan as their homeland but live in Bangladesh. The repatriation issue of the Biharis remained as one of unresolved problems between Pakistan and Bangladesh for long which has added fuel to their diasporic feelings. Women are the worse sufferers in the case of diasporic situation. In this paper, through content analysis, a critical examination was made on the relationship between gender and diasporic identities of the Bihari community living in Bangladesh. The findings suggest that diaspora has a different modality for women of this community.

**Keywords:** Bangladesh, Pakistan, Bihari community, Gender, Diaspora

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*Khazar Journal of Humanities and Social Sciences*, Vol. 18, No. 3, 57–81, ISSN 2223-2621 DOI: 10.5782/2223-2621.2015.18.3.57.

**Domestic Violence against Women in Bangladesh: A Review of the Literature and the Gaps to fill-in by Future Interventions**

**Anisur Rahman Khan\***

**ABSTRACT**

Although Bangladesh maintains inadequate records of the various forms of violence against women, it is clear that domestic violence against women is the most insidious problem for women in Bangladesh. For many Bangladeshi women, home is a place of pain and humiliation and violence is an integral part of everyday life. Domestic violence against women, perpetrated by their husbands, is a multi-faceted problem in Bangladesh. The efforts of the scholars to empirically investigate the problem are inadequate and a lot of issues are yet to be explored. This review is an attempt to present the findings of the major empirical research that has so far been conducted in Bangladesh. It broadly categorises the prior research into three major areas, which include: i) forms, practices and factors of domestic violence; ii) consequences of domestic violence; and iii) help-seeking and coping strategies. In addition, the review explores some of the major gaps in the existing literature. It is hoped that future research will address the gaps and make a significant contribution in expanding the research on domestic violence in Bangladesh.

**Key words:** Bangladesh, Domestic violence against women, literature review, research gaps

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**A Chronicle of the Global Movement to Combat Violence against Women: The Role of the Second-Wave Feminist Movement and the United Nations: The Perspective of Bangladesh**

**Anisur Rahman Khan\***

**ABSTRACT**

Although Bangladesh maintains inadequate records of the various forms of violence against women, it is clear that domestic violence against women is the most insidious problem for women in Bangladesh. For many Bangladeshi women, home is a place of pain and humiliation and violence is an integral part of everyday life. Domestic violence against women, perpetrated by their husbands, is a multi-faceted problem in Bangladesh. The efforts of the scholars to empirically investigate the problem are inadequate and a lot of issues are yet to be explored. This review is an attempt to present the findings of the major empirical research that has so far been conducted in Bangladesh. It broadly categorises the prior research into three major areas, which include: i) forms, practices and factors of domestic violence; ii) consequences of domestic violence; and iii) help-seeking and coping strategies. In addition, the review explores some of the major gaps in the existing literature. It is hoped that future research will address the gaps and make a significant contribution in expanding the research on domestic violence in Bangladesh.

**Key words:** Bangladesh, Domestic violence against women, literature review, research gaps

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**Krashen's Monitor Model Theory: A Critical Perspective**

**Md. Tahamid Ar Rabbi\***

**ABSTRACT**

Krashen's Monitor Model Theory is grounded on his view of language acquisition. Apart from being a seminal work in the field of Second Language Acquisition, the theory has addressed various issues relating first language acquisition. Krashen expounds his theory with five central hypotheses that respectively deal with what distinguishes language acquisition from language learning, what natural order prevails in the acquisition of certain grammatical structures, how learning monitors and/or edits acquisition, how humans can come to acquire language, and how affective factors obstruct or optimize the acquisition. All these hypothetical assertions hint at Krashen's penetrating insight into the complex phenomenon of language acquisition. However, despite having been recognized by both linguists and psychologists as the most comprehensive theory of language acquisition till date, Krashen's theory has continued to draw numerous critical responses from multiple angles (Mitchell, Myles & Marsden, 2012). That conscious learning is not conducive to language competence, that comprehensible input amply accounts for language acquisition, that there is a generally predictable and invariant order of acquisition, and that focus on language forms restricts acquisition are some, among a lot of, loosely held assertions that put Krashen's theory in question (Tickoo, 2009), pose a potent challenge to the substantiality of the theory, and call for a rigorous scrutiny to redress the deficits thereof. The present study seeks to critically explore the properties of the theory, and thereby shed some comprehensive light on the perks and perils of the theory.

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**Anticolonial Indigenous Karen Education and Development in Myanmar**

**Bijoy Prasad Barua\* and Hsar Doe Doh Moo\*\***

**ABSTRACT**

The onslaught of material acquisitiveness and capital accumulation through centralized control by the state(s) and multinational corporation(s) has become a dominant model in a few Southeast Asian countries like Myanmar. This process of conventional /colonial development has led to the cultural and material displacement and dispossession of several ethnic communities including the encroachment(s) of land and forest, illegal logging, construction of dams, and the establishment of mining industries in the name of scientific natural resources management and development in Myanmar. Such process of development-dispossession frequently overrides the socio-cultural and ecological rights of the indigenous Karen forest peoples. In this paper, we explore the role of the Karen Environmental and Social Action Network (KESAN) that tend to promote socio-cultural and ecological education and development programs to establishment customary rights to protect natural resources and biodiversity through a promotion of au hti k' tau htl, auf kauj k' tau kauj (drink from water, maintain water, eat from the land , protect the land) for an eco-centric localized development in harmony with Karen culture and spiritual conventions and practices or mo see ger daw khu a klee, pa seet ger daw khay per der thee ( The mother advised us to save the seed of the taro; the father advised us to save the seed of the yam. If we save up to thirty kinds of seeds, our lives will be sustained in times of crisis).

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Delhi University, New Delhi, 31<sup>st</sup> October– 2<sup>nd</sup> November, 2015***

**Rural Participatory Research and collective Learning in Subaltern Contexts in  
India and Bangladesh**

Dip Kapoor\* and Bijoy P. Barua\*\*

**ABSTRACT**

Participatory Research (PR) is an active and socially dynamic process through which marginalized social classes and groups (subalterns) engage in collective learning and collaborative action for social change and development in accordance with their own history and socio cultural and political-economic context. PR encourages marginalized social groups to generate their own collective knowledge and learning from everyday experience in order to address structures of social oppression and domination. PR is a collective effort of subalterns to establish material and cultural rights in problematic contexts of rural-urban development. In this presentation, we will discuss our PR related learning experience(s) from rural Orissa in India and the southeastern region of Bangladesh through shared local narratives in contexts of rural marginalization.

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**“ Sexual & Reproductive Health and Rights: How much the undergraduate students know?”**

**Marzia Zaman Sultana\***

### **ABSTRACT**

Health is a multidimensional and intersectoral issue both in terms of economic and social development. Among the large domains of health, reproductive health plays a vital role for sustainable development. From the very beginning of their adolescence, it is an essential factor for every resident of a country to have clear knowledge, information and awareness regarding reproductive health. However, like many other countries of the world, in Bangladesh, sexual and reproductive health (SRH) issues are not commonly discussed within the family environment. Bangladesh being a relatively conservative society does not highlight these issues in their academic settings as well. SRH issues may be a part of the curriculum and text books at school level but are not practiced and also the teachers are not trained enough to talk about these. At university level, there are different masters program focusing SRH issues, but again, young students of undergraduate level do not get enough opportunity to have basic knowledge on SRH within their academic environment except the medical students. Considering this, Department of Social Relations of East West University is recently offering two innovative courses on SRH and public health for the undergraduate students of different disciplines; i.e. science, social science and business. A pre-course baseline survey was conducted among the students who got enrolled in the reproductive health course to know their level of knowledge on SRH issues and reproductive rights and some interesting facts came up in the study. Survey data were collected through a self-administered questionnaire at the beginning of the course in each semester. Majority of the students could not define reproductive health, could not mention some reproductive rights and reproductive health problems with their preventive measures.

**Keywords:** Sexual and Reproductive Health, Reproductive rights, Higher Education, Young Undergraduate Students.

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**Social Entrepreneurship for Sustainable Development in Bangladesh**

**Shahriar Khandaker\*** and **Juwel Rana\*\***

**ABSTRACT**

Entrepreneurship is the business efforts of an individual or group for earning profit and ensuring economic empowerment while social entrepreneurship is the business activities with an embedded social purpose focused on sustainability rather than immediate outcomes. After satisfactory fulfillment of Millennium Development Goals (MDGs), the member countries of United Nations (UN) including Bangladesh have just officially adopted seventeen (17) Sustainable Development Goals (SDGs) following MDGs for the next fifteen years in the recent United Nations Summit held on 25-27 September, 2015 in New York. The main objective of the study is to examine the role that social entrepreneurship can play for sustainable development in Bangladesh overcoming the existing social problems. In this regard, the research focuses on addressing the current state of social entrepreneurship, entrepreneurship indicators, pillars of entrepreneurship development, business environment and entrepreneurial opportunity in Bangladesh including South Asia. It also evaluates the significances and challenges of policies regarding social entrepreneurship in Bangladesh. The study is conducted reviewing Global Entrepreneurship Reports, national reports, study, successful entrepreneurs' stories, policies and scholarly literatures. The findings of the study reveal that policies regarding social entrepreneurship have placed profound impact on determining sustainable development in Bangladesh. Evidence suggests that social entrepreneurship can play a significant role for poverty reduction, ensuring employment, economic prosperity, environmental justice, pollution free ecology, good governance, reduction of terrorism, guarantee of peace, corruption control etc., thus offers opportunities to fulfill SDGs in Bangladesh. In contrast to the current ideology, there is great scope to use a framework around which Bangladesh could develop policies, overseas aid programs and social enterprises designed to ensure sustainable development.

**Keywords:** Social Entrepreneurship, Social Problems, Policy, Sustainable Development Goals (SDGs), Sustainable Development.

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### **Using Social Media in Higher Education: A Case of Bangladesh**

**Shahriar Khandaker\***

#### **ABSTRACT**

Epistemological principles of formal education are crumbling due to the tremendous use of social media in higher education by creating a new culture of learning. Constructive use and proper incubation of social media in learning is yet in inception in Bangladesh. Social media has potentials of enhancing the capacity of learners to know more by assisting in educational communication, knowledge consumption and construction rather than reliance on traditional learning system. Taking these into account, this paper presents findings from a recent study into the ways university students are using social media like Facebook, You Tube, Blog, Twitter and LinkedIn. It aimed to examine the use of social media by university students in their higher education focusing on the purposes of using social media, frequencies and time use pattern on different social media platforms as well as comparison between a top ranked public and private university students. To determine how likely students are to use social media for either personal or educational purposes, it draws on a mixed method study, N=416 students at a public and private university in Dhaka, Bangladesh were surveyed on their use of social media. The findings suggest that the frequency of using social media particularly Facebook and You Tube is quite high among the students of both universities mostly in private one. They are spending a significant amount of time on social media mostly in digital social infotainment juggling rather than using them for their educational support in higher education. In spite of these, there are immense possibilities to integrate social media in formal education as a supportive educational tool to develop critical engagement of students in higher education in Bangladesh.

**Keywords:** Social Media, Facebook, You Tube, Higher Education, Bangladesh

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**Violence Against Women: Policies, Practices and Challenges in Bangladesh**

Toufica Sultana\* and Shahriar Khandaker\*\*

**ABSTRACT**

Violence against women (VAW) is a global phenomenon. As many as 87% married women suffer physical, psychological, sexual even economic violence by their spouses in Bangladesh (VAW 2011, 2013). The first half of the paper offers a comprehensive review of the prevalence of different types of violence against women such as physical, psychological, sexual and economic violence by their partner and non-partner; and causes, consequences, risk factors and perceptions about these violence against women. The second half of the research points out the major policy guidelines especially Women Development Policy 2011 combating violence against women to guarantee equality, social justice and sustainable development in Bangladesh. The study maintains quantitative tactic of data analysis using the data of Violence Against Women Survey 2011 conducted by Bangladesh Bureau of Statistics (BBS). It also includes reviewing the violence against women related research, reports and other documents as well as thereby recommends possible policy measures to combat violence against women in Bangladesh. The findings of the study reveal that violence against women causes physical and mental health problems as well as loose of right and access to financial and other resources. Evidences show that poor practices of policies and lack of holistic participation have geared up the challenges battling violence against women in Bangladesh. Instead of current ideology, there is great scope to use postmodern feminist standpoints; and proper implementation of policies to safeguard social justice.

**Keywords:** Violence against women, Causes, Effects, Policy and Challenges

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## INDEX OF EWU AUTHORS

- Ahsan Ali, 28, 30
- A. K. M. Nazimuddin, 28
- Amit Kumar Das, 26, 55
- Anindita Paul, 43
- Anisul Haque, 59
- Anisur Rahman Khan, 74, 75,76,77,78,79
- Ariful Islam, 71
- Basanta Kumar Barmon, 11, 12, 17, 18
- Bijoy Prasad Barua, 81, 82
- Chowdhury Omar Sharif, 69, 70
- Gurudas Mandal, 43, 44, 45
- Jannatunnesa, 1
- Kohinoor Biswas, 3, 4, 14
- Laila Zaman, 9, 10, 22, 23
- Leo Vashkor Dewri, 7, 8
- Mahmud Hassan, 61
- M. Amin, 27, 29, 35, 36, 37, 38, 39, 40, 41, 42
- Marzia Zaman Sultana, 83
- Md. Abdul Momen, 5, 6, 21
- Md. Asif Hossain, 27
- Md. Rashidul Islam, 7
- Md. Tahamid Ar Rabbi, 80
- M. M. A. Hakim, 56, 57, 58
- M. Mofazzal Hossain, 66
- Mohammad Arifuzzaman, 31, 32, 33, 34, 62, 63, 64, 65
- Mohammed Mizanur Rashid, 72, 73
- Mozammel H A Khan, 54, 60, 67
- M Sayeed Alam, 3, 4, 14
- Nazneen Sultana, 25, 48, 49, 50
- Naharin Binte Rab, 2
- Nikhil Chandra Shil, 22
- Quazi Sagota Samina, 10, 23
- Roushney Fatima Mukti, 68
- Saima Jahan, 24, 46, 47, 51
- Sarwar Jahan, 29
- Shahriar Khandaker, 84, 85, 86
- Shamim Akhter, 52, 53
- Shahpar Shams, 15, 16
- Sharmin Akther, 13, 19, 20

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