WAVES

The Bharti School Newsletter

"To Develop Telecom Leaders Through Excellence In Education and Research"

Vol. (III) Issue : 06 June, 2016

Bharti School in Action:

Activities

- International Conference on Electromagnetic Emission In Mobile Telephony and its Health Impact.
- International Workshop for Research on Possible Impact of EMF Radiation Exposure from Mobile Towers and Handsets.
- Comprehensive Sensing Seminar
- Spirent Technology Seminar
- Workshop on Spectrum Sharing and its applicability for India
- ICTTM Conference
- TSSC Workshop
- Publications
- Airtel & Bharti Lectures
- Talk
- Short term course under TEQIP
- New Faculty join

Honour And Awards

- Bharti Merit Award &Best Women Graduate Award2013-14& 2014-15

Student Activities

- Student & Alumni Views
- Students who attended International conferences &Paper Published
- Students who attended National conferences &Paper Published

Upcoming Events

How to engage in broadband policy and regulatory processes?

Bharti Foundation

Bharti Foundation Celebrates 10 Years of Satya Bharti Schools



Greetings!

The last two years have been momentous. The school has been through one internal and one external review in addition to a review by the Bharti Foundation. A new vision for the future was developed. Three thrust areas for development were identified – green communications, communication networks and telecom policy studies. A telecom policy group was created in the school to give impetus to this area.

The school curriculum underwent major revision in 2015, and several new streams were introduced.

The School now has its own School research committee to take care of its postgraduate students and research activities.

A lab development committee (LDC) was also created to give impetus to lab development. Rs. 1.72 crores was spent on upgradation in the past year. In 2016, an additional Rs. 2.53 crores has been earmarked for lab development. Two new labs are being created with participation from industry.

The school organized its first ever international conference in 2015 (ICTTM 2015) jointly with GSMA and Telecom Ecole de Management. This was followed by an international conference on EMF emissions and health in 2016. The school also held two international workshops, one national workshop on leased spectrum access, and a ten-day long skill development workshop on mobile application development. Four short-term courses were held in 2015 for faculty in institutes around Delhi. A large number of lectures by eminent speakers (including some Airtel and Bharti lectures) were organized.

Placements have been very good this academic year, and all students have been placed with good pay packages.

Let's all work together to make the school a true center of research in telecom.

Best wishes,

Prof. Shankar Prakriya, Coordinator



ACTIVITIES:

❖ *International Conference on Electromagnetic Emission In Mobile Telephony and its Health Impact, 8-9 April, 2016*

International Conference on Electromagnetic Emission in Mobile Telephony and its Health Impact was organised on 7th April, 2016 followed by 2-day workshop on “Research on Possible Impact of EMF Radiation Exposure from Mobile Towers and Handsets” from 8-9th April, 2016. The workshop on the research on possible impact of EMF from Cell-phone Towers and Mobile Handset in the non-ionizing band (300 MHz to 3 GHz) on biota and ecology was being jointly hosted by the Indian Institute of Technology (IIT) Delhi and Maulana Azad Medical College (MAMC) with support of the Department of Science and Technology, Govt. of India.

The conference brought together a variety of people with different backgrounds and expertise – there were doctors and engineers, laymen with concerns about EMF, cellular operators, government regulatory authorities, DoT etc.

The hon’ble union Minister of Communications and Information Technology Shri Ravishankar Prasad inaugurated the conference and released a background paper on EMF emissions. He spoke of the importance of mobile telephone for bridging the digital divide and for empowering the underprivileged.

Prominent speakers included: Dr. K. Thyagarajan, Director, IIT Delhi, Dr. Bhaskar Ramamurthi, Director, IIT Madras, Dr. Kenneth R. Foster, University of Pennsylvania, USA, Dr. M C Mishra, Director AIIMS, Mr. S S Sirohi, Former Member Technology, DoT, Chairman of Allahabad HC committee, Dr. C K Chou, ICES, IEEE, Dr. A K Chaturvedi, IIT Kanpur, Dr. Peter Weidmann, ITAS-KIT, Germany, Dr. Naresh Gupta, Director Professor, MAMC, Dr.Arun K Agarwal, Addl. DG, Ministry of Health and Family Welfare, Dr.Vijayalaxmi, EMF Bio effects researcher, University of Texas, USA, Dr. B N Gangadhar, Director NIMHANS, Prof. S K Guha, IIT Kharagpur, Dr. K K Agarwal, President IMA, Dr. Rodney Croft, Director, Australian Centre for Electromagnetic Bioeffects Research, University of Wollongong, Australia, and Shri Anil Kaushal, Member, Telecom Regulatory Authority of India.

Prof. Shankar Prakriya and Ravi Shankar were the conference organizers from Bharti School, IIT Delhi.








IIT DELHI
MAMC
International Conference
on
Electromagnetic Emissions
in Mobile Telephony
and its Health Impact
7th April 2016, IIT Delhi
Supported by
SHANKAR PRAKRIYA
KENNETH R. FOSTER
K. THYAGARAJAN
RAVI SHANKAR PRASAD
BHASKAR RAMAMURTHI


IIT DELHI
MAMC
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BHASKAR RAMAMURTHI
M. C. MISHRA

❖*International Workshop on Research on Possible Impact of EMF Radiation Exposure from Mobile Towers and Handsets, 8-9th April, 2016*

A workshop on knowledge sharing on the research on possible impact of Electromagnetic Emission from Cell-phone Towers and Mobile handset in the non-ionizing band (300MHz to 3 GHz) on biota and ecology was organized by Bharti School, IIT Delhi jointly with Maulana Azad Medical College (MAMC) on April 8-9, 2016 with the support of the Department of Science and Technology, Govt. of India.

This International Workshop focussed on deliberations on key R&D issues such as Methodology, Control Sampling, Biomedical Statistical Analysis, and Reporting etc. and possible impact of Electro-Magnetic Frequency (EMF) in the frequency band of mobile-telephony on various aspects (physiological, genetic, ecological, growth, development, morphogenetic etc.) and levels (cellular, sub-cellular, molecular, sub-molecular, Biochemical etc.) in varied model systems including man, plants, animals, birds, fishes and microbes. Eminent experts from different countries working in these areas participated to bring in global perspectives.

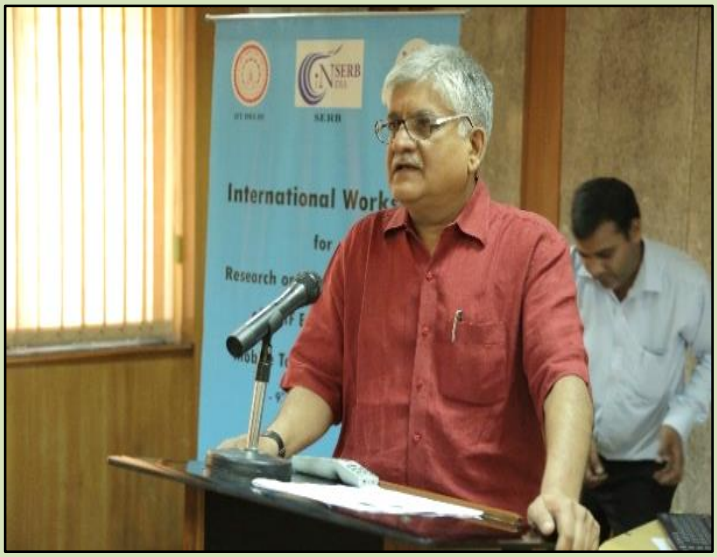
The workshop promoted discussions between global experts and groups of researchers representing the national institutions participating in the research study initiated jointly by Science and Engineering Research Board/Department of Science & Technology and Department of Telecom/ Ministry of Communication & Information Technology as well as other research groups working on areas relevant to the field of EMF studies. Every session was chaired by a global expert.

Prof. Shankar Prakriya and Ravishankar of Bharti School were organizers of this workshop.









INTERNATIONAL CONFERENCE ON ELECTROMAGNETIC EMISSIONS IN MOBILE TELEPHONY AND ITS HEALTH IMPACT

7th April 2016

Background Paper

by

ICT Policy and Research Group

Grace Cancer foundation

HEALTH ENVIRONMENT FOUNDATION

Indian Institute of Technology Delhi

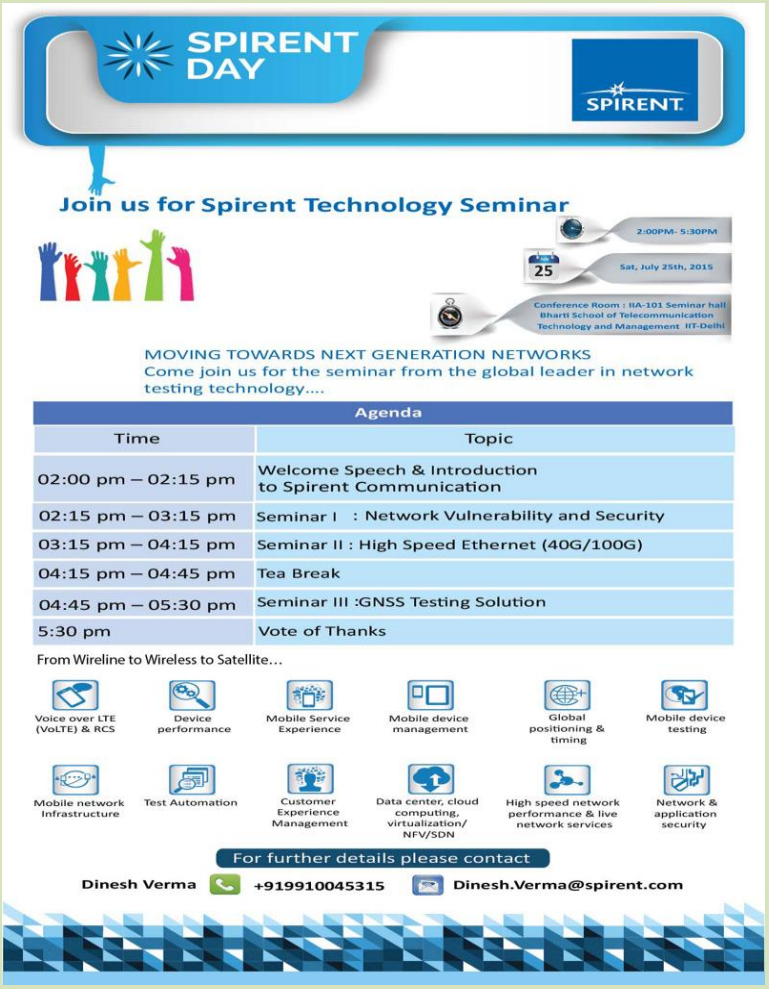
❖ Compressive Sensing Seminar

Bharti School organized a seminar on “Compressed Sensing and Sparse Recovery: fundamental results and recent trends “ on 22nd Feb , 2016. In this talk, tutorial style introduction to compressed sensing and sparse recovery was given. It began with formally describing the compressed sensing problem. Roughly speaking, compressed sensing is a collection of techniques that enable recovering sparse vectors from low-dimensional linear measurements. We note that, without the assumption of sparsity, such a recovery is NP-hard. Later, discussion was made on two key theoretical breakthroughs that makes compressed sensing tractable — L-1 minimization (basis pursuit) and the Restricted Isometry Property. On the way, fundamental limits on the number of measurements required in compressed sensing was pointed out. Other topics were also quickly touched upon like, other important classes of algorithms known for this problem. Subsequently, we introduce the general sparse recovery framework where the measurements may be non-linear and the underlying data may be sparse in alternate representations. Finally, some examples were considered of such problems, such as Group Testing, Phase Retrieval, and Sparse Fast Fourier Transforms and brief overview of these problems were given.



❖ Spirent Technology Seminar

Bharti School organized a Seminar with the collaboration of Spirent Technologies on 25th July, 2015. The Seminar focuses specifically on the issue of high speed network testing at the advanced level and is most useful for communication/telecom domain professionals and students. The topic of discussion were: Network Vulnerability and Security, High Speed Ethernet and GNSS Testing Solution.



❖ *Workshop on Spectrum Sharing and its applicability for India:*

Bharti School organized Workshop on Spectrum Sharing and its applicability for India from June 16, 2015 jointly with COAI and IIIT Bangalore. Experts from industry abroad spoke of deployment and trials. Speakers from Indian industry examined the practical difficulties in the Indian spectrum scenario. Eminent speakers include Mr. Rajan Matthews, Director General (COAI), Prof. V Sridhar, IIIT Banglore, Seppo Yrjoia, Sr. Principal Innovator, Nokia Networks, Parag Kar, Vice-President, Qualcomm, Prof. Rohit Prasad, MDI Gurgaon, Dr. Heikki Kokkinen, CEO Fair spectrum.











❖ *International Conference on Telecommunication Technology and Management (ICTTM 2015)*

ICTTM was the first conference to be organized by Bharti School. It was organized by Bharti School jointly with Telecom Ecole De Management and GSMA on April 11 and 12, 2015.ICTTM 2015 created a vital platform for researchers in Academia and Industry to come together to share their new ideas, theories, practical developments.

This conference deliberated on several themes that are relevant in today's competitive business environment & is focused on emerging issues of Telecom Technology & Management with specific focus on following areas:- Spectrum Management, Telecom, Regulations & Licensing Frameworks, Next Generation Network & Access, Mobile Internet & Broadband Networks, Smart cities and IoTs, Digital Divide, Green Telecom & Sustainability Issues and other relevant areas in Telecom Technology & Management.



❖*Workshop on Mobile Application Development*

A ten-day workshop in mobile application development on the Android platform was organized from 7th to 17th July 2014 in Bharti School, at IIT Delhi. It was organized by Bharti School jointly by Telecom sector skill council (TSSC) and TCOE. Besides students of the school, a number of students from institutes in New Delhi also registered for the workshop. After a rigorous examination, successful students got a merit certificate.







❖Publications Showing Affiliation to Bharti School:

Anjitha Viswanath, H Kaushal, V.K.Jain and Subrat Kar, "Evaluation of performance of ground to satellite free space optical link under turbulence conditions for different intensity modulation schemes" ; Proc. SPIE 8971, pp. 897106-1 - 897106-12, SPIE Photonics West 2014, Moscone Center, San Francisco, USA, 1-6 February 2014

Anjitha Viswanath, Shailesh Singh, V.K.Jain and Subrat Kar, "Design and implementation of MOEMS based ground to satellite free space optical link under turbulence condition" ; Conference: International Conference on Information and Communication Technologies (ICICT), Cochin, India, 3-5 December 2014.

Anjitha Viswanath, V.K.Jain and Subrat Kar , "Experimental evaluation of the effect of aperture averaging technique on the performance of free space optical communication link for different intensity modulation schemes" ; Conference: 7th International Conference on COMmunication Systems & NETworkS (COMSNETS), Bangalore, India, 6-10 January 2015.

P. Gopal, V. K. Jain, S. Kar , "Modulation Techniques used in Earth-to-Satellite and Inter-Satellite Free Space Optical Links" ; SPIE Security+Defence, Amsterdam, Netherlands, Vol. 9248, pp. 1-10, September 22-25, 2014.

P. Gopal, V. K. Jain, S. Kar , "Spectral Analysis of Intensity Modulation Schemes in Free Space Optical Communications"; IET Communications (Accepted).

Kushal Shah, Sayak Bhattacharya, "Multimodal propagation of the electromagnetic wave on a structured perfect electric conductor (PEC) surface"; Optics Communication volume 328, 1 Oct, 2014.

S M Zafaruddin, Shankar Prakriya and Surendra Prasad, "Performance of Linear MOE Receiver for Self and Alien Crosstalk Mitigation in Upstream Vectored VDSL"; IET Proceedings on Communications, to appear.

Dileep Kumar Verma and Shankar Prakriya, "Performance of a Cooperative Downlink Multiplexing Scheme Using Dynamic Spectrum Access Principles"; IET proceedings on Communications, to appear.

Anup Kumar Mandupra and Shankar Prakriya, "Performance of Optimal Three-phase Two-Way system with Relay Interference"; IET Proceedings on Communications, to appear.

Komal Jhangel and Shankar Prakriya, "Outage Performance of Dynamic Spectrum Access Systems with Energy Harvesting Transmitters"; IEEE Personal Indoor and Mobile Radio Communications, Sept 2-5, 2014.

Dileep Kumar Verma and Shankar Prakriya,"Performance of Spectrum Sharing Protocol for Uplink Transmissions in Cellular Communications with Relays"; IEEE Vehicular Technology Conference; Fall 2014, Sept 14-17, 2014.

Chetna Singhal, Ramona Trestiany, Swades De, and Gabriel-Miro Muntean,"eSMART: Energy-efficient Scalable Multimedia Broadcast for Heterogeneous Users".

Pratik Chakraborty and Shankar Prakriya, " Secrecy Outage Performance of a Cooperative Cognitive Relay Network", IEEE Communicationa Letters, to appear.

Komal Jhangel and Shankar Prakriya, "Throughput Performance of an Energy-efficient Protocol for Two-hop Cognitive Networks with Energy-harvesting Relays", to be presented in IEEE SPAWC 2016.

Harikrishna Boddapati, Shankar Prakriya, and Manav Bhatnagar, "Outage Analysis of Cluster-Based Multi-Hop Cognitive Networks using BLAR Routing Protocol", SPCOM 2016, July 2016.

Anup Kumar Mandpura and Shankar Prakriya, "Outage Performance of Scheduling in a Distributed Multiuser Fixed-gain AF Relay System with Co-channel Interference and Noise", SPCOM 2016, July 2016.

Harikrishna Boddapati, Shankar Prakriya, and Manav Bhatnagar, "Outage Analysis of Cluster-Based Multi-Hop Cognitive Radio Networks", IEEE VTC Spring 2016.

Modem Sudhakar and Shankar Prakriya, "Performance of Analog Network Coding based Two-Way EH with Beamforming", IEEE VTC Spring, 2016.

Swades De, Hari Mohan Gupta, Ranjan Gangopadhyay, Ashwani Sharma, “Multiple description transform coded transmission over OFDM broadcast channels”; Physical Communication, May 2014.

Chetna Singhal, Swades De, and Hari Mohan Gupta , “User Heterogeneity and Priority Adaptive Multimedia Broadcast over Wireless”; IEEE ICC 2014 - Communications Software, Services and Multimedia Applications Symposium.

Abhay Bhadani , Ravi Shankar, “MODELING THE BARRIERS OF SERVICE ADOPTION IN RURAL TELECOM USING INTEGRATED ISM-ANP”.

C. Singhal, S. De, R. Trestian, and G.-M. Muntean, “eWU-TV: User-centric energy-efficient digital TV broadcast over Wi-Fi networks”; (accepted, *IEEE Trans. Broadcast.*).

A. Sharma, S. De, H. M. Gupta, and R. Gangopadhyay,“Multiple description transform coded transmission over OFDM broadcast channels”; Elsevier Physical Communication, vol. 12, pp. 79--92, Sep. 2014.

C.Kundu and R.Bose, “Performance of a Multi-hop UWB Transmitted Reference Systems using Decode-and-Forward Relays”; Wireless Personal Communications; Feb 2014.

Jindal and R. Bose, “Resource Allocation for Secure Multicarrier AF Relay System under Total Power Constraint”; IEEE Commun. Lett., vol. 19, no. 2, pp. 231 – 234, Feb. 2015.

Vemuri Sai Krishna and Manav R. Bhatnagar, “A Joint Antenna and Path Selection Technique in Single Relay Based DF Cooperative MIMO Networks In IEEE Transactions on Vehicular Technology”; 18 Mar. 2015.

Manav R. Bhatnagar and Sanya Anees, “On the Performance of Alamouti Scheme in Gamma-Gamma Fading FSO Links with Pointing Errors”; IEEE Wireless Commun. Letters, vol 4, number 1, pages 94-97; Feb. 2015.

Sanya Anees and Manav R. Bhatnagar, “On the Performance of Amplify-and-Forward Dual-Hop Asymmetric RF-FSO Communication System”; IEEE/OSA Journal of Optical Communications and Networking, volume 7, number 2, pages 124-135; Feb 2015.

Suneel Yadhav, Prabhat Kumar Upadhyay and Shankar Prakriya, "Performance Evaluation and Optimization for Two-Way Relaying with Multi-Antenna Sources," IEEE Transactions on Vehicular Technology, Vol63, Nol 6, July 2014, pp2982-2989.

Liang Li, Faheem Khan, Marius Pesavento, T Ratnarajah and Shankar Prakriya, "Sequential search based Power allocation and Beamforming Design in Overlay Cognitive Radio," Elsevier Signal Processing, Vol97, April 2014, pp221-231.

Pravesh Biyani, Amit Kumar Mahadevan, Shankar Prakriya, Patrick Duvan and Surendra Prasad, "Cooperative Alien Noise Cancellation in Upstream VDSL - A New Decision-Directed Approach," IEEE Transactions on Communications, Vol 61, Issue 8, pp. 3494-3504.

Dileep Kumar Verma and Shankar Prakriya, “Performance of Selection Schemes in a Symbiotic Dynamic Spectrum Access System,” International Conference on Signal Processing and Communications SPCOM-2014, July 22-25 2014, Bangalore, India.

P.Gopal, V.K.Jain and S.Kar, “Spectral-Analysis on Intensity Modulation Schemes in Free Space Optical Communications”; IET Communications (accepted), Dec 2014.

AnkitaKatyal, “Broadband reconfigurable stacked microstrip patch antenna at X band”; International Symposium on antennas and propagation (ISAP) 2014, held at Taiwan, 2-5 Dec 2014.

Vineeta Dubey, D. Chadha and Vinod Chandra, “Effect of Pointing Error on Cooperative Free Space Optical Communication Systems Under Different Channel Conditions”; IEEE ANTS, CDoT Campus, Mehraulli, Delhi - December 14-17, 2014.

Vineeta Dubey, D. Chadha and Vinod Chandra, “Performance of Cooperative Free Space Optical Communication Systems in Different Channel Environments”; Photonics, IIT Kharagpur- Dec 13-16, 2014.

Dhanya Jothimani, Abhay K. Bhadani and Ravi Shankar, “Towards Understanding the Cynicism of Social Networking Sites: An Operations Management Perspective”; XVIII Annual International Conference of the Society of Operations Management , IIT Roorkee, Uttarakhand, India.

Ajay Kumar, Ravi Shankar, Roma Mitra Debnath, “Analyzing customer preference and measuring relative efficiency in telecom sector: A hybrid fuzzy AHP/DEA study”; Telematics and Informatics 32 (2015) 447–462.

Rachita Gupta, “Ensuring Food Security and Safety Through Traceability Implementation”; 3rd International Conference on Impacting Food Value chain and Leveraging Innovation by National Institute of Food Technology Entrepreneurship and Management.

Sanya Anees and Manav R. Bhatnagar, “Performance Evaluation of Decode-and-Forward Dual-Hop Asymmetric RF-FSO System”; IET Optoelectronics (accepted for publication).

Ankit Garg, Vintha Venu, and Manav R. Bhatnagar, “One Bit Feedback Based Diagonal Precoding for Non-Orthogonal Space-Time Block Codes”; In IEEE Wireless Communications Letters, volume 4, number 5, pages 573-576, October 2015.

R. Mehrotra, C. Kundu, and R. Bose, "Joint Constellation size, Energy Allocation and Relay Location Optimization for Energy Efficient Multi-hop Decode-and-Forward Relaying”; IET Communications, Dec 2015 (accepted).

S. Ghose, C. Kundu, and R. Bose, "Secrecy Performance of Dual-hop DF Relay System with Diversity Combining at the Eavesdropper”; IET Communications, Dec. 2015 (accepted).

C. Kundu and R. Bose, "Joint Optimal Power Allocation and Relay Location for Decode-and-Forward Multi-hop Relaying over Log-normal Channel”; IET Communications, vol. 9, no. 18, pp. 2197-2207, Dec. 2015.

R. Mehrotra and R. Bose, “Energy-efficient joint power allocation and relay selection in Bit Error Rate Constrained Two-Way Relay Network”; WTS 2016, London, UK, 16-19 Mar 2016.

Anjitha Viswanath, Virander Kumar Jain, Subrat Kar, “Analysis of earth-to-satellite free-space optical link performance in the presence of turbulence, beam-wander induced pointing error and weather conditions for different intensity modulation schemes”; IET Communications Year: 2015, Vol: 9, Issue:18,Page: 2253 - 2258.

Abhijit Mitra, Andrew Lord, Subrat Kar, Paul Wright, “Enhanced inherent survivability to link failures at low link margin in a flexgrid optical network”; Optical Communication (ECOC), 2015 European Conference on Year: 2015 Pages: 1 - 3.

Sudarshan Mukherjee and Saif K. Mohammed, “Impact of CFO Estimation on the Performance of ZF Receiver in Massive MU-MIMO Systems," (accepted) to appear in IEEE Transactions on Vehicular Technology , Jan., 2016.

Saif K. Mohammed, Erik G. Larsson, “Improving the Performance of the Zero-Forcing Multiuser MISO Downlink Precoder through User Grouping," IEEE Transactions on Wireless Communications , vol. 15, no. 2, Feb., 2016.

Sudarshan Mukherjee and Saif Khan Mohammed, “Constant-Envelope Precoding with Time-Variation Constraint on the Transmitted Phase Angles, " IEEE Wireless Communication Letters , vol. 4, no. 2, April 2015.

Saif Khan Mohammed, “Impact of Transceiver Power Consumption on the Energy Efficiency of Zero-Forcing Detector in Massive MIMO Systems," IEEE Transactions on Communications , vol. 62, no. 11, Nov. 2014.

Sudarshan Mukherjee and Saif K. Mohammed, “Low Complexity CFO Estimation for Multi-User Massive MIMO Systems," Proc. IEEE Global Communications Conference (GLOBECOM' 2015), San Diego, USA.

Sudarshan Mukherjee and Saif K. Mohammed, “Energy-Spectral Efficiency Trade-off for a Massive SU-MIMO System with Transceiver Power Consumption," Proc. IEEE International Conference on Communications (ICC' 2015) , London, U.K.

❖ *Airtel Lectures:*

24th April,2014

" Active Learning and Learning in the Non-stationary Environment"



By

Prof. Cesare Alippi

Professor of information processing systems with the Politecnico di Milano



16th Sept, 2014

"Cell Tower and Mobile Radiations - Perceptions, Threats and Solutions"



By

Prof. Dariusz Leszczynski

Chief Editor 'Frontiers in Radiation and Health', a specialty of the Frontiers in Public Health



11th August,2014

"Accelerating Scientific Progress in the Era of Information Overload"



By

Dr. Venu Govindaraju

Professor and the Clifford Furnas Memorial Chair of Computer Science and Engineering at the University at Buffalo (UB)



21st January, 2015

"The Challenge of Complexity"



By

Peter Cochrane

Cochrane Associates Ltd

Hertfordshire University

UK



17th November, 2015

"Green Spaces: Connecting the Next Billion Users to the Broadband Internet"



By

Mr. Ramchandran Ramjee

Principal Researcher, Microsoft Research

11th March, 2015
"5G"
By
Mr. Shyam Prabhakar Madriker
Chief of Strategy, Architecture and Engineering for Bharti Airtel







6th April, 2015
"The Changing DNA of Mobile data Consumption"
By
Mr. ShyamPrabhakarMadriker
Chief of Strategy, Architecture and Engineering for Bharti Airtel



31st may, 2016
"Case Study of Big Data Analysis for Smart Grid"
By
Prof. Zhu Han
ECE Department and CS Department, University of Houston



❖ *Bharti Lectures:*

20th November, 2014
"A Summary of Bell Labs History"
By
Dr. Krishan K. Sabnani
Research Vice President on NFV and Web Communication



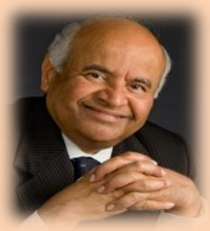


October 26,2015

"ITU and its Activities"
By
Malcolm Johnson
ITU Deputy Secretary, General



Feburary 16 , 2015
"Evolving Fifth Generation Cellular Networks: An Energy-Efficient Perspective"
By
Vijay Bhargava
Professor in the Department of Electrical and Computer Engineering at the University of British Columbia in Vancouver,







November 3, 2015

"5G: Enabling technologies and standardization aspects"

By

Dr. Sergio Benedetto (President of IEEE Communications Society)

And



Dr. Robert Fish (Vice President, Standards Activities, IEEE Communications Society)



November 20, 2015

" Lattice Index Coding : An Efficient ARQ Scheme for Wireless Broadcasting"



By

Prof. Emanuele Viterbo
Department of Electrical & Computer system Engineering and Associate Dean Graduate Research , Faculty of Engineering, Monash University





❖ *Talk*

11th September, 2015

"Building Devices for the Internet of Things"



By

NarasimhanVenkatesh
Sr. Vice President, Advanced Technologies, RedpineSignals Inc.



9th May, 2016

"Wireless Communication at Qualcomm India"



By

Sanjeev Nimishakavi, Qualcomm



❖ *Short Term Courses Under TEQIP*

For the first time we will be having a short term course in the month of July, August and December. (July 6, 2015-– July,11 2015 , August 20-21, 2015, December 14-19, 2015 and December 21-24, 2015).

Title:"MIMO Wireless Communications: Fundamentals and Advancements" from July 6-11, 2015.

Bharti School of Telecom Technology and Management
Indian Institute of Technology, Delhi

Presents a TEQIP course on

MIMO Wireless Communications: Fundamentals and Advancements

July 6-11, 2015

Faculty members of IIT Delhi with rich experience in wireless communications will conduct a 6-day course on MIMO Communications. The topics covered will include

Review of wireless channels, Introduction to the spatial dimension, Capacity of MIMO channels, Notions of diversity and multiplexing gain, Space-time codes, Receivers of MIMO, Multiuser MIMO, Massive MIMO, Applications of MIMO in cooperative communication and cognitive radio (lab sessions included)

The 6-day workshop will train you in the fundamentals, and will include a lab session. This short-term course will enable you to teach a course on this topic in your institute, and initiate research activity in related areas.

As per TEQIP norms, travel and accommodation costs will be reimbursed for students and faculty of all institutes in the TEQIP II quality circle of IIT Delhi.

Contact: Vinita Yadav at 011-2659-6200, cep.bhartischool@gmail.com

Title: "Telecom Management – Current & Emerging" from August 20-21, 2015.

TEQIP II SPONSORED SHORT TERM COURSE ON

Telecom Management – Current & Emerging

August 20th-21st, 2015



Organised by
Bharti School of Telecommunication Technology & Management, IIT Delhi

Title : "Information Theory and Channel Capacity" from Dec 14-19, 2015.

Bharti School of Telecom Technology and Management
Indian Institute of Technology, Delhi

Presents a TEQIP course on

Information Theory and Channel Capacity

December 14 - 19, 2015

Faculty members of IIT Delhi with rich experience in the area of information theory and it's application will conduct a 6 day course in which the following topics will be discussed in detail:

Entropy and Mutual Information, Asymptotic Equipartition Property, Channel Capacity (typicality, definition of a code, Shannon's coding theorem and its converse using the Fano's inequality)
Differential Entropy, Capacity of the AWGN channel, Waterfilling for coloured Gaussian channels, fast fading channels and their capacity, capacity of point-to-point multi antenna channels.

The 6 days workshop will train you in fundamentals of Information Theory. This short-term course will enable you to teach a course on this topic in your institute, and initiate research activity in related areas.

As per TEQIP norms, travel and accommodation costs will be reimbursed for faculty of all institutes in the TEQIP II quality circle of IIT Delhi.

Contact: Vinita Yadav at 011-2659-6200, cep.bhartischool@gmail.com

Title : " Coding Theory and Advanced Information theory" from Dec 21-24, 2015.

Bharti School of Telecom Technology and Management
Indian Institute of Technology, Delhi

Presents a TEQIP course on

Coding Theory and Advanced Information Theory

December 21 - 24, 2015

Faculty members of IIT Delhi with rich experience in the area of coding & information theory will conduct a 4 day course on coding and advanced information theory. The topics covered will include:

Classical coding theory (block codes, e.g. hamming codes), convolutional codes, modern coding theory (LDPC codes and iterative receivers), error probability analysis of codes and design of good codes, capacity region of multiuser channels (multiple access and broadcast channels).

The 4 day workshop will train you in fundamentals of coding and information theory, and will include a lab session. This short-term course will enable you to teach a course on this topic in your institute, and initiate research activity in related areas.

As per TEQIP norms, travel and accommodation costs will be reimbursed for faculty of all institutes in the TEQIP II quality circle of IIT Delhi.

Contact: Vinita Yadav at 011-2659-6200, cep.bhartischool@gmail.com

❖*New Faculty*

The two new faculties who have become a part of Bharti School :



Professor Seshan Srirangarajan

Specialties:

- Research interests span wireless communication and signal processing, with a focus on localization and positioning in wireless networks, event detection in sensor networks, optimization, machine learning and distributed algorithms.



Professor Jun Bae Seo

Specialties:

- 3 years' experience in investigating wireless access network standards.
- Performance modelling when IEEE 802.16 system standardization was underway.
- Results give way to academic paper publication and intellectual property rights.
- Solid knowledge on radio access networks, wireless cellular network and WIFI
- Excellency in researching, analysing, and predicting new wireless access protocols.
- Work independently with initiative, but also cooperative team player.
- Seeking an engineering position in wireless access and core networks engineering



Professor P. Vigneswara Ilavasan

Specialities:

- Information and Communication Technologies &Development (ICTD) [Use of mobiles & other ICTs by women micro entrepreneurs in India], Information Technology Industry in India [Labours, R&D Centres of MNCs, Inter-firm linkages, Clusters & Sub-national Policy], ICTs & Government [Electronics Governance].



Professor Arpan Kumar Kar

Specialities:

- E-Business, m-Commerce, Social Media and e-Commerce.
- Business Analytics, Artificial Intelligence and Decision Support systems.
- Technology Adoption and Diffusion of Innovation/ Technology.
- e-Governance and ICT for Development, Smart Cities.
- Cyber Security and Information Risk Assurance.

HONOUR AND AWARDS

BHARTI MERIT AWARD AND BEST WOMEN GRADUATE AWARD (2013-14)











BHARTI MERIT AWARD AND BEST WOMEN GRADUATE AWARD (2013-14)











STUDENT ACTIVITIES

PLACEMENTS:

M.Tech and MBA Graduates have excellent placements

Year 2014

Companies who recruited M.Tech students:
HT Media, CTS, Citicorp, CISCO, Sandisk, Oracle, Rapify, Onicra, Nalco, SCA Tech, BloomReach, Accolite, Nagarro.

Average Salaray Package: Rs. 11 Lac. P.A.

Companies who recruited MBA students :
Flipkart, Wipro, Lava, Amazon, Idea, Cognizant, Deloitte, PWC, IBM.

Average Salary Package:Rs. 12 Lac. P.A.

Year 2015

Companies who recruited M.Tech students:Dell, CISCO, Intel, Qualcomm, Cognizant, The Square, Texas Instruments, Mathworks.

Average Salary Package:Rs.11 Lac. P.A.

Companies who recruited MBA students: Wipro, IBM, Idea, Coffee Day, Dell, HP Inc, Accenture Strategy, Virtusa, Lava, Amazon, Axis Bank.

Average Salary Package: *Rs. 11 Lac. P.A.*

❖Bharti Student Views



The telecommunication technology and management course work has helped me develop both technical as well as managerial aspect of telecommunications. The assignments are encouraging and effectively covers variety of existing and new technology implementations. The well-equipped labs provide supportive environment thus added arms to my ideas. The faculty and staff is very supportive and always interested in discussing problems, projects, or new ideas. Overall this course is a unique learning experience.

Diksha Bansal
2015JTM2311



Privileges append when you enter into such a reputed institute- IITD.
Though the actual payoff is in terms of comfortably motivating and learning environment provided here at BSTTM with fully equipped 'all time' lab facilities to get the knack of the cutting edge technological perspectives of industry standards to ignite a spark to excel.
Constant encouraging support to take a leap forward in 'any' related learning is a bonus. Overall - A Happy Learning Phase.

ShobhitShrivastava
2014JTM2267

❖Coverage on Alumni



I am very happy to be a part of Bharti family. Studying in IIT has been a lifelong dream and I feel extremely lucky that it came true by getting admission in BSTTM. It provides me with the opportunity of studying under one of the most accomplished faculty, excellent infrastructure and facilities. Not only that, the staff member is extremely helpful and caring. The qualities of devotion and determination to the work that this place has deeply imbibed in me will be there with me wherever I go from here,on.

Aditi Gupta
2013JTM2514



“Getting admission at Bharti School was one of the best things that had happened to me in my life. It has one of the best infrastructure and faculty at IIT Delhi. The kind of courses I had gone through at Bharti School are one of its kind and helped me to gain a variety of skills, which I feel are very helpful in my day to day work. Most amazing thing about Bharti School was 24x7 availability of Labs. I have spent so much memorable time at software lab and sometimes it makes me feel nostalgic. Today, I am very thankful to everybody at Bharti School and IIT Delhi for giving me an opportunity to be a part of it."

Pradeep Kumar
2011JTM2201

❖Students who attended International Conferences & Paper Published.



"Sanya Anees" attended conference "IEEE Wireless Communications & Networking Conference (WCNC)" held at Istanbul,Turkey" on "6th April, 2014".
She got her paper published entitled "On the Capacity of Decode-and-Forward Dual-Hop Free Space Optical Communication Systems".
(2) "Sanya Anees" attended conference in "IEEE Vehicular Technology Conference (VTC Fall)" held at "Vancouver, Canada" on "17th September, 2014".
She got her paper published entitled "Performance Analysis of Amplify-and-Forward Dual-Hop Mixed RF/FSO Systems".
(3) "Sanya Anees" attended conference "IEEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)" held at "Hong Kong" from "30 Aug – 2 Sep,2015".
She got her paper published entitled "Information Theoretic Analysis of a Dual-Hop Fixed Gain AF Based Mixed RF-FSO System".
(4) "Sanya Anees" attended conference "IEEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)" held at "Hong Kong" from "30 Aug – 2 Sep,2015".
She got her paper published entitled "Information Theoretic Analysis of DF based Dual-Hop Mixed RF-FSO Communication System".
(5) "Sanya Anees" attended conference "IEEE Global Conference on Signal and Information Processing (GlobalSIP)", held at "Orlando, Florida, USA" from "14-16 Dec 2015".
She got her paper published "Performance Analysis of a DF based Dual Hop Mixed RF-FSO System with a Direct RF Link".



1. "Abhishek Jindal" attended conference "2014 IEEE Vehicular Technology conference (VTC 2014 Spring)" held at "Seoul , Korea (South)" on "18th May to 21st May, 2014".
He got his paper published entitled "Secrecy Outage of Dual-hop AF Relay System and its Application to Relay Selection".
2. R. Saini, A. Jindal, and S. De, "Jammer Assisted Sum Rate and Fairness Improvement in Secure OFDMA," in *Proc. IEEE Intl. Conf. Commun. (ICC)*, London, on 6 June 2015.



"Nisha Pahal " attended conference "International Conference on Multimedia and Expo (ICME 2014)" held at "Chengdu, China" on "July 14-18 2014".
She got her paper published entitled "ONTOLOGY DRIVEN CONTEXTUAL TAGGING OF MULTIMEDIA DATA".



"Pooja Gopal" attended conference in "SPIE Security+Defence 2014" held at "Amsterdam, Netherlands" on " 22-25 September 2014".
She got her paper entitled "Modulation Techniques used in Earth-to-Satellite and Inter-Satellite Free Space Optical Links" & "Performance Analysis of Ground to Satellite FSO System with DAPPM Scheme in Weak Atmospheric Turbulence" & "Performance Comparison of PIN and APD based FSO Satellite Systems for various Pulse Modulation Schemes in Atmospheric Turbulence".



(1) "Chetna Singhal" attended conference in "IEEE Trans. Mobile Computing" on "July, 2014"
She got her paper entitled "Joint Optimization of User-Experience and Energy-Efficiency in Wireless Multimedia Broadcast".
(2) "Chetna Singhal" attended conference in "Proc. IEEE Int. Conf. Commun" held at "Sydney, Australia" on "June 2014". She got her paper published "User Heterogeneity and Priority Adaptive Multimedia Broadcast over Wireless".
(3) "Chetna Singhal" attended conference in "Proc. IEEE Intl. Symp. World of Wireless Mobile and Multimedia Networks (WoWMoM) Workshop on Video Everywhere" held at "Sydney, Australia" on "June 2014". She got her paper published "eSMART: Energy-efficient Scalable Multimedia Broadcast for Hetero- geneous Users".



(1) “Ajay Kumar” attended conference “MMDS Workshop and Conference on Algorithms for Modern Massive Data Sets” held at “University of California, Berkeley” on “June 17-19, 2014”.
He got his paper published “Analyzing Like-Minded Communities for measuring the satisfaction & Loyalty of classified customers using Big Data Analytics” in “MMDS Workshop and Conference on Algorithms for Modern Massive Data Sets”.
(2) “Ajay Kumar” attended conference “The Second ASE International Conference on Big Data Science & Computing” held at “Stanford University (USA)” on “May 27-31, 2014”.
He got his paper published “Framework for identifying like-Minded communities for measuring satisfaction utilizing Big Data Analytics”.



Mishra G., Dharmaraja S. and Kar S. (2014), “Reducing session establishment delay using timed out packets in SIP signaling network”, International Journal of Communication Systems (Wiley Publications). Article first published online: 29 JUN 2014



C. Kundu and R. Bose“Performance of a multi-hop UWB transmitted reference system using decode-and-forward relays,” Wireless Persoal Communication (Springer), vol. 77, no. 3, pp. 1801–1814, 2014.



“P. Govind Raj” attended conference “2015IEEE International computer Software and Applications conference (COMPSAC 2015)”held at “Taichung, Taiwan “ on “1-5 July, 2015”.



A. Viswananth” attended conference “SPIE Photonics West” held at “San Francisco, California” from “1-6 Feb, 2014”.
She got her paper published entitled “Evaluation of performance of ground to satellite free space optical link turbulence conditions for different modulation schemes”.

❖ *Students who attended National Conferences & Paper Published*



(1) “Abhay Bhadani” attended conference “8th Indian Subcontinent Decision Science Institute (ISDSI) International Conference” held at “Pune, India” from “Jan 02-04, 2015”.
He got his paper published entitled "Towards Understanding the Influencers of Mobile Services in India Telecom Sector".
(2) “Abhay Bhadani” attended conference “8th Indian Subcontinent Decision Science Institute (ISDSI) International Conference” held at “Pune, India” from “Jan 02-04, 2015”.
He got his paper published entitled "Estimating the Impact of Barriers in Adoption of Non-voice Mobile Services using Consensus and Fuzzy Preference Complete Graphs”.
(3) “ Abhay K. Bhadani” attended conference “XVIII Annual International Conference of the Society of Operations Management” held at “IIT Roorkee, Uttarakhand” from Dec 12-14, 2014”.
He got his paper published entitled "Towards Understanding the Cynicism of Social Networking Sites: An Operations Management Perspective".



(1) “Rachita Gupta” attended conference “ICHL2013: An International Conference on Humanitarian Logistics”, held at “Raipur” from “Dec 02-03, 2013”.
(2) “Rachita Gupta” attended 3rd International Conference on “Impacting Food Value Chain and Leveraging Innovation” by National Institute of Food Technology Entrepreneurship & Management (NIFTEM) on “26-28 Feb, 2015” in “Kundli, Sonipat”.
(3) “Rachita Gupta” attended conference “ICTTM 2015: International Conference on Telecom Technology and Management” held at “IIT Delhi” from “April 11-12, 2015”.
(4) “Rachita Gupta” got her paper published entitled “IDENTIFICATION AND MODELLING OF CRITICAL SUCCESS FACTORS OF AHUMANITARIAN SUPPLY CHAIN”.
(5) “Rachita Gupta” got her paper published entitled “Ranking of Collusive Behaviour in Indian Agro-Supply Chain using Interval 2-tuple Linguistic TOPSIS Method”.



(1) “A. Viswanath” attended conference “International Conference Conference on Information and Communication Technologies” held at “Cochin,India” from “Dec 3-5, 2014”. She got her paper published entitled “Design and implementation of MOEMS based ground to satellite free space link under turbulence condition.
(2) “A. Viswanath” attended “7th International Conference on COMmunication Systems and NETworkS (COMSNETS)”, held at “Banglore, India” from “Jan 6-10, 2015”.
She got her paper published entitled “Experimental evaluation of the effect of aperture averaging technique on the performance of free space optical communication link for different intensity modulation schemes”.
(3) “A. Viswanath” attended “National Conference on Communication (NCC-2016)”, held at “IIT Guwahati” from “March 4-6, 2016”.
She got her paper published entitled “Performance evaluation of satellite-to-earth FSO link in presence of turbulence and weather conditions for different IM schemes”.
(4) “A. Viswanath” published her paper entitled “Analysis of earth to satellite FSO link performance in presence of turbulence, beam wander induced pointing error and weather conditions for different intensity modulation schemes”.
(5) “A. Viswanath” published her paper entitled “Performance enhancement by aperture averaging in terrestrial and satellite free space optical links”.

UPCOMING EVENTS

HOW TO ENGAGE IN BROADBAND POLICY AND REGULATORY PROCESSES?

A course entitled HOW TO ENGAGE IN BROADBAND POLICY AND REGULATORY PROCESSES? Is to be organized by Bharti School jointly with LIRNEasia on 19- 22 August 2016 - IIT Delhi. The objective of the four-day residential course is to produce discerning and knowledgeable consumers of research who are able to engage in broadband policy and regulatory processes. At the end of the course attendees will:

- Be able to find and assess relevant research & evidence
- Be able to summarize the research in a coherent and comprehensive manner
- Have an understanding of broadband policy and regulatory processes in India
- Have the necessary tools to improve their communication skills

The course has no registration fee, and is fully sponsored by LIRNEasia. Prof. Vigneswara Ilavarsan is the organizer of this course.

Bharti Foundation

Bharti Foundation, the philanthropic arm of Bharti Enterprises, was set up in 2000 with the vision of helping underprivileged children and young people of our country realize their potential. The Foundation implements and supports programs in the field of primary, elementary, senior secondary and higher education. The Satya Bharti School Program is its flagship initiative and was set up in 2006 with a focus on providing quality education at primary, elementary and senior secondary level. The learnings accrued through this program are being transferred to Government schools through two other education initiatives – the Satya Bharti Quality Support Program and the Satya Bharti Learning Centre Program. In recent years the Foundation has also initiated 'Satya Bharti Abhiyan', to improve sanitation facilities in rural Ludhiana and 'Nyaya Bharti' to provide legal and financial assistance to deserving underprivileged under trials languishing in jails across the country for minor offences. Current status of Bharti Foundation's programs:

Satya Bharti School Program
254 schools in six states
42,419 students
49% girls; **75%** SC/ST/OBC
1,657 teachers
57% female teachers

Satya Bharti Learning Centres
379 Centres in three states
22,982 students impacted
Of above, **15,196** mainstreamed
50% girls
325 Education Volunteers
*563 centres closed

Satya Bharti Quality Support Program
89 Government schools in four states
30,950 students
1,590 teachers

Satya Bharti Abhiyan
13,729 Individual toilets handed over
614 villages covered
67,848 beneficiaries
14 Girls' toilets in Government Schools

All data as of 30th April 2016

Bharti Foundation Celebrates 10 Years of Satya Bharti Schools

This year Bharti Foundation is celebrating 10 years of its flagship – the Satya Bharti School Program. Currently, 254 Satya Bharti Schools including 5 senior secondary schools and 249 primary/elementary schools provide free quality education to underprivileged children, maintaining a special focus on the girl child. These students, often first generation learners, are consistently making a mark at both National and International fora by winning laurels in scholastic and co-scholastic competitions.



Launch event held on 5th August 2015



Commemorative visit held on 30th April 2016

The 10 year celebrations were launched by Mr. Rakesh Bharti Mittal, Co-Chairman, Bharti Foundation at Satya Bharti School, Bhojpur in Uttar Pradesh on 5th August 2015. To commemorate the ongoing 10 year celebrations, the Foundation's Governing Board visited four Satya Bharti schools in Amritsar on 30th April 2016. The visit was presided by Mr. Sunil Bharti Mittal, Chairman, Bharti Foundation and Mr. Rakesh Bharti Mittal, Co-Chairman, Bharti Foundation in the presence of Governing Board members. On this occasion, each esteemed guest launched an initiative under the theme of "10 years, 10 Launches" to inspire and encourage the students, teachers and staff of Satya Bharti Schools.

Bharti Foundation's Satya Bharti Adarsh Schools excel at Class X CBSE Board Examinations 2016

- 225 students from five Satya Bharti Adarsh Senior Secondary Schools in Punjab appeared for the Class X CBSE Board Examinations
- 41 students have scored a perfect 10 CGPA and 56 students scored between 9 and 9.9 CGPA
- 66% of these achievers are girl students validating Bharti Foundation's focus on the girl child
- Overall pass percentage of 99.11%, despite schools being located in rural areas and children coming primarily from challenging socio-economic backgrounds

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