

## **INPUT TO THE ANNUAL REPORT ( 2005-06)**

**Period for which activities are to be reported: April 01, 2005 to March 31, 2006.**

### Books and Book-Chapters published

1. Virtual Instrumentation using LabVIEW, Tata McGraw-Hill, New Delhi, 2005, Sanjay Gupta and Joseph John
2. *Physics and Technology of High-K Gate Dielectrics -III*, ECST, Vol. 1, Issue-XX, The Electrochemical Society Proceedings Series, Pennington, NJ (2006), S. Kar, S. De Gendt, M. Houssa, D. Landheer, D. Misra, and W. Tsai, Editors,.
3. Against the Current (Vol. II) – Fixing Tariffs Finance and Competition for Power Sector in India, Manohar Publications, New Delhi 2006, Joel Ruet, P.K. Kalra
4. "Salient features in the capacitance characteristics of ultrathin high-K devices", in *Physics and Technology of High-K Gate Dielectrics - III*, S. Kar, S. De Gendt, M. Houssa, D. Landheer, D. Misra, and W. Tsai, Editors, ECST, Vol. 1, Issue-XX, The Electrochemical Society Proceedings Series, Pennington, NJ (2005), 12 pages, S. Kar, D. Reddy, and S. Rawat.
5. "Determination of the channel doping density in MOS devices with high-K gate dielectrics", in *Physics and Technology of High-K Gate Dielectrics - III*, S. Kar, S. De Gendt, M. Houssa, D. Landheer, D. Misra, and W. Tsai, Editors, ECST, Vol. 1, Issue-XX, The Electrochemical Society Proceedings Series, Pennington, NJ (2005), 12 pages, D. Reddy, and S. Kar.

### Research Papers Published in Journals and Conference Proceedings:

1. Communications Letters, Volume 10, Issue 4, April 2006 Page(s):284 – 286, Arya Mazumdar, Ajit K. Chaturvedi, and Adrish Banerjee.
2. Inverter topologies for DSTATCOM applications – a simulation study, Electric Power Systems Research, Vol. 75, No. 2, pp. 161-170, 2005, S. V. Iyer, A. Ghosh and A. Joshi.
3. Performance study of two different compensating devices in a custom power park, Proc. IEE – Generation, Transmission & Distribution, Vol. 152, No. 4, pp. 521-528, 2005, A. Ghosh.
4. Static shunt and series compensations of an SMIB system using flying capacitor multilevel inverter, *IEEE Trans. Power Delivery*, Vol. 20, No. 4, pp. 2613-2622, 2005, A. Shukla, A. Ghosh and A. Joshi.
5. Frequency domain characterization of sliding mode control of an inverter used in DSTATCOM application, *IEEE Transactions Circuits and System – I: Regular Papers*, Vol. 53, No. 3, pp. 662-676, 2006, R. Gupta and A. Ghosh.

6. Impact of Interfacial Barriers on Recombination Profile in Bilayer Organic Light-Emitting Diode, *Organic electronics*, 6 (2005), pp. 229-236. B. Mazhari,
7. An Improved Solar Cell Circuit Model For Organic Solar Cells,"*Solar Energy Materials and Solar Cells*, Volume 90, Issues 7-8, 5 May 2006, pp. 1021-1033, B. Mazhari
8. On the Estimation of Frequency Response in Amplifiers Using Miller's Theorem, *IEEE Trans. Education* vol. 48, no. 3, Aug. 2005, pp. 559-561. B. Mazhari,
9. An Optimum UPQC with Minimum VA Requirement and Mitigation of Unbalanced Voltage Sag, *International Journal of Emerging Power Systems*, vol. 2, issue 2, article 1, 2005, Y. Y. Kolhatkar and S. P. Das,
10. "Modeling of Time Varying AR Process using Nonlinear energy Operator", 8<sup>th</sup> International Symposium on Signal Processing and its Applications (ISSPA), Sydney, Australia, pp 643-646, vol. 2, August 28-31, 2005, R.B. Pachori and P. Sircar.
11. Analysis of Multicomponent Non-stationary signals by Continuous Wavelet Transform Method, *Proc. IEEE International symposium on Intelligent Signal Processing – WISP 2005*, Faro, Portugal, Sember 1-3, 2005, K. Prasad, P. Sircar.
12. A Novel Technique to Reduce Cross Terms in the Squared Magnitude of the Wavelet Transform and the Short-time Fourier Transform:, *Proc. IEEE International symposium on Intelligent Signal Processing – WISP 2005*, Faro, Portugal, Sember 1-3, 2005, R.B. Pachori, P. Sircar.
13. Implications of Carbon Tax on Generation Expansion Plan & GHG Emission: A Case Study on Indian Power Sector, *International Journal of Emerging Electric Power Systems*, Vol. 3, No.1, 2005, Gaurav Nanda, Sangeeta Yamgar, S.C. Srivastava, S.N. Singh, Praveen Gupta, Dharam Paul and R.M. Shrestha.
14. Congestion Management in Competitive Power Market: *A Bibliographical Survey*, *Electric Power Systems Research*, Vol. 76, No. 1-3, pp 153-164, 2005, Ashwani Kumar, S. N Singh and S. C Srivastava.
15. Optimal Control Strategy Using Pseudo-Decentralization for Coordination of Power System Stabilizer and FACTS in a Multi-machine System, *International Energy Journal*, AIT Bangkok, 2005, B Kalyan Kumar, S. N Singh and S. C Srivastava,
16. Machine Translation: AnglaBharati and AnuBharati Approaches, *CSI Communication*, October 2005, R.M.K. Sinha (Invited Paper).

17. An overview of photonic packet switching architectures, *IETE technical Review*, Jan-Feb 2006, Vol.23, No.1, pp.15-34, Rajat Kumar Singh, Y.N.Singh,.
18. Second Phase Reconfiguration of Restored Path for Removal of Loopback in P-cycle based Protection in Optical Networks, Technical Report No.2006/2294/TR, Electrical Engineering Department, IIT Kanpur-208016, Rachana Asthana, Y.N.Singh.
19. Modeling with recurrent neural networks using generalized mean neuron model, *Neural Information Preprocessing – Letters and Reviews*, Volume 8, July 2005, pp.49-56, Gunjan Gupta, R.N.Yadav, Prem K Kalra, J.John.
20. Neural network learning with generalized-mean based neuron model, *Soft Computing*, Volume 10, Feb 1, 2006, pp.257-263, R.N.Yadav, Prem K Kalra, Joseph John.
21. Effect of transmitter positions on channel bandwidth in diffuse indoor multi-transmitter optical wireless systems, *Proc. SPIE*, Vol. 6021, pp. 251-258, Dec 2005, Sivabalan Arumugam, Joseph John
22. ISI-Free Pulses with Reduced Sensitivity to Timing Errors, *IEEE Communications Letters*, Vol. 9, Issue 4, pp. 292-294, April 2005, P Sandeep, S Chandan and AK Chaturvedi.
23. A Family of ISI-Free Polynomial Pulses, *IEEE Communications Letters*, Vol. 9, Issue 6, pp. 496-498, June 2005, S Chandan, P Sandeep and AK Chaturvedi.
24. Performance Analysis of Predetection EGC in Exponentially Correlated Nakagami-m Fading Channel, *IEEE Transactions on Communications*, Vol. 53, No. 8, pp. 1252-1256, August 2005, PR Sahu and AK Chaturvedi.
25. Effect of an Independent Antenna on the Performance of a Correlated Dual-Diversity Predetection EGC Receiver in Nakagami-m Fading Channel, *IEE Proc. Communications*, Vol. 152, Issue 5, pp. 725-728, 7 October 2005, PR Sahu and AK Chaturvedi.
26. Optimal Bandwidth Allocation to Coding and Spreading in DS-CDMA Systems Using LMMSE Front End Detector, *IEEE Transactions on Wireless Communications*, Vol. 4, Issue 6, pp. 2636-2641, November 2005. Manish Agarwal, Kunal Dutta and AK Chaturvedi.
27. Application of Computational Geometry to Multiuser Detection in CDMA, *IEEE Transactions on Communications*, Vol. 54, No. 2, pp. 204-207, February, 2006, Girish Manglani and AK Chaturvedi.

28. A Novel Method for Down-conversion of Multiple Bandpass Signals, IEEE Transactions on Wireless Communications, Vol. 5, Issue 2, pp. 427-434, February, 2006, Aditya Mahajan, Manu Agarwal and A. K Chaturvedi.
29. A Hybrid Time Divisioning Scheme for Power Allocation in DMT Based DSL Systems, IEEE Communications Letters, Vol. 10, Issue 2, pp. 73-75, Feb 2006, Akshay Garg and A. K Chaturvedi.
30. Characterization of Accumulation Layer Capacitance for Extracting Data on High-K Gate Dielectrics, IEEE Transactions on Electron Devices, Vol. 52, June 2005, pp. 1187-1193 Samares Kar, Surendra Rawat, Shaloo Rakheja, and Dharmendar Reddy.
31. Study of silicon-organic interfaces by admittance spectroscopy, Applied Surface Science, Vol. 252, pp. 3961-3967(2006) Samares Kar.
  1. Parameter extraction using novel phenomenon in nano-MOSFETs with ultrathin (EOT=0.46-1.93 nm) high-K gate dielectrics, Thin Solid Films, Vol. 504, pp. 178-182(2006), Samares Kar.
  2. A modified Ring Dielectric Resonator with Improved Mode Separation and its Tunability Characteristics in MIC Environment, IEEE Trans. on Microwave Theory and Technique, Vol.53, No. 6, pp. 1960-1967. June 2005, K. V. Srivastava, V. V. Mishra and A. Biswas.
  3. A CAD model of generalized high pass filter using Chebyshev polynomial for RF application, International Journal of RF And Computer-Aided Engineering, John Wiley, Vol.6, No.2, pp-155-163, March 2006, P. Chandra and A. Biswas.
  4. Modeling of On-chip inductors and transformers for GaAs MMICs, Microwave and Optical Technology Letter, John Wiley, USA, Volume 47, Issue 3, 5, Pages: 270-274, November 2005, Mohan, G. Boech and A. Biswas.
  5. Full-wave analysis of single and coupled striplines in multilayered cylindrical dielectrics using the 3D TLM method, Microwave and Optical Technology Letters, Volume 48, Issue 2, Pages: 298-302, February 2006, Alok Kumar Gupta, Akhilesh Mohan, Animesh Biswas.
  6. Optimal Control Strategy Using Pseudo-Decentralization for Coordination of Power System Stabilizer and FACTS in a Multi-machine System, International Energy Journal, AIT Bangkok, 2005, B Kalyan Kumar, S. N Singh and S. C Srivastava.
  7. An Approach to Determine Voltage Control Areas Considering Impact of Contingencies, IEE Proceedings Part-C on Generation, Transmission and Distribution, Vol.152, No. 3, May 2005, pp. 342-350 M.K.Verma and S.C.Srivastava

8. A Distribution Automation System Simulator for Training and Research, KIEE International Transactions on Power Engineering, Vol.5A, No.2, 2005, pp. 159-170, R.P. Gupta and S. C. Srivastava.
9. Congestion Management in Competitive Power Market: A Bibliographical Survey, Electric Power Systems Research journal, Vol.76, September 2005, pp.153-164, Ashwani Kumar, SC Srivastava and SN Singh.
10. Implications of Carbon Tax on Generation Expansion Plan & GHG Emission: A Case Study on Indian Power Sector, International Journal of Emerging Electric Power Systems, Berkeley Electronic Press, Vol.3, Issue 2, Article 1045, August 2005, S. Yamgar, G. Nanda, S.C.Srivastava, S.N.Singh, P.Gupta, Dharam Paul and Ram.M. Shrestha.
11. A Decentralized Automatic Generation Control Scheme for Competitive Electricity Markets, IEEE Transactions on Power Systems, Vol.21, No.1, Feb.2006, pp. 312-320, Barjeev Tyagi and S.C.Srivastava.
12. Time-series prediction with single integrate-and-fire neuron, Applied Soft Computing (2006), A. Yadav, D. Mishra, R.N. Yadav, S. Ray, Kalra, P.K.
13. Time series prediction with single multiplicative neuron model, Applied Soft Computing (2006), R.N. Yadav, Kalra, P.K., J. John.
14. Controlling Synchronization of Modified FitzHugh-Nagumo Neurons under External Electrical Stimulation, International Journal of NeuroQuantology. (2006), Mishra, D., Yadav, A, Ray, S., and Kalra, P.K.
15. Levenberg-Marquardt Learning Algorithm for Integrate-and-Fire Neuron Model, Neural Information and Processing Letters (2005), Mishra, D., Yadav, A, Ray, S., and Kalra, P.K.
16. Functional Mapping with Single Integrate-and-Fire Neuron, Int. J. of Computational Intelligence, accepted for publication (2005), Yadav Abhishek, Mishra D., Yadav R. N., Ray Sudipto & Kalra P. K.
17. On the Use of Multiplicative Neuron Model in Feed-forward Neural Networks, Int. J. of Modeling and Simulation (2005), Yadav R. N., Kalra P. K. & John J.
18. Neural Network Learning with Generalized Mean Based Neuron Model, Soft Computing (2005), Yadav R. N., Kalra P. K. & John J.
19. Modeling with Recurrent Neural Network using Compensatory Neuron Model, Neural Information Processing- Letters and Reviews, vol. 6, no. 3, (2005), Gupta G., Yadav R. N., Kalra P. K. & John J.
20. A Novel Adaptive Biasing Scheme for CMOS Op-Amps, Journal of Semiconductor Technology and Science, Vol. 5, No. 3, September 2005, pp. 168-172, Alope Dutta.

21. A Network Layer Approach to Enable TCP over Multiple Interfaces, ACM/Kluwer Journal of Wireless networks (WINET), Volume 11, Issue 5, Sep 2005, Pages 637-650, K. Chebrolu, B. Raman and R. R. Rao.
22. Machine Translation of Bi-lingual Hindi-English (Hinglish) Text, 10<sup>th</sup> Machine Translation summit (MT Summit X), Phuket, Thailand, September 13-15, 2005. pp 149-156, R.M.K. Sinha and Anil Thakur,
23. Dealing with Replicative Words in Hindi for Machine Translation to English, 10<sup>th</sup> Machine Translation summit (MT Summit X), Phuket, Thailand, September 13-15, 2005. pp 157-164, R.M.K. Sinha and Anil Thakur.
24. Divergence Patterns in Machine Translation between Hindi and English, 10<sup>th</sup> Machine Translation summit (MT Summit X), Phuket, Thailand, September 13-15, 2005. pp 346-353, R.M.K. Sinha and Anil Thakur.
25. Handling ki in Hindi for Hindi-English MT, 10<sup>th</sup> Machine Translation summit (MT Summit X), Phuket, Thailand, September 13-15, 2005. pp 356-363, R.M.K. Sinha and Anil Thakur.
26. Dealing with Mixing of English Verbs in Hindi for Machine Translation, ICAI'05 - The 2005 International Conference on Artificial Intelligence, Las Vegas, Nevada, USA, June 27-30, 2005, R.M.K. Sinha.
27. Interpreting Unknown Lexicons in Machine Translation from Hindi to English, 4<sup>th</sup> IASTED International Conference on Computational Intelligence (CI 2005), Calgary, Alberta, Canada, July 4-6, 2005, R.M.K. Sinha.
28. Integrating CAT and MT in AnglaBharti-II Architecture , EAMT 2005, 30th-31th May, 2005, Budapest, Hungary, R.M.K. Sinha.
29. Translation Divergence in English-Hindi MT, EAMT 2005, 30th-31th May, 2005, Budapest, Hungary, R.M.K. Sinha and Anil Thakur.
30. Consciousness and High Gamma of Electroencephalogram : A Correlation Study, International Conference on Krishnamurthy and Consciousness, Hyderabad, 6 – 8 January, 2006, G.C.Ray,.
31. Modelling of Soliton pulses in fiber loop buffer switch, *ICOL-2005*, Dehradun, India, December 2005, Rajiv Srivastava, Swapnil Shukla, Y.N.Singh.
32. Reliability improvement with critical span protection using modified algorithms of preconfigured (P) cycles, *ICOL-2005*, Dehradun, India, December 2005 Rachana Asthana, Y.N.Singh.

33. Upper limit on fiber based subscriber access networks, *ICOL-2005*, Dehradun, India, December 2005, T.M.Prasanna, Rajiv Srivastava, Y.N.Singh.
34. A novel architecture for fiber based optical memory, *ICOL-2005*, Dehradun, India, December 2005, Rajiv Srivastava, Swapnil Shukla, Y.N.Singh.
35. Comparative study of duobinary modulation in fiber-optic link with different pulse shapes, *ICOL-2005*, Dehradun, India, December 2005, Parthasarathi Ghatak, Y.N.Singh.
36. Advantage of soliton pulse in fiber loop buffer switch, *WCSN 2005*, IIT Allahabad, April 2005, Rajiv Srivastava, Swapnil Shukla, Y.N.Singh.
37. Hybrid Hierarchical Learning from Dynamic Scenes, First Int'l Conf. on Pattern Recognition and Machine Intelligence (PReMI'05) ISI Kolkata, Dec. 2005, P Guha, P Mitra, P Vaghela, K S Venkatesh, A Mukerjee.
38. A Multi-Scale Colinearity Statistic Based Approach To Robust Background Modeling, Seventh Asian Conf. on Computer Vision, (ACCV'06), Hyderabad, Jan 13-16, 2006, P Guha, K S Venkatesh, A Mukerjee.
39. Broadband concentric rings fractal slot antenna, 28<sup>th</sup> general assembly of URSI, October 23-29, 2005, New Delhi, Joshi Ravi Kumar and A.R. Harish.
40. Identification of antennas in an indoor wireless network, 28<sup>th</sup> general assembly of URSI, October 23-29, 2005, New Delhi, I. Ilamparidhi and A.R. Harish,
41. Feasibility study of spatial reuse in an 802.11 access network, 28<sup>th</sup> general assembly of URSI, October 23-29, 2005, New Delhi, A.R. Harish, Sreekanth Garigala, Bhaskaran Raman and Phalguni Gupta.
42. Periodically loaded microstrip based metamaterial with negative group velocity, International Radar Symposium India – 2005, 19-22 December 2005, Rajesh Kumar and A.R. Harish.
43. Wideband printed hybrid fractal loop antenna, International Radar Symposium India – 2005, 19-22 December 2005, Ravi Kumar Joshi and A.R. Harish.
44. Compact Loop Antennas and Arrays, Proceedings of International Conference of Antenna Technologies (ICAT2005), pp. 531-534, Feb 23-24, 2005, ISRO, Ahmedabad, India, A.R. Harish, Abhinav Agarwal, Nitigya Kuchhal, and Vibhor Jain.

45. Parasitically loaded Vivaldi Antenna, Proceedings of International Conference of Antenna Technologies (ICAT2005), pp. 525-529, Feb 23-24, 2005, ISRO, Ahmedabad, India, R.K. Joshi and A.R. Harish.
46. A Neural Network Using Single Multiplicative Spiking Neuron for Function Approximation and Classification, IEEE International Joint Conference on Neural Network, IJCNN-2006, Vancouver (Canada), (2006) Mishra, D., Yadav, A, Ray, S., and Kalra, P.K.
47. Learning with Single Quadratic Integrate-and-fire Neuron, Proceedings of Third International Symposium of Neural Network 2006, Chengdu (China), J. Wang et al. (Eds.): ISNN 2006, LNCS 3971, pp. 424-429, (2006), Mishra, D., Yadav, A, and Kalra, P.K.
48. Effects of Noise on the Dynamics of Biological Neuron Models, The Fourth IEEE International Workshop on Soft Computing as Transdisciplinary Science and Technology , 2005. Mishra, D., Yadav A, S. Ray, Kalra, P.K.
49. Bifurcation analysis in modified Fitzhugh Nagumo neuronal model, National Conference on Control and Dynamical Systems, Bombay, 2005, Mishra D, A. Yadav, S. Ray, Kalra, P.K.
50. Representation of Complex-Valued Neural Networks: A Real Valued Approach, Proceedings of International Conference on Intelligent Sensing and Information Processing, pp.331-335, 2005, Yadav, D. Mishra, S. Ray, R.N. Yadav and Kalra, P.K.
51. Learning with Single Integrate-and-Fire Neuron, IEEE International Joint Conference on Neural Network, IJCNN-2005, Montreal (Canada), (2005). Mishra, D., Yadav, A, Ray, S., Yadav, R.N. and Kalra, P.K.
52. From Point Neuron to Axon Modeling: A New Approach, The 12th International Conference on Neural Information Processing, Taipei, Taiwan, (2005), Ray, S., Mishra, D, Yadav, A, and Kalra, P.K.
53. Nonlinear Coupling and Synchronization in Modified Fitzhugh-Nagumo Neuron Model, The 12th International Conference on Neural Information Processing, Taipei, Taiwan, (2005), Mishra, D, Yadav, A, Ray, S. and Kalra, P.K.
54. Synchronization Control of Coupled FitzHugh-Rinzel Neuron, ICCES 2005, December 1-6, Indian Institute of Technology Madras, Chennai 600036. INDIA, (2005), Mishra, D. and Kalra, P.K.
55. Nonlinear Dynamical Analysis on Coupled Modified FitzHugh-Nagumo Neuron Model, Proceedings of International Symposium of Neural Network 2005, Chongqing (China), pp. 95 – 101, (2005), Mishra, D, Yadav, A, Ray, S. and Kalra, P.K.
56. Fuzzy Clustering with M-Estimators. IICAI 2005: 2101-2119, K. Madhava Krishna, Kalra, P.K.
57. Wake-on-WLAN, The 15th Annual International World Wide Web Conference (WWW 2006), May 2006, Edinburgh, Scotland, N. Mishra, K. Chebrolu, B. Raman, and A. Pathak.

58. Design and Evaluation of a new MAC Protocol for Long-Distance 802.11 Mesh Networks, The 11th Annual International Conference on Mobile Computing and Networking paper (MOBICOM), Aug/Sep 2005, Cologne, Germany. [Acceptance rate: 10.3%], B. Raman and K. Chebrolu.
59. Imidazolin-5-ones in organic semiconductor diodes, Proceedings of International Conference on Molecules to Materials, 2006, Longowal India, pp. 8-12. Gitalee Bhattacharjya, Arun Tej Malljosyula, SSK Iyer and Gurunath Ramanath.
60. Simulation of MOSFET Devices and Circuits Fabricated on Selective Buried Oxide (SEL-BOX) Substrates, Proceedings of 2005 IEEE Conference on Electron Devices and Solid-State Circuits, Hong Kong, Chander Pal, Baquer Mazhari and S. Sundar Kumar Iyer.
61. **“On the spread of random interleavers”**, in Proceedings of IEEE International Symposium on Information Theory, Adelaide Australia, 4-9 September 2005 Page(s):439 – 443, Arya Mazumdar, Adrish Banerjee and Ajit K. Chaturvedi.
62. “Operation of a controlled rectifier supported dynamic voltage regulator,” *Proc. IEEE-PES General Meeting*, pp. 1475-1481, San Francisco, 2005, S. V. Iyer, A. Ghosh and A. Joshi.
63. Voltage regulation using dynamic voltage restorer for large frequency variations, *Proc. IEEE-PES General Meeting*, pp. 1780-1786, San Francisco, 2005, A. K. Jindal, A. Ghosh and A. Joshi.
64. Evaluation of transient stability margin of a power system containing multiple FACTS devices, *Proc. IEEE-PES General Meeting*, pp. 1787-1794, San Francisco, 2005, D. Chatterjee and A. Ghosh.
65. A hysteresis current controlled flying capacitor multilevel inverter based DSTATCOM, *Proc. IEEE-PES General Meeting*, pp. 1801-1808, San Francisco, 2005, A. Shukla, A. Ghosh and A. Joshi.
66. Power converters and their applications, *Proc. 2<sup>nd</sup> National Power Electronics Conference*, pp. XXV-XXXIII, IIT Kharagpur, December, 2005, A. Ghosh.
67. Flying capacitor multilevel inverter topologies with efficient utilization of switching devices, *Proc. 2<sup>nd</sup> National Power Electronics Conference*, pp. 131-135, IIT Kharagpur, December, 2005, A. Shukla, A. Ghosh and A. Joshi.

68. Shunt compensation in three-phase four-wire distribution systems with non-ideal supply,” Proc. 2<sup>nd</sup> National Power Electronics Conference, pp. 167-170, IIT Kharagpur, December, 2005, S. V. Iyer, A. Ghosh and A. Joshi.
69. Compensation of a distribution system using a neutral-clamped DVR, Proc. 2<sup>nd</sup> National Power Electronics Conference, pp. 180-184, IIT Kharagpur, December, 2005, A. K. Jindal, A. Ghosh and A. Joshi.
70. Linear modulation and analysis of shunt compensated distribution system, Proc. 2<sup>nd</sup> National Power Electronics Conference, pp. 185-190, IIT Kharagpur, December, 2005, R. Gupta, A. Ghosh and A. Joshi.
71. Bifurcation behavior of a current-mode Cuk converter, Proc. 2<sup>nd</sup> National Power Electronics Conference, pp. 365-369, IIT Kharagpur, December, 2005, K. Jayalakshmi, A. Joshi and A. Ghosh,.
72. Heterostructure PIN Rectifier Diode for power applications, IEEE Conference on Electron Devices and Solid-State Circuits, Dec. 19-21, 2005, pp.807-810; Hong Kong, B. Mazhari, M. Sinha and J. Dixit,.
73. Utility Friendly Magnet-Load Power Supply, Conference Proceedings of Power Electronics Specialists Conference (PESC) 2005, Recife, Brazil, June 12-16, 2005, pp. 333-339, R. K. Tripathi and S. P. Das.
74. A Sliding Mode Controller Based Optimum UPQC with Minimum VA Loading, Proceedings of IEEE PES General Meeting, San Francisco, USA, June 12-16, 2005, pp. 2240-2244, Y. Y. Kolhatkar, Rammohan Rao Errabelli, and S. P. Das.
75. A Fuzzy Controlled Optimum UPQC with Minimum VA Loading, Proceedings of Indian International Conference on Artificial Intelligence (IICAI 2005), Pune, Dec. 2005, pp. 2288-2307, Rammohan Rao E., Y. Y. Kolhatkar, and S. P. Das.
76. Fuzzy Logic Controller-based High Performance Induction Motor Drive, Conf. Proceedings of IEE Sponsored National Conference on Power Engineering Practices and Energy Management-2005, TIET, Patiala, pp. 51-54, Jan. 28-29, 2005, S. Behera, B. Subudhi, S. P. Das, and S. R. Doradla.
77. Design and Simulation of a Sliding Mode Controller-based Unified Power Quality Conditioner, Conf. Proceedings of Recent Advances in Power Systems and Power Electronics (RAPSPE-2005), College of Engineering and Management, Kolaghat, pp. 159-164, August 20, 2005, E. Rammohan Rao, Y. Y. Kolhatkar, and S. P. Das.
78. Design and Simulation of a Three-Phase Three-Level UPQC for Power Distribution Systems, Conf. Proceedings of National Power Electronics Conference (NPEC) 2005, IIT Kharagpur, pp. 303- 306, Dec. 22-24, 2005, Hema Rani P. and S. P. Das.

79. A Modal Controllability Index for Optimal Placement of TCSC to Damp Inter-Area Oscillations, IEEE PES General Meeting 2005 June 12-16 2005 in San Francisco, California, pp. 1664 – 1668, B. Kalyan Kumar, SN Singh and SC Srivastava.
80. Novel Parallel Radial Basis Function Neural Network for Voltage Security Analysis, ISAP05, Washington, USA, November 2005, pp. 320-326, T Jain, L Srivastava, SN Singh and I Erlich.
81. Locating Unified Power Flow Controller for Enhancing Power System Loadability, International Conference on Future Power System, Netherlands, November 16-18, 2005, SN Singh and I Erlich.
82. Price Area Congestion Management Approach for Restructured Indian Power Market, International Conference on Power System, CRPI Bangalore, Dec 20-22, 2005, P Bajpai and SN Singh.
83. Optimal Power Flow Control with TCPAR and UPFC in Competitive Electricity Market, International Conference on Power System Operation in Deregulated Regime (ICPSODR-2006), IT BHU, India, March 6-7, 2006, pp. 68-76, SK Parida, SN Singh and SC Srivastava.
84. Optimal Placement of TCSC for Enhancing Power System Loadability, National Conference on Electric Power Technology, Management and IT Application, MMMEC Gorakhpur, February 17-18, 2006, JG Singh, SN Singh and SC Srivastava.
85. Artificial Intelligence Technique for Load Forecasting, Bid Forecasting and Market Clearing Price Prediction in Power Systems: An Overview, National Conference on Electric Power Technology, Management and IT Application, MMMEC Gorakhpur, February 17-18, 2006, MM Tripathi, SN Singh and KG Upadhyay.
86. FACTS Technology in Deregulated Electricity Market: *An Overview*, National Conference on Electric Power Technology, Management and IT Application, MMMEC Gorakhpur, February 17-18, 2006, SK Srivastava, KG Upadhyay and SN Singh.
87. Optimal Placement of TCPAR for Enhancing Power System Loadability, National Conference on Technical Challenges in Power Systems, KNIT Sultanpur, March 24-25 2006, pp. 207-211, JG Singh, SN Singh and SC Srivastava.
88. Simulation of Power Quality Problems for Analysis and Characterization, National Conference on Technical Challenges in Power Systems, KNIT

Sultanpur, March 24-25 2006, pp. 1-10, Deepti Shakya, UK Dwivedi and SN Singh.

89. Modelling of Soliton pulses in fiber loop buffer switch, *ICOL-2005*, Dehradun, India, December 2005, Rajiv Srivastava, Swapnil Shukla, Y.N.Singh.
90. Reliability improvement with critical span protection using modified algorithms of preconfigured (P) cycles, *ICOL-2005*, Dehradun, India, December 2005, Rachana Asthana, Y.N.Singh.
91. Upper limit on fiber based subscriber access networks, *ICOL-2005*, Dehradun, India, December 2005, T.M.Prasanna, Rajiv Srivastava, Y.N.Singh.
92. A novel architecture for fiber based optical memory, *ICOL-2005*, Dehradun, India, December 2005, Rajiv Srivastava, Swapnil Shukla, Y.N.Singh.
93. Comparative study of duobinary modulation in fiber-optic link with different pulse shapes, *ICOL-2005*, Dehradun, India, December 2005, Parthasarathi Ghatak, Y.N.Singh.
94. Advantage of soliton pulse in fiber loop buffer switch, *WCNS 2005*, IIT Allahabad, April 2005, Rajiv Srivastava, Swapnil Shukla, Y.N.Singh.
95. Performance analysis of Diffuse Indoor Optical Wireless Systems in Ambient Noise Environments, Proceedings of the 12th National Conference on Communications (NCC-2006), IIT Delhi, India, pp.460-464, Jan. 27-29, 2006, A. Sivabalan and Joseph John.
96. Study of Non-Linear Frequency Warping Functions for Speaker Normalization, To Appear in Proc. of IEEE International Conf. on Acoustic, Speech and Signal Processing, (ICASSP Toulouse), April 2006, S. V. Bharath, S. Umesh and R. Sinha.
97. VTLN Warping Factor Estimation Using Accumulation of Sufficient Statistics, To Appear in Proc. of IEEE International Conf. on Acoustic, Speech and Signal Processing, (ICASSP Toulouse), April 2006, J. L'oeuf and H. Ney and S. Umesh.
98. Implementing Frequency-Warping and VTLN Through Linear Transformation of Conventional MFCC, Proc. of InterSpeech 2005, (Lisbon, Portugal), Sep. 2005, S. Umesh, A. Zolnay and H. Ney [2005].

99. The Speech Scale and Spectral Transformation, Proc. of SPIE Conference on Wavelet Applications in Signal & Image Proc., July 2005, S. Umesh, L. Cohen and D. Nelson.
100. Linear-Transformation Approach to Shift-Based Speaker- Normalisation Proc. of National Conference on Communications , (IIT,Delhi), January 2006 , R. Sinha and S. Umesh .
101. Study of Non-linear Frequency Warping functions for Speaker Normalisation Proc. of National Conference on Communications , (IIT,Delhi), January 2006, S. Umesh and S. V. Bharath.
102. Optimal Train Rescheduling for Single Track Railway Line, IICAI 2005: pp 38-53, Srinivasulu Kyavars, Ramprasad Potluri.
103. Visual Navigation of Wheeled Robots: Compensating Floor Undulations, Twelfth Int'l Conf. on Advanced Robotics (ICAR 2005), Seattle, USA. July 17-20, 2005, A Bohori, K S Venkatesh, A Mukherjee, V K Singh.
104. Insights Offered By A Mathematical Model Of The HPT Axis On Transdermal Testosterone Delivery For Male Contraception, Controlled Release Society Conf. Mumbai, March '05, R Mallik, A Misra, K S Venkatesh, S Tondwal.
105. Efficient Occlusion Handling for Multiple Agent Tracking by Reasoning with Surveillance Event Primitives, Tenth Int'l Conf. on Computer Vision, ICCV – VS-PETS, 2005, Beijing, China, Oct 14-21, 2005, Prithwjit Guha, Amitabha Mukerjee, K.S. Venkatesh.
106. Self Managing Systems Based On Human Social Behaviors, Ninth Int'l Symp. On Artificial Intelligence and Mathematics (AIMATH 2006), Ft. Lauderdale, Florida, USA, Jan 4-6, 2006, T Santra, K S Venkatesh, A Mukerjee.
107. A New Computationally Efficient Shot Detection Algorithm for Cricket Videos, National Communication Conference, NCC'06, IIT Delhi, O Kiran Kumar, K S Venkatesh.
108. On the Spread of Random Interleavers, Proc. IEEE International Symposium on Information Theory, 4-9 Sept 2005.
109. Arya Mazumdar, MP Sriram and AK Chaturvedi, "Towards Optimal Set of Bases for Orthonormal Code Diversity Detection CDMA Systems", Proc. National Conference on Communications, 27-29 Jan 2006, A Mazumdar, A Banerjee and AK Chaturvedi.
110. A New Approach to Pulse Design for Ultra-Wideband Communications, Proc. National Conference on Communications, 27-29 Jan 2006, P Sandeep, S Chandan and AK Chaturvedi,.

111. A New Family of Nakagami-m Parameter Estimators for Noisy Channel Samples, Proc. National Conference on Communications, 27-29 Jan 2006, S Ravi Teja, Rohit Aggarwal and AK Chaturvedi.
112. "One-Dimensional Sub-Threshold Model for Symmetric Double-Gate MOSFETs", International Semiconductor Device Research Conference (ISDRS), Bethesda, Maryland, U.S.A., December 7-9, 2005, S. Qureshi and Gaurav Chhabra.
113. Nonlinear Function Approximation Using Local Input-output Maps in a Learning Framework, WCLC 2005, Bangalore, Dec 16-18, 2005, Pawan Goyal, Maikanth Mohan and Laxmidhar Behera.
114. Network based Image Coding, WCLC 2005, Bangalore, 16-18 Dec 2005, Shikher Bisaria and Laxmidhar Behera.
115. Intelligent Control Schemes for a Redundant Manipulator, 2nd Indian Int. Conf on Artificial Intelligence, Pune, India, 20-22, December 2005, Prem Kumar, Indrani Kar and Laxmidhar Behera.
116. Simulations and Experiments on a Robotic Arm, CIRAS-05, 10-14, December 2005, Singapore, Dip Goswami, Laxmidhar Behera, and Ashish Dutta.
117. Dynamic Walking of Eight DOF Biped using Neural Net Controller, SICE-05, Japan, August 2005, Dip Goswami, Ashish Dutta and Laxmidhar Behera.
118. On Identification and Stabilization of Nonlinear Plants using Fuzzy Neural Network IEEE SMC 2005, Hawaii, Oct 10-12, 2005, Indrani Kar, Prem Kumar and Laxmidhar Behera.
119. Quantum Stochastic Filtering, IEEE SMC 2005, Hawaii, Oct 10-12, 2005, Laxmidhar Behera and Indrani Kar.
120. Closed Form Expression for On-Chip GaAs MMICs Transformers, International Microwave and Optoelectronic Conference, Brazil, pp. 25-28, July 2005, Brasilia, A. Mohan, A. Biswas, D. Pienkowski and G. Boeck.
121. Dispersion characteristics of dominant and higher order modes for single and coupled strip in multilayered cylindrical dielectrics using TLM method, Proc. in XXVIIIth General Assembly of International Union of

- Radio Science (URSI), Oct-2005, New Delhi, A. K. Gupta, A. Mohan and A. Biswas,.
122. Dispersion properties of multiconductor microstripline in suspended substrate and inverted microstrip lines by using modal analysis, Proc. in XXVIIIth General Assembly of International Union of Radio Science (URSI), Oct-2005, New Delhi, S. Awasthi, K.V. Srivastava and A. Biswas.
  123. “Dispersion and impedance characteristics of single and coupled strip in multilayered cylindrical dielectrics using 3D-TLM method”, *Asia Pacific Microwave Conference'05*, China, Dec. 2005, Volume 2, 04-07 Dec. 2005, A. K. Gupta, A. Mohan and A. Biswas.
  124. Dispersion characteristics of an off-layered coupled Non Radiative (NRD) guide, *Asia Pacific Microwave Conference'05*, China, Dec. 2005, Volume 2, 04-07 Dec. 2005, S. Mukherjee, A. Mohan and A. Biswas
  125. Dispersion properties of four and five coupled microstrip line in suspended substrate using hybrid mode formulation, *Asia Pacific Microwave Conference'05*, China, Dec. 2005, Volume 2, 04-07 Dec. 2005, S. Awasthi, K. V. Srivastava and A. Biswas.
  126. Effect of Anisotropy on Effective Dielectric Constant and Characteristic Impedance of Multi-port Fin-lines, Accepted in *European Microwave Conference'06*, in Feb 2006, Kumar Vaibhav Srivastava, Seema Awasthi and Animesh Biswas.
  127. A novel compact defected ground structure(DGS)” Accepted for presentation in 12<sup>th</sup> International Symposium on Antenna Technology and Applied Electromagnetics, Winnipeg, Canada, A. Mohan and A. Biswas.
  128. A Modal Controllability Index for Optimal Placement of TCSC to Damp Inter-Area Oscillations, IEEE PES General Meeting San Francisco, USA, June 12-16 2005, pp. 1664 – 1668, B. Kalyan Kumar, SN Singh and SC Srivastava
  129. A Reduced Network Representation Suitable for Fast Nodal Price Calculations in Electricity Markets, Manuscript no. 05 GM 0050, IEEE PES General Meeting 2005, San Francisco, USA, June 12-16, 2005, pp.118-125. H.K.Singh and S.C.Srivastava.
  130. Optimal Placement of TCSC for Enhancing Power System Loadability, National Conference on Electric Power Technology, Management and IT Application, MMMEC Gorakhpur, February 17-18, 2006, JG Singh, SN Singh and SC Srivastava,.
  131. Optimal Placement of TCPAR for Enhancing Power System Loadability, National Conference on Technical Challenges in Power Systems, KNIT Sultanpur, March 24-25 2006, pp. 207-211, JG Singh, SN Singh and SC Srivastava.

132. Availability based Tariff Mechanism for Frequency Regulation in India: A Mathematical Framework, International Conference on Power System Operation in Deregulated Regime (ICPSODR-2006), IT BHU, India, March 6-7, 2006, pp. 31-39, Barjeev Tyagi and SC Srivastava.
133. Optimal Power Flow Control with TCPAR and UPFC in Competitive Electricity Market, International Conference on Power System Operation in Deregulated Regime (ICPSODR-2006), IT BHU, India, March 6-7, 2006, pp. 68-76, SK Parida, SN Singh and SC Srivastava,.
134. Enhancement of Voltage Stability Margin Under Contingencies using FACTS Controllers, International Conference on Power System Operation in Deregulated Regime (ICPSODR-2006), IT BHU, India, March 6-7, 2006, pp. 139-149, MK Verma and SC Srivastava,.
135. Current Controlled Voltage Source Inverter Under Saturation – Analysis and New Algorithms, Proceedings of *IASTED Conference on Applied Simulation and Modeling*, Benalmadena, Spain, June 15-17, 2005, M. Dighrasker and Partha Sarathi Sensarma.
136. A Novel Approach to Harmonic Compensation in Power Systems Using Series Connection of Parallel Resonant Circuit and Active Filter, Proceedings of 2<sup>nd</sup> National Power Electronics Conference, NPEC-2005, IIT-Kharagpur, India, December 22-24, 2005, Kingshuk Kr. Das and P. Sensarma.
137. Full Bridge Zero-Voltage-Switching Converter Topology with Wide-Conversion-Range Applications, Proceedings of National Power Electronics Conference, NPEC-2005, IIT-Kharagpur, India, December 22-24, 2005, D. Durga Praveen Kumar, Sunil Tiwari, Mangesh Borage, Swarna Kotaiah and P. Sensarma.

#### 4. Seminars Presented:

1. Tutorial delivered at IEEE Power Engineering Society General Meeting in San Francisco., A. Ghosh
2. IEEE Tutorial Course – IEEE Power Engineering Society, No. 05TP176, IEEE-PES General Meeting, San Francisco, 2005, *Application of Power Electronics to Power Distribution System*, A. Ghosh and G. Ledwich.
3. Keynote Lecture delivered at 2<sup>nd</sup> National Power Electronics Conference in IIT Kharagpur. “Power converters and their applications.” A. Ghosh.
4. Distinguished Lecture presented at Department of Electrical Engineering, University of Seville, Spain in May-June, 2005, “FACTS and custom power technologies.” A. Ghosh.
5. VLSI Design Methodology, HBTI, Jan. 2006, B. Mazhari,.
6. Power System Restructuring, MMMEC Gorakhpur, February 17-18, 2006, S. N Singh
7. Introduction to FACTS, KNIT Sultanpur, March 24-25 2006, S. N Singh.
8. Machine Translation Summit 2005, Phuket, R. M. K Sinha.
9. Member International Program Committee and Session Chair, The Fourth IASTED International Conference on Computational Intelligence (CI 2005) Calgary, Canada, July 4 – 6, 2005, R. M. K Sinha
10. Session Chair at International Conference on Artificial Intelligence (ICAI-2005), Las Vegas, USA, July 27-30, 2005, R. M. K Sinha
11. Invited Panelist at Symposium on Modelling and Shallow Parsing of Indian Languages (MSPIL-06), IIT Bombay on April 2-4, 2006. Presented Invited paper on ‘Machine Translation of Hinglish’, R. M. K Sinha.
12. All Optical Packet Switching: Architectures and issues, Invited talk in TIFAC-CORE@DCE, Delhi College of Engineering, Delhi, 23 April 2006, YN Singh.
13. *Optical Communications: An overview*, Techsrijan 2006, 30 March 2006, MMMEC, Gorakhpur, Y. N Singh.
14. All-optical packet switching, Conference on Electronic circuits and communications, Feb 9-10, 2006, TIET, Patiala, Y. N Singh.

15. Brihaspati: An opensource elearning platform, Conference on Digital Learning Environments, ISI Bangalore Center, 11-13 January 2006, YN Singh.
16. Brihaspati Virtual classroom, ELELTECH, CDAC-Hyderabad, 8-9 August 2005.
17. National Law School University of India, 6-7 August 2005, Y.N. Singh.
18. Open Source for equitable information society, World Telecom Day Celebrations, IETE Kanpur local center and IE (I), Kanpur, held in LHC, IIT Kanpur, 17 May 2005, YN Singh.
19. Fiber optic Communications, IETE Kanpur, February 2,2006. J. John
20. Statistical Fundamentals for Speech Recognition Winter School on Speech Recognition, (IISc., Bangalore), Jan. 2006, S. Umesh.
21. Large Vocabulary Continuous Speech Recognition, International Conference on Natural Language Processing, (IIT, Kanpur), Dec. 2005, S. Umesh.
22. Signals and Systems on Sets: Towards a Non-numerical Theory of Systems: GE Bangalore (John F Welch Centre), Oct 7<sup>th</sup> , '2005, R. Potluri.
23. Reliable Object Detection: the Basis of Robust Artificial Vision: DA-IICT Gandhinagar., Feb 16<sup>th</sup> , 2006, R. Potluri.
24. A new approach to electrical parameter extraction in MOS devices with high-K gate dielectrics; 05 July 2005; Department of Electrical and Computer Engineering, National University of Singapore, Singapore, S.Kar..
25. Novel features of and a new parameter extraction technique for high-K MOS devices; 14 October 2005; Department of Electrical and Computer Engineering, University of California, Santa Barbara, California, USA., S. Kar.
26. Delivered a pre-conference tutorial on 15<sup>th</sup> Dec. 2005 on Electricity Markets: Few Technical Challenges in the National Power Engineering Conference (NPEC 2005) held at Thiagarajar College of Engineering, Madurai, during 16-17 December 2005, S.C. Srivastava.
27. Delivered a tutorial on Transmission System Management in Restructured Electricity Markets in the International Seminar and Tutorial on 'Power Transmission Research Interests and Challenges' held at Central Power Research Institute Bangalore, December 20-22, 2005, SC Srivastava.

28. Delivered an invited lecture on Power System Restructuring at Institute of Engineering, Tribhuvan University, Nepal, January 9<sup>th</sup> 2006, SC Srivastava.
29. Delivered a key note Lecture on Indian Power Sector: Present Scenario and Challenges in the National Conference on Electric Power Technology, Management and IT Application, MMMEC Gorakhpur, February 17-18, 2006, SC Srivastava.
30. Delivered a key note lecture on Competitive Electricity Markets and Their Secure Operation in the International Conference on Power System Operation in Deregulated Regime (ICPSODR-2006), IT BHU, India, March 6-7, 2006, SC Srivastava.
31. Presented a seminar titled Some Issues on Real-Time Control of Power Electronic Systems using DSP Processors, at Bengal Engineering and Science University, Shibpur, West Bengal on 9.2.2006, P. Sensarma.
32. Inaugural talk on “VLSI Processing” on 19<sup>th</sup> Jan., 2006. in the Short course on “Introducton to VLSI Design” at HBTI, Kanpur, Jan 19-21, 2006, S. S. K Iyer.
33. Lecture on “Organic Solar Cells” in Short course on “Energy Management” at MNNIT, Allahabad, March 27-31, 2006, S. S. K Iyer.

## 5 Conference Attended Outside IIT Kanpur

1. IEEE International Symposium on Information Theory, Adelaide Australia (presented a contributed paper.), A. Ghosh
2. 12<sup>th</sup> National Conference on Communications, I.I.T. Delhi (IIT Kanpur representative in joint Telematics group meeting.) A Ghosh
3. IEEE Power Engineering Society General Meeting at San Francisco, California, USA in June 2005, A Ghosh
4. 2<sup>nd</sup> National Power Electronics Conference at IIT Kharagpur in December, 2005, A Ghosh.
5. National Power Electronics Conference (NPEC) 2005, IIT Kharagpur, Dec. 22-24, 2005, S.P. Das.
6. Presented a Contributed Paper and Chaired a Session on “Application of Power Electronics in Power Systems-II”, SP Das.

7. 13<sup>th</sup> International Conference on Intelligent System Application to Power (ISAP05), Washington, USA, November 6-10, 2005. (*presented paper*), SN Singh.
8. International Conference on Future Power System, Netherlands, November 16-18, 2005. (*presented paper*), SN Singh.
9. National Conference on Electric Power Technology, Management and IT Application, MMMEC Gorakhpur, February 17-18, 2006. (*Delivered Keynote lecture*), SN Singh.
10. Tutorials delivered at National Conference on Technical Challenges in Power Systems, KNIT Sultanpur, March 24-25 2006, S. N Singh.
11. Invited speaker, ELELTECH, CDAC-Hyderabad, 8-9 August 2005, Y. N Singh.
12. Invited speaker, Conference on Digital Learning Environments, ISI Bangalore Center, 11-13 January 2006, Y. N Singh.
13. Invited speaker, keynote speaker, session chairman, Conference on Electronic circuits and communications, Feb 9-10, 2006, TIET, Patiala, Y. N Singh.
14. Chaired the “Grid Related Issues International Conference on Wind Energy: Trends and Issues, at National Institute of technical teachers’ Training and Research, Bhopal, January 5-7,2006, -.
15. Winter School on Speech Recognition, (IISc., Bangalore), Jan. 2006 , Invited Speaker, Panelist in Discussion, S Umesh
16. National Conference on Communications , (IIT,Delhi), Jan 2006, Chairing of a Session,Presented contributed papers, S Umesh.
17. INAE Workshop on Image and Speech Processing (IIT, Chennai), Feb. 2006, Panelist in Discussion, S. Umesh.
18. Attended 2<sup>nd</sup> Indian International Conference on Artificial Intelligence, Pune, India, December 20-22, 2005. Chaired two sessions, Ramprasad Potluri.
19. ICCV- 2005, Beijing, China, 15-20 Oct, 2005, K. S Venkatesh.
20. NCC 2006, IIT Delhi, 27-29 January, 2006, K. S Venkatesh
21. Chaired a session at the 12<sup>th</sup> National Conference on Communications held at IIT Delhi during 27-29 Jan, 2006, A. K Chaturvedi.

22. International Semiconductor Device Research Conference (ISDRS), Bethesda, Maryland, U.S.A., December 7-9, 2005, Contributed paper, S. Qureshi.
23. IEEE International Conference on System, Man and Cybernetics, Hawaii, USA, 10-12 October, 2005, contributed paper, L. Behera.
24. 3<sup>rd</sup> International Conference on Materials for Advanced Technologies (ICMAT 2005) and 9<sup>th</sup> International Conference on Advanced Materials (ICAM 2005), 03-08 July 2005, Singapore: Presented two contributed papers, S. Kar.
25. Third International Symposium on High Dielectric Constant Gate Stacks, 16-21 October 2005, Los Angeles, California, USA.: Participated as Chairman of the Symposium and Session Chair. S. Kar.
26. IEEE PES General Meeting 2005 June 12-16 2005 in San Francisco, California (chaired a session and presented paper). S. C Srivastava.
27. National Power Engineering Conference (NPEC 2005) held at Thiagarajar College of Engineering, Madurai, during 16-17 December 2005 (Offered a tutorial and delivered inaugural address), S. C Srivastava.
28. International Seminar and Tutorial on Power Transmission Research Interests and Challenges, Central Power Research Institute Bangalore, December 20-22, 2005, Delivered tutorial and chaired session, S. C Srivastava.
29. National Conference on Electric Power Technology, Management and IT Application, MMMEC Gorakhpur, February 17-18, 2006. (Delivered Inaugural Keynote lecture and chaired a session), S. C Srivastava.
30. International Conference on Power System Operation in Deregulated Regime (ICPSODR-2006), IT BHU, India, March 6-7, 2006 (Delivered Keynote lecture and chaired a session) S. C Srivastava.
31. International Conference of Antenna Technologies (ICAT2005), Feb 23-24, 2005, ISRO, Ahmedabad, India, A.R. Harish.
32. International Radar Symposium India – 2005, Bangalore, 19-22 December 2005, AR Harish.
33. Presented a paper at 2<sup>nd</sup> National Power Electronics Conference, 2005, IIT Kharagpur, INDIA, Dec 22-24, 2005. Chaired a session, P. Sensarma.

## 6. Other Activities

### **(a) Technology Developed**

1. AnglaBharti-II : English to Indian Languages Machine Aided Translation Technology (under development), R. M. K Sinha.
2. AnuBharti-II : Hindi to English and other languages Machine Translation Technology (under development), R. M. K Sinha.
3. A working prototype developed for the measurement of Laser Range finder based Angle of Attack and Tracking Position of Rail axles for the Indian Railways as part of the project on “Trackside Bogie Monitoring System”. Further development required before technology transfer, J John.
4. True Zoom, Miltiview Image Format. Some more Development Needed., K. S Venkatesh.
5. Anthropological Security: Ready for Transfer, K. S Venkatesh.
6. UHF RFID tag antenna, prototypes are undergoing testing at the partnering organization. A. R Harish.
7. A low power, wideband, hybrid active filter: hardware under development, P. Sensarma
8. A fast and improved PLL for Power System applications: hardware implementation in progress, P. Sensarma.
9. BriMon: Towards Long Term Bridge Monitoring (based on Sensor Networks), Further Development needed. K. Chebrolu.

### **(b) Software Developed**

1. AnglaHindi-II : English to Hindi MAT System (under development) RMK Sinha.
2. HindiAngla-II : Hindi to English MAT (under development), R. M. K Sinha.
3. Brihaspati-2, Brihaspati\_sync : ready for transfer, Y. N Singh.

**(c) Industry visited/visit to other Institute for research Industry/Institute Name, Purpose, Period.**

1. Nanyang Technological University, Singapore for a fortnight in December, 2005, A. K. Chaturvedi.
2. Attended Workshop on “Special Manpower Development Programme in the area of VLSI Design”, February 3-5, 2006, held at I. I. T. Madras, S. Qureshi
3. Chung-Ann University, Seoul, Korea as a distinguished professor from August 2005 to December 2005, A. Biswas.
4. Institute of Engineering Tribhuvan University Nepal, 8-9 Jan. 2006, S. C. Srivastava.
5. NTU Singapore during December 03-16, 2006 for exploring possible technical collaboration, A. R. Harish.
6. Delivered two lectures on Fractal Antennas and Chaos at Microwave Frequencies, A. R. Harish
7. BHEL, Bhopal, for Research Based Industrial Consultancy. (MoU signed on April 25, 2006), P. Sensarma.

**(d) Patents  
(Title, Patents No.)**

1. “Power Supply for Personal Computers, in place of the Conventional SMPS and UPS.” Awaiting filing of patent. K. S. Venkatesh.
2. US patent on Dielectric Resonator, US patent Application No. 11/2248023, Date of filing: Oct 11, 2005, Kumar Vaibhav Srivastava, Vishwa V. Mishra, Animesh Biswas.
3. Variable threshold voltage in proximally located MOSFETs by controlling buried oxide and location below the transistor”, 2056/DEL/2005, S. S. K. Iyer, Chander Pal and Baquer Mazhari.
4. Transfer of Power to contact-less Smart Cards with light from the reader” 2190/DEL/2005, S. S. K. Iyer.
5. Patent on Solar Cells with CNT \_\_\_\_\_/DEL/2006, Arun Tej Mallajosyula and S. S. K. Iyer.

**(e) Awards and Honours**

Title, Awarded by

1. Elected Fellow of IEEE for contributions to education in power electronic applications to transmission and distribution systems, A. Ghosh
2. Invited Expert on occasion of release of CD for Hindi fonts and Web-site by Smt. Sonia Gandhi, Vigyan Bhavan, June 20, 2005. R. M. K Sinha.
3. Member national Technical Advisory Committee of Centre for Development of Advanced Computing (CDAC). R. M. K Sinha.
4. Chairman of the Working Group on "Localisation and Language Technology Standards" under National e-Governance Program (NeGP), R. M. K Sinha.
5. Member IASTED International Technical committee, R. M. K Sinha.
6. Vice Chairperson, Technical Activities of IEEE India Council for the year 2006, S. C Srivastava.
7. Invited to join as Member of the State Advisory Committee of the U.P. Electricity Regulatory Commission, S. C Srivastava.
8. Chief Guest to the inaugural function of the National Power Engineering Conference (NPEC 2005) held at Thiagarajar College of Engineering, Madurai, during 16-17 December 2005, S. C Srivastava.
9. Bharat Jyoti Award (India International Friendship Society), P. K Kalra.

**(f) Continuing Education Activities**

Name of the courses, type (QIP, Self-sponsored/Specific Industry),  
Place: Kanpur/Outside, Dates, Number attended from academic,  
Industry/others.

1. QIP course on "Overview of VLSI Design", Dec. 20-24, 2005, Kanpur. Short-term course on "Organic Electronics and flat panel Displays", July 11-15, Kanpur. B. Mazhari.
2. Organization, Coordination, and part Instruction of Avionics Course for HAL candidates, K. S Venkatesh.
3. Design of DSP-Based Work Station", 16-21 May and 18-23 July, 2005, G.C.Ray.
4. Virtual Instrumentation using LabVIEW", Self-sponsored, IIT Kanpur, July 25-29, 2005, J John.

5. Two-day workshop on Recent Advances in Controls & Sensors sponsored by the Department of Electrical Engineering (IITK), IEEE UP Section, and INAE. March 24 & 25, 2006, R Potluri.
6. Lectures in course on QIP Short Term Course on Overview of VLSI Design, December 20-24, 2005, S. Qureshi.
7. Delivered lectures for CHiP programme, S. Qureshi
8. Electrical Characterization and Characteristics of MOS Devices with Ultrathin (0.5-1.5 nm) High-K Gate Dielectrics”; Sponsored by The Electrochemical Society, USA at the 208<sup>th</sup> Meeting of The Electrochemical Society, 16-21 October 2005, Los Angeles, S.Kar.
9. Co-organizer of a Workshop on design and applications of meta-materials, 27 October 2005, IIT Kanpur, AR Harish.
10. QIP short-term course on “Application of MATLAB® in Engineering”, 2006, P.K. Kalra .
11. Delivered lectures on the short course on “VLSI Systems”, organized by the Department of Electrical Engineering, January 2006, Alope Dutta.
12. Organised QIP short term course on Fundamentals of Wired and Wireless Networks, IIT Kanpur, May 9-13, 2005, K. Chebrolu.
13. Gave lectures on "Printable Electronics" and in "Organic Solar Cells" Short term course on "Organic Electronics and Flat Panel Displays" 11-15 July, 2005 held at IIT Kanpur, S. S. K Iyer.
14. CHiPS Programme – remote classroom project. 26, 28-29 Sept. and 3-4 Oct., 2005, S. S. K Iyer.
15. Two lectures in QIP short course on “Overview of VLSI Design” on 20<sup>th</sup>-24<sup>th</sup> December, 2005, IIT Kanpur, S. S. K Iyer,
16. Organised a one day short course on “Solar Cells” on 30th December, 2005 at IIT Kanpur, S. S. K Iyer
17. Organized the “International Workshop on Radio Frequency Identification (RFID) and Wireless Sensors”, 11-13 November 2005, IIT Kanpur, sponsored by Indo-US Forum on Science & Technology, New Delhi; Department of Information Technology, S. Kar.

**(g) Participation in High Level Industry Academia Interaction Programme during Summer.**

Name of the Industry, Period

**(h) Any other important activity not specified in above columns.**

1. Ongoing project: Design and Development of Burst Acquisition System for Geosynchronous Satcom Channels (Rs 8.5 lakhs, duration 24 months), K Vasudevan.
2. Currently, along with Drs Parthasarathi Sensarma and Laxmidhar Behera, I am negotiating with BHEL over a consultancy project to develop Automatic Voltage Regulators and Universal PID controllers for BHEL. The three of us visited BHEL Bhopal in December 2006 to understand their problem and needs. We expect an MOU to be signed in next couple of weeks, R Potluri.
3. Reviewed Contributed paper for IEE Proceedings: Circuits, Devices and Systems, S. Qureshi
4. Ph.D Thesis examiner, Integrable Analogue Signal processing Circuits Using Current Conveyors, Sudhanshu Maheshwari, Department of Electronics, AMU., S. Qureshi
5. Delivered a invited lecture in ZIF, Bielefeld, Germany during 17-22 Jan 2005, L. Behera.
6. Visited ETH Zurich for a week during 10-17 Jan 2005. L. Behera.
7. Visited ETH Zurich during June 2005 for one month for research collaboration., L. Behera
8. With Institute support started and commissioned the Electronics fab facility at 4-i lab having Rework station for BGA/SMD components using Infra-red heating and accurate positioning using CCD camera, Reflow oven for bulk soldering, Chemical-free solder masking, CNC machine for rapid prototyping of PCBs, P. Sensarma.
9. Principal Investigator of a Sponsored Project under the NAMPET initiative of MCIT, Govt. of India for research in the area of Power Electronics. Total committed amount in period of review: Rs. 80 lakhs. As part of that setting up a new research laboratory for Power Electronics, P. Sensarma.