

ANNUAL REPORT (2008-09)

DEPARTMENT OF ELECTRICAL ENGINEERING INDIAN INSTITUTE OF TECHNOLOGY, KANPUR

1. New courses developed

Ravindra Arora :

“High Voltage Engineering”, <http://www.nptel.iitm.ac.in/courses/Webcourse-contents/IIT-KANPUR/HighVoltageEngg/ui/TOC.htm> , 2008.

(An advanced level elective web course on High Voltage Engineering that has been developed under the National Program on Technology Enhanced Learning(NPTEL), of MHRD. It is accessible at www.nptel.iitm.ac.in since Jan 2008.)

Laxmidhar Behera:

“Mobile Robotics,” University of Ulster, N. Ireland.

Santanu K. Mishra :

EE 662: Control techniques in power electronics

S.C. Srivastava :

“Selected Topics in ECE: Advance Power Systems” Graduate course developed and offered in the Spring 2009 semester at ECE Department, Mississippi State University, USA.

2. Books and book-chapters published

1. SP Das, AK Chaturvedi, R Potluri, A Dutta, SK Mishra, YN Singh eds., “Proceedings of the INDICON 2008: IEEE conference & exhibition on control, communication, and automation,” 2008.

2. Chandima Gomes and Ravindra Arora eds., “*The Lightning Phenomenon --- Need for Awareness, Detection and Protection from Damage caused by Lightning*,” NAM S&T Centre, New Delhi and NASTEC, Colombo, Daya Publishing House, Delhi, 2009.

3. P Guha, A Mukerjee and KS Venkatesh, “Occlusion sequence mining for activity discovery from surveillance videos,” in *Pattern Recognition Technologies and Applications: Recent Advances*, Idea-Group Inc. Chapter - IX, pp 212-226.

3. Research papers published in journals

1. P. Bajpai and S.N. Singh, "Fuzzy adaptive particle swarm based strategic bidding in network constrained electricity markets", *International Journal of Energy Sector Management*, Vol. 2, No.2, pp. 274-296, 2008.
2. M. Basu, S. P. Das, and G. K. Dubey, "Investigation on the performance of UPQC-Q for voltage sag mitigation and PQ Improvement at a Critical Load Point," *Journal of IET Generation, Transmission & Distribution*, vol. 2, no. 8, pp. 414-423, May 2008.
3. R. K. Behera and S. P. Das, "Improved direct torque control of induction motor with dither injection," *Sadhana Journal*, vol. 33, part. 5, October 2008, pp. 537-550.
4. S. Behera, S. P. Das, and S. R. Doradla, "Hardware implementation of modified SVM technique for soft - switching converter," *Journal IE (India)*, vol. 89, Sept. 2008.
5. S. Bose, V. Khaitan, and A.K. Chaturvedi, "A low-cost algorithm to find the minimum sampling frequency for multiple bandpass signals," *IEEE Signal Processing Letters*, vol. 15, pp. 877 - 880, 2008.
6. S. Choudhary and S. Qureshi, "Power aware channel width tapering of serially connected MOSFETs", *Australian Journal of Electrical and Electronics Engineering*, Vol. 5, No. 1, pp. 35-42, 2008.
7. S. Choudhary and S. Qureshi, "Input noise modeling of deep submicron MOSFETs," *Australian Journal of Electrical and Electronics Engineering*, Vol. 4, No. 3, pp 1-6, 2008.
8. U.D. Dwivedi, Deepti Shakya and S.N. Singh, "Power quality monitoring and analysis: an overview and key issues", *International Journal of Systems Signal Control and Engineering Application*, Vol., 1, No.1, pp. 74-88, 2008.
9. Alireza A. Ganjovi and Nandini Gupta, "Parametric investigation of stationary plasma thruster performance)," *Electrical Engineering*, Volume 90, Issue8, pp. 551-559, 2009.
10. Pawan Goyal, Laxmidhar Behera, and Martin McGinnity, "Application of Bayesian framework in natural language understanding", *IETE Technical Review journal*, Vol. 25, No. 5, 251-269, Sept 2008.
11. Rajesh Gupta, Arindam Ghosh and Avinash Joshi, "Switching characterization of cascaded multilevel inverter controlled systems", *IEEE Trans. on Industrial Electronics*, Vol.55, No.3, pp. 1047-1058, March 2008.

12. R. P. Gupta, S. C. Srivastava, and R. K. Varma, "Remote terminal units for distribution automation: development and commissioning experience," *International Journal of Computers and Applications*, ACTA Press, Canada, Vol. 36, Issue 2, 2008. (Available at: <http://www.actapress.com/Abstract.aspx?paperId=33271>)
13. A.R. Harish, A. Gupta, H. Purohit, G.S. Lamba and N. Grover, "Performance analysis of RFID tag antennas," *International Journal on Wireless & Optical Communications*, vol. 5, no. 1, pp. 58-66, September 2008.
14. Naveen Jain, S.N. Singh and Fushuan Wen, "Distributed generation: recent trends and future challenges", *Journal of Electric Power Science and Technology*, Vol.23, No.4, pp.53-61, 2008.
15. T. Jain, S.N. Singh and S.C. Srivastava, "Dynamic available transfer capability computation using a hybrid approach," *IET Proc. on Gen. Trans. & Distribution*, vol. 2, no.6, pp. 775–788, November 2008.
16. Indrani Kar and Laxmidhar Behera, "Direct adaptive neural control for affine nonlinear systems", *Applied Soft Computing* 9, 2009.
17. S. V. Bharath Kumar and S. Umesh, "Non uniform speaker normalization using affine transformation", *J. Acoust. Soc of America*, Vol. 124, Issue 3, pp: 1727-1738, Sept 2008.
18. S. Surendra Kumar, Partha Sarathi Sensarma, "A multiband shunt hybrid active filter with sensorless control ", *Journal of Power Electronics*, Vol. 8, No. 4, pp. 317-324, October 2008 (ISSN 1598-2092).
19. S. Surendra Kumar, Partha Sarathi Sensarma, "A multiband shunt hybrid active filter with reduced sensor count," *Sadhana*, Vol.38, No. 5, pp 629-642, October 2008.
20. Swagat Kumar and Laxmidhar Behera, "Visual motor control of a 7DOF robot manipulator using function decomposition and sub-clustering in configuration Space", *Neural Processing Letters*. Vol. 28, No. 1, 17-33, 2008.
21. S. A. Loan, S. Qureshi and S. S. K. Iyer, "A novel high breakdown lateral BJT on SOI with multizone doped and multistep – a numerical simulation study", *Semicond. Sci. Technol.*, Vol. 24, pp 1-10, 2009.
22. Parimal Maity and Nandini Gupta, "Role of the interface in improving surface degradation properties of epoxy nanocomposites", *The Journal of CPRI*, Vol. 4 No. 2, pp. 179-184, 2008.
23. R. Malik, S. Tondwal, K. S. Venkatesh and A. Misra, "Nanoscaffold matrices for size-controlled, pulsatile transdermal testosterone delivery: nanosize effects on the time dimension," *Nanotechnology*, (IOP electronic journal) vol.19, No.43, Oct 2008, doi: 10.1088/0957-4484/19/43/435101.

24. Santanu K. Mishra and Khai D. T. Ngo, "Dynamic Characterization of Synthetic Ripple Modulator in a tightly regulated distributed power application," *IEEE Trans. Industrial Electronics*, Vol. 56, No. 4, pp.1164-1173, April 2009.
25. T. Mishra, P. Guha, A. Dutta and K. S. Venkatesh, "Stochastic re-grasp planning for vision aided capture of deforming and moving object," *Journal of Mechatronics*, Elsevier doi:10.1016/j.mechatronics.2008.12.002, Jan 2009.
26. Misra, G. Teltia, and A.K. Chaturvedi, "On the connectivity of circularly distributed nodes in ad-hoc wireless networks," *IEEE Communications Letters*, vol. 12, pp. 717 - 719, Oct. 2008.
27. Akhilesh Mohan and Animesh Biswas, "Dual-band bandpass filter using defected ground structure," *Microwave and Optical Technology Letters*, Vol. 51, No.2, pp.475-479, February 2009.
28. Imon Mondal and Alope K. Dutta, "An analytical gate tunneling current model for MOSFETs having ultrathin gate oxides", *IEEE Trans. on Electron Devices*, Vol. 55, No. 7, pp. 1682-1692, July 2008.
29. S.K. Parida, S.N. Singh and S.C. Srivastava, "Assessment and analysis of reactive power concentration in electricity markets," *Journal of Electric Power Science and Technology, China*, vol. 23, no. 3, pp.18-24, September 2008.
30. S.K. Parida, S.N. Singh and S.C. Srivastava, "Ancillary services management policies in India: an overview and key issues," *The Electricity Journal*, vol. 22, no.1, pp. 88-97, Jan./February 2009.
31. P. Patel, P.R. Sahu, and A.K. Chaturvedi, "ABER of dual pre-detection EGC in correlated Nakagami-m fading channels with arbitrary m," *IEEE Communications Letters*, vol. 12, pp. 487 - 489, Jul. 2008.
32. N.M. Pindoriya, S.N. Singh and S.K. Singh, "An adaptive wavelet neural network based energy price forecasting in electricity", *IEEE Trans. on Power Systems*, Vol. 23, No.3, pp. 1423-1432, August 2008.
33. N.M. Pindoriya, S.N. Singh and S.K. Singh, "Short-term load forecasting in electricity markets", *Directions, IIT Kanpur*, Vol. 9, No.1, pp. 144-150, December 2008.
34. B. S. Rajpurohit, S. N. Singh and I. Erlich, "Wind power in electricity markets: key issues and challenges", *International Journal of Energy Technology and Policy*, Vol. 6, No. ¾, pp. 196-211, 2008.

35. Anjan K Ray, Laxmidhar Behera and Mo Jamshidi, "Sonar based rover navigation for a single or multiple platforms: forward safe path and target switching approach", *IEEE Systems Journal*, Vol 2, No. 2, 258-272, 2008.
36. Frank Schweitzer and Laxmidhar Behera, "Nonlinear voter models: the transition from invasion to coexistence", *Eur. Phys. J. B* 67, 301–318, 2009.
37. Bharat Singh and S.N. Singh, "Voltage stability assessment of grid connected offshore wind farms", *Wind Energy*, Vol. 12, No. 2, pp. 157-169, March 2009.
38. S.N. Singh and I. Erlich, "Wind power trading in electricity markets (Editorial)" *International Journal of Energy Technology and Policy*, Vol. 6, No. ¾, pp. 191-195, 2008.
39. R. Mahesh K. Sinha, "A journey from Indian scripts processing to Indian language processing", *IEEE Annals of the History of Computing*, pp. 2-25, Jan-March 2009.
40. Sotirios B. Skretas, Demetrios P. Papadopoulos and S.N. Singh, "ANN and fuzzy logic controller design for hybrid wind/PV system connected to MV distribution grid", *International Journal of Energy Sector Management*, Vol. 2, No. 4, pp. 499-520, 2008.
41. K. Srinivas, and Laxmidhar Behera, "Swing up control strategies for a reaction wheel pendulum", *International Journal of Systems Science*, Vol 39, No 12, 1165-1177, 2008.
42. Kumar Vaibhav Srivastava, Vishwa V. Mishra and Animesh Biswas, "Bandpass filter with improved spurious performance using modified ring dielectric resonator in MIC environment", *Microwave Optical Technology Letters*, Vol.50, No.5, pp. 1426-1431, May 2008.
43. Rajiv Srivastava, Rajat Kumar Singh, Yatindra Nath Singh, "Optical Packet Switching based on Fiber Bragg Gratings," *IEEE Photonics Technology Letters*, Vol.20, No.18, pp.1581-1583, Sept 15, 2008.
44. B. K. Tripathi, P. K. Kalra, B.Chandra, "Complex generalized-mean neuron model and its applications", *Applied Soft Computing* (Elsevier) (Accepted with minor modification) 2009.
45. M.M. Tripathi, K.G. Upadhyay and S.N. Singh, "Short-term load forecasting using generalized regression and probabilistic neural networks in electricity market", *The Electricity Journal*, Vol. 21, No. 9, pp. 24-34, November 2008.
46. Fushuan Wen, Dong Hua, Qin Wang and S.N. Singh, "Wind power generation in China: present status and future prospects", *International Journal of Energy Technology and Policy*, Vol. 6, No. ¾, pp. 254-276, 2008.

4. Research papers published in conference proceedings (as a full paper)

1. A Agarwal, G.S. Raghuwanshi, N.K. Meena, A.K. Verma, and A.R. Harish, "Real time location estimation using active RFID system," International Conference on Recent Advances in Microwave Theory and Applications, Jaipur, Nov 21-24, 2008.
2. P. T. Akhil, S. P. Rath, S. Umesh and D. R. Sanand, "A computationally efficient approach to warp factor estimation in VTLN using EM algorithm and sufficient statistics", *Interspeech 2008*, Brisbane, Australia, September 23-26, 2008, pp 1713-1716.
3. Rachna Asthana, Yatindra Nath Singh, "The effect of removal of loop back on the reliability of the restored paths provided by p-Cycles," IEEE Tencon 2008, Hyderabad, 19-21 Nov. 2008.
4. P. Bajpai and S.N. Singh, "Impact of transmission constraints on supply-side bidding strategy using BLP approach", *IEEE General Meeting, Pittsburgh, USA* July 24-28, 2008.
5. Mukesh Bhesaniya, Prem K. Kalra and Rajiv Shekhar, "Dynamic approach for energy efficiency improvement and emission reduction in Indian power sector", World Renewable Energy Congress (WREC), Asia, to be held during 18-23 May 2009, Bangkok, Thailand.
6. T. Bhowmick and U. Das, "Integrated MQW intermixed InGaAsP/InP waveguide photodiodes," Asia Optical Fiber Communication and Optoelectronic Exposition and Conference, Shanghai, China, October 31, 2008, OSA Technical Digest (CD) (Optical Society of America, 2008), paper SaK38, http://www.opticsinfobase.org/abstract.cfm?URI=AOE-2008_SaK38
7. Veeravasantarao Dandasi, Ajay S, Premkumar P. and Laxmidhar Behera, "Adaptive Active Noise Control Schemes for Headset Applications," in *Proceedings IFAC World Congress*, Seoul, July 2008.
8. Arnab Kanti Dey, Adrish Banerjee, "On primary user detection using energy detection technique for cognitive radio", *National Conference on Communications*, IIT Guwahati, January 16th–18th 2009.

9. Ashutosh Dwivedi, Rajiv Srivastava, P.K.Kalra, Y.N.Singh, "Simplified neural network architecture for shortest path planning in optical networks," IEEE Tencon 2008, Hyderabad, 19-21 Nov. 2008.
10. Ashutosh Dwivedi, Rajiv Srivastava, P.K.Kalra, Y.N.Singh, "Critical issues related to performance evaluation of optical networks," IEEE Tencon 2008, Hyderabad, 19-21 Nov.2008.
11. Umakant Dhar Dwivedi, S.N. Singh and S.C. Srivastava, "A wavelet based approach for classification and location of faults in distribution systems", *Proc. INDICON 2008*, IIT Kanpur, 11-13 Dec 2008.
12. A. R. Ganjovi, Nandini Gupta and G. R. G. Raju. "Kinetic model of a single discharge pulse within narrow channels", 14th Asian Conference on Electrical Discharge, Bandung, Indonesia, 2008, pp. 49-52.
13. Vivek George and Sumana Gupta, "Colorization of grayscale images and videos using a semi-automatic approach," 21st Annual IS&T/SPIE Symposium on Electronic Imaging, 18-22 January 2009 , San Jose, California USA.
14. Shreya Ghatak and Nandini Gupta, "A Kinetic Model of Multipaction for SRF Cavities for Accelerator Driven Sub-critical System (ADSS)", European Particle Accelerator Conference, Genoa, Italy, June 2008.
15. Pawan Goyal, Vipul Arora, Laxmidhar Behera and Martin McGinnity, "Tagging of Text with Emotion for Emotional Speech synthesis", in *Proceedings of 8th ITT conference, GMIT*, Galway, 2008, pp 111-118.
16. Pawan Goyal, Himansu Singh, Amba Kulkarni and Laxmidhar Behera, "Computer Simulation of Ashtadhyayi: Some insights", in *Second International Symposium in Sanskrit Computational Linguistics*, Brown University 15-17 May 2008.
17. Pawan Goyal and R. Mahesh K. Sinha, "Translation divergence English-Hindi-Sanskrit language pairs", Third International Sanskrit Computational Linguistics Symposium, Jan 15-17, 2009, Hyderabad; *Lecture Notes in Computer Science / Lecture Notes in Artificial Intelligence*, Springer-Verlag, 2009, pp. 134-143.
18. Pawan Goyal and R. Mahesh K. Sinha, "A study towards design of an English to Sanskrit machine translation system", Second International Sanskrit Computational Linguistics Symposium, May15-17, 2008, Brown University, Providence, Sanskrit Computational Linguistics First and Second International Symposia Rocquencourt, France, October 29-31, 2007, Providence, RI, USA, May 15-17, 2008 ; Revised Selected Papers Series: *Lecture Notes in Computer Science Subseries: Lecture Notes in Artificial Intelligence* , Springer-Verlag, Vol. 5402, 2009, pp. 287-305.

19. Manavaalan Gunasekaran and Ramprasad Potluri, "Cooperative control of a dual-motor ball and beam system," Proc. INDICON 2008, IIT Kanpur, 11-13 December, 2008.
20. Meenakshi Gupta, Balaji Uggirala, Laxmidhar Behera, "Visual Navigation of a Mobile Robot in a Cluttered Environment," in *Proceedings IFAC World Congress*, Seoul, July 2008.
21. Rajesh Gupta, Arindam Ghosh and Avinash Joshi, "Generalized converter modulation and loss estimation for grid interface applications", IEEE PES General meeting 2008, Pittsburgh, Pennsylvania, 20-24 July 2008, Digital Object Identifier 10.1109/PES.2008.4596781.
22. Samir Hazra, Partha Sarathi Sensarma, "DC bus voltage build up and control in stand-alone wind energy conversion system using direct vector control of SCIM," IEEE-IECON 08, Orlando, Florida, USA, 2008, pp 2143-2148.
23. Rajesh M Hegde and A. Srinivas, "Single Channel Speaker Segregation using Sinusoidal Residual Modeling", Proceedings of the National Conference on Communications (NCC 2009), Jan. 16 - 18 - 2009, IIT Guwahati, India.
24. Tony Jacob and RK Bansal, "On the optimality of sliding window Lempel - Ziv algorithm with side information," Proceedings of International Symposium on Information Theory and its Applications, ISITA 2008, Auckland, New Zealand, pp 1111-1116.
25. T. Jain, S.N. Singh and S.C. Srivastava, "Dynamic available transfer capability evaluation considering Hopf bifurcation limit", *Proc. 15th National Power System Conference (NPSC08)*, IIT Bombay, December 16-18, 2008, pp. 55-60.
26. V.A. Jara, K.M. Player, D. Abi, F. Rodriguez-Morales, S. Gogineni, A.R. Harish, C. Leuschen, "Portable temperate ice depth sounder radar (TIDSoR)," IEEE Radar Conference 2008, 26-30 May 2008.
27. Jindal, A. Ghosh, A. Joshi and A. Gole, "Voltage regulation in parallel distribution feeders using IVOLCON," IEEE-PES General Meeting, Pittsburg, 2008.
28. R.K. Joshi and A.R. Harish, "Inward scaled loop antenna," International Conference on Recent Advances in Microwave Theory and Applications, Jaipur, Nov 21-24, 2008.
29. Indrani Kar and Laxmidhar Behera, "Direct adaptive neural control scheme for discrete time affine nonlinear systems," *Proceedings IEEE Multi-conference on Systems and Control*, San Antonio, USA, September 2008.
30. Indrani Kar, Prem Kumar P., and Laxmidhar Behera, "Visual motor control of a 6 Dof robot manipulator using a fuzzy learning paradigm", *Proceedings IEEE World Congress on Computational Intelligence*, Hong Kong, June 2008.

31. Indrani Kar, Premkumar P., Laxmidhar Behera, "Network Inversion Based Controller Design for Discrete T-S Model," in *Proceedings IFAC World Congress*, Seoul, July 2008.
32. Kaur, P. Sircar, A. Banerjee, "Interpolation of lost frames of a video stream using object based motion estimation and compensation", India Conference, 2008. INDICON 2008. Annual IEEE Volume 1, 11-13 Dec. 2008, pp 40 – 45.
33. P. Kulkarni, T. A. Meharegzi, and S. P. Das, "Design and simulation of a matrix converter-fed scalar controlled synchronous motor drive," in *Conference Proc. INDICON 2008 (IEEE Annual India Conference)* , IIT Kanpur, India, vol. 1, Dec. 2008, pp. 69-74.
34. P. Prem Kumar, Naman Patel and Laxmidhar Behera, "Visual servoing of redundant manipulator with Jacobian matrix estimation using self-organizing map," *5th International Conference CIRAS 2008*, June 19-21, Linz, Austria.
35. Swagat Kumar and Laxmidhar Behera, " Implementation of a neural network based visual motor control algorithm for a 7 DOF redundant manipulator," *Proceedings IEEE World Congress on Computational Intelligence*, Hong Kong, June 2008.
36. Swagat Kumar, Radhakant Padhi, Laxmidhar Behera, "Continuous-time single network adaptive critic for regulator design of nonlinear control affine systems," *Proceedings IFAC World Congress*, Seoul, July 2008.
37. Guozhong Liu, Fushuan Wen, S.N. Singh, "A frequency-duration time (FD) and Monte Carlo based hybrid approach for the evaluation of nodal price and nodal reliability indices", *DRPT 2008 IEEE International Conference*, April 06-09 2008 in Nanjing, Jiangsu, China.
38. S. A. Loan, S. Qureshi and S. S. K. Iyer, "A high breakdown voltage lateral bipolar junction transistor on silicon on insulator with two zone doping and buried oxide thick step," in 2008 Proc. World Congress on Engineering ICEEE, London, ISBN: 978-988-98671-9-8, pp 348-352.
39. S. A. Loan, S. Qureshi and S. S. K. Iyer, "A novel multizone doped and multistep oxide lateral bipolar transistor on silicon on insulator," in 2008 Proc. IEEE ICSE Conf., Malaysia, ISBN: 978-1-4244-3870-0, pp 441-444.
40. S. A. Loan, S. Qureshi and S. S. K. Iyer, "A numerical simulation study of side selective buried oxide based MOSFET", in 2008 Proc. IEEE EDSSC Conf., Hong Kong, ISBN: 978-1-2539-6.
41. S. A. Loan, S. Qureshi and S. S. K. Iyer, "Investigation of a new partial ground plane based MOSFET on selective buried oxide", in 2009 Proc. IEEE CED Conf., ISBN: 978-1 4244-2838-0, pp 77-80.

42. Akhilesh Mohan, Surinder Singh and Animesh Biswas, " Design procedure for quadruple band bandpass microwave filters", Proceedings of Asia Pacific Microwave Conference 2008, Hong-Kong, December, 2008, pp. 173-175.
43. Aniruddha Mondal, Nilesh J. Dattu, and Utpal Das, "Formation of SiC nanostructures on Si Surface using C60 by spinning technique," Proceedings of 2nd National Workshop on Advanced Optoelectronic Materials and Devices (AOMD 2008), December 22-24, 2008, pp 28.
44. S Nandi, P Guha and KS Venkatesh, "Objects from animacy: discovery in joint shape and Haar feature space," Proceedings of the 6th Indian Conference on Vision, Graphics and Image Processing (ICVGIP), Bhubaneswar, December 16-19, 2008. pp 730-737, doi: 10.1109/ICVGIP.2008.78.
45. R. B. Pachori, P. Sircar, "Time-frequency analysis using time-order representation and Wigner distribution" TENCON 2008 - 2008, TENCON 2008. IEEE Region 10 Conference 19-21 Nov. 2008, pp 1 – 6.
46. Ram Bilas Pachori and Pradip Sircar, "Modeling of Multicomponent AM-FM Signals using FB Expansion and Linear TVAR Process", 16th European Signal Processing Conference EUSIPCO 2008, Lausanne, Switzerland, August 25-29, 2008.
47. S Pappala, I. Erlich and S.N. Singh, "Unit commitment under wind power and demand uncertainties", *IEEE Powercon 2008*, New Delhi, October 12-15, 2008.
48. R. R. Patel, B. Kishore Kumar and Nandini Gupta, "Measurement of Volume Resistivity of Epoxy Composites with Nanometric Metal Oxide fillers", 14th Asian Conference on Electrical Discharge, Bandung, Indonesia, 2008, pp. 139-142.
49. R. R. Patel and Nandini Gupta, "Volume Resistivity of Epoxy containing Nano-sized Al₂O₃ fillers", 15th National Power System Conference, IIT, Bombay, India, 2008, pp 361-365.
50. Awhan Patnaik and Laxmidhar Behera, "Evolutionary Multi-objective Optimization Based Control Strategies for an Inverted Pendulum on a Cart," in *Proceedings IEEE World Congress on Computational Intelligence*, Hong Kong, June 2008.
51. N.M. Pindoriya, S.N. Singh and S.K. Singh, "Forecasting the day-ahead spinning reserve requirement in competitive electricity market", *IEEE General Meeting, Pittsburgh, USA*, July24-28, 2008.
52. Sreeniwas Rao Puddi and S. C. Srivastava, "Optimal placement of TCSC based on a sensitivity based approach for congestion management", *Proc. 15th National Power Systems Conference (NPSC)*, IIT Bombay, 16-18 December, 2008, pp. 558-563.

53. B.S. Rapurohit, V. Emmoji, S.N. Singh and I. Erlich, "Performance evaluation of new series connected grid-side converter of doubly-fed induction generator", *IEEE Powercon 2008*, New Delhi, October 12-15, 2008.
54. B.S. Rapurohit and S.N. Singh, "Renewable energy status and vision in India", *National Seminar on Non-Conventional Energy Resources & Its Application (NCERU09)*, February 27-28, 2009, KNIT Sultanpur, pp. 20-29.
55. R. Ramya, Rajesh M Hegde, and Hema A Murthy, "Significance of group delay based acoustic features in the linguistic search space for robust speech recognition", *INTERSPEECH 2008*, Brisbane Australia, Sept. 2008, pp. 1537-1540.
56. R. Ramya, Rajesh M Hegde, and Hema A Murthy, "Incorporating acoustic feature diversity into the linguistic search space for improved speech recognition", L2-2, 16th European Signal Processing Conference, EUSIPCO 2008, Lausanne, Switzerland, Aug. 2008.
57. V. Madhusudana Rao, Akhilesh Mohan and Animesh Biswas, "Realization of dual bandpass filters with metamaterials in three coupled finlines" *Proceedings of Asia Pacific Microwave Conference 2008*, Hong-Kong, December, 2008, pp. 36-39.
58. Anjan Kumar Ray, Laxmidhar Behera, "Inverse kinematic control using rotational and joint space clustering with visual motor coordination", *Proceedings IFAC World Congress*, Seoul, July 2008.
59. Anjan Kumar Ray, Meenakshi Gupta, Laxmidhar Behera and Mo Jamshidi, "Sonar Based Autonomous Automatic Guided Vehicle (AGV) Navigation", *Proceedings 2008 IEEE SoSE Conference*, Monterey Bay, CA, USA, June 2-4, 2008.
60. D. R. Sanand and S. Umesh, "Study of Jacobian compensation using linear transformation of conventional MFCC for VTLN", *Interspeech 2008*, Brisbane, Australia, September 23-26, 2008, pp 1233-1236.
61. D. R. Sanand, V. Balaji, R. Sandhya Rani and S. Umesh, "Use of spectral center of gravity for generating speaker invariant features for automatic speech recognition", *Interspeech 2008*, Brisbane, Australia, September 23-26, 2008, pp 2258-2261.
62. D. R. Sanand, S. P. Rath and S. Umesh, "Improving the performance of VTLN under mismatched speaker conditions and making it approach that of matched speaker conditions", *ICASSP 2009*, Taipei, Taiwan, April 19-24, 2009.
63. K. Seethalekshmi, S.N. Singh and S.C. Srivastava, "Wide-area protection and control: present status and key challenges", *Proc. 15th National Power System Conference (NPSC08)*, IIT Bombay, December 16-18, 2008, pp. 169-175.

64. K Seethalekshmi, S.N. Singh and S.C. Srivastava, "Adaptive distance relaying scheme in presence of UPFC using WAMS," *Proc. of the 2009 Power Systems Conference and Exhibition (PSCE)*, March 15-18, 2009, Seattle, Washington, USA.
65. Deepti Shakya and S.N. Singh, "SVM based fault location and classification using fuzzy classifier for PQ monitoring", *IEEE General Meeting, Pittsburgh, USA*, July24-28, 2008.
66. Sharma, A. Banerjee, P. Sircar, "Performance analysis of energy-efficient modulation techniques for wireless sensor networks", India Conference, 2008. INDICON 2008. Annual IEEE Volume 2, 11-13 Dec. 2008, pp 327 – 332.
67. Md. Shiblee, B. Chandra, and P. K. Kalra, "Learning of new neuron model based on geometric mean with new error metrics" SMC 2008 - The IEEE International Conference on Systems, Man, and Cybernetics 2008, 12 - 15 October 2008, Singapore.
68. Md. Shiblee, P. K. Kalra, and B. Chandra, "Time series prediction with multilayer perceptron (MLP): a new generalized error based approach" ICONIP 2008 - 15th International Conference on Neural Information Processing of the Asia-Pacific Neural Network Assembly November 25-28, 2008, Auckland, New Zealand.
69. Md. Shiblee, B. Chandra, and P. K. Kalra P, "New neuron model for blind source separation" ICONIP 2008 - 15th International Conference on Neural Information Processing of the Asia-Pacific Neural Network Assembly November 25-28, 2008, Auckland, New Zealand.
70. Bharat Singh and S.N. Singh, "Performance evaluation of series and parallel connected grid side converters of DFIG", *IEEE General Meeting, Pittsburg, USA*, July24-28, 2008.
71. Bharat Singh, S.N. Singh, Demetrios P. Papadopoulos and Panagiotis A. Katsigiannis, "Grid code requirements for wind power interconnection into power system" *MedPower'08 – 6th Mediterranean Conference and Exhibition on Power Generation, Transmission and Distribution Macedonia Palace, Thessaloniki, Greece* November 2 – 5 2008.
72. Chaturi Singh, Y.N.Singh, "Architecture of a broadband wireless campus area network," IEEE Tencon 2008, Hyderabad, 19-21 Nov. 2008.
73. Arnab Sinha and Sumana Gupta , "Fast estimation of nonparametric kernel density through PDDP, and its application in texture synthesis," BCS International Academic Conference "Visions of Computer Science" 22-24 September 2008, Imperial College London.
74. Ranjana Sodhi and S. C. Srivastava, "Optimal PMU placement to ensure observability of power system," in *Proc. 15th National Power Systems Conference (NPSC)*, IIT Bombay, 16-18 December, 2008, pp. 1-6.

75. Ramesh K. Sonkar and Utpal Das, "Integrated waveguide grating using impurity induced quantum well intermixing", Asia Optical Fiber Communication and Optoelectronic Exposition and Conference, Shanghai, China, October 31, 2008, OSA Technical Digest (CD) (Optical Society of America, 2008), paper SaK26, <http://www.opticsinfobase.org/abstract.cfm?URI=AOE-2008-SaK26>
76. N V Suresh Kumar Srighakollapu, Partha Sarathi Sensarma, "Sensorless maximum power point tracking control in wind energy generation using permanent magnet synchronous generator", IEEE-IECON 08, Orlando, Florida, USA, 2008, pp 2225-2230.
77. R.Srivastava, R.K.Singh, Y.N.Singh, "Scalability analysis of optical packet switch architectures," IEEE TENCON 2008, 19-21 Nov. 2008,
78. Rajiv Srivastava, Rajat Kumar Singh, Y.N.Singh, "Optical packet switch based on tunable fiber Bragg grating," IEEE Tencon 2008, Hyderabad, 19-21 Nov. 2008.
79. Tolambiya, A., Kalra, P.K., "Contrast sensitive epsilon-SVR and its application in image compression", SMC 2008, IEEE International Conference on Systems, Man and Cybernetics 2008, Singapore.
80. K. Tripathi, B. Chandra, P. K. Kalra, "The generalized product neuron model in complex domain", International Conference On Neural Information Processing, November 25-28, 2008, Auckland, New Zealand.
81. M.M. Tripathi, K.G. Upadhayay and S.N. Singh, "Price forecasting in competitive electricity markets: An analysis", *International Conference on Energy Engineering – ICEE2009*, Puducherry, January 7-9, 2009.
82. Y. N. Trivedi and A. K. Chaturvedi, "Detection in time-varying wireless channels using partial channel state information", Proc. 15th National Conference on Communications, Guwahati, Jan 2009, pp. 151-154.
83. Barjeev Tyagi and S. C. Srivastava, "Automatic generation control scheme based on dynamic participation of generators in competitive electricity markets", *Proc. 15th National Power Systems Conference (NPSC)*, IIT Bombay, 16-18 December, 2008, pp. 195-200.
84. K. Vasudevan, "Synchronization of bursty offset QPSK signals in the presence of frequency offset and noise", Proc. IEEE TENCON, Region 10 conference, Nov. 19-21, 2008, Hyderabad.
85. Francesca Vatta, Alexandre Graelli Amat, Adrish Banerjee, Daniel J. Costello Jr., "Nonsystematic turbo codes: design and bounds on effective free distance", *2008 International Symposium on Information Theory and its Applications (ISITA2008)* Auckland, New Zealand, December 7-10, 2008.

86. Wenkai Wu, Ken Boyden, Santanu Mishra, George Schuellein, "Phase shedding control algorithm for multiphase voltage regulator," Proceedings of PCIM China, June 2008.
87. Hui Yang, Fushuan Wen, Liping Wang, and S.N. Singh, "New Newton-downhill algorithm for distribution power flow analysis", *Proceedings of 2008 IEEE 2nd International Power & Energy Conference (PECon08)*, Dec. 1-3, 2008, Johor Bahru, Malaysia.

5. Seminars and invited talks presented:

Adrish Banerjee, "*Smart House*", Keynote talk at 40th World Telecommunication and Information Society Day, May 2008 at IIT Kanpur organized by IETE Kanpur Chapter.

Adrish Banerjee, "*Turbo Code Design For Half-Duplex Relay Channels*", Department of Electronic Engineering, Far East University of Science and Technology, Taiwan, August 2008.

Laxmidhar Behera, "Quantum Computational Intelligence," Invited Talk in Indo-US workshop held in DEI, Agra, Dec 12-14, 2008.

K. Chaturvedi, "*Decision-Directed Channel Estimation and Data Detection over Time Varying Flat Fading Channels*", School of EEE, NTU, Singapore, May 2008.

A.K. Chaturvedi, "*Low Complexity Frequency Offset Estimation for Flat Fading MIMO Channels*", School of EEE, NTU, Singapore, July 2008.

Shyama P. Das, "*Power Electronics Today*", COMPCON-08 (A National Seminar and Workshop on Communication, Power Electronics and Control Systems), Mohandas College of Engineering and Technology Thiruvananthapuram, 26-28 June 2008.

Nandini Gupta, "*Partial Discharges*", NERIST (AICTE course), Itanagar, June, 2008.

Nandini Gupta, "*Nano-dielectrics*", NERIST (AICTE course), Itanagar, June, 2008.

Nandini Gupta, "*Partial Discharges in High Voltage Power Apparatus*", Invited Lecture, NIT Durgapur, 31st March 2009.

Sumana Gupta, "*Digital Restoration of Old Films and Videos*", Invited Lecture delivered in COMPCON-08 (A National Seminar and Workshop on Communication, Power Electronics and Control Systems), Mohandas College of Engineering and Technology Thiruvananthapuram, 26-28 June 2008.

R. Harish, "*RFID and Applications*", IETE Kanpur Chapter, September 28, 2008.

R. Harish, "*RFID and Location Sensing*", Institution of Engineers, Kanpur, December 31, 2008

R. Harish, “*RF Research at IIT Kanpur*”, International crossroads at TELECOM and Management, SudParis, January 29, 2009

R. Harish, “*Antenna Design for CReSIS Radars*”, February 10, 2009, University of Kansas, USA

R. Harish, “*Active and Passive RFID and Location Technology Research at IIT Kanpur*”, February 13, 2009, Boeing Company, St Louis, USA

Rajesh M. Hegde, “*Speaker Recognition : Part I : Speech Production, Broad Overview of Vector Quantization, and Gaussian Mixture Models*”, National Institute of Technical Teachers' Training and Research (NITTTR), Chandigarh, Jan 31 – 2009.

Rajesh M. Hegde, “*Speaker Recognition : Part II : Theoretical and Implementation Aspects of VQ and GMM for Speaker Recognition*”, National Institute of Technical Teachers' Training and Research (NITTTR), Chandigarh, Jan 31 – 2009.

Joseph John, “*Data Acquisition using LabVIEW*,” Lohia Starlinger Ltd., Chaubepur, Kanpur, January 10, 2009.

P. K. Kalra, “*Health Monitoring of Internal Combustion Engine*”, 18th Feb, 2009, Indo-German Theme Meeting, Kolkata.

Santanu K. Mishra, “*Advanced Converter Technology for FACTS Controllers*”, QIP Course, IIT Kanpur, 26th March, 2009.

Santanu K. Mishra, “*Variable Phase Input Power Plant Design for Telecom Application*”, Power Plant Workshop, AL TTC, BSNL, Ghaziabad, 6th Feb., 2009.

R. Potluri, “*Introduction to Controller Area Network*,” Lohia Starlinger Ltd., Chaubepur, Kanpur, March, 2009.

S. N. Singh : Key Note speaker at AICTE-ISTE course on “*Recent Trends in Power Systems*” at NERIST, Nirjuli, Itanagar, June 23-27, 2008.

S. N. Singh : Key Note speaker at All India Seminar on “*Energy Management in Indian Perspective; Efficiency Improvement and Energy Conservation in Power & Utilities & Emerging Technologies in the Alternative Energy for Power Generation*”, October 17-19, 2008 at IE(I), Lucknow.

S. N. Singh : Key Note speaker and Panelist at National Seminar on “*Non-Conventional Energy Resources & Its Application (NCERU09)*”, February 27-28, 2009, KNIT Sultanpur.

S. N. Singh : FACTS Course at POWERGRID Substation, Lucknow March 5, 2009.

Y. N. Singh , “*Optical Networks*”, IMPACT 2009, Zakir Hussain College of Engineering, Aligarh Muslim University, 15 March 2009.

Y. N. Singh , “*Optical Networks*”, Ambedkar Institute of Technology, Geeta Colony, Delhi, 05 Feb 2009.

S.C. Srivastava, “*Fast dynamic ATC determination and its enhancement using FACTS controller*” Invited Lecture at Illinois Institute of Technology, Chicago USA, October 06, 2008.

S.C. Srivastava, “*Development of methods for optimal placement of PMUs, machine internal state estimation and a global index for voltage stability prediction*”, Invited Presentation (a working group presentation authored by S.C. Srivastava, S.N. Singh, Ranjana Sodhi, Praveen Tripathi and K. Seethalekshmi) in the NASPI working group committee meeting, at EPRI Charlotte, North Carolina, USA during October 16-17, 2008.

K. S. Venkatesh, “*Computer Vision Applications: an Introduction*”, IITM-K Thiruvananthapuram, 11/04/2008.

K. S. Venkatesh, “*New Trends in Video Surveillance Technology*,” LNMIIT, Jaipur, 09/08/2009.

K. S. Venkatesh, “*Short Course in Image Processing*,” BMS Engineering College, Bangalore, 15-20/08/2009.

K. S. Venkatesh, “*Surveillance Video Analysis Systems: Components, Developments and Challenges*,” Univ. of Ulster, Magee, Derry, N. Ireland, 10/12/2008.

K. S. Venkatesh, “*A General Theory of Signals and Processing: The Formalism*,” Univ. of Ulster, Magee, Derry, N. Ireland, 10/12/2008.

6. Conferences attended outside IIT Kanpur

Adrish Banerjee:

National Conference on Communications, I.I.T. Guwahati; Chaired a session, presented a contributed paper.

R. K. Bansal :

Presented paper entitled “On the optimality of sliding window Lempel - Ziv algorithm with side information,” International Symposium on Information Theory and its Applications, ISITA 2008, Auckland, New Zealand, December 7-10, 2008.

Laxmidhar Behera :

IFAC World Congress, Seoul, July 2008
World Congress on Computational Intelligence (WCCI), 2008, in Hongkong, June 2008
IEEE Multi-Conference on Systems and Control, San Antonio, USA, Sept 2008.

A. K. Chaturvedi :

Delivered a plenary talk “*Limited Feedback in Wireless Communication Systems*”, at the Fifteenth National Conference on Communications, IIT Guwahati, 16 - 18 Jan, 2009.

Chair, Technical Committee, IEEE Conference and Exhibition on Control, Communication and Automation, INDICON 2008, IIT Kanpur, December 11-13, 2008.

Rajesh M. Hegde :

Presented peer reviewed paper at the National Conference on Communications (NCC 2009), IIT Guwahati, India, Jan. 16 - 18 – 2009.

Parthasarathi Sensarma :

Presented two contributed papers at IEEE-IECON 08, Orlando, Florida, US, November 10-13, 2008.

S. N. Singh :

3rd National Frontiers in Engineering, Oct. 24-25, 2008, IIT Madras. Theme IV – Infrastructure.

Colloquium for Humboldt Alumni in the Engineering Sciences in India, New Delhi / INDIA, 31 October - 2 November, 2008.

IEEE Conference & Exhibition on Control, Communication and Automation, INDICON 2008, IIT Kanpur, 11-13 December, 2008 (Session Chairman)

15th National Power System Conference, IIT Bombay (Mumbai), December 16-18, 2008.

GRIDTECH 2009 Conference and Exhibition, PGCIL, New Delhi, January 29-30, 2009.

IEEE Power Engineering Society, General Meeting, Pittsburg, USA, July 24-28, 2008. (Panelist)

S. C. Srivastava :

2009 Power Systems Conference and Exhibition (PSCE09), March 15-18, 2009, Seattle, Washington, USA.

North American SynchroPhasor Initiative (NASPI) Working Group Meeting during October 16-17, 2008 at Electric Power Research Institute (EPRI) office, Charlotte, NC, USA

7. Other Activities

(a). Technologies Developed

Ravindra Arora, Principal Investigators of the project “ *Review of electrical clearance in air for 25 kV, 50 Hz ac overhead electric Traction system of Indian Railways*”, sponsored by RDSO Lucknow.

(This two year project was completed in March 2005. The recommendations for the clearance made through this project were implemented by the Indian Railway Specifications in 2007-8.)

Rajesh M. Hegde : *A Multi modal Data Acquisition Test Bed for simultaneous recording of 4 channel video and 8 channel Audio Data.*

Joseph John : *Fully automated Trackside Bogie Monitoring System for measuring i) angle-of-attack using laser range finder based system, ii) lateral and vertical rail forces.* Fully operational system installed at Ajgain Railway Station (Unnao Dist.) on the Kanpur – Lucknow main track.

R. Potluri and P. Sensarma: *Graphical LCD-based Human-machine interface for a digital automatic voltage regulator for captive power plants.* Sponsored by BHEL Bhopal.

P. Sensarma and R. Potluri: *A DSP-based controller platform for automatic voltage regulator applications.* Sponsored by BHEL Bhopal.

K.S. Venkatesh : *Silhouette and Structured Light Based Low Cost 3D Scanner Laser Based Pointing Device for Large Screens.*

(b). Softwares Developed

A.R. Harish : *“Location sensing simulator for indoor environments”*.

A.R. Harish : *“File Tracking System using RFID”*.

Rajesh M. Hegde : *Digital Mandi for the Indian Kisan : Web interface for accessing current mandi prices on line*, as part of BITCOE, IIT-K.

P.K. Kalra: *Internal Combustion Engine Fault Diagnosis System*.

Parthasarathi Sensarma : *A software for calculating inductance of large non-linear shunt reactors”*.

(c). Industries visited and visits to other Institutes for research

Adrish Banerjee :

Department of Electrical Engineering, National Yunlin University of Science and Technology, Douliou City, Taiwan, July-August 2008.

Department of Electrical and Electronics Engineering, Chung-Ang University, Seoul, South Korea, Sept-Dec. 2008

Animesh Biswas : Visited University of Manchester, Manchester, UK in the month of December, 2008, in connection with ongoing UKIERI/British Council project.

K. Chaturvedi : Visited the School of EEE at NTU, Singapore from 15th May to 15th July, 2008 as a Tan Chin Tuan Fellow.

S.P. Das : Visited GE India Technology Centre Private Limited, Bangalore for Consultancy from 2nd July 2008 to 17th July 2008.

P. K. Kalra :

Visited Boeing, Seattle, USA for discussion on project proposal entitled “Prognosis and Diagnosis in HVAC Systems and Rotating Machinery”.

Visited TVS Motors, Hosur, Bangalore for final Installation of hardware and software for project entitled “Condition Monitoring of Internal Combustion Engine”.

Joseph John : Visited Lohia Starlinger Ltd., Chaubepur, Kanpur for technical interactions; August 2008.

Santanu K. Mishra :

BSNL Field Trip: Visit to Kalyanpur and Lakhanpur to study power plant systems used within BSNL.

Visited Moserbear solar cell manufacturing facility in Greater Noida to discuss future technology and possible research collaboration.

S. N. Singh :

Visited POWERGRID SVC station Bhauti to show the SVC station to Course participants.

Visited UPSIDC Ghaziabad for Third party checking of 33kV substation at Bagpat.

S. C. Srivastava : Visiting Research Professor in the Electrical and Computer Engineering Department at Mississippi State University USA, for one year from 1st August 2008.

K.S. Venkatesh : Visited the Univ. of Ulster, Magee, Derry, N. Ireland, Academic Interaction Sponsored by the UKIERI project on Assisitive Robotics, 17/11/2008 – 20/12/2008.

(d). Patents

S. Qureshi and S. S. K. Iyer (Patent filed):

“An improved lateral bipolar junction transistor (BJT) on selective buried oxide (selbox) and a method for manufacturing the same”, patent application No. 1478/DEL/2008.

(e). Awards and Honors

Adrish Banerjee : Erasmus-Mundus Visiting Professor and Researcher Scholarship for European Master of Research on Information and Communication Technologies (MERIT), 2008.

K. Chaturvedi : Received the Tan Chin Tuan Fellowship of Nanyang Technological University, Singapore.

P. K. Kalra : Welliver Faculty Fellowship, Boeing, USA.

(f). Continuing Education Activities

S.P. Das:

Short Course (Doordarshan Sponsored) on “*Design and Analysis of Microcontroller-based System with Embedded Technology*” during Aug. 11-15, 2008 at IIT Kanpur. Participants were engineers from Doordarshan and Industry.

S. Qureshi:

Offered course on “*Advanced VLSI Design*” at ABVIIIITM, Gwalior, from Dec 10 to Dec 15, 2008 for M.Tech students in VLSI Design.

S. N. Singh:

Co-coordinator of DST SERC School on *Power Quality: Monitoring, Analysis and Mitigation* at IIT Kanpur, April 7-11, 2008.

Coordinator of Quality Improvement Program Course on *Flexible AC Transmission Systems Controllers and Their Applications in Emerging Power Systems* at IIT Kanpur, March 23-27, 2009.

S.C. Srivastava:

Co-coordinator DST SERC School on ‘*Power Quality: Monitoring, Analysis and Mitigation*’ at IIT Kanpur, April 7-11, 2008.

General Chair, IEEE Conference and Exhibition on Control, Communication and Automation, INDICON 2008, IIT Kanpur, December 11-13, 2008.

S. Umesh, Rajesh Hegde, P. Sircar, D. R. Sanand, S. P. Rath and A. K. Sarkar :

Organizing Committee for “*Winter School on Speech and Audio Processing (Speaker and Language Recognition)*”.

Organised by: ISCA, IEEE - UP and IIT Kanpur from 9-12 January 2009. (<http://www.iitk.ac.in/wissap09/index.html>)

(g). Any other important activity not specified above

Laxmidhar Behera:

1. Chaired three sessions in IFAC World Congress, Seoul, July 2008.
2. Chaired one session in IEEE MSC, San Antonio, USA, Sept 2008.

(h). Projects and Initiatives

Animesh Biswas: Ongoing project funding from UKIREI/ British Council to work on on-chip transceiver design. Total funding for both IIT Kanpur and University of Manchester is of the order of Rs. 65 Lakhs (Approximately).

L. Behera, P. K. Kalra, K. S. Venkatesh, A. Dutta : Ongoing UKIERI Project with Univ. of Ulster, Magee Campus, N. Ireland on “Innovations in Intelligent Assistive robotics”, Funding amount: GBP 147,000.

Laxmidhar Behera (PI), PK Kalra (Co-PI) : Ongoing DRDO project on “Neural network based visual motor coordination of a 7 DOF redundant manipulator and FPGA implementation of neural control algorithms”, Funding Amount : 48.94 lakhs.

Dutta, K. S. Venkatesh, R. Potluri: MOU with VSSC/ISRO for “Development of moon rover and its vision system”, Funding amount: [Rs 7.44 Lakh x 2] from VSSC + [Rs 36.6 Lakh] from IIT-Kanpur.

Sumana Gupta : Ongoing project on “Restoration of Old Films and Video Archives,” sponsored by ZEE NETWORKS, Noida.

P. K. Kalra : New Project Started on, “Condition based monitoring of Gemcor wing drilling systems and HVAC systems”, funded by Boeing, USA.

R. Potluri : Coordinator for “Knowledge upgradation program”, an initiative at Lohia-Starlinger, Chaubepur, Kanpur.

Parthasarathi Sensarma : Co-ordinator for System Development within the Pan-IIT Solar Initiative of the Department of Science & Technology, Government of India.

S. N. Singh , “Technical report of MDI & low power factor of m/s Guatam Cement, Hamirpur”, Sponsored by DVVNL Banda, Funding Amount Rs 28060 (Completed).

S. N. Singh, “Study on demand & energy charges against import of power during peak hours without drawl of active power”, Sponsored by UP Sug. Mills Cogen Asso., Funding Amount Rs 210675/- (Completed).

S. N. Singh, “Third party quality checking of works of UPSIDC”, Sponsored by UPSIDC, Funding Amount Rs 56180 (Ongoing).

S.N. Singh, S. C. Srivastava and Nandini Gupta, “EHV/UHV transmission system planning for UPPTCL- Study cell IIT Kanpur”, Sponsored by UP PTCL, Funding Amount Rs 10.0 Lakhs (Ongoing).

S.N. Singh and Anoop Singh, “Development of transmission pricing scheme for Orissa grid”, Sponsored by OERC, , Funding Amount Rs 9.86 Lakhs (Ongoing).

K. S. Venkatesh, P. Venkitanarayanan: IGCAR/DAE project on “Visual metrology for fuel pellet and subassembly wrapper inspection”, Funding Amount: Rs 37.4 Lakh.

