



Dr. M. Nandakumar

Professor, Electrical & Electronics Engineering

Administrative Responsibilities

Education Summary

- B. Tech in Electrical Engineering from Govt. Engineering College, Thrissur in 1985
- M. Tech in Industrial Electronics from NIT Surathkalin 1987
- PhD in Power electronics with major area as “ Control of Grid Interactive Inverter Systems” from IIT Madras in 2006

Employment History

- As Senior Research officer for a DST project at Bio-Medical Technology wing of Sree Chitra Institute of Medical sciences, Trivandrum for 1 ½ years from April 2018.
- As Research Engineer at Fluid Control Institute, Kanjikode. Palakkad from 30-09-1989 to 31-01-1990.
- As Assistant Professor, Associate professor, Professor in the Department of Electrical and Electronics Engineering at various Govt. Engineering Colleges under Department of Technical Education, Trivandrum from 02-02-1990 to 31-03-2019. Retired from Department of Electrical Engineering, Govt Engineering College, Thrissur as Professor and HOD on 31st. March, 2019.
- As Professor and HOD, Department of Electrical & Electronics Engineering, SCMS School of Engineering and Technology, Karukutty, from 29-07-2019 to 28-07-2021.
- Presently working as Professor in Electrical and Electronics Engineering, Christ College of Engineering, Irinjalakuda from 30-07-2021 onwards.

Journal/Papers Published

- M.Nanda Kumar and Krishna Vasudevan “Bi-directional real and reactive power control using constant frequency hysteresis with reduced losses”, *Electric Power System Research*, Elsevier Publications (Science Direct), vol.76, sept.2005, pp.127-135
- M.Nanda Kumar and Krishna Vasudevan “ A novel hysteresis switching strategy for harmonic compensation”, *International Journal of Energy Technology and Policy(IJETP)*, Inderscience Publishers.UK Vol.4,No.3/4,pp. 379-393
- M.Nanda Kumar, S. Swapna Kumar and Sheeba V.S” Energy Efficient MAC Protocol (D-MAC) for wireless Sensor Network”, *International Journal of Computer Science, Systems engineering and Information Technology*, July-December 2010, , pp 321-326
- M.Nanda Kumar and K.Aseem “Shunt Active Power Filter with a Novel Hysteresis Current Controller” *Journal of The Institution of Engineers (India)* Vol. 91, March 2011, pp 25-30
- M.Nanda Kumar, S. Swapna Kumar and Sheeba V.S “Obstacle based Range free Localization-error estimation for WSN”*International Journal of computer science* Volume 8, issue 5, no.2, September 2011 pp- 31-39.
- M.Nanda Kumar, S. Swapna Kumar and Sheeba V.S “Fuzzylogic based Energy Efficient Hierarchical Clustering in Wireless Sensor Networks” *International Journal of Research and Reviews in Wireless Sensor Networks*, Vol.1No.4 December, 2011, pp 53-57.
- M.Nanda Kumar and K.Aseem “A Minimally Switched Shunt Active Power Filter for Harmonic Compensation” *International Journal of Industrial Electronics and Control*.ISSN 0974-2220 Volume 4, Number 1 (2012), pp. 1-14.
- M. Nanda Kumar, S. Swapna Kumar, Sheeba V.S, “Cluster based routing algorithm using dual staged fuzzy logic in Wireless Sensor Networks”, ID:(20100769), has been accepted for publication in *Journal of Information & Computational Science* on May, 2012 in Issue 5 of JICS. IF=0.071.
- M. Nanda Kumar, S. Swapna Kumar Sheeba V.S, “Power Management of Hybrid Scheduling Routing in Cluster based Wireless Sensor Networks”, ID:(20100798), has been accepted for publication in *Journal of Information & Computational Science* on June 2012 in Volume 9, Issue 6 of JICS. IF=0.071.
- M. Nanda Kumar, S. Swapna Kumar Sheeba V.S, “Evaluation of Hybrid Ad hoc Routing Protocol for Wireless Sensor Network”, ID:(20100876), has been accepted for publication in *Journal of Information & Computational Science* on June 2012 in Volume 9, Issue 6 of JICS. IF=0.071.

- Aravind Venukumar, Nandakumar M, Venkateswara Rao M and Shekhar Kumar M “Run-of-the-river micro hydroelectric power generation from artificially Induced vortices” The Journal of CPRI, Vol.11, No.4, December 2015, pp 741-750
- EM Suhara, M. Nandakumar “Analysis of Hysteresis Current Controlled Three Phase PWM Rectifier with Reduced Switching Loss”, IJCTA, Volume8, Issue3, pp 877-887
- C. Ismayil ,M.Nandakumar “Novel Scheme to Improve Power Factor of Slip Energy Recovery Drive by Selective Harmonic Elimination”, International Journal of Emerging Electric Power Systems 2014; 15(4): p-p 367–375
- LisyE.R, M.Nandakumar and Anasraj R “Super –twisting Control for Improved Performance of Dual Input Buck Boost Converter”, International Journal of Science and Research , volume 6, issue 5, May, 2017.
- LisyE.R, M.Nandakumar and Anasraj R and Rameshkumar P “Design of Robust Chattering free Integral Sliding Mode Controller for Dual Input Buck Boost Converter”, International Journal of Applied Engineering Research, Volume 13, issue 1, 2018, p-p 358-365.
- Suhara, E. M., M. Nandakumar, and K. Mathew. "Hardware Implementation Issues of FPGA based Prototyping for Hysteresis Current Controlled Three Phase PWM Rectifier." International Journal of Applied Engineering Research 13, no. 2 (2018): 830-839.
- Suhara E M,M Nandakumar and K Mathew, “An adaptive hysteresis based Novel Multi functional EV charger with a single feedback loop Controller’ IETJournal of Engineering 2018 (8), 714-720.
- Lisy E.R., M.Nandakumar, Anasraj R., “Design and Real time Implementation of non-linear sliding surface with the application of super-twisting algorithm in non-linear sliding mode control for Twin Rotor MIMO system ,” Journal of Vibro Engineering, Vol.21, Issue 8, pp.2159-2179, 2019..
- Madhanmohan, Vishnu P, M. Nandakumar, and Abdul Saleem. "Enhanced performance of partially shaded photovoltaic arrays using diagonally dispersed total cross tied configuration." Energy Sources, Part A: Recovery, Utilization, and Environmental Effects (2020): 1-19.
- Madhanmohan, Vishnu P, Abdul Saleem, and M. Nandakumar. "An Algorithm for Enhanced Performance of Photovoltaic Array under Partial Shading Condition." IEEE Access 8 (2020): 176947-176959.
- Vishnu P Madhanmohan, M. Nandakumar and Abdul Saleem “ Performance assessment of basic and hybrid photovoltaic array configurations under partially shaded conditions, Manipal Journal of Science and Technology, December. 2019, pp 17-25.

- Vishnu P Madhanmohan, Abdul Saleem, and NandakumarMadathil Kovilakam“Improved Performance of Partially shaded Photovoltaic array with reformed – total cross tied configuration”, Journal of Energy Harvesting and Systems, August 2021
- M. Nanda Kumar and Krishna Vasudevan” Bidirectional power control using constant frequency hysteresis with reduced losses. IASTED Conference Proceeding on Power and Energy systems 2004, Florida, USA, pp 442-446.
- M.Nanda Kumar and Krishna Vasudevan “A novel hysteresis switching strategy, for reactive power compensation. IASTED Conference Proceeding on Power and Energy systems 2005, Krabi, Thailand, .p-p 300-305.
- M.Nanda Kumar and Krishna Vasudevan“ Bidirectional real and reactive power control using a novel PWM method, IEEE Power India Conference, New Delhi, April 2006.
- M. Nandakumar and Aseem K” A three phase shunt active power filter with novel hysteresis switching strategy” EPSICON 2010, International Conference for Power, Signal, Control and Computation, January ,2010
- M.Nanda Kumar and Jayasuriya, “Fuzzy Based Power System Stabilizer”, NET 2011 ,GEC, Kozhikode 25, 26 February, 2011
- M. Nanda Kumar and Jayasoorya.J, “Fuzzy Based Power System Stabilizer”, NET 2011 ,GEC, Kozhikode 25, 26 February, 2011
- M.Nandakumar, Rajesh K and A. Amar Dutt, “Modified Z-Source Single Phase two Switch Inverter” ICSCCN 2011, International Conference on Signal Processing, Communication, Computing and Networking Technologies.
- M.Nandakumar and Aseem K, “P-Q theory based shunt active power filter with minimum switch utilization”, COSMA 2011, 2nd International Conference on Simulation Modeling and Analysis, December 2011.
- M. Nandakumar and Aseem K” Comparison study of three different control strategies for shunt active power filters”., National technological Congress 2012, , GEC, Thrissur pp. 218-223.
- M. Nandakumar and JisiNalupurakkandiyil “A reduced switch multilevel inverter topology for PV based generation”, National technological Congress 2012, , GEC, Thrissur pp178-183
- M. Nandakumar and V. Aishwarya “Simulation and analysis of a gradationally controlled voltage inverter (GCVI)”, National technological Congress 2012, , GEC, Thrissur pp171-177

- M Nanda Kumar and Aseem K, "P-Q theory based shunt active power filter with minimum switch utilisation", Cosma2011, second international conference on simulation, modelling and analysis Amrita School of Engineering, NIT Calicut, 14 - 16 December, 2011.
- M.Nandakumar and Aseem K Comparison study of three different control strategies for shunt active power filters., National technological Congress 2012, GEC, Thrissur pp. 218-223
- Lisy E.R, M.Nandakumar, "Performance Comparison of Direct and PWM based Sliding Mode Controller for Boost Converter", International conference of Emerging Trends in Electrical Engineering (ICETREE-14), Elsevier publications, 2014, P-P 66-70.
- Anoop K , M. Nandakumar, "DC-DC Converters control method with improved transient performance", National Technological Congress, Kerala (NATCON 2014), p-p 282-287.
- Anoop K , M. Nandakumar "A Novel control strategy for power extraction from Photo Voltaic panels based on one cycle control" 6th International conference on power Electronics.
- Suhara E.M., M .Nandakumar "Analysis of Hysteresis current Control Techniques for Three Phase PWM rectifier", International Conference SPICES 2015a, NIT Calicut.
- Lisy E.R., M. Nandakumar, Anasraj R. "Design of an sliding surface for Twin Rotor MIMO System" Proceedings of 10th Asian Control Conference 2015 ,Kota Kinabalu 31 st May-3rd June 2015..
- Suhara E M, M Nandakumar, 'Analysis of Hysteresis Current Control Techniques for Three Phase PWM Rectifiers' , International Conference SPICES 2015.
- Suhara E M, M Nandakumar, 'Voltage Oriented Control of Three Phase PWM Rectifier with Bus Clamped Space Vector PWM' ,2015 IEEE International Conference on Power, Instrumentation, Control and Computing (PICC 2015).
- Suhara E M, M Nandakumar, K Mathew' Novel Adaptive Hysteresis Current Control of Bidirectional Three Phase PWM Converter under Reduced Switching Scheme ', IEEE PEDES2016
- Lisy E.R., M.Nandakumar, Anasraj R., "Sliding mode controller for Dual input Buck Boost Converter," Proceedings of IEEE International conference on Power Instrumentation control and computing (PICC-2015), Govt. Engineering College Thrissur, Kerala., DEC.2015. Publisher IEEE

- Madhanmohan, Vishnu P., M. Nandakumar, and Abdul Saleem. "Durer's Square Based Photovoltaic Configuration to Mitigate Partial Shading Losses" 2020 International conference on Power Electronics and Renewable Energy Applications (PEREA) IEEE, 2020.
- Nayana J, M.Nandakumar and Ramesh Kumar P "Comparison of DC to DC Converters for PV Application using PSIM Model" 2020 International conference on Power Electronics and Renewable Energy Applications (PEREA) IEEE, 2020.

Areas of Interest

- Power Electronics and drives; power Quality, dc-dc converters, FACTS and Custom Power Devices

Achievements

- Prof. M.M. Ghani Award for Best College Teacher under University of Calicut for the year 2008-09. Kerala Technological University Guideship
- Kerala Technological University Guideship