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Dr. Sanjib Kumar Panda received Bachelor of Engineering Degree with 1st Class Honours from Sardar Vallabhbhai Regional College of Engineering and Technology, Surat, India, in 1983. He was awarded the Gold Medal for securing the highest marks not only amongst the B. Engg. (Electrical) but also for securing the highest marks amongst all the B. Engg. (Civil, Mechanical and Electrical) students. He finished Masters of Technology Degree from Indian Institute of Technology, Banaras Hindu University, Varanasi, India in 1987. He was awarded the Gold Medal for securing the highest marks amongst all the M. Tech. (Electrical) students. Subsequently, he earned a PhD. Degree from the University of Cambridge, U.K., in 1991. He was awarded the Nehru Cambridge Fellowship and Overseas Research Studentship from the Cambridge Commonwealth Trust for Cambridge University for his PhD studies, 1987-1991.

He joined as a Lecturer in the Department of Electrical and Computer Engineering at the National University of Singapore in 1992. He is currently serving as an Associate Professor. He has served as Director (Education) at the Design Technology Institute, a joint-venture between NUS and TU/e, The Netherlands and funded by EDB, Singapore. He has served as the Group Head of the Drives, Power and Control Group from 2007-2009. He was appointed as Area Director, Power & Energy Research Group of the Department of Electrical & Computer Engineering at NUS on 1st January 2010.

Dr. Panda has carried out extensive research in various areas of control of electric drives and power electronic converters. He has co-authored 1 Book, 2 Book Chapters, 6 patents, 70+ International Refereed Journals 150+ International Refereed Conference Papers and 2 Technology Primers for NRF. His current research interests are, high efficient power electronic converters, energy harvesting both at high power level as well as at very low-power level for wireless sensor nodes and networks, control of distributed renewable energy generation, assistive technology and mechatronics.

Dr. Panda has been a very active member in the Institute of Electrical and Electronics Engineers (IEEE) and presently a Senior Member of IEEE. He has served in various capacities as Chapter Officer in the IEEE Singapore Section Joint Power Electronics and Industry Applications Society Chapter. He has served as the Chairman of the IEEE Singapore Section in 2004. He was the Organizing Chairman for the International IEEE Power Electronics and Drives Systems Conference in 2003 as well as the International Conference on Sustainable Energy Technologies in 2008. He is the recipient of the IEEE 3rd Millennium Medal. He also received the Best Volunteer Award by the IEEE Singapore Section in 2006.

Research Projects **Electrical Machines & Drives Lab**

Publications

Publications

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2014 2013 2012 2011 2010 2009 2008 2007
2006 2005 2004 2003 2002 2001 2000-

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2014

Journal Publications

1. D. C. Hoang, R. Kumar, S. K. Panda, "Real-time Development of Energy Efficient Clustering Protocol for Wireless Sensor Networks using Harmony Search Algorithm", *IEEE Transactions on Industrial Informatics*, Vol. 10, No. 1, 2014.

Conference Proceeding

1. Krishnanand K.R., S.M.F. Hasani, J. Soni and S. K. Panda "Neutral Current Mitigation Using Controlled Electric Springs Connected to Microgrids within Built Environment", In IEEE Energy Conversion Congress & Expo (ECCE), Pittsburgh, USA, September 14-18, 2014. (Accepted for publication)

2013

Journal Publications

1. D. C. Hoang, R. Kumar, S. K. Panda, "Realization of a Cluster-based Protocol using Fuzzy C-Means Algorithm for Wireless Sensor Networks", *IET Journal of Wireless Sensor Systems*, Vol. 3, No. 3, 2013.

2. Snehasis Despande, I. V. Prasanna, S. K. Panda, "An Efficient Impedance Matching Technique for Improving Narrowband Power Line Communication in Residential Smart Grids", International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering Vol. 2, Issue 7, July 2013, ISSN : 2278-8875

3. Snehasis Despande, I. V. Prasanna, S. K. Panda, "An Adaptive Impedance Matching Technique for Narrowband Power line Communication in Residential Smart Grids",International Journal of Engineering Research & Technology (IJERT) Vol. 2 Issue 9, September 2013, ISSN: 2278-0181

4. Moirangthem, Joymala, Bijaya Ketan Panigrahi, Krishnanand K. R., and Sanjib Kumar Panda. "Robust Protective Relay Setting and Coordination Using Modified Differential Evolution Considering Different Network Topologies." In Swarm, Evolutionary, and Memetic Computing, pp. 107-118. Springer International Publishing, 2013 [Book Ch

5. Moirangthem, Joymala, Krishnanand K. R., Subhransu Sekhar Dash, and Ramas Ramaswami. "Adaptive differential evolution algorithm for solving non-linear coordination problem of directional overcurrent relays." IET Generation, Transmission & Distribution 7, no. 4 (2013): 329-336

6. Krishnanand, K. R., Syed Muhammad Farzan Hasani, Bijaya Ketan Panigrahi, and Sanjib Kumar Panda. "Optimal Power Flow Solution Using Self–Evolving Brain–Storming Inclusive Teaching–Learning–Based Algorithm. In Advances in Swarm Intelligence, pp. 338-345. Springer Berlin Heidelberg, 2013 [Book Chapter]
[Won Best Student Paper Award at ICSI Conference]

Conference Proceeding

1. Solution Using Self-Evolving Brain-Storming Inclusive Teaching-Learning-Based Algorithm". *4th International Conference on Swarm Intelligence, 2013. ICSI-2013*, 12-15 Jun 2013, Harbin, China.

2. Jeevan Adhikari, Student Member, IEEE, Akshay K. Rathore, Member, IEEE S K Panda, Senior Member, IEEE "Modular Interleaved ZVS Current Fed Isolated DC-DC Converter for Harvesting High Altitude Wind Power" IECON 2013, Austria

3. Jeevan Adhikari, Student Member, IEEE, Akshay K. Rathore, Member, IEEE S K Panda, Senior Member, IEEE "Harnessing High Altitude Wind Power Using Light Gas Filled Blimp" IECON 2013, Austria

4. Jeevan Adhikari, Student Member, IEEE, Akshay K. Rathore, Member, IEEE S K Panda, Senior Member, IEEE "Comparison of ZVS Based Isolated DC-DC Converters for High Altitude Wind Power Application" ISGT 2013, Bangalore, India

5. Krishnanand K.R., Bhuneshwar Prasad, Hoang Duc Chinh, A.K. Rathore and Sanjib Kumar Panda, "Smart-Metering for Monitoring Building Power Distribution Network using Instantaneous Phasor Computations of Electrical Signals". *39th International Conference on Industrial Electronics, 2013. IECON-2013*, 10-13 Nov 2013, Vienna, Austria.

2012

Journal Publications

1. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "Lyapunov function based current controller to control active and reactive power flow from a renewable energy source to a generalized three-phase micro-grid system," accepted for publication in IEEE Transactions on Industrial Electronics, June 2012.

2. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "Application of four-switch based three-phase grid connec inverter to connect renewable energy source to a generalized unbalanced micro-grid system," accepted for publication in IEEE Transactions on Industrial Electronics, May 2012.

3. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "A plug and play operational approach for implementation of an autonomous-micro-grid system," accepted for publication in IEEE Transactions on Industrial Informatics, March 2012.

4. D. C. Hoang, R. Kumar, S. K. Panda, "Optimal Data Aggregation Tree for Wireless Sensor Network using Intelli Water Drop Algorithm", *IET Journal of Wireless Sensor Systems*, 2012.

Conference Proceeding

1. S. Dasgupta, I.V. Prasanna, S. K. Panda, "A novel four-leg three-phase inverter control strategy to reduce the Data Center thermal losses: Elimination of neutral current," accepted for publication in the Annual Conference of the IEEE Industrial Electronics Society, IECON 2012, Montreal, Canada, Oct. 25-28, 2012.

2. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "A grid voltage sensor-less operational approach of interconnecting distributed generating source based inverter to an un-balanced generalized three-phase grid together with local load at PCC," accepted for publication in the IEEE Energy Conversion Congress & Exposition, ECCE 2012, Raleigh, North Carolina, Sept 15-20, 2012.

3. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "Signature voltage identification technique for implementa of a reliable autonomous-micro-grid system," accepted for publication in the IEEE International Symposium of Industrial Electronics, ISIE 2012, China, May 28-31, 2012.

4.D. C. Hoang, K. T. Ching, R. Kumar, S. K. Panda, "Intra-Cluster Power Management for Wireless Sensor Network *IEEE International Symposium on Industrial Electronics (ISIE-2012)*, Hangzhou, China, 2012.

5.D. C. Hoang, S. K. Panda, "Real-time Power Configuration for Energy Conservation in Wireless Sensor Networks *IEEE International Conference on Communication Systems (ICCS-2012)*, Singapore, 2012.

6.Chowdhury Abhra Roy, Prasad. B; Vishwanathan. V; Kumar. R; Panda. S K "Implementation of a BCF Mode Bio-m Robotic Fish Underwater Vehicle based on Lighthill Mathematical Model", 2012 IEEE RAS ICROS International Conference on Control, Automation and Systems (ICCAS 2012),ICC Jeju, Korea, pp : 437- 442 (Student Best Pape

7.Chowdhury Abhra Roy, Prasad. B; Vishwanathan. V; Kumar. R; Panda. S K "Kinematics study and implementatio biomimetic robotic-fish underwater vehicle based on Lighthill slender body model", 2012 IEEE/OES Autonomous Underwater Vehicles (AUV), National Oceanography Centre, Southampton UK, pp 1-6.

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2011

Journal Publications

1. S. K. Sahoo, S. Dasgupta, S. K. Panda and J. X. Xu "A Lyapunov function based Robust Direct Torque Contr Switched Reluctance Motor Drive System", accepted for publication in IEEE Transactions on Power Electronics, 20

Conference Proceeding

1. Ko Ko Win, S. Dasgupta, S. K. Panda, "An Optimized MPPT Circuit for Thermoelectric Energy Harvester for L Power Applications", accepted for publication in IEEE International Conference on Power Electronics (ICPE), Kore May 30-June3, 2011.

2. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "Derivation of instantaneous Current References for Th Phase PV Inverter Connected to Grid with active and reactive Power flow Control", accepted for publication in IE International Conference on Power Electronics (ICPE), Korea, May 30-June3, 2011.

3. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "A Lyapunov function based current controller to contr and reactive power flow of a three phase grid connected PV inverter under generalized grid voltage conditions in presence of non-linear load at the grid", accepted for publication in IEEE International Conference on Power Elec (ICPE), Korea, May 30-June3, 2011.

4. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "A FBD theory based grid frequency independent curre reference generation method for a three phase inverter interfacing renewable energy sources to generalized micro-grid system ," accepted for publication in Annual Conference of the IEEE Industrial Electronics Society (IE Melbourne, Nov. 7-10, 2011.

5. S. Dasgupta, S. N. Mohan, S. K. Sahoo, S. K. Panda, "Evaluation of current reference generation methods for a three-phase inverter interfacing renewable energy sources to generalized micro-grid," accepted and presented in International Conference on Power Electronics and Drive System (PEDS), Singapore, Dec. 5-8, 2011.

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2010

Journal Publications

1. Y.K. Tan and S.K. Panda, "Optimized Wind Energy Harvesting System Using Resistance Emulator and Active Rectifier for Wireless Sensor Nodes", IEEE Transactions on Power Electronics, accepted for publication, 2010.

2. S. Dasgupta, S.K. Sahoo and S.K. Panda, "Single-phase inverter control techniques for interfacing renewable energy sources with micro-grid - Part-I : Parallel connected inverter topology with active and reactive power flow control along with grid current shaping," accepted for publication in IEEE Transactions on Power Electronics, 201

3. S. Dasgupta, S.K. Sahoo, S.K. Panda and G.A.J. Amaratunga, "Single phase inverter control techniques for inte renewable energy sources with micro-grid - Part-II: Series connected inverter topology to mitigate voltage relate problems along with active power flow control," accepted for publication in IEEE Transactions on Power Electron

4. H. Zhou, T. Bhattacharya, D. Tran, T. Siew and A. M. Khambadkone, "Composite Energy Storage System Involvi Battery and Ultracapacitor with Dynamic Energy Management in Microgrid Applications", Accepted by IEEE Transa

on Power Electronics, 2010

Conference Proceeding

1. S.F. Lim and A.M. Khambadkone, "A Simple Digital DCM Control Scheme for Boost PFC Operating in Both CCM Accepted by IEEE Energy Conversion Congress and Exposition, ECCE 2010.

2. S. Dasgupta, S.K. Sahoo and S.K. Panda, "Design of a Spatial Iterative Learning Controller for Single Phase Se Connected PV Module Inverter for Grid Voltage Compensation," at IEEE International Power Electronic Conference 2010, Japan, pp. 1980-1987, June 21-24, 2010.

3. S. Dasgupta, S.K. Sahoo and S.K. Panda, "A novel current control scheme using Lyapunov function to control the active and reactive power flow in a single phase hybrid PV inverter system connected to grid," at IEEE Interr Power Electronic Conference (IPEC), 2010, Japan, pp. 1701-1708, June 21-24, 2010.

4. S. Dasgupta, S.K. Sahoo, S.K. Panda and J.X. Xu, "A Chattering free Lyapunov function based sliding mode con applied to single phase series connected PV inverter for grid voltage compensation," accepted for publication in Annual Conference of the IEEE Industrial Electronics Society (IECON), Nov. 7-10, 2010.

5. Sasidhar Sangit ; Panda, S.K. ; Xu, J., "A Real Time Control Algorithm for a Myoelectric Glove for the Rehabilit of Wrist and Elbow of stroke Patients", ICCA 2010.

6. H. Wang, Ashwin M. Khambadkone and Xiaoxiao yu, "Dynamic Electro-Thermal Modeling in Power Electronics B Block (PEBB) Applications", IEEE ECCE 2010, Sep. 2010.

7. X. Yu, A. Khambadkone and H. Wang, "Control of Paralleled Power Converter Modules to Facilitate the Effective Operation of Microgrid", IEEE *International Power Electronics Conference (IPEC'10)*, 2010.

8. X. Yu, H. Wang and A. Khambadkone, "Control of Paralleled PEBBs to Facilitate the Effective Operation of Micro *IEEE International Symposium on Industrial Electronics (ISIE'10)*, 2010.

9. X. Yu, H. Wang, A. Khambadkone, and T. Siew "A Hybrid Control Architecture for Low Voltage Microgrid", *IEEE Conversion Congress and Exposition (ECCE'10)*, 2010.

10. Haihua Zhou, Tanmoy Bhattacharya, Duong Tran, Terence Siew and Khambadkone, A.M, "Composite Energy Sto System with Flexible Energy Management Capability for Micro-grid Applications", IEEE Energy Conversion Congres and Expo, ECCE 2010.

11. Haihua Zhou, Tanmoy Bhattacharya and Khambadkone, A.M, "Composite Energy Storage System Using Dynami Energy Management in Microgrid Applications", International Power Electronics Conference ECCE-Asia 2010.

12. Haihua Zhou, Duong Tran, Terence Siew and Khambadkone, A.M.,, "Interleaved Bi-directional Dual Active Bridg DC-DC Converter for Interfacing Ultracapacitor In Micro-Grid Application", 2010 IEEE International Symposium on Industrial Electronics, ISIE 2010.

13. Parikshit Yadav, Rajesh Kumar, S. K. Panda, C. S. Chang, "Optimization of the Power Generation Scheduling i Oil-Rig Platforms", IEEE International Symposium on Industrial Electronics (ISIE'10), 2010.

14. Duong Tran, Haihua Zhou and Ashwin M. Khambadkone. "A simple design of DC power system to operate sta under constant power load". IEEE PEDG conference, 2010.

15 D. C. Hoang, R. Kumar, S. K. Panda, "Fuzzy C-Means Clustering Protocol for Wireless Sensor Networks", *IEEE International Symposium on Industrial Electronics (ISIE-2010)*, Bari, Italy, 2010.

16. D. C. Hoang, P. Yadav, R. Kumar, S. K. Panda, "A Robust Harmony Search Algorithm based Clustering Protoco Wireless Sensor Networks", *International Conference on Communications (ICC 2010)*, Cape Town, South Africa, 2

17. S. Dasgupta, Kunlin C, S.K. Sahoo and S.K. Panda, "A Novel Control Strategy for Fast Tracking of Photovoltaic Maximum Power Point Voltage," accepted for publication in 2nd IEEE international conference ICSET, Sri Lanka, Dec. 6-9, 2010.

18. S. Dasgupta, Freddy Wilyanto Suwandi, S.K. Sahoo and S.K. Panda, "Dual Axis Sun Tracking System with P Cell as the Sensor, Utilizing Hybrid Electrical Characteristics of the Cell to Determine Insolation," accepted for publication in 2nd IEEE international conference ICSET, Sri Lanka, Dec. 6-9, 2010.

19. Ko Ko Win, Xinhui Wu, Souvik Dasgupta, Wong Jun Wen, Rajesh Kumar, and Panda S.K, "Efficient Solar Energ Harvester for Wireless Sensor Nodes," accepted and presented in IEEE international conference on communication systems ICCS 2010, Nov. 17-19, 2010.

20. D.Tran, H. Zhou and A. M. Khambadkone , "Energy management and dynamic control of Composite Energy

Storage System for micro-grid", 36th Annual Conference on IEEE Industrial Electronics Society (IECON) , pp. 1818 - 1824, Nov. 2010

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2009

Journal Publications

1. Haihua Zhou and Khambadkone, A.M. " Hybrid Modulation for Dual Active Bridge Bi-Directional Converter with Extended Power Range for Ultracapacitor Application," Accepted to be published in *IEEE Transactions on Industry Applications* Vol.45,No.4, July/August 2009.

2. Haihua Zhou, Khambadkone, A.M. and Xin Kong", Passivity Based Control for an Interleaved Current Fed Full B converter With a Wide Operating Range using the Brayton Moser Form," Accepted to be published in *IEEE Transa on Power Electronics*.

3. B. Yin, *R. Oruganti*, S. K. Panda, and A. K. S. Bhat, "A simple single-input-single-output (SISO) model for a three PWM rectifier," IEEE Transactions on Power Electronics, vol. 24, no.3, pp:620-631, March, 2009.

Conference Proceeding

1. D.C. Hoang, Y.K. Tan and S.K. Panda, "Thermal Energy Harvesting From Human Warmth For Wireless Body Area Network In Medical Healthcare System", The Eighth International Conference on Power Electronics and Drive Systems (PEDS'09), accepted, 2009.

2. Xiaoxiao Yu, Ashwin M Khambadkone, "Combined Active and Reactive Power Control of Power Converter Buildi

Block to Facilitate the Connection of Micro-grid to Electric Power System", Accepted to IEEE Energy Conversion C and Exposition (ECCE) 2009.

3. S.F. Lim and A.M. Khambadkone, "Non Linear Inductor Design for Improving Light Load Efficiency of Boost PF IEEE Energy Conversion Congress and Exposition, ECCE 2009, pp.1339-1346, 2009.

4. S. Dasgupta, S.K. Sahoo and S.K. Panda, "A New Control Strategy for Single Phase Series Connected PV Modul

for Grid Voltage Compensation," at the IEEE International Conference on Power Electronics and Drives Systems (Taiwan, pp. 1317-1322, Nov 2-5, 2009.

5. Sasidhar Sangit; Panda, S.K.; Xu, J., "Design of a Myoelectric Glove for Upper Limb Stroke Rehabilitation", ICR