

**(DEPARTMENT OF ELECTRICAL ENGINEERING)**

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4 **Date of birth** 03/10/1979

5 **Research Area**

“Power Quality- Filters, Custom Power Devices, Power Electronics Converters for Power Quality, Application of ANN and adaptive control in Power Electronics System, Distributed Power Generation System

6 **Academic Qualifications**

| Degree                 | Year      | Specialization                    | Name of Board/Institute             |
|------------------------|-----------|-----------------------------------|-------------------------------------|
| 10 <sup>th</sup> Class | 1994      | -                                 | M.P. Boards                         |
| B. E./B. Tech.         | 2002      | Electrical Engineering            | Govt. Engg. College Jabalpur (M.P.) |
| M.E./M. Tech.          | 2004      | Power Electronics and ASIC design | MNNIT Allahabad                     |
| Ph. D.                 | 2010-2013 | Electrical Power Quality          | EED, I.I.T. Delhi                   |

## 7 Recognitions received

| Sr. No. | Name of award                          | Name of society   | Year |
|---------|--|---|------|
| (i)     | Young Engineer Award-2014              | Indian National Academy of Engineering (INAE)- Delhi  | 2014 |
| (ii)    | POSOCO Power System Award (PPSA-2014)  | Power System Operation Corporation (POSOCO) –A subsidiary of Power Grid Corporation of India Ltd (POWERGRID)-Delhi.               | 2014 |
| (iii)   | Amit Garg Memorial Research Award-2014 | From Indian Institute of Technology (IIT) Delhi for the High Impact Publication in a quality journal during the session 2013-2014 | 2014 |
| (iv)    | IEEE-Senior Member                     | IEEE Industry Applications Society  | 2015 |
| (v)     | Associate Editor                       | IET Renewable Power Generation  | 2018 |

## 8 Details of Research and Development Projects

| Sr. No. | Name of Project  | Funding Agency  | Durations   |
|---------|--|---|---|
| (i)     | Development of Adaptive control algorithm for shunt compensator (Minor Project)  | Gujarat Council on Science and Technology (GUJCOST) Gandhinagar (Gj.) -382011                 | <b>Sanctioned</b> for 2 Year<br>( from: March 2016)     |
| (ii)    | Development of Control Algorithms for Shunt and Series connected Custom Power Devices, Applied                               | Science and Engineering Research Board -New Delhi (Under Extra Mural Research Funding Scheme) | <b>Sanctioned</b> for 3 Year (from June :2016)          |
| (iii)   | Development of Wind Energy Conversion System with Power Quality Features by Shunt Active Compensator, Amount (Rs.): 3.7 Lacs | Gujarat Energy Development Agency (GEDA) Udyog Bhavan, Sector -11- Gandhinagar-382017         | <b>Applied</b> for 2 Year<br>(In the month of May 2017) |

## 9 Positions held (from 2004 to present)

| Sr. No. | Name of Department/ Institute   | Positions              | Duration  | Nature of work  |
|---------|---|------------------------|---|---|
| (i)     | (Electrical Engineering Department)<br>Kalinga Institute of Industrial Technology-Patia<br>(Deemed university)-<br>Bhubaneswar-751024 | Lecture                | <b>27<sup>th</sup> July 2004<br/>to 27<sup>th</sup> Nov.<br/>2006</b> | Teaching and<br>Research<br>(Supervisor for<br>M.Tech. and<br>B.Tech. students)           |
| (ii)    | (Electrical Engineering Department)<br>S.V. National Institute of<br>Technology, Dumas Road,<br>Ichchhanath, Surat-395007             | Assistant<br>Professor | <b>1<sup>st</sup> Dec.2006 to<br/>present</b>                         | Teaching and<br>Research<br>(Supervisor for<br>Ph. D, M.Tech.<br>and B.Tech.<br>students) |

## 10 Membership of professional bodies

| Sr. No. | Name of society   | From                          | Grade /Member ship<br>number      |
|---------|---|-------------------------------|-----------------------------------|
| (i)     | Institute of Electrical and<br>Electronics Engineers (IEEE)                 | 2012 to continuous            | Senior Member (2015)<br>/92074574 |
| (ii)    | The Institution of Engineers<br>(INDIA)                                     | 2010 to continuous            | Associate member<br>/AM0984518    |
| (iii)   | The System society of India   | 2008 to continuous            | Member/ LM28471                   |
| (iv)    | The Institution of Electronics and<br>Telecommunication Engineers<br>(IETE) | January 2016 to<br>continuous | Member/LM 500011                  |

**11 Short term courses /Seminars Organized at SVNIT (work as Coordinator and Delivered Expert Lecture)**

- 1) Power Electronics For Distribution System and Electric Drives, June-July 2018
- 2) Power Quality and Distributed Power Generation, Dec. 2017
- 3) Design and Control of Power Electronic Circuits using OPAL- Real Time Simulators- March 2017
- 4) Power conditioning and Distributed Power Generation-Dec.-2016
- 5) Power Electronic: Circuits and Control-Dec.2015
- 6) Power Electronics: System and Control –Dec. 2014
- 7) Power Filter Technology and Control- June 2014
- 8) Advance Control System Education – Feb.2014

**12 Complete lists of refereed Journal papers and papers presented in Conferences**

**Summary of Publication in International/National Journals**

| IEEE Transactions   | IET-UK                                   | Elsevier           | Other International Journals  | Total     |
|---|--|--------------------|---|-----------|
| <b>19</b>   | <b>08</b>                                | <b>02</b>          | <b>21</b>   | <b>50</b> |
| TIE-3, TPE-5<br>TII-1, TPWD-1 TIA-4,<br>JESTPE-4, CPSST-1 | IET(PEc) -3<br>IET(GTD) -4<br>IET(RPG)-1 | EPSR-1<br>IJEPES-1 | ITEES-3, JAPE-2<br>IJEST-1, IJEEPS-5<br>EPCS-1, IEIB-2, JGE-5,<br>JCSE-1, IJPEC-1 |           |

**Summary of Publication in International/National conferences and communicated papers**

| International / National conferences | Book Chapters | Communicated Papers in Journals/ conferences | Total     |
|--------------------------------------|---------------|--|-----------|
| <b>37</b>                            | <b>01</b>     | <b>13</b>                                    | <b>51</b> |

**(i) Publications in IEEE Transactions /IET Journals =27**

- [1] Sabha Raj Arya, Rakesh Maurya and Talada Appala Naidu, "Amplitude Adaptive Notch Filter with Optimized PI Gains for Mitigation of Voltage based Power Quality Problems," **Accepted for Publication in CPSS Transactions on Power Electronics and Applications.**

- [2] Talada Appala Naidu, Sabha Raj Arya and Rakesh Maurya, " Dynamic Voltage Restorer with Quasi Newton Filter based Control Algorithm and Optimized values of PI Regulator Gains, **Accepted for Publication in IEEE Journal of Emerging and Selected Topics in Power Electronics.**
- [3] Ashutosh K Giri, Sabha Raj Arya, Rakesh Maurya and Ramakanta Mehar, " Variable Learning Adaptive Gradient Based Control Algorithm for VSC in Distributed Generation," **IET Renewable Power Generation**, vol. 12, no. 16, pp. 1883 – 1892, 2018.
- [4] Ashutosh K. Giri, Sabha Raj Arya and Rakesh Maurya, "Compensation of Power Quality Problems in Wind based Renewable Energy System for Small Consumer as Isolated loads, **Accepted for Publication in IEEE Transactions on Industrial Electronics.**
- [5] Sanjay Kumar Patel, Sabha Raj Arya, Rakesh Maurya and B. C. Babu, "Control Scheme for DSTATCOM based on Frequency Adaptive Disturbance Observer," **IEEE Journal of Emerging and Selected Topics in Power Electronics**, vol. 6, no.3, pp. 1345-1354, 2018.
- [6] T. Appala Naidu, Sabha Raj Arya and Rakesh Maurya, "Multi-Objective Dynamic Voltage Restorer with Modified EPLL Control and Optimized PI Controller Gains," **Accepted for Publication in IEEE Transactions on Power Electronics.**
- [7] Ashutosh K. Giri, Sabha Raj Arya, Rakesh Maurya and B. C. Babu, "Power Quality Improvement in Stand-alone SEIG based Distributed Generation System using Lorentzian Norm Adaptive Filter," **Accepted for Publication in IEEE Transactions on Industry Applications.**
- [8] B. R. Ananthapadmanabha, Rakesh Maurya and Sabha Raj Arya, "Improved Power Quality Switched Inductor Cuk Converter for Battery Charging Application," **IEEE Transactions on Power Electronics**, vol. 33, no.11, pp. 9412-9423, 2018.
- [9] Ashutosh K. Giri ,Amin Qureshi, Sabha Raj Arya, Rakesh Maurya and B.Chitti Babu,"Features of Power Quality in Single Phase Distributed Power Generation using Adaptive Nature Vectorial Filter," **IEEE Transactions Power Electronics**, vol. 33 No.11 pp. 9482-9495, 2018.

- [10] Sanjay Kumar Patel, Sabha Raj Arya, Rakesh Maurya, "Nonlinear adaptive volterra filter for control of distribution static compensaton," ***IEEE Journal of Emerging and Selected Topics in Power Electronics***, vol. 5, no. 1, pp.559 - 567, March 2017.
- [11] Sabha Raj Arya, Bhim Singh, Ram Niwas, Ambrish Chandra and Kamal Al-Haddad, "Power quality enhancement using DSTATCOM in distributed power generation system," ***IEEE Transactions on Industry Applications***, vol. 52, no. 6, pp. 5203-5212, Nov.-Dec. 2016
- [12] Sabha Raj Arya, and Bhim Singh "Implementation of kernel incremental meta-learning algorithm in distribution static compensator," ***IEEE Transactions Power Electronics***, vol.30, no.3, pp.1157-1169, March 2015.
- [13] Sabha Raj Arya and Bhim Singh, "Neural Network based conductance estimation control algorithm for shunt compensation," ***IEEE Transactions on Industrial Informatics***, vol.10, no.1, pp.569-577, Feb. 2014.
- [14] Sabha Raj Arya and Bhim Singh, "Performance of DSTATCOM using leaky LMS control algorithm," ***IEEE Journal of Emerging and Selected Topics in Power Electronics***, vol. 1, no.2, pp.104-113, June 2013.
- [15] Sabha Raj Arya and Bhim Singh, "An Implementation of DSTATCOM for power quality enhancement using learning vector quantization," ***IET Generation, Transmission and Distribution***, vol. 7, no.3, pp.1244-1252, 2013.
- [16] Sabha Raj Arya, Bhim Singh, Ambrish Chandra, and Kamal Al-Haddad "Learning based Anti-Hebbian learning algorithm for control of distribution static compensator," ***IEEE Transactions on Industrial Electronics***, vol. 61, no.11, pp. 6004-6012, Nov. 2014.
- [17] Sabha Raj Arya, Ram Niwas, Krishan Kant, Bhim Singh, Ambrish Chandra and Kamal Al-Haddad " Power quality improvement in isolated distributed generation system using DSTATCOM," ***IEEE Transactions on Industry Applications***, vol. 51, no.06, pp. 4766-4774, Nov/Dec. 2015.
- [18] Bhim Singh and Sabha Raj Arya, "Implementation of single-phase enhanced phase-locked loop-based control algorithm for three-phase

- DSTATCOM,"*IEEE Transactions on Power Delivery*, vol. 28, no. 3, pp.1516-1524, July 2013.
- [19] Bhim Singh and Sabha Raj Arya,"Adaptive theory-based improved linear sinusoidal tracer control algorithm for DSTATCOM,"*IEEE Transactions on Power Electronics*, vol. 28, no.8, pp.3768-3778, Aug. 2013.
- [20] Bhim Singh and Sabha Raj Arya,"Back-Propagation control algorithm for power quality improvement using DSTATCOM,"*IEEE Transactions on Industrial Electronics*, vol.61, no.3, pp.1204-1212, March 2014.
- [21] Bhim Singh, Sabha Raj Arya, Ambrish Chandra, and Kamal Al-Haddad "Implementation of adaptive filter based control algorithm for distribution static compensator,"*IEEE Transactions on Industry Applications*, vol. 50, no.5, pp.3026-3036, Sept / Oct 2014.
- [22] Bhim Singh and Sabha Raj Arya,"Composite observer-based control algorithm for distribution static compensator in four-wire supply system,"*IET Power Electronics*, vol. 6, no.2, pp. 251-260, Feb. 2013.
- [23] Bhim Singh, Sabha Raj Arya and Chinmay Jain "Simple peak detection control algorithm of DSTATCOM for power quality improvement,"*IET power Electronics*, vol. 7, no.7, pp. 1736-1746, 2014.
- [24] Bhim Singh, Sabha Raj Arya, Chinmay Jain and Sagar Goel "Implementation of four leg distribution static compensator," *IET Generation, Transmission and Distribution*, vol.8, no.6, pp. 1127-1139, 2014.
- [25] Bhim Singh, Sunil kumar, Sabha Raj Arya, "Hyperbolic tangent function-based least mean-square control algorithm for distribution static compensator"*IET Generation, Transmission and Distribution*, vol.8, no.12, pp.2102-2113, 2014.
- [26] Bhim Singh, Krishan Kant Bhalla and Sabha Raj Arya,"Notch filter based fundamental frequency component extraction to control DSTATCOM for mitigating current related power quality problems" *IET power Electronics*, vol.8, no.9, pp.1758-1766, 2015.
- [27] Sanjay Kumar Patel, Sabha Raj Arya, Rakesh Maurya and Bhim Singh, "An interior point algorithm for optimal control of DSTATCOM under

distorted supply voltage conditions," *IET Generation, Transmission and Distribution*, vol. 10, no. 8, pp. 1778-1791, 2016.

## **(ii) Publications in other Journals =23**

- [28] Sabha Raj Arya, Nunsavath Sharath Kumar, Ashutosh Giri and Amin Qureshi, "Fuel Cell Integration with Grid using Voltage Source Converter and its Control," **Accepted for Publication in International Journal of Power and Energy Conversion**
- [29] Sabha Raj Arya, Rakesh Maurya and Talada Appala Naidu, "Phase Locked Loop based Techniques for Compensation of Voltage Based Power Quality issues in Distribution System," **Accepted for Publication in International Journal of Emerging Electric Power**
- [30] Sabha Raj Arya, Rakesh Maurya and Ashutosh K Giri, "Enhancement of Power Quality in Wind based Distributed Generation System using Adaptive Vectorial Filter," **Accepted for Publication in International Journal of Emerging Electric Power.**
- [31] B.R. Ananthapadmanabha, Rakesh Maurya, Sabha Raj Arya and B.Chitti Babu, "Smart Battery Charging Station for Electric Vehicle using Half Bridge Power Converter," **Accepted for Publication in International Journal of Emerging Electric Power.**
- [32] Papia Ray, Sabha Raj Arya and Debani Prasad Mishra, "Intelligence Scheme for Fault Location in a Combined Overhead Transmission Line and Underground Cable," **Accepted for Publication in International Journal of Emerging Electric Power.**
- [33] Ashish Patel, Sabha Raj Arya and Ashutosh Giri, "Isolated power generation system using permanent magnet synchronous generator with improved power quality," Accepted for Publication in **Institution of Engineers Section-B.**
- [34] B.R. Ananthapadmanabha, Rakesh Maurya and Sabha Raj Arya, "Hybrid converter for electric vehicle battery Charging with power quality



features,"Accepted for Publication in **International Journal of Computational Systems Engineering**.

- [35] Vishal E. Puranik and Sabha Raj Arya, "Load conductance estimation based control algorithm for shunt connected custom power devices," Accepted for Publication in **Asian Power Electronics Journal**.
- [36] Sanjay Kumar Patel, Sabha Raj Arya, Rakesh Maurya, Chinmay Jain and Bhim Singh, "Control of distributed static compensator using extended structure enhanced phase-locked loop-based algorithm under nonideal AC mains," **International Transactions on Electrical Energy Systems**, DOI 10.1002/etep.2354, pp. 1-10, 2017.
- [37] Sabha Raj Arya and Bhim Singh, "Power quality improvement under nonideal AC mains in distribution system," **Journal of Electric Power System Research**, vol.106, pp.86-94, 2014.
- [38] Sanjay Kumar Patel, Sabha Raj Arya, Rakesh Maurya and Bhim Singh, "Control of DSTATCOM using three phase enhanced phase-locked loop," **Journal of Electrical Power and System Components**, vol. 44, no. 13, pp. 1515-1529, 2016.
- [39] Bhim Singh, Sabha Raj Arya and Pankaj K. Verma "An implementation of double-frequency oscillation cancellation technique in control of DSTATCOM," **International Transactions on Electrical Energy Systems**, DOI 10/1002/ETEP, 2013.
- [40] Bhim Singh and Sabha Raj Arya "Adaptive control of four-leg VSC based DSTATCOM in distribution system," **International Journal of Emerging Electric Power Systems**, vol. 15, no.1, pp. 93-99, 2014.
- [41] Bhim Singh, G Bhubaneswari and Sabha Raj Arya "Review on power quality solution technology," **Asian Power Electronics Journal**, vol. 6, no.2, pp.19-27, 2012.
- [42] Bhim Singh and Sabha Raj Arya, "Design and control of a DSTATCOM for power quality improvement using cross correlation function approach," **International Journal of Engineering, Science and Technology**, vol. 4, no. 1, pp. 74-86, 2012.
- [43] Vishal Puranik and Sabha Raj Arya, "SOGI-FLL Based adaptive filter for

DSTATCOM under variable supply frequency,” **Institution of Engineers Section-B**, DOI 10.1007/s40031-016-0274-0.

- [44] B.R. Ananthapadmanabha, Rakesh Maurya and Sabha Raj Arya, “Magnetic energy recovery switch based power quality AC-DC converters,” **International Transactions on Electrical Energy Systems**, DOI 10.1002/ETEP.2350.
- [45] Bhim Singh, Sunil kumar and Sabha Raj Arya, “An improved control algorithm of DSTATCOM for power quality improvement,”**International Journal of Electrical Power and Energy Systems**, vol. 64, pp.493-504, 2015.
- [46] Papia Ray, Sabha Raj Arya and Shobhit Nandkeolyar, “ Electric load forecasts by metaheuristic based back propagation approach,” **Journal of Green Engineering**, vol. 7,no.1 & 2,pp. 61-82, January 2017.
- [47] Sabha Raj Arya, Nunsavath Sharath Kumar and B. R. Ananthapadmanabha, “Power generation using fuel cell in the application of sensor power supply,” **Journal of Green Engineering**, vol. 7,no.1 & 2,pp. 159-188, January 2017.
- [48] J. Bangarraju, V. Rajagopal, Sabha Raj Arya and B. Subhash, “Enhancement of PQ Using adaptive theory based improved linear tracer sinusoidal control strategy for DVR,”**Journal of Green Engineering**, vol. 7,no.1 & 2,pp. 189-212, January 2017.
- [49] B. R. Ananthapadmanabha,Rakesh Maurya, Sabha Raj Arya and B. Chitti Babu, “Electric Vehicle battery charger with improved power quality Cuk-Derived PFC converter,”**Journal of Green Engineering**, vol. 7,no.1 & 2,pp. 255-284, January 2017.
- [50] Sabha Raj Arya and Nunsavath Sharath Kumar, “Grid connected fuel cell based distributed power generation system,”**Journal of Green Engineering**, vol. 7, no.1 & 2, pp. 285-310, January 2017.

### **(iii) Publications in International/National Conferences = 37**

- [51] Aliva Routray, Khyati D. Mistry and Sabharaj Arya, "Loss minimization in a radial distribution system with dg placement using jaya optimization technique," **Accepted for publication in Proc. of IEEE International Conference on Sustainable Energy Technologies and Systems (ICSETS), 2019.**
- [52] Sanjay K. Patel, Sabha Raj Arya and Rakesh Maurya, "Harmonic Mitigation Technique for DSTATCOM using Continuous Time LMS Adaptive Filter," **in Proc. 3rd IEEE Uttar Pradesh Section International Conference on Electrical, Computer and Electronics (UPCON), 2016,** pp. 1-8.
- [53] Ashish Patel, Sabha Raj Arya and Anjana Jain, "Variable step learning based control algorithm for power quality in PMSG based power generation system," **in Proc. IEEE Power India Conference (PIICON), 2016,** pp. 1-7.
- [54] Parlee Doley, Sanjay K Patel and Sabha Raj Arya, "Control algorithm based on amplitude adaptive filter for DSTATCOM," **in Proc. IEEE Power India Conference (PIICON), 2016,** pp.1-7.
- [55] J.Bangarraju, V. Rajagopal, Sabha Raj Arya, B. Subhash and V. Nagamalleswari, "Control of DVR Using SPLL Strategy in Distribution System" **in Proc. IEEE Power India Conference (PIICON), 2016,** pp. 1-6.
- [56] Ashish Kumar Patel and Sabha Raj Arya, "Distributed power generation system using PMSG with power quality features," **in Proc. International Conference on Next Generation Intelligent Systems,** 2016, pp. 1-7.
- [57] Krishan Kant, Sabha Raj Arya and Bhim Singh, "A current sensorless control algorithm of DSTATCOM for power quality improvement," **in Proc. of Annual IEEE India Conference (INDICON), 2015,** pp.1-6.
- [58] Vishal. E. Puranik, Sabha Raj Arya and Anjana Jain, "Comparative study of compensation techniques of DVR with composite observer," **in Proc. of International conference on Power and Energy Systems: Towards Sustainable Energy (PESTSE), 2016,** pp. 1-6.

- [59] Sabha Raj Arya, Krishan Kant, Ram Niwas, Bhim Singh, Ambrish Chandra and Kamal Al-Haddad“ Power quality improvement in isolated distributed generation system using DSTATCOM,”*in Proc. of IEEE Industry Applications Society Annual Meeting (IAS)*, 2014, pp.1-8.
- [60] Bhim Singh, Sabha Raj Arya, Ram Niwas, Ambrish Chandra, and Kamal Al-Haddad, “Distributed power generation system and power quality improvement using DSTATCOM,” *in Proc. of 2014 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Dec. 2014, pp.1-6
- [61] Sabha Raj Arya, and Bhim Singh,“Kurtosis driven variable learning adaptive filter for suppression of power quality problems, *in Proc. of INDICON*, 2013, pp. 1-6.
- [63] Bhim Singh, Sabha Raj Arya, Sunil Kumar, Ambrish Chandra and Kamal Al-Haddad, “Implementation of DSTATCOM using neural network based radial basis function,” *in Proc. of IEEE Industry Applications Society Annual Meeting (IAS)*, 2013, pp.1-8.
- [64] Bhim Singh, Sabha Raj Arya, Chinmay Jain and Sagar Goel, “Multifunction capabilities of DSTATCOM in distribution system using four-leg voltage source converter,”*in Proc. of 5<sup>th</sup> International Conference on Power and Energy Systems*, 2013, pp.1-9.
- [65] Bhim Singh, Sabha Raj Arya,“Adaptive control of four-leg VSC based DSTATCOM in distribution system,”*in Proc. of 5<sup>th</sup> International Conference on Computer Applications in Electrical Engineering (CERA)*, 2013, pp.1-5.
- [66] Bhim Singh, Sunil kumar, Sabha Raj Arya, Ambrish Chandra and Kamal Al-Haddad, “A comparative study of adaptive control algorithm in distribution static compensator,”*in Proc. of 39<sup>th</sup> Annual Conference on IEEE Industrial Electronics Society*, 2013, pp. 1-6.
- [67] Bhim Singh, Sabha Raj Arya, Ambrish Chandra and Kamal Al-Haddad“Variable step learning control algorithm for VSC Based Shunt,” *in Proc. of IEEE 4<sup>th</sup> International Symposium on Power Electronics for Distributed Generation Systems*, Rogers, Arkansas 2013, pp.1-6.

- [68] Sabha Raj Arya, Bhim Singh, Ambrish Chandra, and Kamal Al-Haddad“Power factor correction and zero voltage regulation in distribution system using DSTATCOM,”*in Proc. of 2012 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Dec. 2012, pp.1-6
- [69] Bhim Singh, Sabha Raj Arya, Ambrish Chandra and Kamal Al-Haddad“Implementation of adaptive filter based control algorithm for distribution static compensator,”*in Proc. of IEEE Industry Applications Society Annual Meeting (IAS)*, 2012, pp.1-8.
- [70] Bhim Singh and Sabha Raj Arya“Admittance based control algorithm for DSTATCOM in three phase four wire system,”*in Proc. of 2<sup>ed</sup> International Conference on Power, Control and Embedded Systems (ICPCES)*, Dec. 2012, pp.1-8.
- [71] Sabha Raj Arya, Bhim Singh, Ambrish Chandra, and Kamal Al-Haddad“Control of DSTATCOM using adjustable step least mean square control algorithm,”*in Proc. of IEEE Fifth Power India Conference*, Dec.2012, pp.1-6.
- [72] Sabha Raj Arya, Bhim Singh, Ambrish Chandra, and Kamal Al-Haddad“Control of shunt custom power device based on Anti-Hebbian learning algorithm,”*in Proc. of 38<sup>th</sup> Annual Conference on IEEE Industrial Electronics Society*, Oct. 2012, pp.1246-1251.
- [73] Bhim Singh and Sabha Raj Arya“ Software PLL based control algorithm for power quality improvement in distribution system,”*in Proc. of 2012 IEEE 5<sup>th</sup> India International Conference on Power Electronics (IICPE)*, pp.1-6, 6-8 Dec. 2012.
- [74] Sabha Raj Arya, and Bhim Singh“CTF control algorithm of DSTATCOM for Power factor correction and zero voltage regulation,” *in Proc. of 2012 IEEE Third International Conference on Sustainable Energy Technologies (ICSET)*, pp.157-162, Sept.2012.
- [75] M.R. Dhandhara, Sabha Raj Arya“Comparison between Peak current and Hysteresis current control input power factor correction techniques in rectifier system,” *in Proc. of International Conference on Control, Automation, Communication and Energy conversion*, vol.-2, 2010,

K.E.C. Perundurai, Erode pp. 816-823.

- [76] Bhim Singh, Sabha Raj Arya, Chinmay Jain, Sagar Goel, Ambrish Chandra, and Kamal Al-Haddad, "Four leg VSI based active filter in distribution system" *in Proc. of National Power System Conference*, Dec. 2014, pp.1-6.
- [77] Bhim Singh, Krishan Kant Bhalla and Sabha Raj Arya, "Voltage Sensorless control algorithm for power quality improvement in distribution network" *in Proc. of National Power System Conference*, Dec. 2014, pp.1-6.
- [78] Bhim Singh, Sabha Raj Arya, Chinmay Jain, Sagar Goel, Ambrish Chandra and Kamal Al-Haddad "Application of voltage source converter for power quality improvement," *in Proc. of National system Conference*, IIT Jodhpur, 2013, pp.1-6.
- [79] Bhim Singh and Sabha Raj Arya, "A New Isolated Topology of DSTATCOM with Unipolar Switching," *in Proc. of National Power System Conference, 2012*, IIT-BHU Varanasi, pp.1-6.
- [80] Bhim Singh and Sabha Raj Arya "Design and control of DSTATCOM for power quality improvement using cross correlation function approach," *in Proc. of National Electrical Engineering Conference*, 2011, KNIT Sultanpur, pp.1-8.
- [81] Sabha Raj Arya and Bhim Singh "MWLSE control algorithm of DSTATCOM for power quality improvement," *in Proc. of National Electrical Engineering Conference (NEEC-2011) on Power and Energy Systems for Tomorrow*, 2011, DTU Delhi, pp.1-6.
- [82] M.R. Dhandhara and S.R. Arya, "Design, and Analysis of Border line Current Control Technique for Input Power Factor Correction," *in Proc. of National Conference on Recent Advances in Electrical Engineering*, Dec. 26<sup>th</sup> and 27<sup>th</sup> 2008, J.N.T.U. college of Engg. Anantpur.
- [83] M.R. Dhandhara and S.R. Arya, "Design, analysis and implementation of input power factor correction technique in uncontrolled rectifier system," *in Proc. of National Conference on Recent Advances in Electrical Engineering*, Dec. 26<sup>th</sup> and 27<sup>th</sup> 2008, J.N.T.U. college of Engg.

Anantpur.

- [84] Sabha Raj Arya and Rakesh Maurya, "Analysis of chopper fed D.C. Drive with PWM and hysteresis current control scheme," ***in Proc. of 31<sup>st</sup> National Systems Conference***, P-133, 2007.
- [85] Rakesh Maurya, S.R.Arya and S.P.Srivastava, "Analysis of grid connected power converter for variable speed wind energy conversion," ***in Proc. of 31<sup>st</sup> National Systems Conference***, p-147, 2007.
- [86] Sabha Raj Arya and P.Samuel, "Harmonic power flow analysis and suppression of harmonics using harmonic filter," ***in Proc. of National Conference on Soft Computing and Machine***, C.O.B. Bhubaneswar , 24<sup>th</sup> to 26<sup>th</sup> march 2006.
- [87] Biswajit Nayak and S. R. Arya, "Analysis of chopper fed DC drive with PID and Fuzzy logic controller," ***in Proc. of National Conference on Soft Computing and Machine***, C.O.B. Bhubaneswar, 24<sup>th</sup> to 26<sup>th</sup> march 2006.

### **(iii) Publication as Book Chapters =01**

- [88] Bhim Singh, Sabha Raj Arya, Chinmay Jain, Sagar Goel, Ambrish Chandra and Kamal Al-Haddad , Application of voltage source converter for power quality improvement, ***Lecture Notes in Electrical Engineering***, vol. 327, Chapter 29, pp.335-346, Springer India, New Delhi.

### **(iv) Communicated in International/National Journals/ Conference = 13**

- [1] Sabha Raj Arya, Rakesh Maurya, Amin Qureshi and Ashutosh K. Giri, "Control approach for effective utilization of single phase induction generator," ***Communicated to IEEE 1<sup>st</sup> International Conference on Energy, Systems and Information Processing (ICESIP2019)***.
- [2] Sabha Raj Arya, Mittal M. Patel, Sayed Javed Alam and Jayadeep Srikakolapu, "Phase Lock Loop based Algorithms for DSTATCOM to Mitigate Load Created Power Quality Problems," ***Communicated to International***

**Transactions on Electrical Energy Systems.**

- [3] Sanjay K. Patel, Sabha Raj Arya and Rakesh Maurya, "Control of three phase DSTATCOM using optimal step LMS algorithm," **Communicated to Journal of Electrical Power and System Components(after R1).**
- [4] Sabha Raj Arya, Mittal M. Patel, Sayed Javed Alam and Jayadeep Srikakolapu, "Classical Control Algorithms for Permanent Magnet Synchronous Generator driven by Diesel Engine for Power Quality," **Communicated to Journal of Energy and Environment.**
- [5] Jyoti Gupta, Rakesh Maurya, and Sabha Raj Arya, "Improved Power Quality On-Board Integrated Charger with Reduced Switching Stress," **Communicated to IEEE Transactions on Power Electronics.**
- [6] Sabha Raj Arya, Rakesh Maurya, Amin Qureshi and Ashutosh K. Giri, "Design of distributed power generation system using single phase induction generator and its control," **Communicated to Journal of Electrical Power and System Components.**
- [7] Talada Appala Naidu, Sabha Raj Arya and Rakesh Maurya "Compensation of Voltage based Power Quality in Problems using Forward Backward LMS Control Algorithm in DVR" **Communicated to IEEE Transactions on Power Electronics.**
- [8] Ashutosh K Giri, Sabha Raj Arya and Rakesh Maurya, "VCO less PLL control based VSC for power quality in four wire distributed generation system," **Communicated to IET Electric power Applications.**
- [9] Sayed Javed Alam and Sabha Raj Arya, " Control of UPQC-S based on Enhanced Complex Coefficient Filter for Mitigation of Power Quality Problems," **Communicated to IEEE CPSS Transactions on Power Electronics and Applications**
- [10] Vishal. E. Puranik and Sabha Raj Arya and Anjana Jain, "Design and control of dynamic voltage restorer with energy optimization technique," **Communicated to the Institution of Electronics and Telecommunication Engineers, India (after R1).**
- [11] Sayed Javed Alam, Sabha Raj Arya and B.Chitti Babu, "Control Algorithm of UPQC-S for Power Quality in Distribution System," **Communicated to Journal of Electrical Power and System Components.**



- [12] Sanjay K. Patel, Sabha Raj Arya, Rakesh Maurya, and Bhim Singh, "Optimization of PI controller gains in control of DC Bus DSTATCOM," **Communicated to Journal of European Power Electronics.**
- [13] B.R. Ananthapadmanabha, Rakesh Maurya, Sabha Raj Arya and B. Chittibabu, "Isolated Vehicle Battery Charger with Power Conditioning Feature," **Communicated to IEEE Transactions on Industrial Electronics.**

### 13 Conference/Seminars/Short term course Attended

| Sr. No. | Conference /Seminars   | Organized By                                       | Sponsor | During                | Day | Weeks |
|---------|--|--|---------|-----------------------|-----|-------|
| 1       | Short term course on <b>Modern Optimization Technique in Power system</b>                                | University College of Engineering Burla (Orissa)   | -       | Dec.,19-31, 2005      | 12  | 2     |
| 2       | <b>Testing in Electrical Engg.</b>   | SVNIT –Surat                                       | -       | January, 3-5 2007     | 3   | -     |
| 3       | National workshop on <b>Power Electronics</b>  | IIT- Bombay  |         | September,6-7 2007    | 2   | -     |
| 4       | Short term course on <b>VLSI And Embedded System</b>   | Cental Institute of Tool design , Hyderabad (A.P.) |         | Dec17-22, 2007        | 5   | 1     |
| 5       | Short term course on <b>Electric power quality: monitoring, analysis and mitigation</b>                  | IIT Kanpur   |         | April 07-11 ,2008     | 5   | 1     |
| 6       | Staff training program <b>infrastructural and curricular development of electrical drives laboratory</b> | N.I.T. Warangal (A.P.)                             | -       | September-24-26, 2008 | 3   | -     |
| 7       | Short term course on <b>Application of mathematical sciences and soft computing</b>                      | SVNIT  | -       | Dec, 8-12, 2008       | 5   | 1     |

|    |  |                |   |  |   |   |
|----|--|----------------|---|--|---|---|
| 8  | Short term course on <b>Advance Engineering Optimization Through Intelligent Techniques</b>                                      | SVNIT          | - | Dec, 14-18, 2009                             | 5 | 1 |
| 9  | Participation certificate<br><b>Tutorials PEDES2010</b>  | IIT Delhi      |   | 20 <sup>th</sup> Dec 2010                    | 1 | 0 |
| 10 | Short term course on <b>Building Integrated Photovoltaic Thermal System</b>  | IIT Delhi      |   | Feb., 8-14, 2011                             | 7 | 1 |
| 11 | Short term course on <b>Research Methodology and Intellectual Property Rights (IPR)</b>  | EQUATE         | - | Feb.,4-7, 2014                               | 5 | 1 |
| 12 | Short term course on <b>Application of Evolutionary Computation Techniques on Power System</b>                                   | SVNIT          | - | July, 14-18, 2014                            | 5 | 1 |
| 13 | Short term course on <b>Mathematical Modeling in Science and Engineering</b>   | SVNIT          | - | June,23-27, 2014                             | 5 | 1 |
| 14 | Short term course on <b>Power Electronics Applications for Renewable Integration</b>   | IITK           |   | 30 <sup>th</sup> March,30 to April, 1, 2015  | 3 | - |
| 15 | Short term course on <b>Advance Power Electronics and Electrical Drives</b>  | MANIT – Bhopal |   | 3 <sup>rd</sup> to 7 <sup>th</sup> Jan 2016  | 5 | 1 |
| 16 | Short term course on <b>Mathematical Modeling, Optimization, Fractional Calculus and their Computations in Engg. and Science</b> | SVNIT – Surat  |   | 21 <sup>st</sup> -25 <sup>th</sup> June 2016 | 5 | 1 |

## 14 Supervision of M. Tech students in the area of Power Electronics

(A) Total number of student supervised up to 2018 = 14

| Sr. No. | Thesis title   | Year |
|---------|--|------|
| (i)     | Distribution Static Compensator and its application in Distributed Power Generation                                      | 2018 |
| (ii)    | Wireless Charging System for an Electric Vehicle Battery Charging  | 2018 |
| (iii)   | Fuel Cell based DPG System   | 2017 |
| (iv)    | Solar Based power generation system with Power Quality   | 2017 |
| (v)     | Single phase SEIG with Power Quality Features  | 2017 |
| (vi)    | Power Generation System using Permanent Magnet Synchronous Generator with Power Quality Features                         | 2016 |
| (vii)   | Design and Control of Shunt Connected Custom Power Devices   | 2016 |
| (viii)  | Design and implementation of shunt and series connected custom power devices   | 2015 |
| (ix)    | Solar system with power quality features and its application in water pumping  | 2015 |
| (x)     | Analysis of load performance and power quality improvement in inverter fed induction fed induction motor drives          | 2010 |
| (xi)    | Design and analysis of input power factor correction converters for low and medium power application in AC/DC converters | 2009 |
| (xii)   | Design and analysis of input power factor correction technique in uncontrolled rectifier system                          | 2008 |
| (xiii)  | Design and Analysis Chopper Fed DC drives  | 2006 |
| (xiv)   | Design and analysis of single phase full bridge SPWM inverter  | 2006 |

(B) Number of M. Tech student supervision ongoing (2018-2019) = 02

## 15 Supervision of Ph D. students in the area of Power Electronics/ Electrical Power Quality

(i) Number of Ph. D student supervision ongoing up to 2018 = 11

| Sr. No. | Name of student/ research scholar      | In the area of                                 | Year of registration       | Co-guide (If any)    |
|---------|--|--|----------------------------|----------------------|
| (i)     | Mr. Sanjay Kumar Patel                 | Design and control of DSTATCOM                 | 2014-2018<br>(Completed)   | as a Principal Guide |
| (ii)    | Mr. B. R. Ananthapadmanabha            | Power Factor Correction Converters             | 2014<br>(Under submission) | as a Co-Guide        |
| (iii)   | Mr. Ashutosh Giri                      | Distributed Power Generation System            | 2016(QIP)                  | as a Principal Guide |
| (iv)    | Mr. T A Naidu                          | Design and control of DVR                      | 2017(JRF)                  | as a Principal Guide |
| (v)     | Ms. Aliva Routray                      | Reduction of power losses in distribution line | 2017                       | as a Co-Guide        |
| (vi)    | Mr. Alam Sayed Javed                   | Design and control of UPQC                     | 2017                       | as a Guide           |
| (vii)   | Mr. Jayadeep Srikakolapu Manikyala Rao | DSTATCOM and its Application in DG system      | 2017                       | as a Principal Guide |
| (viii)  | Ms. Jyoti Gupta                        | Battery charging and discharging system        | 2018                       | as a Co-Guide        |
| (ix)    | Mr. Bindra Dawar                       | Custom Power Devices                           | 2018(QIP)                  | as a Guide           |
| (x)     | Mr. Hardik Pandya                      | Power Electronics and Power Quality            | 2019(PEC)                  | as a Guide           |
| (xi)    | Mr. Hareesh K. Kairumkonda             | Power Electronics and Power Quality            | 2019(PEC)                  | as a Guide           |

## **16 Reviewer for the Journals**

IEEE Transactions on Industrial Electronics

IEEE Transactions on Power Electronics

IET Power Electronics

International Transactions on Electrical Energy Systems

IEEE Journal of Emerging and Selected Topics in Power Electronics

Journal of Electric Power Components and Systems

Journal of Electric Power System Research

**PLACE: SURAT**

**DATE: 17 DEC. 2018**

**Dr Sabha Raj Arya**