# RESEARCH PROFILE


| | |
|---|---|
| **Name** | **Dr. K PUNITHA** |
| Designation | Professor |
| **Department** | Electrical and Electronics Engineering |
| **Email** | punitha@psr.edu.in |
| **Mobile** | 9486287078 |


## EDUCATIONAL PROFILE

| Category | Name of the Degree | Specialization | Year of Passing | Name of the College | Name of the University | % of Marks obtained | Class obtained |
|---|---|---|---|---|---|---|---|
| **UG** | BE | Electrical and Electronics Engineering | 1996 | C S I Institute of Technology | Manonmanium Sundaranar University, | 69% | I |
| **PG** | ME | Embedded System Technologies | 2006 | Arulmigu Kalasalingam College of Engineering | Anna University, | 77% | I |
| **PH.D** | **PH.D** | Electrical Engineering | 2014 | Kalasalingam Academy of Research and Education | Kalasalingam Academy of Research and Education | Y | - |

Ph. D. Thesis : Development and Implementation of MPPT and Inverter Control Algorithm for Solar Photovoltaic System

## RESEARCH PROFILE

- No. of publications (As on November 2019)
  - Journal:34
  - International Conference:37
  - National Conference: 05
  - Editorial Board:
  - Book:
- Citation Details:

| **Scopus:** | **Web of Science** | **Google Scholar:** |
|---|---|---|
| Article: 34<br>Citation:187<br>h index: 4 | Article: 33<br>Citation:187<br>h index: 4 | Article: 34<br>Citation: 187<br>h index: 4 |

**LIST OF PUBLICATIONS**

**JOURNALS:**

1. Dr. D. Devaraj, Dr. S. Sakthivel, **K. Punitha** "Adaptive Hysteresis Current Control of Inverter For Solar Photovoltaic Applications" International Journal of Innovative Technology and Creative Engineering Vol. 3, page no. 29-34, 2011.
2. Dr. D. Devaraj, Dr. S. Sakthivel, **K. Punitha** "Fuzzy Adaptive Hysteresis Band Current controller for solar photovoltaic" Advanced Materials Research Journal with ISSN No. 1022-6680, Vols. 403-408 (2012) pp 4991-4999 Online available since 2011/Nov/29 at www.scientific.net © (2012) Trans Tech Publications, Switzerland doi:10.4028/www.scientific.net/AMR.403-408.49912011, Scopus cited.
3. **K.Punitha**, Dr.D. Devaraj, Dr. S. Sakthivel "Performance Analysis of Adaptive Hysteresis Current Controlled Inverter for Solar Power Applications" International journal of Artificial Intelligent Systems and Machine Learning , ISSN: 0974 –9667 vol. 2, July 2012.
4. **K.Punitha**, Dr.D. Devaraj, Dr. S. Sakthivel "Development and Analysis of Adaptive Fuzzy Controllers for Photovoltaic System under Varying Atmospheric and Partial Shading Condition" Applied Soft Computing Journal, Elsevier. vol 13, issue 11, November 2013, http://dx.doi.org/10.1016/j.asoc.2013.06.021, Impact Factor: 2.140
5. **K.Punitha**, Dr.D. Devaraj, Dr. S. Sakthivel "Artificial Neural Network Based Modified Incremental Conductance Algorithm for Maximum Power Point Tracking in Photovoltaic System under Partial Shading Conditions" Energy 63 (2013) 330-340, Elsevier, Impact Factor: 3.651
6. **K.Punitha**, Dr.D. Devaraj, Dr. S. Sakthivel "Adaptive Hysteresis Current Controlled Multilevel Inverter for Solar Photovoltaic Applications" Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, Springer Volume 84, Issue 3 (2014), Page 447-455, Impact Factor: 0.108.
7. **K. Punitha**, E. Indira Devi "ArtificialNeural Network Controller for DC-DC converter" International Journal of Innovative Technology and Creative Engineering, accepted for publication.
8. **Dr. K. Punitha**, M. Gowri, V. Vinothkumar, "A Novel Droop Control Method for Reactive Power Sharing in Interline Power System", International Journal of Applied Engineering Research, vol. 10, No. 10 (2015) 9479 – 9482.
9. **Dr. K. Punitha**, M.Padma Rega, S.Merlin Joys Mary, "Supply Reliability and Generation Cost Analysis in Unit Commitment Problem" International Journal of Applied Engineering Research, vol. 10, No. 10 (2015) 9483 – 9488.
10. **Dr. K. Punitha**, P.Ponmehala, S.K.Hemalatha, "Stability Enhancement of an Integrated Grid – Connected Offshore Wind Farm and Seashore Wave Farm Using Neuro controller based UPFC" International Journal of Applied Engineering Research, vol. 10, No. 10 (2015) 9495 – 9499.
11. **Dr. K. Punitha**, P.Sathyaseela, G.Y.Sreevarshini, "Enhancement of Stability Using FACTS Based ANFIS Controller in Single Machine Infinite Bus System" International Journal of Applied Engineering Research, vol. 10, No. 10 (2015) 9467 – 9472.
12. **Dr. K. Punitha**, M.Sudha, M.Iyankalai "Fuzzy Logic Based Tuning of STATCOM in a DG System" International Journal of Applied Engineering Research, vol. 10, No. 10 (2015) 9472 – 9477.
13. **Dr. K. Punitha**, A.Priya, S.Gunasekaran "Genetic Algorithm for Congestion Relief by Generator Rescheduling" International Journal of Applied Engineering Research, vol. 10, No. 10 (2015) 9489 – 9494.
14. **Dr. K. Punitha**, "OPF for Reducting Transmission Line Active Power Loss Using BAT Algorithm with FACTS Devices" International Journal of Emerging Technology in Computer Science and Electronics, vol. 22, Issue No. 2 (2016) 0976 – 1353.
15. **Dr. K. Punitha**, "ANFIS Based Volt/VAR Management System for Distributed Generation" International Journal of Emerging Technology in Computer Science and Electronics, vol. 22, Issue No. 2 (2016) 0976 – 1353.

16. **Dr. K. Punitha**, "An Finding A Proper Method for Limiting A Short Circuit Fault Current Using Particle Swarm Optimization Algorithm and Memetic Algorithm" International Journal of Emerging Technology in Computer Science and Electronics, vol. 22, Issue No. 2 (2016) 0976 – 1353.
17. **Dr. K. Punitha**, "Support Vector Machine Based MPPT Technique For Wind Energy Conversion Systems " International Journal of Emerging Technology in Computer Science and Electronics, vol. 22, Issue No. 2 (2016) 0976 – 1353.
18. Dr. K. Punitha, "Resonant Current Controller Based THD Reduction In AC Microgrid" International Journal of Emerging Technology in Computer Science and Electronics, vol. 22, Issue No. 2 (2016) 0976 – 1353.
19. **Dr. K. Punitha**, "Multifunction Capability of Distributed Microgrid System" International Journal of Emerging Technology in Computer Science and Electronics, vol. 22, Issue No. 2 (2016) 0976 – 1353.
20. **Dr. K. Punitha**, "Soft Computing Technique Based MPPT Algorithms for PhotoVoltaic System" International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, vol. 6, Special Issue No. 1 (2017).
21. **Dr. K. Punitha**, "Ant Colony Optimization Of Charging Coordination of Electric Vehicles Considering Vehicle-to-Grid (V2G) Technology in Multi-Micro Grid Power System" International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, vol. 5, Special Issue No. 1 (2017).
22. **Dr. K. Punitha**, "Electric Spring for Future Smart Grid" International Journal of Research in Electrical and Power System Engineering, vol. 3, l Issue 2 (2017).
23. **Dr. K. Punitha**, "Grey wolf optimization based charging and discharging coordination of electric vehicles considering (G2V) and (V2G) Technology in multi-micro grid power system " International Journal of Research Innovations in Engineering science and Technology (IJRIEST), vol. 25, Issue 6 June-2017.
24. **Dr. K. Punitha**, P. Roghini, "Estimation of wind power Ramp Event", International Journal of Electronics and Instrumentation Engineering IJAREEIE, vol. 7, Issue 5, May 2018.
25. **Dr. K. Punitha**, S. Asmitha, "Design of Fuzzy Energy and Reserve Co-optimization Hardware-in-loop with High Penetration of Renewable Energy", International Journal of Electronics and Instrumentation Engineering IJAREEIE, vol. 7, Issue 11, November 2018.
26. **Dr. K. Punitha**, G. Iswariya, "Bounds for Optimal Control of a Regional Plug-in Electric Vehicle Charging Station System", International Journal of Electronics and Instrumentation Engineering IJAREEIE, vol. 7, Issue 11, November 2018.
27. **Dr. K. Punitha**, V. Saranya, "Peak Energy Management using Renewable Integrated DC Microgrid", International Journal of Electronics and Instrumentation Engineering IJAREEIE, vol. 7, Issue 11, November 2018.
28. **Dr. K. Punitha**, S. Sathya Bama, "Artificial Newral Network forcontrol and grid integration of floating solar photovoltaic System", International Journal of Electronics and Instrumentation Engineering IJAREEIE, vol. 7, Issue 11, November 2018.
29. **Dr. K. Punitha**, N. Vasuki, "ANFIS controller for Battery Control used in Three phase grid connected PV system", International Journal of Electronics and Instrumentation Engineering IJAREEIE, vol. 7, Issue 11, November 2018.

## INTERNATIONAL CONFERENCE PUBLICATIONS

1. **K. Punitha** , S. Saraswathy, Dr. D. Devaraj, "Implementation of Current Control Techniques for Uninterruptedable Power Supply", IEEE International Conference on Circuit,Power and Computing Technologies ICCPCT-2013, Noorul Islam University on 21st & 22nd March 2013.
2. **K. Punitha** , K.V. Subhatra, Dr. D. Devaraj, "Neural Network based Maximum Power Point Tracking controller of Photovoltaic System under Varying Climatic Conditions", International Conference on Emerging Trends in Electrical Engineering ETIEE'13 Maria College of Engineering and Technology, Attoor, on 21st & 22nd March 2013.
3. **K. Punitha** K. Jamunarani, "FPGA based Optical Flow Estimation", International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC-2012),

Athiparasakthi College of Engg. on 18th & 19th, April 2012.

4. **K. Punitha** , T. Indra Devi, "FPGA based Neural Network Controller for Non Linear System", International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC-2012), Athiparasakthi College of Engg. on 18th& 19th, April 2012.
5. **K.Punitha**, Nimala. M, "Adaptive Hysteresis Current Control for a Multilevel Inverter using FPGA", International Conference on Computation of Power, Energy, Information and communication (ICCPEIC-2012), Athiparasakthi College of Engg. on 18th & 19th, April 2012.
6. **K. Punitha** and S. Kalimuthu kumar, "FPGA based Close Loop Controlled Single Phase Inverter", International Conference on Computation of Power, Energy, Information and Communication (ICCPEIC-2012), Athiparasakthi College of Engg. on 18th & 19th, April 2012.
7. **K. Punitha,** S. Arun Kumar, N. Vijay Ganesh, "Control Area Network for Reliable Car Communication", International Conference on VLSI, Communication and Instrumentation, ICVCI'11, SAINTGITS College of Engineering, Kottayam, India.
8. **K.Punitha**, Dr.D. Devaraj, Dr. S. Sakthivel, "Modeling of Photovoltaic Array and Simulation of Adaptive Hysteresis Current controlled Inverter for solar Application", 3rd International Conference on Electronics Computer Technology ICECt 2011, Kanyakumari, April 8-10th 2011.
9. **K.Punitha**, Dr.D. Devaraj, Dr. S. Sakthivel "Fuzzy Adaptive Hysteresis Band Current controller for solar photovoltaic Inverter", Fuzzy Adaptive Hysteresis Band Current controller for solar photovoltaic Inverter, SRM University, New Delhi, March 21st- 23rd 2011.
10. **K.Punitha**, Dr.D. Devaraj, "Fuzzy logic Based MPPT Control of Solar Photovoltaic System", 2nd National conference on Intelligent Techniques in Control, Optimization and Signal Processing, Kalasalingam University, April 1st & 2nd , 2011.
11. **K. Punitha** S. Arun Kumar, "Design and Implementation of Control Area Network in Automobile", Recent Advances in VLSI and Embedded Systems(RAVE), Sudharsan Engineering College, Sathiyamangalam, Pudukkottai – 622501, 23rd February 2011
12. **K.Punitha**, Dr.D. Devaraj, "A Random Hysteresis Current Control Of Three Phase Inverter For Wind Turbine application", National Conference on Intelligent Techniques in control and Signal Processing INCOS '10, Kalasalingam University, Virudhunagar District, Tamilnadu, India, 5th & 6th April 2010.
13. **K.Punitha**, Dr.D. Devaraj, "Fuzzy Logic Based Speed Control of DC Motor", First National Conference on Power and Energy Systems NPES – 09, Kalasalingam University, 6th-7th March, 2009.
14. **K.Punitha**, N. Karpagam, "Distributing Real Time Embedded Data Using Multicasting", National Conference on Recent Trends in Communication Techniques NATCON'06, Noorul Islam College of Engineering, Kanyakumari District, 8th-9th March, 2006.
15. **K.Punitha**, K.G.Chinthu, Mrs. N. Karpagam, "Power Quality Improvement by Fuzzy Controlled FACTS Devices", National Seminor on Power Quality, VSAG-2005, Arulmigu Kalasalingam College of Engineering, 18th – 19th March 2005.
16. **Dr. K. Punitha**, M. Gowri, V. Vinothkumar, "A Novel Droop Control Method for Reactive Power Sharing in Interline Power System", International Conference on Engineering Technology and Science (ICETS'15) Muthayammal College of Engineering, Rasipuram, March 5th & 6th 2015.
17. **Dr. K. Punitha**, M.Padma Rega, S.Merlin Joys Mary, "Supply Reliability and Generation Cost Analysis in Unit Commitment Problem" International Conference on Engineering Technology and Science (ICETS'15) Muthayammal College of Engineering, Rasipuram, March 5th & 6th 2015.
18. **Dr. K. Punitha**, P.Ponmehala, S.K.Hemalatha, "Stability Enhancement of an Integrated Grid – Connected Offshore Wind Farm and Seashore Wave Farm Using Neuro controller based

UPFC" International Conference on Engineering Technology and Science (ICETS'15) Muthayammal College of Engineering, Rasipuram, March 5th & 6th 2015.

19. **Dr. K. Punitha**, P.Sathyaseela, G.Y.Sreevarshini, "Design of ANFIS Based FACTS Controller for Single Machine Infinite Bus System" International Conference on Engineering Technology and Science (ICETS'15) Muthayammal College of Engineering, Rasipuram, March 5th & 6th 2015.
20. **Dr. K. Punitha**, M.Sudha, M.Iyankalai "Fuzzy Logic Based Tuning of STATCOM in a DG System" International Conference on Engineering Technology and Science (ICETS'15) Muthayammal College of Engineering, Rasipuram, March 5th & 6th 2015.
21. **Dr. K. Punitha**, A.Priya, S.Gunasekaran "Genetic Algorithm for Congestion Relief by Generator Rescheduling" International Conference on Engineering Technology and Science (ICETS'15) Muthayammal College of Engineering, Rasipuram, March 5th & 6th 2015.
22. **Dr. K. Punitha**, "OPF for Reducting Transmission Line Active Power Loss Using BAT Algorithm with FACTS Devices" International Conference on Advances in Emerging Technology ICAET'2016 held at Jaya Engineering College, Chennai on 7th May 2016.
23. **Dr. K. Punitha**, "ANFIS Based Volt/VAR Management System for Distributed Generation" International Journal of Emerging Technology in Computer Science and Electronics, vol. 22, Issue No. 2 (2016) 0976 – 1353.
24. **Dr. K. Punitha**, "An Finding A Proper Method for Limiting A Short Circuit Fault Current Using Particle Swarm Optimization Algorithm and Memetic Algorithm" International Conference on Advances in Emerging Technology ICAET'2016 held at Jaya Engineering College, Chennai on 7th May 2016.
25. **Dr. K. Punitha**, "Support Vector Machine Based MPPT Technique For Wind Energy Conversion Systems " International Conference on Advances in Emerging Technology ICAET'2016 held at Jaya Engineering College, Chennai on 7th May 2016.
26. **Dr. K. Punitha**, "Resonant Current Controller Based THD Reduction In AC Microgrid" International Conference on Advances in Emerging Technology ICAET'2016 held at Jaya Engineering College, Chennai on 7th May 2016.
27. **Dr. K. Punitha**, "Multifunction Capability of Distributed Microgrid System" International Conference on Advances in Emerging Technology ICAET'2016 held at Jaya Engineering College, Chennai on 7th May 2016.
28. **Dr. K. Punitha**, "optimization of charging coordination of electric vehicles considering (V2G) Technology in multi-micro grid power system " International conference on in Engineering and Technology in Karpagam college of Engineering coimbatore.2016.
29. **Dr. K. Punitha**, "Design and analysis of simulated annealing based MPPT Algorithms for photovoltaic system " International conference on in Engineering and Technology in Karpagam college of Engineering coimbatore.2016.
30. **Dr. K. Punitha**, M. Durgalakshmi, "Design and Development of solar PV based street light using PSO based MPPT controller for multilevel Inverter" 3rd international conference on Advanced research in Engineering and applied sciences organized by S R I College of Engineering and Technology, Vandavasi on 24th- 26th March, 2016.
31. **Dr. K. Punitha**, "Electric Spring for Future Smart Grid" International conference on emerging trends in engineering and technology 1st and 2nd June 2017 organized by Shanmuganathan Engineering college, Arasampatti.
32. **Dr. K. Punitha**, S. Delphin Jenova, "Functional capabilities of Electric Springin Microgrid" National conference on Emerging trends in Renewable Energy Systems ETRES – 17 organized by Sri Vidhya College of Engineering on 17th March 2017.
33. **Dr. K. Punitha**, R. Kanchana, "Cloud based Industrial Monitoring and control using Smart Sensor" National conference on Emerging trends in Renewable Energy Systems ETRES – 17

organized by Sri Vidhya College of Engineering on 17th March 2017.

34. **Dr. K. Punitha**, "Grey wolf optimization based charging and discharging coordination of electric vehicles considering (G2V) and (V2G) Technology in multi-micro grid power system " International conference on emerging trends in engineering and technology 1st and 2nd June 2017 organized by Shanmuganathan Engineering college, Arasampatti.
35. **Dr. K. Punitha**, P. Roghini, "Wind Speed prediction using two different algorithm with Real Data" National conference on Emerging trends in Electrical & Electronics Engineering ETEEE – 18 organized by Sri Vidhya College of Engineering on 16th March 2018.
36. **Dr. K. Punitha**, P. Roghini, "Estimation of Wind Power Ramp Event" National conference on Global Technologies in Manufacturing and Thermal Sciences" organized by Sri Sethu Institute of Technology on 16th March 2018.
37. **Dr. K. Punitha**, A. Laxshmi Praba, "Real Time monitoring of Industrial Machine using IoT" National conference on Emerging trends in Electrical & Electronics Engineering ETEEE – 18 organized by Sri Vidhya College of Engineering on 16th March 2018.

**RESEARCH SCHOLARS**

| S.No. | Candidate Name | Title/Area of Research | Remark |
|---|---|---|---|
| 1. | M.Karuppasamy | Solid insulation | Doing Course Work |

**DETAILS OF PROJECT PROPOSALS SANCTIONED:**

| S. No | Title | Amount (Rs) | Funding Agency |
|---|---|---|---|
| **1** | Development and Implementation of MPPT Algorithm for Solar Photovoltaic System Under Uniform and Non-Uniform shaded Conditions | **10,00,000/-** | Department of Science and Technology(under Solar Energy Research Initiative SERI) |

**DETAILS OF PROJECT PROPOSALS SUBMITTED**

| S. No | Title | Funding Agency |
|---|---|---|
| **1** | Development and Implementation of solar based incinerator | Tamilnadu State Council for Science and Technology (TNSCST), Chennai |
| **2** | Development of Deep Learning based MPPT, Adaptive Neuro-Fuzzy and Adaptive Hysteresis controller for water pumping in RO system | Ministry of science and Technology, Technology Missions Division, SERD 2019 (APPLIED RESEARCH SOLAR STREAM) |

- **RECOGNITIONS:**

**Reviewer:**

- IEEE Transactions on Photovoltaics
- International Journal of Electric Power and Energy Systems, Elsevier
- International Journal of Applied Energy, Elsevier

- International Journal of Electronics, Taylor & Francis
- IET Renewable Power Generation
- IET Generation, Transmission & Distribution
- Applied Energy
- IEEE Access
- IET Power Electronics
- Asian Journal of Control
- Journal of Electrical Engineering

**AWARDS RECEIVED:**

- Selected "Young Scientist Fellowship Award" from TNSCST 2010.

**MEMBERSHIP**

Life member in Indian Society for Technical Education (ISTE), India.

- ISTE – LM 59799