DR. KARTICK CHANDRA JANA

Associate Professor, Department Of Electrical Engg.

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A. TECHNICAL EDUCATION

Ph.D. (Electrical Engineering), Jadavpur University, Kolkata, West Bengal	**12th Feb 2013**
M. Tech. (Industrial Electrical Systems), R. E. C. Durgapur (Presently NIT Durgapur)	**May 2003**
B.E. (Electrical Engineering), R. E. C. Durgapur (Presently NIT Durgapur)	**May 2000**

B. PROFESSIONAL EXPERIENCES (Total 21+ years)

Indian Institute of Technology (Indian School of Mines), Dhanbad Associate Professor (Department of Electrical Engg.)	**12th April 2021 – till date**
Indian Institute of Technology (Indian School of Mines), Dhanbad Assistant Professor, **Grade-I** (Department of Electrical Engg.)	**12th Feb 2016 - 11th April 2021**
Indian Institute of Technology (Indian School of Mines), Dhanbad Assistant Professor, **Grade-II** (Department of Electrical Engg.)	**01st June 2012 - 11th Feb 2016**
Birla Institute of Technology, Mesra, Ranchi Assistant Professor (Department of Electrical and Electronics Engg.)	**10th June 2010 – 31st May 2012**
Birla Institute of Technology, Mesra, Ranchi Senior Lecturer (Department of Electrical and Electronics Engg.)	**10th June 2009 - 9th June 2010**
Birla Institute of Technology, Mesra, Ranchi Lecturer (Department of Electrical and Electronics Engg.)	**10th June 2003 - 9th June 2009**

C. RESEARCH PUBLICATIONS:

(a) <u>International Journal Published (SCI/SCIE Indexed Journal)</u>: 52 Nos.

1. S. Tripathi, A. Shrivastava, & **K. C. Jana**, "An efficient energy management system for a micro-grid system considering the volatility of hybrid renewable energy", International Journal of Hydrogen Energy (Elsevier), 101, 673-691 (**Q1 Journal, SCIE, IF: 8.1**) (2025), DOI: 10.1016/j.ijhydene.2024.12.260.
2. Ankit Kumar Soni, **Kartick Chandra Jana**, Deepak Kumar Gupta, Pradipta Kumar Pal, and Amit Kumar V. Jha "Design and Analysis of an Adaptive Global Maximum Power Point Tracking Algorithm for Enhanced Partial Shading Detection and GMPP Tracking" accepted in Arabian Journal for Science and Engineering (Springer), 2025 (**Q2 Journal, SCIE, IF:2.6).**
3. S. Tripathi, A. Shrivastava, & **K. C. Jana**, "EO based fuzzy optimal controller for solar MPPT and battery charging circuit for EV charging application", International Journal of Dynamics and Control (Springer) 13 (2), 66, (**Q2 Journal, SCIE, IF: 2.2**) (2025), DOI: 10.1007/s40435-024-01582-6.
4. Khalid Raza Khan, Suryakant Kumar, Vedantham Lakshmi Srinivas, Ram Khelawan Saket, **Kartick Chandra Jana**, and Gauri Shankar, "Voltage Stabilization Control with Hybrid Renewable Power Sources in DC Microgrid" Accepted for publication to **IEEE Transactions on Industry Applications**, 2024 (**Q1 Journal, SCIE, IF: 4.2**), DOI: 10.1109/TIA.2024.3520087.
5. Bikramaditya Chandan, Pradipta Kumar Pal, **Kartick Chandra Jana**, and Yam P. Siwakoti, "Performance Evaluation of a New Transformerless Grid-Connected Six-Level Inverter with Integrated Voltage Boosting", **IEEE Journal of Emerging and Selected Topics in Power Electronics (JESTPE),** Vol. 12(5), 4361-4376, 2024 (**Q1 Journal, SCIE, IF: 4.6**), 2024, DOI: 10.1109/JESTPE.2024.3427766.

6. Chandan, B., Pal, P. K., & **Jana, K. C**., "Performance Evaluation of a 17-Level Octuple Boost Inverter for a Grid-connected PV System" ***IEEE Access***, *Vol. 12, 87284*-87298 (2024), (**Q1 Journal, SCIE, IF: 5.462**), DOI: 10.1109/ACCESS.2024.3409171.

7. Pradipta Kumar Pal, **Kartick Chandra Jana**, Yam P. Siwakoti, Jagabar Sathik Mohamed Ali, and Frede Blaabjerg, "A Switched-Capacitor Multilevel Inverter with Modified Pulse-Width Modulation and Active DC-Link Capacitor Voltage Balancing" accepted for publication in the **IEEE Journal of Emerging and Selected Topics in Power Electronics** (JESTPE), 6th June 2023 (**Q1 Journal, SCIE, IF: 4.6**), DOI: 10.1109/JESTPE.2023.3285690.

8. Bidyut Mahato, Saikat Majumdar, **Kartick Chandra Jana**, Ebrahim Babaei, Dushmanta Kumar Mohanta, "A New Switch-Diode Cell-Based Single-Phase Cascaded Multilevel Inverter, **Soft Computing** 27 (19), 13719-13738 (Springer) (**Q2 Journal, SCIE, IF: 3.732**), DOI:10.1007/s00500-023-09006-x.

9. Sandeep Tripathy, Ashish Shrivastava, and **Kartick C. Jana**, "Chimp optimization-based fuzzy controller for Hybrid electric vehicle speed control using electronic throttle plate," **Optimal Control, Applications and Methods**, 45 (1), Jan/Feb 2024, p.p. 163-184 (**Q3 Journal, SCIE, IF: 1.95**).

10. Amit Rai, Ashish Shrivastava, and **Kartick C. Jana**, "Differential Attention Net: Multi-Directed Differential Attention Based Hybrid Deep Learning Model for Solar Power Forecasting" **Energy**, 263(2023), Part C, 2023, 125746 (**Q1 Journal, SCIE, IF:8.857**).

11. Saikat Majumdar, Pradipta Kumar Pal, Samrat Paul, Bidyut Mahato, Kartick Chandra Jana & Frede Blaabjerg, "Performance Evaluation of a 15-level Inverter using Two DC Sources with Lower Standing Voltage", International Journal of Electronics, Vol. 111, Iss. 2, p.223-237 (2022) (**Q4 Journal, SCIE, IF:1.336**).

12. Amit Rai, Ashish Shrivastava, and **Kartick C. Jana**, "An Empirical Analysis of Machine Learning Algorithms for Solar Power Forecasting in High Dimensional Uncertain Environment", **IETE Technical Review**, Vol. 40, No. 4, 558–573, 2022 (**Q2 Journal, SCIE, IF:2.2**)

13. Bidyut Mahato, Saikat Majumdar, **Kartick Chandra Jana**, Amit Agrawal, Ashish Shrivastava, "A Generalized Series-Connected Multilevel Inverter (MLI) Based on Reduced Power Electronic Devices for Symmetrical/Asymmetrical Sources", **Arabian Journal for Science and Engineering**, Vol. 48, p.p. 5907–5924 (2023) (**Q2 Journal, SCIE, IF: 2.334**).

14. Pradipta Kumar Pal, **Kartick Chandra Jana**, Yam P. Siwakoti, Saikat Majumdar, and Frede Blaabjerg, "An Active-Neutral-Point-Clamped Switched-Capacitor Multilevel Inverter with Quasi-Resonant Capacitor Charging", **IEEE Transactions on Power Electronics**, 37(12), p.p.-14888-15001, Dec 2022 (**Q1 Journal, SCIE, IF: 6.153**).

15. Srihari Gude, **Kartick Chandra Jana**, Antonino Laudani, Sudhakar Babu Thanikanti, "Parameter extraction of photovoltaic cell based on a multi-objective approach using nondominated sorting cuckoo search optimization", **Journal of Solar Energy**, 239(2022), p.p.- 359-374, 2022 (**Q1 Journal, SCIE, IF: 5.742**).

16. Amit Rai, Ashish Shrivastava, and **Kartick C. Jana**. "A robust auto encoder-gated recurrent unit (AE-GRU) based deep learning approach for short term solar power forecasting." **Optik**, 252 (2022): 168515(**Q2 Journal, SCIE, IF: 2.443**).

17. Srihari Gude, **Kartick Chandra Jana**, "A multiagent system based cuckoo search optimization for parameter identification of photovoltaic cell using Lambert W-function." **Applied Soft Computing**, vol. 120 (2022): 108678 (**Q1 Journal, SCIE, IF: 6.725**).

18. Saikat Majumdar, **Kartick Chandra Jana**, Pradipta Kumar Pal, Ariya Sangwongwanich, and Frede Blaabjerg, "Design and Implementation of a Single source 17-level Inverter for a Single-phase Transformer-less Grid-Connected Photovoltaic Systems", **IEEE Journal of Emerging and Selected Topics in Power Electronics**, 10(4), p.p-4469-4485, 2021 (**Q1 Journal, SCIE, IF:4.47**).

19. Amit Rai, Ashish Shrivastava, **Kartick C. Jana**, "A CNN-BiLSTM based deep learning model for mid-term solar radiation prediction", **International Transactions on Electrical Energy Systems**, 31(9), e12664 (DOI: 10.1002/2050-7038.12664) (**Q2 Journal, SCIE, IF:2.86**), 2021.

20. Samrat Paul, **Kartick Chandra Jana**, Saikat Majumdar, Pradipta Kumar Pal, and Bidyut Mahato, "Performance Analysis of a Multi-module Staircase (MM-STC) Type Multilevel Inverter with Reduced Component Count and Improved Efficiency", **IEEE Journal of Emerging and Selected Topics in Power Electronics**, 10(6), p.p- 6619-6633 (**Q1 Journal, SCIE, IF:4.47**), DOI: 10.1109/JESTPE.2021.3133346.

21. Amit Rai, Ashish Shrivastava, **Kartick C. Jana** & N. S. Jayalakshmi, "Techno-economic-environmental and sociological study of a microgrid for the electrification of difficult un-electrified isolated villages", **Journal of Sustainable Energy, Grids and Networks** (Elsevier), 28(2021), 100548 (**Q1 Journal, SCIE, IF:3.899**).

22. Amit Rai, Ashish Shrivastava, and **Kartick C. Jana**, "A Cost-Emission Based Multi-Objective Dynamic Economic Dispatch Considering Solar-Wind Curtailment Cost", **IETE Journal of Research** (doi.org/10.1080/03772063.2021.1958071), (**Q4 Journal, SCIE, IF:1.03**).

23. B Mahato, S Majumdar, **K C Jana**, P Thakura, D Kumar Mohanta, "Experimental Verification of a New Scheme of MLI Based on Modified T-Type Inverter and Switched-Diode Cell with Lower Number of Circuit Devices", **Electric Power Components and Systems**, 48(16-17), **p.p**-1814-1834, 2021 (Q4, **SCIE, IF:1.071)**.

24. Saikat Majumdar, Bidyut Mahatoand **K. C. Jana, "**Analysis and implementation of a generalized switched-capacitor multi-level inverter having the lower total standing voltage", **IET Power Electronics**, 13(17), p.p. 4031-4042 (doi:10.1049/iet-pel.2020.0458), (**Q2 Journal**, **SCIE, IF: 2.67**), 2021.

25. B. Mahato, S. Majumdar, S. Paul, P K Pal, K. C. Jana, "A New and Modular Back-to-Back Connected T-Type Inverter for Minimum Number of Power Devices, TSV, and Cost Factor", **IETE Technical Review**, 39(2), p.p. 357-374 (2022), (**Q2 Journal, SCIE, IF:1.618**).

26. Ankit Kumar Soni, **Kartick Chandra Jana**, and Deepak Kumar Gupta, Variable Step-size Adaptive Maximum Power Point Tracking Algorithm for Solar Cell under Partial Shading Conditions", **IETE Journal of Research**, 69(3), p.p. 1562-1577 (**Q4 Journal, SCIE, IF:1.03**), 2021.

27. Saikat Majumdar, Bidyut Mahato, and **K. C. Jana**, "Analysis of most optimal Multi-unit Multi-level inverter having minimum components and lower standing voltage", IETE Technical Review, 38(5), 2021, p.p- 520-536 (**Q3 Journal, SCIE, IF: 1.618**).

28. A. Sinha, **K. C. Jana**, "A Comprehensive Review on Control Strategies of Parallel-Interfaced Voltage Source Inverters for Distributed Power Generation System", **IET Renewable Power Generation**, 14(13), pp. 2297-2314, June 2020 (**Q1 Journal, SCIE, IF:3.605**).

29. S. Gude, **K. C. Jana**, "Parameter extraction of photo voltaic cell using an improved cuckoo search optimization", **Solar Energy**, 204(2020), p.p.280-293 (**Q1 Journal, SCI, IF: 4.674**).

30. Sandeep Tripathy, Ashish Shrivastava, and **Kartick C. Jana**, "Self-Tuning fuzzy controller for sun-tracker system using Gray Wolf Optimization (GWO) technique" **ISA Transactions**, 101(2020), p.p. 50-59, (**Q1 Journal, SCI, IF:4.34**).

31. Bidyut Mahato, Saikat Majumdar, Sambit Vatsyayan and **Kartick Chandra Jana**, "A New and Generalized Structure of MLI Topology with Half-bridge Cell with Minimum Number of Power Electronic Devices" Journal of **IETE Technical Review**,38(2), 267-278 (2021), (**Q3 Journal SCIE, IF:1.618**), doi:10.1080/02564602.2020.1726215

32. B Mahato, S Majumdar, **K. C. Jana**, "A new and generalized structure of single-phase and three-phase cascaded multilevel inverter with reduced power components", **International Transactions on Electrical Energy Systems**, 30(2) (Wiley), July 2020 (**Q3 Journal SCIE, IF:1.619**).

33. Saikat Majumder, Bidyut Mahato, **K. C. Jana**, "Implementation of an Optimum Reduced Components Multi-cell Multilevel (MC-MLI) Inverter for Lower Standing Voltage", **IEEE Transaction on Industrial Electronics**, 67(4), April 2020, p.p-2765-2775 (**Q1 Journal, SCI, IF: 7.503), DOI:** 10.1109/TIE.2019.2913812.

34. Bidyut Mahato, Saikat Majumdar and **Kartick Chandra Jana**, "A New and Generalized MLI with Overall Lesser Power Electronic Devices, **Journal of Circuits, Systems and Computers** (Taylor &

Fransis), 29(4), 2020. (**Q4 Journal SCIE, IF: 0.939**).

35. Bidyut Mahato, Saikat Majumdar and **Kartick Chandra Jana**, "Reduction of Power Electronic Devicesin a Single-phase Generalized Multilevel Inverter, **Journal of Circuits, Systems and Computers** (Taylor & Fransis), 29(6), 2020 (**Q4 Journal, SCIE, IF: 0.939**), doi:10.1142/S0218126620500930.

36. Akanksha Sinha, **Kartick Chandra Jana**, Madan Kumar Das, "Control of an Asymmetrical Cascaded Multi-level Inverter for a Grid-Connected Photovoltaic system", **IET Renewable Power Generation,** 2019, 13(9), pp. 1456-1465, (**Q1 Journal, SCIE, IF:3.605**).

37. Akanksha Sinha, **Kartick Chandra Jana**, Madan Kumar Das, "Control Strategy of PV-Fed, Grid-Interfaced, Seven-level T-Type Multi level Inverter for Distributed Power Generation", **IET Power Electronics** (**Q2 Journal, SCIE, IF:2.839**), 12(12), p.p-3208-3219, Oct 2019.

38. Madan Kr. Das, Akanksha Sinha, **Kartick Chandra Jana**, "A Novel Asymmetrical Reduced Switch Nine-Level Inverter" **Journal of Circuits, Systems and Computers**, 29(8), August, 2019 (DOI:10.1142/S0218126620501170), (**Q4 Journal, SCIE, IF:0.939**).

39. Bidyut Mahato, Saikat Majumdar and **Kartick Chandra Jana**, "Reduction in controlled power switches for a Single-phase Novel Multilevel Inverter" **International Journal of Electronics**, 106(8), p.p-1200-1215, Mar 2019 (**SCIE, IF:1.07**).

40. Saikat Majumder, Bidyut Mahato**, K.C.Jana**, "Optimum Structure-Based Multi-level Inverter with Doubling Circuit Configuration", **Journal of Circuits, Systems and Computers**, 28(11), 1950194 (2019), (DOI:10.1142/S0218126619501949), (**Q4 Journal, SCIE, IF: 0.939**).

41. Bidyut Mahato, Saikat Majumdar, and **Kartick Chandra Jana**, "Single-phase Modified T-type–based multilevel inverter with reduced number of power electronic devices" **International Transactions on Electrical Energy Systems** (Wiley), 29(11), 2019(**Q3 Journal, SCIE, IF: 1.619**).

42. Amit Kr. Agrawal, Ashish Shrivastava, **K. C. Jana**, "A Universal Input, Single Stage AC-DC LED Driver for an Auditorium Light", **Journal of Circuits, Systems, and Computers**, 28(2), Feb, 2019 (**Q4 Journal, SCIE, IF:0.939**).

43. Bidyut Mahato, Parasuram Thakura, **Kartick Chandra Jana**, "Constant V/f Control & Frequency Control of Isolated winding Induction Motor using 9-Level Three-phase Inverter", **Iranian Journal of Science and Technology**, Transactions of Electrical Engineering (Springer), 43(1), pp.123-135, 2019 (**Q4 Journal, SCIE, IF:0.6**).

44. Amit Kr. Agrawal, **K. C. Jana**, Ashish Shrivastava, "Uniform Model and Analysis of PWM DC-DC Converter for Discontinuous Conduction Mode", **IETE Journal of Research**, 64(4), pp.569-581, 2018 (**Q4 Journal, SCIE, IF:0.793**).

45. Akanksha Sinha, **Kartick Chandra Jana**, Madan Kumar Das, "An Inclusive Review on different Multi-Level Inverter topologies, their Modulation and Control Strategies for a Grid Connected Photo-voltaic System", **Journal of Solar Energy**, ISSN: 0038-092X, 170(2018), pp.633-657 (**Q1 Journal, SCIE, IF:4.674**).

46. Ravi Raushan, Bidyut Mahato, **Kartick Chandra Jana**, "Optimum Structure of a Generalized Three-phase Reduced Switch Multilevel Inverter, **Electric Power Systems Research**, 157(2018), p.p-10–19 (**Q1 Journal, SCIE, IF:3.022**).

47. Madan Kr. Das, **Kartick Chandra Jana**, Akanksha Sinha, Performance Evaluation of an Asymmetrical Reduced Switched Multi-level Inverter for a Grid Connected P.V. System', **IET Renewable Power Generation**, 12(2), pp. 252-263, 2018 (**Q1 Journal, SCIE, IF: 3.605**).

48. Bidyut Mahato, Ravi Raushan, **Kartick Chandra Jana**, "Modulation and Control of Multilevel Inverter for an Open-end Winding Induction Motor with Constant Voltage Levels and Harmonics" **IET Power Electronics**, 10(1), pp.71–79, 2017 (**Q2 Journal, SCIE: 2.839**).

49. Ravi Raushan, Bidyut Mahato, **Kartick Chandra Jana**, "Comprehensive Analysis of a Novel Three-Phase Multilevel Inverter with Minimum Number of Switches", **IET Power Electronics**, 9(8), pp.1600–1607, 2016 (**Q2 Journal, SCIE: 2.839**).

50. **Kartick Chandra Jana**, Sujit Kumar Biswas, SuparnaKar Chowdhury, "Dual reference phase shifted PWM technique for a N-level inverter based grid connected solar photovoltaic system", **IET Renewable Power Generation**, 10(7), pp.928–935, 2016 (**Q1 Journal, SCIE, IF:3.605**).

51. **Kartick Chandra Jana**, Sujit Kumar Biswas, "Generalised switching scheme for a space vector pulse-width modulation-based N-level inverter with reduced switching frequency and harmonics", **IET Power Electronics**, 8(12), p.p.2377–2385, Dec 2015, (**Q2 Journal, SCIE:2.839**).

52. **Kartick Chandra Jana**, Sujit Kumar Biswas, Suparna KarChowdhury, "Performance Evaluation of a Simple and General SVPWM based M-Level Inverter including Over-modulation Operation", **IET Power Electronics**, 6(4), p.p.809– 817, April 2013, (**Q2 Journal, SCIE: 2.839**).

(b) <u>Other Journals (Scopus/ESCI)</u>

1. Sandeep Tripathi, Ashish Shrivastava, and **KC Jana**, "PO based adaptive sliding mode control for PV system under varying load condition, accepted for publication in the journal Materials Today: Proceedings (Elsevier), 2023.
2. A Rai, A Shrivastava, **KC Jana**, "A Solution for Power Crisis and Environment Pollution from Electricity Generation-A Study of Sub-tropical Regions", Smart Science 9 (1), 40-50, 2021.
3. B MAHATO, S Majumdar, **K C Jana**, "Carrier-based PWM techniques for multi-level inverters: A comprehensive performance study", Gazi University Journal of Science Part A: Engineering and Innovation 5 (3), 101-111, 2018.
4. Mukherjee, B. Mahato, A. Sinha, **K. C. Jana**, "comparative performance analysis of P.V. based grid tied single phase asymmetrical multilevel inv erter using different PWM techniques", Journal of Electrical Engineering, 2017, (Scopus Indexed Journal).
5. K. K. Jha, Bidyut Mahato, Prem Prakash, **Kartick Chandra Jana** "Hardware Implementation of Single Phase Power Factor Correction System using Micro-Controller" International Journal of Power Electronics and Drive System (IJPEDS), Vol. 7, No. 3, September, 2016, pp. 787-795 (Scopus Indexed Journal)
6. Bidyut Mahato, Rashmi Kumari, Ravi Raushan, **Kartick Chandra Jana**, Parashuram Thakura, Shio Kumar Singh, "Comparative Analysis of Different PWM Techniques in Multilevel Inverters", Int. Journal Of Engg & Tech., 2016 , Jan.2016, vol. 4, Iss 2, p.p- 12-17.
7. Saikat Majumdar, Ravi Raushan, Bidyut Mahato, **Kartick Chandra Jana**, Parashuram Thakura, Shio Kumar Singh, "Comparative Study of Space Vector Pulse Width Modulation based T-Type Three-level Inverter", Int. Journal Of Engg & Tech 2016 , Jan.2016. vol. 4, Iss 2, p.p- 7-11. Update as on 04-12-2021 4
8. Akanksha Sinha, **K. C. Jana**, Ajit Kumar, "Implementation of Optical Fiber Technology in Power Transmission-A Step Above Wireless Technology", International Journal of Applied Engineering Research (IJAER) Vol 10, no-79, pp. 19-23, 2015 (Scopus Indexed Journal)
9. **Kartick Chandra Jana**, Sujit Kumar Biswas, "A Simple and Generalized SVPWM Control of Cascaded H-Bridge Multilevel Inverters", Journal of Electrical Engineering, Volume: 8, 2008, edition 02, pp-30-36.

(c) <u>Book Chapter Published:</u>

1. Bidyut Mahato, Saikat Majumdar, Sambit Vatsyayan, KC Jana, Implementation of a Multi-level Inverter (MLI) with a New Structure with Different Values of D.C. Sources", Nanoelectronics, Circuits and Communication Systems p.p-501-513, Springer, Singapore, 2021, ISBN: 978-981-15-7486-3.
2. Samrat Paul, Bidyut Mahato, Saikat Majumdar, KC Jana, "Diode Switch-Based 17-Level Inverter with Lesser Power Electronic Elements", Proceedings of the Fourth International Conference on Microelectronics, Computing and Communication Systems, p.p-1-12, Springer, Singapore, 2021, ISBN: 978-981-15-5546-6
3. Tripathi, S., Shrivastava, A., & **Jana, K. C.** (2020), "GWO Based PID Controller Optimization for Robotic Manipulator", In Intelligent Computing Techniques for Smart Energy Systems (pp. 943-951), Springer, Singapore, 2020, ISBN: 978-981-15-0214-9.

4. Agrawal, A., Shrivastava, A., Rai, A., & **Jana, K. C.** (2020), "A 26 W Power Supply Based on Luo Converter with Improved Power Factor and Total Harmonic Distortion", In Intelligent Computing Techniques for Smart Energy Systems (pp. 953-962), Springer, Singapore, 2020, ISBN: 978-981-15-0214-9.
5. Rai, A., Shrivastava, A., & **Jana, K. C**. (2020), "Performance Evaluation of Solar Power Plant", In Intelligent Computing Techniques for Smart Energy Systems (pp. 937-942). Springer, Singapore, 2020, ISBN: 978-981-15-0214-9..
6. Bidyut Mahato, Sudhanshu Mittal, Saikat Majumdar, **Kartick Chandra Jana**, Paresh Kumar Nayak, "Multilevel Inverter with Optimal Reduction of Power Semi-conductor Switches" Accepted for publication in Book e-Chapter "Renewable Energy and its Innovative Technologies", Springer, Singapore, 2019, ISBN: 978-981-13-3185-5.
7. Saikat Majumdar, Bidyut Mahato, **Kartick C. Jana**," Doubling circuit based hybrid multilevel inverter for reduced components", International Conference on Energy", an Innovations in soft computing and information technology, Springer, Singapore, 2019, 125-133, ISBN: 978-981-13-3185-5.
8. Kumar, C., Maity, T., & Jana, K. C. (2018), A Novel Single-Phase Multilevel Inverter Topology with Reduced Component Count. In Proceeding of the Second International Conference on Microelectronics, Computing & Communication Systems (MCCS 2017) (pp. 489-497). Springer, Singapore, ISBN: 978-981-10-8234-4.

(d) <u>Journal of Patent, Govt. of India</u> (Published:05/Granted: 03 Nos.)

1. Applied Patent (Application No. **202431093206 dated 28.11.2024)** for **"A multi-level switched-capacitor-based single source inverter generating boosted output voltage",** in the name of inventors Bikramaditya Chandan, Pradipta Kumar Pal, and Kartick Chandra Jana to Indian Patent Office on 28th November, 2024.
2. Applied Patent (Application No. **202431073196** dated **27.09.2024) for "Voltage Stabilization Control with Hybrid Renewable Power Sources in DC Microgrid"** in the name of inventors, Kartick Chandra Jana, Gauri Shankar, Vedantham Lakshmi Srinivas, Khalid Raza Khan, Suryakant Kumar, and Ram Khelawan Saket to Indian Patent Office on **27th September, 2024**
3. Applied patent (Application No: 202231032196 Dated 06 / 06 / 2022) for "A hybrid renewable energy driven bidirectional wireless charging system for dynamic and static electric vehicle" in the name of inventors, Pradip Kumar Sadhu, Anik Goswami, Sonal Mishra, Nitai Pal, Arijit Baral, Anirban Ghoshal and **Kartick Chandra Jana**, at Patent Office, Kolkata, Government of India.
4. Bidyut Mahato, Samrat Paul, **Kartick Chandra Jana**, Pradipta Kumar Pal, Saikat Majumdar, Santanu Ghorai "Modified T-type and Switched-diode Cell based Multi-level Inverter" Journal of Patent, Patent Office, Government of India, Journal No. 10/2023, publication date 10/03/2023, Application No.202331011159 A, p.p. 25202.
5. Samrat Paul, Saikat Majumdar, **Kartick Chandra Jana**, Pradipta Kumar Pal, Bidyut Mahato, Santanu Ghorai, "Multi-module Staircase (MM-STC) Type Multilevel Inverter with Reduced Component Count and Improved Efficiency", Journal of Patent, Patent Office, Government of India, Journal No. 44/2022, publication date 04/11/2022, Application No.202231061068 A, p.p. 70188.
6. Saikat Majumdar, Samrat Paul, **Kartick Chandra Jana**, Pradipta Kumar Pal, Bidyut Mahato, Santanu Ghorai, "Single source 17-level Inverter for a Single-phase Transformer-less grid-connected photovoltaic systems", Journal of Patent, Patent Office, Government of India, Journal No. 39/2022, publication date 30/09/2022, Application No.202231054886 A, (**Patent Granted on 19/10/2023, Patent No: 460619**).
7. Samrat Paul, Saikat Majumdar, **Kartick Chandra Jana**, Pradipta Kumar Pal, Bidyut Mahato, Santanu Ghorai, "A Dual DC Source Multilevel Inverter with Lower Standing Voltage", Journal of Patent, Patent Office, Government of India, Journal No. 36/2022, publication date 09/09/2022, Application No. 202231049084 A (**Patent Granted on 26/09/2024, Patent No: 551182**)
8. Pradip Kumar Sadhu, Kaushik Neogi, Atanu Banerjee, G. Panda, N. Pal, **K. C. Jana**, "An Induction Curing System For Roof Treatment With Asphalt Concrete To Cure A Crack On Roof And A Method For The

Same", Journal of Patent, Patent Office, Government of India, Journal No. 04/2016, publication date 22/01/2016, Application No. 1221/KOL/2015 (**Patent Granted on 25/04/2023, Patent No: 429901**).

(e) International Conferences:

1. Arka Dutta, BHEEMAIAH CHIKONDRA, Pradipta Kumar Pal and Kartick Jana, "A Data Driven Energy Efficient Control of Induction Motor Drive with Vector Control" presented in 2024 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES), during 19 th Dec, 2024 at NIT Suratkal, Karnataka.
2. Soni, A. K., Patel, R., Gupta, D. K., Jana, K. C., & Panigrahi, C. K. (2023, December). Performance Analysis of GaN-based DC-DC converter for Solar MPPT application. In 2023 IEEE 3rd International Conference on Smart Technologies for Power, Energy and Control (STPEC) (pp. 1-6). IEEE.
3. Khan, K. R., Kumar, S., Srinivas, V. L., Saket, R. K., Jana, K. C., & Shankar, G. (2023, May). Voltage Stabilization Control with Hybrid Renewable Power Sources in DC Microgrid. In 2023 IEEE IAS Global Conference on Emerging Technologies (GlobConET) (pp. 1-6). IEEE.
4. Kumar, S., Shankar, G., Khan, K. R., Jana, K. C., & Srinivas, V. L. (2023, September). Hybrid Renewable and Battery Energy Sources with Electric Vehicles in Islanded DC Micro-Grid. In 2023 First International Conference on Cyber Physical Systems, Power Electronics and Electric Vehicles (ICPEEV) (pp. 1-6). IEEE.
5. Khan, K. R., Srinivas, V. L., Kumar, S., Jana, K. C., Kumari, R., & Shankar, G. (2023, September). Power Management and Control Strategy for DC Microgrid in Standalone and Grid Connected Mode. In 2023 First International Conference on Cyber Physical Systems, Power Electronics and Electric Vehicles (ICPEEV) (pp. 1-5). IEEE.
6. Kumar, S., Khan, K. R., Srinivas, V. L., Shankar, G., Saket, R. K., & Jana, K. C. (2023, May). Electric Vehicle Fast Charging Integrated with Hybrid Renewable Sources for V2G and G2V Operation. In 2023 IEEE IAS Global Conference on Emerging *Technologies (GlobConET)* (pp. 1-6). IEEE.
7. Soni, A. K., Patel, R., Gupta, D. K., Jana, K. C., & Panigrahi, C. K. (2023, December). Performance Analysis of GaN-based DC-DC converter for Solar MPPT application. In *2023 IEEE 3rd International Conference on Smart Technologies for Power, Energy and Control (STPEC)* (pp. 1-6). IEEE.
8. Das, M. K., Mishra, S., & Jana, K. C. (2022, December). Novel 21-level Reduced Switches Inverter. In *2022 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Jaipur, India (pp. 1-6).
9. Bikramaditya Chandan, Pradipta Kumar Pal, Kartick Chandra Jana, Reshu Verma, "Optimal Design of a Step-Up 17-Level Switched-Capacitor Inverter with Minimal Device Count," 2022 IEEE International Power and Renewable Energy Conference (IPRECON), p.p.- 1-6, 2022.
10. Das, M. K., Mishra, S., Jana, K. C., & Buduma, P. (2021, March). An asymmetrical reduced switch multilevel inverter based grid-connected P.V. system. In *2020 3rd International Conference on Energy, Power and Environment: Towards Clean Energy Technologies* (pp. 1-6), IEEE.
11. Paul, S., Mahato, B., Majumdar, S., & Jana, K. C. (2021, February). A Novel H-Type MLI with the reduction in Power Electronic Devices. In *2021 12th Power Electronics, Drive Systems, and Technologies Conference (PEDSTC)* (pp. 1-5), IEEE.
12. Das, M. K., Buduma, P., Jana, K. C., & Mishara, S. (2021, March). Novel 13-level Asymmetrical Photovoltaic Inverter with Reduced switches. In *2020 3rd International Conference on Energy, Power and Environment: Towards Clean Energy Technologies* (pp. 1-6), IEEE.
13. Das, M. K., Chauhan, S. S., Buduma, P., Jana, K. C., & Ishara, S. (2021, March). A hybrid novel cascaded asymmetrical 21-level inverter with reduced switches. In *2020 3rd International Conference on Energy, Power and Environment: Towards Clean Energy Technologies* (pp. 1-6), IEEE.
14. Sandeep Tripathi, Ashish Shrivastava, K C Jana, Shubham Tiwari, Vikash Singh Bhadoria, Anurag, "Fuzzy logic controller based solar MPPT and battery charging for hybrid vehicle application", AIP Conference Proceedings, volume 2294, Iss 1, 040007. 2020.
15. Rai, A., Shrivastava, A., **Jana, K. C**., Tripathi, S., & Agrawal, A. (2019, August). Feasibility Analysis of 100 kW Solar Plant for Chandigarh, India. In IOP Conference Series: Materials Science and Engineering (Vol. 594, No. 1, p. 012008), IOP Publishing.
16. Tripathi, S. K., Shrivastava, A**., Jana, K. C**., Agrawal, A., & Rai, A. (2019, August). Robust throttle control of Hybrid Electric Vehicle. In IOP Conference Series: Materials Science and Engineering (Vol. 594, No. 1, p. 012017), IOP Publishing.

17. Agrawal, A., Shrivastava, A., Jana, K. C., Tripathi, S., & Rai, A. (2019, August). Single Stage High Brightness LED Driver with Improved Power Quality. In *IOP Conference Series: Materials Science and Engineering* (Vol. 594, No. 1, p. 012012), IOP Publishing.
18. B. Mahato, S. Majumdar, G. Singh, K. C. Jana, "Design and development of a single phase multilevel inverter", 4th International Conference NCCS, Ranchi, on 3rd - 4th Nov-2018.
19. B. Mahato, S. Majumdar, A. Sonu, K. C. Jana, "Prototype model implementation of a new multilevel inverter in laboratory", 4th International Conference NCCS, on 3rd - 4th Nov-2018 (Presented).
20. Madan Kumar Das, Akanksha Sinha, Kartick Chandra Jana., Hybrid multilevel inverter with reduced number of switches., 2018 5th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON), 2nd – 4th Nov, 2018.
21. B. Mahato, S. Majumdar, S. Vatsyayan, K. C. Jana, "Verification of new MLI in laboratory set-up using lesser power switches", 4th International Conference NCCS, on 3rd - 4th Nov-2018 (Presented).
22. B. Mahato, S. Majumdar, S. Vatsyayan, K. C. Jana, "Realization of novel single-phase n-level multilevel inverter", 8th IEEE India International Conference on Power Electronics (IICPE 2018), MNIT, Jaipur, Rajasthan on 13th Dec,2018-15th Dec-2018.
23. Madan Kumar Das, Kartick C. Jana, Akanksha Sinha, A generalized hybrid multilevel inverter with reduced number of switches, 2018 ,4th International Conference on Recent Advances in Information Technology (RAIT 2018), IIT(ISM), Dhanbad, 15-17 march 2018.
24. Bidyut Mahato, Saikat Majumdar, Kartick C. Jana, "Multilevel Inverter with optimal reduction of Power semi-conductor Switches, International Conference on Energy, Materials and Information Technology (ICEMIT, 2017), Amity University, Ranchi. Ranchi, 23-24 Dec, 2017.
25. Saikat Majumdar, Bidyut Mahato, Kartick C. Jana, "Doubling circuit based hybrid multilevel inverter for reduced components", International Conference on Energy, Materials and Information Technology (ICEMIT, 2017), Amity University, Ranchi, 23-24 Dec, 2017.
26. Chandan kumar, Tanmoy Maity, K.C. Jana, "A NOVEL SINGLE-PHASE MULTILEVEL INVERTER TOPOLOGY WITH REDUCED COMPONENT COUNT", 2nd International Conference on Nano-electronics, Circuits & Communication Systems (NCCS-2016) 25th -26th Dec. 2016, Ranchi.
27. C. Kumar, B. Mahato, R. Raushan, T. Maity and K. C. Jana, "Comprehensive study of various configurations of three-phase Multilevel inverter for different levels," 2016 3rd International Conference on Recent Advances in Information Technology (RAIT), pp. 310-315, Dhanbad, 3-5 March, 2016,.
28. B. Mahato, R. Raushan and K. C. Jana, "Comparative study of asymmetrical configuration of multilevel inverter for different levels," 2016 3rd International Conference on Recent Advances in Information Technology (RAIT), pp. 300-303, 3-5 March 2016, Dhanbad.
29. R. Raushan, B. Mahato and K. C. Jana, "Operation and control of three-phase multilevel inverter with reduced component," 2016 3rd International Conference on Recent Advances in Information Technology (RAIT), pp. 295-299, March 3-5, Dhanbad, 2016,.
30. Amit Agrawal, K. C. Jana, Ashish Shrivastava, "A Review of Different DC/DC Converters for Power Quality Improvement in LED Lighting Load", International Conference on Energy Economics and Environment (ICEEE), pp. 1-6, 2015.
31. B. Mahato, P. R. Thakura and K. C. Jana, "Hardware design and implementation of Unity Power Factor Rectifiers using microcontrollers," 2014 IEEE 6th India International Conference on Power Electronics (IICPE), Kurukshetra, pp. 1-5, 2014.
32. A. Alam, S. Upadhyay, K. C. Jana, D. K. Mohanta, M.J.B. Reddy. C. H. Murthy, "Reliability Evaluation of Solar Photovoltaic Microgrid", Eleventh International Conference on Environment and Electrical Engineering (EEEIC), p.p1-6, May, 2012 Italy.
33. Ninitin Chauhan, Kartick Chandra Jana, "Cascaded Multilevel Inverter for Underground Traction Drives" IEEE Conference on Power Electronics Drives and Engineering Systems (PEDES 2012), p.p-1-6, Bangaluru, Dec, 2012
34. Mr. Ankit Kumar Verma, Kartick Chandra Jana, Dr. Parashuram Thakura, Prof. Giuseppe Buja, "Cascaded Multilevel Inverter for Hybrid Electric Vehicles" IEEE conference, IICPE-11, p.p-1-6, Jan, 2011
35. Kartick Chandra Jana, Parasuram Thakura and Sujit Kumar Biswas, "A Simple and Generalized Space Vector PWM Control of Cascaded H-Bridge Multilevel Inverters, IEEE international conference ICIT-06, p.p-1281-1286, Dec, 2006.

(f) <u>National Conferences</u>:

1. Akanksha Sinha, Kartick C. Jana, **Madan Kumar Das** -A Novel Reduced Switch, Symmetric, Generalised Hybrid Multilevel Inverter, Mining Equipment New Technologies Challenges Applications 2018 (MENTCA 2018), IIT(ISM) Dhanbad***, 09-10 Feb, 2018***.
2. Madan Kr. Das, Akanksha Sinha, K. C. Jana, "A New Half-cascaded multilevel inverter topology to improve systems performance parameters", National conference on Mining Equipment-New Technologies, Chalenges and Applications (MENTCA-15), ISM Dhanbad, 9^{th}-10^{th} Oct, 2015.
3. Kartick Chandra Jana "A General Space Vector PWM Control of Cascaded H-Bridge Multilevel Inverters Fed I.M. Drives" is presented at national conference COMOAT-06 held at ISM, Dhanbad on 15-16 Oct, 06.
4. Kartick Chandra Jana, Parasuram Thakura "A Simple and General Space Vector Pulse Width Modulation of Multi-Level Voltage source Inverter" presented at a national conference NCSE-06, held at Bhubneswar on 23- 24 March,06.
5. K. C. Jana, P. R. Thakura " Space Vector Modulation of Multilevel Inverter for Flexible Manufacturing Systems" Proc. Of All India Seminar on CAD/CAM, Robotics and Futuristics Factories, BIT, Mesra, India, Dec-05.
6. K. C. Jana, P.R. Thakura "SVPWM control of three level inverter for power Quality Improvement" Proceeding of 'All India Seminar on Emerging Trends in Power Sector", August 5^{th} -6^{th} , 2006, held at BIT Mesra. Ranchi.

D. THESES GUIDED:

(a) PhD Thesis Guided/Guiding:

Sl. No	Name of the Students	Title of the Ph.D Thesis	Supervisor(s) Name	Status (awarded/on-going)
1.	**Ravi Raushan**	**Modulation and Control of Hybrid Multilevel Inverter With Reduced Components.**	**Dr. K. C. Jana**	**Ph.D. degree awarded on 30^{th} Nov 2018**
2.	**Amit Agarwal**	**Analysis And Design Of Power Factor Corrected Power Supply For Lighting System**	**Dr. K. C. Jana, & Prof Ashish Srivastava (Ext. Guide)**	**Ph.D. degree awarded in Sept 2018**
3.	**Madan Das**	**A reduced component single-phase asymmetrical multilevel inverter for a grid connected photovoltaic system**	**Dr. K. C. Jana**	**Ph.D. degree awarded in Feb 2020.**
4.	**Bidyut Mahato**	**Implementation of a 3-Phase Multi-Level Inverter for a Variable Voltage, Variable Frequency Application that Maintains Constant Voltage Levels and Harmonics**	**Dr. K. C. Jana**	**Ph.D. degree awarded on 18^{th} July 2022.**
5.	**Akansha Sinha**	**Modeling and control of grid-tied parallel connected multilevel inverters for distributed renewable energy system**	**Dr. K C. Jana**	**Ph.D. degree awarded on 15^{th} Jan, 2021**
6.	**Amit Rai**	**Development of a Deterministic Deep Learning Model for Improving Solar Power**	**Dr. K. C. Jana, Prof Ashish**	**Ph.D. degree awarded on 17th**

		Forecasting	**Srivastava (Ext. Guide)**	**March 2023**
7.	**Saikat Majumdar**	**An Efficient Transformer-less Grid Connected Photovoltaic System Using Multilevel Inverter with Reduced Switches**	**Dr. K. C. Jana**	**Ph.D. degree awarded in July 2022.**
8.	Sandeep Tripathy	Modelling, Control and Optimization of Different Energy Source based HEV and PHEV for Improving their Performance.	Dr. K. C. Jana	On-going
9.	**Shrihari Gude**	**Parameter Estimation of Photovoltaic Cell and Module using Generalized Explicit Mathematical Model**	**Dr. K. C. Jana**	**Ph.D. degree awarded on 26/6/2023**
10.	**Samrat Paul**	**Design and Implementation of an Efficient Inverter for a Transformerless Grid-Tied Photovoltaic System with Reduced Harmonics and Minimum Leakage Current**	**Dr. K. C. Jana**	**Ph.D. degree awarded on 16/08/2023**
11.	Pradipta Kr. Pal	Modulation and Control of Multilevel Inverter for A.C. Drives to maintain the Constant Voltage levels and Harmonics	Dr. K. C. Jana	On-going
12.	Ankit Kr. Soni	**Grid Connection of Solar MPPT using Multilevel Inverter Under Partial Shading Condition.**	Dr. K. C. Jana	On-going
13.	Bikramaditya Chandan	**Control of a MLI based Grid Connected Photovoltaic System with Energy Storage for Supplying Critical Load and Fulfilling Peak Load Demand.**	Dr. K. C. Jana	On-going
14.	Md. Khalid Raza Khan	**DC microgrid and its control for EV charging application**	Dr. K. C. Jana	On-going
15.	Arka Dutta	**Multiphase Machines and Drives for Electric Vehicles**	Dr. K. C. Jana	On-going

(b) ME/M Tech Theses Guided:

Sl. No	**Name of the Students**	**Title of the M. Tech thesis**	**Year of Passing and specialization**	**Supervisor(s) Name**
1.	Sourav Sen	Modeling and Simulations of Multilevel Inverter for STATCOM Application	2007 at BIT Mesra Power Electronics	K. C. Jana

2.	P Hari	Simulation and Generalized Modeling of Asymmetrical Hybrid Multilevel Inverter	2008 at BIT Mesra Power Electronics	K. C. Jana
3.	P Renuka Nath	Problems Related to Performance of High-Frequency Transformers Required in Power Supplies and their Remedial Measures	2010 at BIT Mesra Power Electronics	K. C. Jana & Mrs. Debomita Ghosh
4.	Ankit Kr. Verma	Hardware Design And Implementation Of Cascaded Multilevel Inverter For Hybrid Electric Vehicles	2011 at BIT Mesra Power Electronics	K. C. Jana
5.	S. K. Natarajan	Speed and Torque Control of Three-Phase Locomotives Through VVVF Drives	2011 at BIT Mesra Power Electronics	K. C. Jana
6.	Nitin Kr. Chauhan	Asymmetrical Cascaded Multilevel Inverter and Its Control For Traction Drives Using Single Supply	2012 at BIT Mesra Power Electronics	K. C. Jana
7.	Md. Aftab Alam	Speed Sensorless Vector Control of Induction Motor	2012 at BIT Mesra Power Electronics	K. C. Jana
8.	Suvo Upadhya	Micro-grid Control using HFAC and its Reliability Evaluation	2012 at BIT Mesra Power Electronics	Dr. D. K. Mohanta & K. C. Jana
9.	Subrata Kr. Biswal	Grid-Tied Photo Voltaic System using Multi-level Inverter	2014 at ISM Power System Engg. (PSE)	Dr. K. C. Jana
10.	Susanta Kr. Paul	Three-phase Photo Voltaic System using Multi-level Inverter	2015 at ISM PSE	Dr. K. C. Jana
11.	Sumanta Kr. Nanda	Power Quality control using Multilevel Inverter	2015 at ISM PSE	Dr. K. C. Jana
12.	Kumar Shanu	Direct Torque Control of Induction Machine	2015 at ISM PSE	Dr. K. C. Jana
13.	MD INAYAT ALI	Grid Interface control and Simulation Of PMSG Wind Energy Conversion System Based On NPC Multilevel Inverter	2016 at ISM Power Electronics and Electrical Drives (PEED)	Dr. K. C. Jana
14.	ANANTA MUKHERJEE	Grid-Tied Asymmetrical Multilevel Inverter with P.V. cell	2016 at ISM, PEED	Dr. K. C. Jana
15.	SAIKAT MAJUMDAR	Fault Analysis of a Multilevel Inverter and their control using SVPWM Technique	2016 at ISM PEED	Dr. K. C. Jana
16.	RAVI JEE VERMA	Single-phase Grid Connected and Stand-alone Solar Photo-voltaic System	2016 at ISM PSE	Dr. K. C. Jana
17.	Rasmi Kumari	Control of Multilevel Inverter for a three-phase Grid-tied PV System	2016 at ISM PSE	Dr. K. C. Jana
18.	BIKASH KUMAR SAW	Maximization Of P.V. Arrays Power Under Partial Shading Condition Using a Modified MPPT.	2017 at IIT (ISM) PEED	Dr. K. C. Jana
19.	RASHMI RANJAN KACHHYAPAL	Direct Torque Control Of Permanent Magnet Synchronous Motor Using Space Vector Modulation Method	2017 at IIT (ISM) PEED	Dr. K. C. Jana
20.	PRAVEEN KUMAR	Transformerless Single Phase Grid Connected P.V. System	2017 at IIT (ISM) PEED	Dr. K. C. Jana
21.	Subhashis Mohanty	Space Vector Modulation Based Advanced Speed Control Techniques for Permanent Magnet Synchronous Motor Drive Fed from Multilevel Inverter.	2018 at IIT (ISM) PEED	Dr. K. C. Jana
22.	Pradipta Kumar Pal	An Advanced Control Technique for Multilevel Inverter Fed Traction Drives for Electric	2018 at IIT (ISM) PEED	Dr. K. C. Jana

		Vehicles Using a Single DC Source		
23.	Alisha Kumari	Multilevel Inverter Based BLDC Motor Drive for Aerospace Applications	2018 at IIT (ISM) PEED	Guide: Dr. K. C. Jana, External Guide: Dr. Anish Gopinath (VSSC, Thiruvananthapuram)
24.	Mohita Parihar	Multilevel Inverter Topology With a Novel Switching Strategy.	2018 at IIT (ISM) PEED	Dr. K. C. Jana
25.	Deepak Saw	Solar P.V. Based BLDC Motor Driven Water Pumping System Using Zeta Converter.	2018 at IIT (ISM) PEED	Dr. K. C. Jana
26.	Gaurav Dwivedi	Direct Torque Controlled Induction Motor Drives with Constant Voltage Levels and Harmonics for Automotive Applications	2018 at IIT (ISM) PEED	Dr. K. C. Jana
27.	Vikash Kumar Rathode	Communication Module for Power Electronic Converter.	2018 at IIT (ISM) PEED	Guide: Dr. K. C. Jana External Guide: Prof. P. Sensarma (IIT Kanpur)
28.	Arindam Ghosh	Analysis of Output THD and Switching Losses of Three-phase Three-level Voltage Source Inverter.	2018 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
29.	Aditi Bose	Overpass Collision Avoidance System for Commercial Vehicles	2019 at IIT (ISM) PEED	Guide: Dr. K. C. Jana External Guide: Mr. Dhiraj B Khandekar, Tata Motors, Pune
30.	Gaurav Singh	Sensorless Control of Induction Motor Using DTC Technique	2019 at IIT (ISM) PEED	Dr. K. C. Jana
31.	Aniruddha Ghosh	Different MPPT Techniques for Stand-alone P.V. System	2019 at IIT (ISM) PEED	Dr. K. C. Jana
32.	Sambit Vatsayan	Analysis of Single-phase and Three-phase Reduced Switch Multilevel Inverters	2019 at IIT (ISM) PEED	Dr. K. C. Jana
33.	Abhishek Kr. Sonu	Hybrid P.V./Wind ESS Stand-alone System with T-type Multilevel Inverter	2019 at IIT (ISM) PEED	Dr. K. C. Jana
34.	Soumitra Kundu	Formation of Microgrid	2019 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
35.	Soumitra Kundu	Study of Electromagnetic Radiation Generated by Power Converters and Incorporating it for Converter Health Monitoring	2019 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
36.	Ankana Das	Extraction of Photovoltaic Power for Off-grid System	2019 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
37.	Pankaj Kr. Modi	Comparison of Different Multilevel Inverters THD	2019 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
38.	Kartikeya Goutam	Modulation and Control of a Three-phase Grid-tied PV System	2020 at IIT (ISM) PEED	Dr. K. C. Jana
39.	Surbhi Mittal	Modeling of Single-Phase Multilevel Inverter Based Grid-connected Solar Photovoltaic System.	2020 at IIT (ISM) PEED	Dr. K. C. Jana
40.	Sanjukta Banerjee	Performance And Analysis Of a Closed-Loop Seven-Level Inverter	2020 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana

41.	Saibal Ghosh	PSS Tuning Of A Radially Connected Real Hydropower Plant of Eastern India Using Smib Model and Phase Compensation Technique	2020 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
42.	Santanu Zade	High-level three-phase Multilevel Inverter with Low THD for Line Currents	2020 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
43.	Dipanjan Sar	Bidirectional Buck-Boost Converter For Energy Storage Systems in a PV-Based Smart Grid & Home	2020 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
44.	Amit Kumar	Current controlled grid-connected photovoltaic system	2020 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
45.	Malabika Sen	Comparative study on existing Maximum Power Point Tracking Techniques for Solar P.V. Module with single-phase single-stage inverter	2020 at IIT (ISM) 3-Yr M. Tech	Dr. K. C. Jana
46.	Ankit Srivastava	Synchronization of a Photo Voltaic System with Grid.	2021 at IIT (ISM) PSE	Dr. K. C. Jana
47.	PRASOON	Solar Photovoltaic Energy Conversion and generation using CHB-MLI in the standalone mode with battery backup	2022 at IIT (ISM) PSE	Dr. K. C. Jana
48.	Pramanand Besra	Modulation and Control of Multiphase Machine Drives	2022 at IIT (ISM) PEED	Dr. K. C. Jana
49.	Surbhi Yadav	Study and Implementation of Different Techniques of MPPT for Solar PV under Partial Shading.	2023 at IIT (ISM) Electrical Engg.	Dr. K. C. Jana
50.	Priyaranjan Pradhan	AN FCS-MPC Based Dual 3-level T-type Inverter in Grid-connected Mode	2023 at IIT (ISM) Electrical Engg.	Dr. K. C. Jana
51.	Balmiki Kumar	Fault Diagnosis of a Multilevel Inverter	2023 at IIT (ISM) Electrical Engg.	Dr. K. C. Jana
52.	Ms Vandana Kumari	EV Charging Infrastructure Design	Ongoing	Dr. K. C. Jana

E. SPONSOR PROJECT COMPLETED/SANCTIONED (2008-till date)

Types of Projects R &D Sponsored/Consultancy Projects	**Title of the Sponsored Projects**	**Role**	**Funding Agency, Project Reference No & Amount**
R & D sponsored Projects Started from 20-03-2019 completed in 19/03/2022	**Design, Development and Prototyping of a Reduced Switch MLI based Grid Connected Photovoltaic System with Energy Storage for Supplying Critical Loads and Fulfilling Peak Load Demand**	**PI**	DST (SERB) File No : EEQ/2018/001094 40.97 Lacs

Infrastructure development projects completed during 2008-2010	Infrastructure development of POWER ELECTRONICS LAB at BIT Mesra, Ranchi.	**Co-PI**	National Mission on Power Electronics Technology (NaMPET), DIT GOI. **Amount: 35.03 Lacs**
Completed the Part of National Level Pedagogy Project (26/10/2009 to 10/12/2012)	Developing suitable pedagogical methods on B. Tech Course structure of "INDUSTRIAL DRIVES & CONTROL" under National Mission Project on Education through ICT.	Principal developer of course"Industrial Drives and Control" for pilot phase (Co-developer: Ritesh Kr. Keshri)	NMPE-ICT, MHRD, GOI, (IIT KGP as the nodal agency coordinating the entire project) Project Amt.: 375,000.00

F. Awards/Honours:

1) Secured a position in the top 2% of Scientists Globally in the Field of Energy by Stanford University and Elsevier for the Year 2024.
2) Best Research Paper awarded by the IEEE PEDES Conference held at NIT Suratkal in 2024.
3) Elevated as Senior Member IEEE in the year 2020

G. JOURNAL REVIEWED:

As a reviewer, I have reviewed the manuscripts of the following peer-reviewed Journals:

i) IEEE Transactions on Industrial Electronics
ii) IEEE Transactions on Power Electronics
iii) IEEE Transactions on Energy Conversion
iv) IEEE Journal of Emerging and Selected Topics in Power Electronics (JESTPE)
v) IEEE Access
vi) IEEE IAS Publications
vii) IEEE Transactions on Consumer Electronics
viii) IET Power Electronics
ix) IET Renewable Power Generation
x) IET Electrical Systems on Transportation
xi) International Transactions on Electrical Energy Systems

H. OTHER ROLES

Guest Editor of International Journal "Energies" under the special topic "Advances in Application of Power Electronics to Utility Systems"

I. PARTICIPATED IN CONSULTANCY PROJECT (2012-till date)

Sl. No.	Name of Consultancy Work	Role	Duration
1	A certificate course on MATLAB/Simulink for Engineering applications.	Take theory and practical classesas a faculty member	27/08/2012-01/09/2012
2	A certificate course on MATLAB/Simulink for Engineering applications	Take theory and practical classes as a faculty member	17/09/2012-22/09/2012
3	A certificate course on MATLAB/Simulink for Engineering applications	Take theory and practical classesas a faculty member	24/06/2013-29/06/2013
4	A certificate course on MATLAB/Simulink for Engineering applications	Take theory and practical classes as a faculty member	26/08/2013-31/08/2013
5	A certificate course on Advanced Power Electronics & Drives	Take theory and practical classes as a faculty member	30/12/2013-04/01/2014

J. PERSONAL DEVELOPMENT:

(a) Course Developed

	For U.G. level	For P.G. level
Courses Developed	**At IIT(ISM) Dhanbad** (i) Power Electronics (ii) Industrial Automation (iii) Utilization Of Electrical Energy **At BIT Mesra Ranchi** (iv) Utilization Of Electrical Power (v) Industrial Drives & Control	**At IIT(ISM) Dhanbad** (i) Design of Power Converters. (ii) Converter-controlled Machine Drives (iii) Electric and Hybrid Electric Vehicles (iv) Power Electronics for Renewable Energy System **At BIT Mesra Ranchi** (v) Dynamic Analysis Of Electrical Machines at Bit Mesra Ranchi (vi) Power Electronics System Design at BIT Mesra Ranchi (vii) Control Of Electrical Drives At BIT Mesra Ranchi

(b) Subject Taught

	At U.G level:	At P.G. Level:
At IIT (ISM), Dhanbad	(i) Electrical Technology (ii) Electrical Drives (iii) Utilization of Electrical Energy (iv) Special Electrical Machines and Drives (v) Power Electronics (vi) Industrial Automation and Control (vii) Electrical Drives and Applications	(i) Power Electronics & Drives (ii) Design of Power Converters (iii) Green Energy and Technology (iv) Converter-controlled Machine Drives (v) Numerical Simulations for Electrical Engineering. (vi) Electric and Hybrid Electric Vehicles
At BIT Mesra, Ranchi	(viii) Industrial Drives & Control (ix) Utilization of Electrical Power (x) Basic Electrical Engg. (xi) Introduction to System Theory	(vii) Dynamic Analysis of Electrical Machines (viii) Control of Electric Drives (ix) Power Electronics System Design

(c) Members of the Professional Societies

1. Senior Members IEEE
2. Member, IEEE Industrial Electronics Society
3. Member, IEEE Power Electronics Society
4. Member, Institute of Engineers (India)
5. Life Members, ISTE

(d) Departmental Level Responsibility:

1) Lab In-charge Advanced Power Electronics and Drives Lab

2) DPGC Member, Electrical Engineering Dept., IIT(ISM) Dhanbad

(e) Training / Workshop/Conference Attended, And R&D Lab Visited

- September 06 – 07, 2007, A National Workshop on Power Electronics under NaMPET held at IIT, Bombay.
- December 25-29, 2007, Training at TATA Steel on Application of Power Electronics and Drives at TATA Steel.
- January 05, 2008, A Workshop on Power Electronics Applications under TEQIP was held at Jadavpur University.
- April 14-26, 2008, A Training on DSP, FPGA architecture, and VHDL programming
- August 05-09, 2008, A Training on Effective Teaching was held at BIT Mesra under TEQIP.
- November 13-15, 2008, A National Workshop on Power Electronics under NaMPET held at NIT, Trichy.
- 6-20 June 2004, Participated as an active member to organize "Short term Training on Intelligent Control"at RDCIS, SAIL, Ranchi
- 10-15 Dec 2004, Participated as an active member to organize AICTE, ISTE Sponsored " MATLAB Based Real-Time Control" at BIT Mesra, Ranchi
- 5-6 August 2006, Participated as an active member in organizing I.E. (India) Sponsored All India Seminar on"Emerging trends in the power sector" at BIT Mesra Ranch.
- A Workshop on "Development in Power Electronics Technology" as a **Co-coordinator** held at BIT Mesra,during 4^{rth} & 5th Nov. 2007.
- 30th April - 04^{rth} May, 2008 and 30th June – 04^{rth} July, 2008, we organized a series of short-term courses on"POWER ELECTRONICS" for Indian Railways supervisors.
- 15th June – 3rd July, 2006, Visited the Power Electronics and Drives lab of CEDT (IISC, Bangalore)
- 13th Oct-15th Oct, 2008, Visited Chittaranjan Locomotive Works (CLW), West Bengal for the study of different Power Electronics Applications on Indian Railways.
- 26th August, 2010 visited Chittaranjan Locomotive Works (CLW), West Bengal, for industry collaboration
- 24th & 25th January, 2011visited VSSC, Trivandrum, and IIST Trivandrum for the study of different applications of control, navigation, and guidance of Launch vehicles.

(f) Lecture/Keynote address Delivered to a seminar/workshop/short-term course

- Delivered a lecture on “Issues of Electrical Drives in Mining Sectors” on 21/01/2025 as an expert to an Executive Development Program (EDP) on “Preventive Maintenance and Electrical Safety in Mines” organized by Electrical Engineering Dept, IIT (ISM) Dhanbad during 21st–24th Jan 2025.
- Deliver expert lectures on “Inverters for Grid-Connected and Off-Grid Renewables” in the MMTTC-sponsored Online Short-Term Course on "Sustainable Smart Energy Technologies" held at IIITDM Kancheepuram from January 6–11, 2025.
- Delivered a lecture on “Applications of Power Electronics in Mines” on 26/07/2024 as an expert to an Executive Development Program (EDP) on “Electrical Safety in Sustainable Mines: Challenges and Mitigation” organized by Electrical Engineering Dept, IIT (ISM) Dhanbad during 22nd–26th July 2024.
- Delivered a lecture in a webinar on the “Scope of Power Electronics” in the Department of Electrical Engineering, Swami Vivekananda University, on 24-08-2021.
- Delivered a lecture as a Keynote Speaker in a Short Term Course on the Development of IOT Based Power Electronic Interface for Green Energy Management systems on the topic “Multilevel Inverters for Renewable Energy Systems” on 21/05/2019 (20th May -24th May 2019) at EEE Dept of BIT Mesra.
- Delivered a keynote address on Short Term Course on “Integration of Sustainable Energy Sources and Smart Grid, Birla Institute of Technology Mesra Off-Campus Deoghar, March 20-24, 2017.
- Dr. K. C. Jana delivered an expert lecture in a State level seminar on "Role of Power Electronics in Renewable Source of Energy Systems" held at RTC Institute of Technology, Ormanjhi, Ranchi on 27th August 2016.

(K. C. Jana)

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