

Bibliography

- [1] 'India's Power Sector | Capacity & Generation Mix'. Accessed: Jan. 14, 2025. [Online]. Available: <https://iced.niti.gov.in/energy/electricity/generation>
- [2] H. Ritchie and P. Rosado, 'Energy Mix', Our World in Data, Jul. 2020, Accessed: Jan. 14, 2025. [Online]. Available: <https://ourworldindata.org/energy-mix>
- [3] U. C. Mishra, "Environmental impact of coal industry and thermal power plants in India," *Journal of Environmental Radioactivity*, vol. 72, no. 1, pp. 35–40, Jan. 2004, doi: 10.1016/S0265-931X(03)00183-8.
- [4] D. Abbott, "Keeping the Energy Debate Clean: How Do We Supply the World's Energy Needs?," in *Proceedings of the IEEE*, vol. 98, no. 1, pp. 42-66, Jan. 2010, doi: 10.1109/JPROC.2009.2035162.
- [5] J. W. Nowak, S. Sarkani and T. A. Mazzuchi, "Risk Assessment for a National Renewable Energy Target Part II: Employing the Model," in *IEEE Systems Journal*, vol. 10, no. 2, pp. 459-470, June 2016, doi: 10.1109/JSYST.2013.2294634.
- [6] S. Taggart, G. James, Z. Dong and C. Russell, "The Future of Renewables Linked by a Transnational Asian Grid," in *Proceedings of the IEEE*, vol. 100, no. 2, pp. 348-359, Feb. 2012, doi: 10.1109/JPROC.2011.2159089.
- [7] A. Gulagi, S. Pathak, D. Bogdanov and C. Breyer, "Renewable Energy Transition for the Himalayan Countries Nepal and Bhutan: Pathways Towards Reliable, Affordable and Sustainable Energy for All," in *IEEE Access*, vol. 9, pp. 84520-84544, 2021, doi: 10.1109/ACCESS.2021.3087204.
- [8] 'RENEWABLES 2024 GLOBAL STATUS REPORT'. [Online]. Available: <https://www.ren21.net/gsr-2024/>
- [9] Steven J. Davis *et al.*, "Net-zero emissions energy systems," *Science* 360, eaas9793(2018). DOI:10.1126/science.aas9793.
- [10] M. B. Hayat, D. Ali, K. C. Monyake, L. Alagha, and N. Ahmed, "Solar energy—A look into power generation, challenges, and a solar-powered future," *International Journal of Energy Research*, vol. 43, no. 3, pp. 1049–1067, 2019, doi: 10.1002/er.4252.

- [11] G. K. Singh, "Solar power generation by PV (photovoltaic) technology: A review," in *Energy*, vol. 53, pp. 1–13, May 2013, doi: 10.1016/j.energy.2013.02.057.
- [12] A. Sharma, "A comprehensive study of solar power in India and World," in *Renewable and Sustainable Energy Reviews*, vol. 15, no. 4, pp. 1767–1776, May 2011, doi: 10.1016/j.rser.2010.12.017.
- [13] J. Khan and M. H. Arsalan, "Solar power technologies for sustainable electricity generation – A review", in *Renewable and Sustainable Energy Reviews*, vol. 55, pp. 414–425, Mar. 2016, doi: 10.1016/j.rser.2015.10.135.
- [14] T. Dragičević, X. Lu, J. C. Vasquez and J. M. Guerrero, "DC Microgrids—Part I: A Review of Control Strategies and Stabilization Techniques," in *IEEE Transactions on Power Electronics*, vol. 31, no. 7, pp. 4876-4891, July 2016, doi: 10.1109/TPEL.2015.2478859.
- [15] T. Dragičević, X. Lu, J. C. Vasquez and J. M. Guerrero, "DC Microgrids—Part II: A Review of Power Architectures, Applications, and Standardization Issues," in *IEEE Transactions on Power Electronics*, vol. 31, no. 5, pp. 3528-3549, May 2016, doi: 10.1109/TPEL.2015.2464277.
- [16] N. Kinhekar, N. P. Padhy, F. Li and H. O. Gupta, "Utility Oriented Demand Side Management Using Smart AC and Micro DC Grid Cooperative," in *IEEE Transactions on Power Systems*, vol. 31, no. 2, pp. 1151-1160, March 2016, doi: 10.1109/TPWRS.2015.2409894.
- [17] M. J. Rana and M. A. Abido, "Energy management in DC microgrid with energy storage and model predictive controlled AC–DC converter," in *IET Generation, Transmission & Distribution*, vol. 11, no. 15, pp. 3694–3702, Oct. 2017, doi: 10.1049/iet-gtd.2016.1934.
- [18] S. Anand and B. G. Fernandes, "Optimal voltage level for DC microgrids," *IECON 2010 - 36th Annual Conference on IEEE Industrial Electronics Society, Glendale, AZ, USA, 2010*, pp. 3034-3039, doi: 10.1109/IECON.2010.5674947.
- [19] L. Cristaldi, M. Faifer, M. Rossi and F. Ponci, "A Simple Photovoltaic Panel Model: Characterization Procedure and Evaluation of the Role of Environmental Measurements," in *IEEE Transactions on Instrumentation and Measurement*, vol. 61, no. 10, pp. 2632-2641, Oct. 2012, doi: 10.1109/TIM.2012.2199196.

- [20] A. Bala Subramaniyan, R. Pan, J. Kuitche and G. TamizhMani, "Quantification of Environmental Effects on PV Module Degradation: A Physics-Based Data-Driven Modeling Method," in *IEEE Journal of Photovoltaics*, vol. 8, no. 5, pp. 1289-1296, Sept. 2018, doi: 10.1109/JPHOTOV.2018.2850527.
- [21] H. Patel and V. Agarwal, "MATLAB-Based Modeling to Study the Effects of Partial Shading on PV Array Characteristics," in *IEEE Transactions on Energy Conversion*, vol. 23, no. 1, pp. 302-310, March 2008, doi: 10.1109/TEC.2007.914308.
- [22] K. Ding, X. Bian, H. Liu and T. Peng, "A MATLAB-Simulink-Based PV Module Model and Its Application Under Conditions of Nonuniform Irradiance," in *IEEE Transactions on Energy Conversion*, vol. 27, no. 4, pp. 864-872, Dec. 2012, doi: 10.1109/TEC.2012.2216529.
- [23] K. Abdulmawjood, S. Alsadi, S. S. Refaat and W. G. Morsi, "Characteristic Study of Solar Photovoltaic Array Under Different Partial Shading Conditions," in *IEEE Access*, vol. 10, pp. 6856-6866, 2022, doi: 10.1109/ACCESS.2022.3142168.
- [24] T. Qian, "A Converter Combination Scheme for Efficiency Improvement of PV Systems," in *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 65, no. 11, pp. 1668-1672, Nov. 2018, doi: 10.1109/TCSII.2017.2764027.
- [25] M. A. G. de Brito, L. Galotto, L. P. Sampaio, G. d. A. e Melo and C. A. Canesin, "Evaluation of the Main MPPT Techniques for Photovoltaic Applications," in *IEEE Transactions on Industrial Electronics*, vol. 60, no. 3, pp. 1156-1167, March 2013, doi: 10.1109/TIE.2012.2198036.
- [26] B. S. Revathi and M. Prabhakar, "Solar PV Fed DC Microgrid: Applications, Converter Selection, Design and Testing," in *IEEE Access*, vol. 10, pp. 87227-87240, 2022, doi: 10.1109/ACCESS.2022.3199701.
- [27] S. Pourjafar, H. Afshari, P. Mohseni, O. Husev, O. Matiushkin and N. Shabbir, "Comprehensive Comparison of Isolated High Step-up DC-DC Converters for Low Power Application," in *IEEE Open Journal of Power Electronics*, vol. 5, pp. 1149-1161, 2024, doi: 10.1109/OJPEL.2024.3433554.

- [28] A. K. Rathore and U. Prasanna, "Comparison of soft-switching voltage-fed and current-fed bi-directional isolated Dc/Dc converters for fuel cell vehicles," *2012 IEEE International Symposium on Industrial Electronics*, Hangzhou, China, 2012, pp. 252-257, doi: 10.1109/ISIE.2012.6237093.
- [29] A. K. Rathore, A. K. S. Bhat and R. Oruganti, "A Comparison of Soft-Switched DC-DC Converters for Fuel Cell to Utility Interface Application," *2007 Power Conversion Conference - Nagoya*, Nagoya, Japan, 2007, pp. 588-594, doi: 10.1109/PCCON.2007.373026.
- [30] G. Moschopoulos, S. Bassan, Shumin Li and Qingyi Su, "Properties and characteristics of voltage-fed singlestage converters," *Canadian Conference on Electrical and Computer Engineering, 2005.*, Saskatoon, SK, Canada, 2005, pp. 1266-1269, doi: 10.1109/CCECE.2005.1557207.
- [31] H. Wan, "High Efficiency DC-DC Converter for EV Battery Charger Using Hybrid Resonant and PWM Technique," Apr. 2012. Accessed: Mar. 12, 2025. [Online]. Available: <https://www.semanticscholar.org/paper/High-Efficiency-DC-DC-Converter-for-EV-Battery-and-Wan/d27b22810023c029c3e563b6770fa5ba48c80420>.
- [32] Kwok-Wai Ma and Yim-Shu Lee, "An integrated flyback converter for DC uninterruptible power supply," in *IEEE Transactions on Power Electronics*, vol. 11, no. 2, pp. 318-327, March 1996, doi: 10.1109/63.486182.
- [33] C.-M. Wang, C.-H. Su, and C.-H. Yang, "ZVS-PWM flyback converter with a simple auxiliary circuit," *IEE Proceedings - Electric Power Applications*, vol. 153, no. 1, pp. 116–122, Jan. 2006, doi: 10.1049/ip-epa:20050123.
- [34] H. S. . -H. Chung, Wai-Leung Cheung and K. S. Tang, "A ZCS bidirectional flyback DC/DC converter," in *IEEE Transactions on Power Electronics*, vol. 19, no. 6, pp. 1426-1434, Nov. 2004, doi: 10.1109/TPEL.2004.836643.
- [35] H. Wu and Y. Xing, "A Family of Forward Converters With Inherent Demagnetizing Features Based on Basic Forward Cells," in *IEEE Transactions on Power Electronics*, vol. 25, no. 11, pp. 2828–2834, Nov. 2010, doi: 10.1109/TPEL.2010.2049378.

- [36] E. Adib and H. Farzanehfard, "Family of Soft-Switching PWM Converters With Current Sharing in Switches," in *IEEE Transactions on Power Electronics*, vol. 24, no. 4, pp. 979-984, April 2009, doi: 10.1109/TPEL.2008.2008022.
- [37] R. R. Khorasani, E. Adib and H. Farzanehfard, "ZVT Resonant Core Reset Forward Converter With a Simple Auxiliary Circuit," in *IEEE Transactions on Industrial Electronics*, vol. 65, no. 1, pp. 242-250, Jan. 2018, doi: 10.1109/TIE.2017.2716871.
- [38] H. Tarzamni, E. Babaei, F. P. Esmaelnia, P. Dehghanian, S. Tohidi and M. B. B. Sharifian, "Analysis and Reliability Evaluation of a High Step-Up Soft Switching Push–Pull DC–DC Converter," in *IEEE Transactions on Reliability*, vol. 69, no. 4, pp. 1376-1386, Dec. 2020, doi: 10.1109/TR.2019.2945413.
- [39] H. R. E. Larico and I. Barbi, "Three-Phase Push–Pull DC–DC Converter: Analysis, Design, and Experimentation," in *IEEE Transactions on Industrial Electronics*, vol. 59, no. 12, pp. 4629-4636, Dec. 2012, doi: 10.1109/TIE.2011.2177609.
- [40] R. Watson and F. C. Lee, "A soft-switched, full-bridge boost converter employing an active-clamp circuit," *PESC Record. 27th Annual IEEE Power Electronics Specialists Conference*, Baveno, Italy, 1996, pp. 1948-1954 vol.2, doi: 10.1109/PESC.1996.548847.
- [41] Hong Mao, J. Abu-Qahouq, Shiguo Luo and I. Batarseh, "Zero-voltage-switching half-bridge DC-DC converter with modified PWM control method," in *IEEE Transactions on Power Electronics*, vol. 19, no. 4, pp. 947-958, July 2004, doi: 10.1109/TPEL.2004.830052.
- [42] R. W. Erickson and D. Maksimovic, *Fundamentals of Power Electronics*, 3rd ed. Berlin, Germany: Springer, 2020.
- [43] 'Fundamentals of Power Electronics | SpringerLink'. Accessed: Jan. 15, 2025. [Online]. Available: <https://link.springer.com/book/10.1007/978-3-030-43881-4>.
- [44] B. Zhao, Q. Song, W. Liu, and Y. Sun, "Overview of Dual-Active-Bridge Isolated Bidirectional DC–DC Converter for High-Frequency-Link Power-Conversion System," in *IEEE Transactions on Power Electronics*, vol. 29, no. 8, pp. 4091–4106, Aug. 2014, doi: 10.1109/TPEL.2013.2289913.
- [45] M. N. Kheraluwala, R. W. Gascoigne, D. M. Divan, and E. D. Baumann, "Performance characterization of a high-power dual active bridge DC-to-DC converter," in *IEEE*

- Transactions on Industry Applications*, vol. 28, no. 6, pp. 1294–1301, Nov. 1992, doi: 10.1109/28.175280.
- [46] T. Zhao, G. Wang, S. Bhattacharya, and A. Q. Huang, "Voltage and Power Balance Control for a Cascaded H-Bridge Converter-Based Solid-State Transformer," in *IEEE Transactions on Power Electronics*, vol. 28, no. 4, pp. 1523–1532, Apr. 2013, doi: 10.1109/TPEL.2012.2216549.
- [47] F. Krismer and J. W. Kolar, "Efficiency-Optimized High-Current Dual Active Bridge Converter for Automotive Applications," in *IEEE Transactions on Industrial Electronics*, vol. 59, no. 7, pp. 2745–2760, July 2012, doi: 10.1109/TIE.2011.2112312.
- [48] G. Oggier, G. O. García, and A. R. Oliva, "Modulation strategy to operate the dual active bridge DC-DC converter under soft switching in the whole operating range," in *IEEE Transactions on Power Electronics*, vol. 26, no. 4, pp. 1228–1236, Apr. 2011, doi: 10.1109/TPEL.2010.2072966.
- [49] G. G. Oggier, G. O. García, and A. R. Oliva, "Switching Control Strategy to Minimize Dual Active Bridge Converter Losses," in *IEEE Transactions on Power Electronics*, vol. 24, no. 7, pp. 1826–1838, Jul. 2009, doi: 10.1109/TPEL.2009.2020902.
- [50] A. K. Bhattacharjee and I. Batarseh, "Optimum Hybrid Modulation for Improvement of Efficiency Over Wide Operating Range for Triple-Phase-Shift Dual-Active-Bridge Converter," in *IEEE Transactions on Power Electronics*, vol. 35, no. 5, pp. 4804–4818, May 2020, doi: 10.1109/TPEL.2019.2943392.
- [51] F. An, W.-S. Song, and K.-X. Yang, "Optimised power control with extended phase shift in dual-active-bridge dc–dc converters," *Electronics Letters*, vol. 54, no. 10, pp. 651–653, May 2018, doi: 10.1049/el.2018.0683.
- [52] J. Sha, L. Chen, and G. Zhou, "Discrete Extended-Phase-Shift Control for Dual-Active-Bridge DC–DC Converter with Fast Dynamic Response," in *IEEE Transactions on Industrial Electronics*, vol. 70, no. 6, pp. 5662–5673, Jun. 2023, doi: 10.1109/TIE.2022.3198261.
- [53] X. Li, X. Zhang, F. Lin, C. Sun and K. Mao, "Artificial-Intelligence-Based Hybrid Extended Phase Shift Modulation for the Dual Active Bridge Converter With Full ZVS Range and Optimal Efficiency," in *IEEE Journal of Emerging and Selected Topics in*

- Power Electronics*, vol. 11, no. 6, pp. 5569-5581, Dec. 2023, doi: 10.1109/JESTPE.2022.3185090.
- [54] S. M. Akbar, A. Hasan, A. J. Watson and P. Wheeler, "Model Predictive Control with Triple Phase Shift Modulation for a Dual Active Bridge DC-DC Converter," in *IEEE Access*, vol. 9, pp. 98603-98614, 2021, doi: 10.1109/ACCESS.2021.3095553.
- [55] Y. A. Harrye, K. H. Ahmed, G. P. Adam, and A. A. Aboushady, "Comprehensive steady state analysis of bidirectional dual active bridge DC/DC converter using triple phase shift control," in *2014 IEEE 23rd International Symposium on Industrial Electronics (ISIE)*, Jun. 2014, pp. 437–442. doi: 10.1109/ISIE.2014.6864653.
- [56] X. Yang, M. Xu, Q. Li, Z. Wang, and M. He, "Analytical Method for RC Snubber Optimization Design to Eliminate Switching Oscillations of SiC MOSFET," in *IEEE Transactions on Power Electronics*, vol. 37, no. 4, pp. 4672–4684, Apr. 2022, doi: 10.1109/TPEL.2021.3127516.
- [57] W. McMurray, "Selection of Snubbers and Clamps to Optimize the Design of Transistor Switching Converters," in *IEEE Transactions on Industry Applications*, vol. IA-16, no. 4, pp. 513–523, Jul. 1980, doi: 10.1109/TIA.1980.4503823.
- [58] R. Parvari, M. Zarghani, and S. Kaboli, "RCD snubber design based on reliability consideration: A case study for thermal balancing in power electronic converters," *Microelectronics Reliability*, vol. 88–90, pp. 1311–1315, Sep. 2018, doi: 10.1016/j.microrel.2018.06.072.
- [59] B. N. Torsæter, S. Tiwari, R. Lund, and O.-M. Midtgård, "Experimental evaluation of switching characteristics, switching losses and snubber design for a full SiC half-bridge power module," in *2016 IEEE 7th International Symposium on Power Electronics for Distributed Generation Systems (PEDG)*, Jun. 2016, pp. 1–8. doi: 10.1109/PEDG.2016.7527071.
- [60] C. Vartak, A. Abramovitz, and K. Ma Smedley, "Analysis and Design of Energy Regenerative Snubber for Transformer Isolated Converters," in *IEEE Transactions on Power Electronics*, vol. 29, no. 11, pp. 6030–6040, Nov. 2014, doi: 10.1109/TPEL.2014.2301194.

- [61] K. Harada and H. Sakamoto, "Switched snubber for high frequency switching," in *21st Annual IEEE Conference on Power Electronics Specialists*, 1990, pp. 181–188. doi: 10.1109/PESC.1990.131187.
- [62] J.-T. Kim, B.-K. Lee, T.-W. Lee, S.-J. Jang, S.-S. Kim, and C.-Y. Won, "An active clamping current-fed half-bridge converter for fuel-cell generation systems," in *2004 IEEE 35th Annual Power Electronics Specialists Conference (IEEE Cat. No.04CH37551)*, Jun. 2004, pp. 4709–4714 Vol.6. doi: 10.1109/PESC.2004.1354832.
- [63] S.-K. Han, H.-K. Yoon, G.-W. Moon, M.-J. Youn, Y.-H. Kim, and K.-H. Lee, "A new active clamping zero-voltage switching PWM current-fed half-bridge converter," in *IEEE Transactions on Power Electronics*, vol. 20, no. 6, pp. 1271–1279, Nov. 2005, doi: 10.1109/TPEL.2005.857525.
- [64] C. F. Moraes, E. G. Carati, J. P. da Costa, R. Cardoso, and C. M. de Oliveira Stein, "Active-Clamped Zero-Current Switching Current-Fed Half-Bridge Converter," in *IEEE Transactions on Power Electronics*, vol. 35, no. 7, pp. 7100–7109, Jul. 2020, doi: 10.1109/TPEL.2019.2959447.
- [65] Y. Song et al., "A current-fed three-phase half-bridge dc-dc converter with active clamping," in *2009 IEEE Energy Conversion Congress and Exposition*, Sep. 2009, pp. 1362–1366. doi: 10.1109/ECCE.2009.5316124.
- [66] J. B. Banu and M. B. Moses, "A current fed full bridge DC-DC converter with an active flyback and passive auxiliary circuits," in *2016 International Conference on Energy Efficient Technologies for Sustainability (ICEETS)*, Apr. 2016, pp. 382–387. doi: 10.1109/ICEETS.2016.7583785.
- [67] I. Batarseh, "Resonant converter topologies with three and four energy storage elements," in *IEEE Transactions on Power Electronics*, vol. 9, no. 1, pp. 64–73, Jan. 1994, doi: 10.1109/63.285495.
- [68] V. Vorperian and S. Cuk, "A complete DC analysis of the series resonant converter," *1982 IEEE Power Electronics Specialists conference*, Cambridge, MA, USA, 1982, pp. 85–100, doi: 10.1109/PESC.1982.7072398.

- [69] S. Tian, F. C. Lee and Q. Li, "A Simplified Equivalent Circuit Model of Series Resonant Converter," in *IEEE Transactions on Power Electronics*, vol. 31, no. 5, pp. 3922-3931, May 2016, doi: 10.1109/TPEL.2015.2464351.
- [70] A. K. S. Bhat, "Analysis and design of a modified series resonant converter," in *IEEE Transactions on Power Electronics*, vol. 8, no. 4, pp. 423-430, Oct. 1993, doi: 10.1109/63.261012.
- [71] R. Oruganti and F. C. Lee, "State-plane analysis of parallel resonant converter," in *1985 IEEE Power Electronics Specialists Conference*, Jun. 1985, pp. 56-73. doi: 10.1109/PESC.1985.7070930.
- [72] S. D. Johnson and R. W. Erickson, "Steady-state analysis and design of the parallel resonant converter", in *1986 17th Annual IEEE Power Electronics Specialists Conference*, Jun. 1986, pp. 154-165. doi: 10.1109/PESC.1986.7415559.
- [73] A. G. Vishal Anand, A. Pal, R. Gurunathan, and K. Basu, "Exact Analysis of Parallel Resonant DC-DC Converter using Phase Shift Modulation," in *2021 IEEE Energy Conversion Congress and Exposition (ECCE)*, Oct. 2021, pp. 2035-2041. doi: 10.1109/ECCE47101.2021.9595471.
- [74] A. K. S. Bhat, "Fixed-frequency PWM series-parallel resonant converter," in *IEEE Transactions on Industry Applications*, vol. 28, no. 5, pp. 1002-1009, Sep. 1992, doi: 10.1109/28.158822.
- [75] S.-C. Wong and A. D. Brown, "Analysis, modeling, and simulation of series-parallel resonant converter circuits," in *IEEE Transactions on Power Electronics*, vol. 10, no. 5, pp. 605-614, Sep. 1995, doi: 10.1109/63.406849.
- [76] A. K. S. Bhat, "Analysis and design of a series-parallel resonant converter with capacitive output filter," in *IEEE Transactions on Industry Applications*, vol. 27, no. 3, pp. 523-530, May 1991, doi: 10.1109/28.81837.
- [77] M. K. Kazimierczuk, N. Thirunarayan, and S. Wang, "Analysis of series-parallel resonant converter," in *IEEE Transactions on Aerospace and Electronic Systems*, vol. 29, no. 1, pp. 88-99, Jan. 1993, doi: 10.1109/7.249115.
- [78] J. Chen, H. Peng, Y. Kang, J. Wu and X. Chu, "Accurate Steady-State Modeling and Design Based on State Trajectory Analysis for LCC Resonant Converter with Voltage

- Doubler Rectifier," in *IEEE Transactions on Power Electronics*, vol. 37, no. 9, pp. 10698-10712, Sept. 2022, doi: 10.1109/TPEL.2022.3165591.
- [79] Y. Liu et al., "Quasi-Proportional-Resonant Control for the Hybrid Distribution Transformer With LCL-Type Converters," in *IEEE Transactions on Industry Applications*, vol. 58, no. 5, pp. 6368–6385, Sep. 2022, doi: 10.1109/TIA.2022.3187061.
- [80] M. F. Schlecht and L. F. Casey, "Comparison of the square-wave and quasi-resonant topologies," in *IEEE Transactions on Power Electronics*, vol. 3, no. 1, pp. 83–92, Jan. 1988, doi: 10.1109/63.4334.
- [81] T.-F. Wu, Y.-K. Chen, C.-H. Yang, and S.-A. Liang, "A structural approach to synthesizing and analyzing quasi-resonant and multi-resonant converters," in *30th Annual IEEE Power Electronics Specialists Conference. Record. (Cat. No.99CH36321)*, Jul. 1999, pp. 1024–1029 vol.2. doi: 10.1109/PESC.1999.785637.
- [82] S. Tandon and A. Rathore, "Analysis and Design of Series LC Partial-Resonance-Pulse-Based ZCS Current-Fed Push-Pull Converter," in *IEEE Trans. on Ind. Applicat.*, vol. 57, no. 4, pp. 4232–4241, Jul. 2021, doi: 10.1109/TIA.2021.3074109.
- [83] W. A. Tabisz and F. C. Y. Lee, "Zero-voltage-switching multiresonant technique—a novel approach to improve performance of high-frequency quasi-resonant converters," in *IEEE Transactions on Power Electronics*, vol. 4, no. 4, pp. 450–458, Oct. 1989, doi: 10.1109/63.41774.
- [84] M. Kasper, R. M. Burkart, G. Deboy, and J. W. Kolar, "ZVS of Power MOSFETs Revisited," in *IEEE Transactions on Power Electronics*, vol. 31, no. 12, pp. 8063–8067, Dec. 2016, doi: 10.1109/TPEL.2016.2574998.
- [85] C. -T. Truong and S. -J. Choi, "Improved ZVS Criterion for Series Resonant Converters," in *IEEE Access*, vol. 12, pp. 5333-5344, 2024, doi: 10.1109/ACCESS.2024.3350437.
- [86] Y. Yan, H. Gui, and H. Bai, "Complete ZVS Analysis in Dual Active Bridge," in *IEEE Transactions on Power Electronics*, vol. 36, no. 2, pp. 1247–1252, Feb. 2021, doi: 10.1109/TPEL.2020.3011470.
- [87] G. Xu, Y. Lin, L. Yuan, W. Xiong, and Y. Sun, "Dead-Time Optimization and Magnetizing Current Design for a Current-Fed Dual Active Bridge DC–DC Converter to Secure Full Load Range ZVS in Wide Voltage Range," in *IEEE Transactions on*

- Transportation Electrification*, vol. 9, no. 2, pp. 2164–2176, Jun. 2023, doi: 10.1109/TTE.2022.3213442.
- [88] Z. Li et al., "An Accurate, Universal, and Fast Time Domain Model for Different Types of Resonant Converters by Considering Parasitic Capacitors and Deadtime," in *IEEE Transactions on Power Electronics*, vol. 40, no. 1, pp. 1305-1321, Jan. 2025, doi: 10.1109/TPEL.2024.3437251.
- [89] G. G. Kumar, M. V. Sai Krishna, S. Kumaravel, and E. Babaei, "Multi-Stage DC-DC Converter Using Active LC2D Network with Minimum Component," in *IEEE Transactions on Circuits and Systems II: Express Briefs*, vol. 68, no. 3, pp. 943–947, Mar. 2021, doi: 10.1109/TCSII.2020.3021609.
- [90] Gaurav, N. Jayaram, S. Halder, K. P. Panda and S. V. K. Pulavarthi, "A Novel Design With Condensed Component of Multi-Input High Gain Nonisolated DC–DC Converter for Performance Enhancement in Carbon Neutral Energy Application," in *IEEE Journal of Emerging and Selected Topics in Industrial Electronics*, vol. 4, no. 1, pp. 37-49, Jan. 2023, doi: 10.1109/JESTIE.2022.3211779.
- [91] H. Mashinchi Maheri, E. Babaei, M. Sabahi, and S. H. Hosseini, "High Step-Up DC–DC Converter with Minimum Output Voltage Ripple," in *IEEE Transactions on Industrial Electronics*, vol. 64, no. 5, pp. 3568–3575, May 2017, doi: 10.1109/TIE.2017.2652395.
- [92] K. Varesi, A. A. Ghandomi, S. H. Hosseini, M. Sabahi, and E. Babaei, "An improved structure for Multi-Input high step-up DC-DC converters," in *2017 8th Power Electronics, Drive Systems & Technologies Conference (PEDSTC)*, Feb. 2017, pp. 241–246. doi: 10.1109/PEDSTC.2017.7910330.
- [93] L.-W. Zhou, B.-X. Zhu, and Q.-M. Luo, "High step-up converter with capacity of multiple input," in *IET Power Electronics*, vol. 5, no. 5, pp. 524–531, May 2012, doi: 10.1049/iet-pel.2011.0177.
- [94] A. Deihimi, M. E. Seyed Mahmoodieh, and R. Iravani, "A new multi-input step-up DC–DC converter for hybrid energy systems," in *Electric Power Systems Research*, vol. 149, pp. 111–124, Aug. 2017, doi: 10.1016/j.epsr.2017.04.017.
- [95] V. Rathore, S. R. P. Reddy, and K. Rajashekara, "An Isolated Multilevel DC–DC Converter Topology With Hybrid Resonant Switching for EV Fast Charging

- Application," in *IEEE Transactions on Industry Applications*, vol. 58, no. 5, pp. 5546–5557, Sep. 2022, doi: 10.1109/TIA.2022.3168504.
- [96] A. Chub, D. Vinnikov, F. Blaabjerg, and F. Z. Peng, "A Review of Galvanically Isolated Impedance-Source DC–DC Converters," in *IEEE Transactions on Power Electronics*, vol. 31, no. 4, pp. 2808–2828, Apr. 2016, doi: 10.1109/TPEL.2015.2453128.
- [97] M. -K. Nguyen, Y. -C. Lim, J. -H. Choi and G. -B. Cho, "Isolated High Step-Up DC–DC Converter Based on Quasi-Switched-Boost Network," in *IEEE Transactions on Industrial Electronics*, vol. 63, no. 12, pp. 7553-7562, Dec. 2016, doi: 10.1109/TIE.2016.2586679.
- [98] D. Vinnikov, A. Chub, and L. Liivik, "Asymmetrical quasi-Z-source half-bridge DC-DC converters," in *2015 9th International Conference on Compatibility and Power Electronics (CPE)*, Jun. 2015, pp. 369–372. doi: 10.1109/CPE.2015.7231103.
- [99] D. Vinnikov and I. Roasto, "Quasi-Z-Source-Based Isolated DC/DC Converters for Distributed Power Generation," in *IEEE Transactions on Industrial Electronics*, vol. 58, no. 1, pp. 192–201, Jan. 2011, doi: 10.1109/TIE.2009.2039460.
- [100] I. Roasto, D. Vinnikov, J. Zakis, and O. Husev, "New Shoot-Through Control Methods for qZSI-Based DC/DC Converters," in *IEEE Transactions on Industrial Informatics*, vol. 9, no. 2, pp. 640–647, May 2013, doi: 10.1109/TII.2012.2224353.
- [101] M.-K. Nguyen, T.-D. Duong, Y.-C. Lim, and Y.-J. Kim, "Isolated Boost DC–DC Converter With Three Switches," in *IEEE Transactions on Power Electronics*, vol. 33, no. 2, pp. 1389–1398, Feb. 2018, doi: 10.1109/TPEL.2017.2679029.
- [102] E. S. Oluwasogo and H. Cha, "A Quadratic Quasi-Z-Source Full-Bridge Isolated DC–DC Converter With High Reliability for Wide Input Applications," in *IEEE Transactions on Industrial Electronics*, vol. 69, no. 10, pp. 10090–10100, Oct. 2022, doi: 10.1109/TIE.2022.3159955.
- [103] E. S. Oluwasogo, H. Cha, and T.-T. Nguyen, "Beta-Quasi-Z-Source (β -qZS) DC–DC Converter Without Duty Cycle Constraint for Wide Input Voltage Applications," in *IEEE Transactions on Industrial Electronics*, vol. 69, no. 12, pp. 12784–12794, Dec. 2022, doi: 10.1109/TIE.2021.3130324.

- [104] J. Srijeeth, V. C. Thiagarajan, and S. R. Mohanrajan, "Z-Source Dual Active Bridge Bidirectional AC-DC Converter for Electric Vehicle Applications," in *2018 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Dec. 2018, pp. 1–4. doi: 10.1109/PEDES.2018.8707465.
- [105] D. Vinnikov, A. Chub, E. Liivik, R. Kosenko, and O. Korkh, "Solar Optiverter—A Novel Hybrid Approach to the Photovoltaic Module Level Power Electronics," in *IEEE Transactions on Industrial Electronics*, vol. 66, no. 5, pp. 3869–3880, May 2019, doi: 10.1109/TIE.2018.2850036.
- [106] H. Wang, K. Ma, and F. Blaabjerg, "Design for reliability of power electronic systems," in *IECON 2012 - 38th Annual Conference on IEEE Industrial Electronics Society*, Oct. 2012, pp. 33–44. doi: 10.1109/IECON.2012.6388833.
- [107] H. Wang and F. Blaabjerg, "Reliability of Capacitors for DC-Link Applications in Power Electronic Converters—An Overview," in *IEEE Trans. on Ind. Applicat.*, vol. 50, no. 5, pp. 3569–3578, Sep. 2014, doi: 10.1109/TIA.2014.2308357.
- [108] Mohd. Shahzad, K. V S Bharath., M. A. Khan, and A. Haque, "Review on Reliability of Power Electronic Components in Photovoltaic Inverters," in *2019 International Conference on Power Electronics, Control and Automation (ICPECA)*, Nov. 2019, pp. 1–6. doi: 10.1109/ICPECA47973.2019.8975585.
- [109] T. Li, J. Chen, P. Cong, X. Dai, R. Qiu, and Z. Liu, "Online Condition Monitoring of DC-Link Capacitor for AC/DC/AC PWM Converter," in *IEEE Transactions on Power Electronics*, vol. 37, no. 1, pp. 865–878, Jan. 2022, doi: 10.1109/TPEL.2021.3092429.
- [110] A. M. R. Amaral, K. Laadjal, and A. J. Marques Cardoso, "A New Machine Learning Based Approach for Aluminium Electrolytic Capacitors Health Status Monitoring," in *IECON 2023- 49th Annual Conference of the IEEE Industrial Electronics Society*, Oct. 2023, pp. 1–6. doi: 10.1109/IECON51785.2023.10311703.
- [111] M. K. P. M. Ramees and M. W. Ahmad, "Advances in Capacitor Health Monitoring Techniques for Power Converters: A Review," in *IEEE Access*, vol. 11, pp. 133540–133576, 2023, doi: 10.1109/ACCESS.2023.3336986.
- [112] M. Salcone and J. Bond, "Selecting film bus link capacitors for high performance inverter applications," in *2009 IEEE International Electric Machines and Drives Conference*,

- Miami, FL, USA: IEEE, May 2009, pp. 1692–1699. doi: 10.1109/IEMDC.2009.5075431.
- [113] B. Karanayil, V. G. Agelidis, and J. Pou, "Performance Evaluation of Three-Phase Grid-Connected Photovoltaic Inverters Using Electrolytic or Polypropylene Film Capacitors," in *IEEE Trans. Sustain. Energy*, vol. 5, no. 4, pp. 1297–1306, Oct. 2014, doi: 10.1109/TSTE.2014.2347967.
- [114] H. Wang, P. Diaz Reigosa and F. Blaabjerg, "A humidity-dependent lifetime derating factor for DC film capacitors," in *2015 IEEE Energy Conversion Congress and Exposition (ECCE)*, Montreal, QC, Canada, 2015, pp. 3064–3068, doi: 10.1109/ECCE.2015.7310088.
- [115] X. Sun, Y. Shen, Y. Zhu, and X. Guo, "Interleaved Boost-Integrated LLC Resonant Converter with Fixed-Frequency PWM Control for Renewable Energy Generation Applications," in *IEEE Trans. Power Electron.*, vol. 30, no. 8, pp. 4312–4326, Aug. 2015, doi: 10.1109/TPEL.2014.2358453.
- [116] T. LaBella, W. Yu, J.-S. Lai, M. Senesky, and D. Anderson, "A Bidirectional-Switch-Based Wide-Input Range High-Efficiency Isolated Resonant Converter for Photovoltaic Applications," in *IEEE Trans. Power Electron.*, vol. 29, no. 7, pp. 3473–3484, Jul. 2014, doi: 10.1109/TPEL.2013.2282258.
- [117] S. M. Tayebi, H. Hu, S. Abdel-Rahman, and I. Batarseh, "Dual-Input Single-Resonant Tank LLC Converter with Phase Shift Control for PV Applications," in *IEEE Trans. on Ind. Applicat.*, vol. 55, no. 2, pp. 1729–1739, Mar. 2019, doi: 10.1109/TIA.2018.2883015.
- [118] X. Li, "A LLC-Type Dual-Bridge Resonant Converter: Analysis, Design, Simulation, and Experimental Results," in *IEEE Trans. Power Electron.*, vol. 29, no. 8, pp. 4313–4321, Aug. 2014, doi: 10.1109/TPEL.2013.2291207.
- [119] V. R. Vakacharla and A. K. Rathore, "Isolated Soft Switching Current Fed LCC-T Resonant DC–DC Converter for PV/Fuel Cell Applications," in *IEEE Trans. Ind. Electron.*, vol. 66, no. 9, pp. 6947–6958, Sep. 2019, doi: 10.1109/TIE.2018.2877085.

- [120] Xiaodong Li and A. K. S. Bhat, "Analysis and Design of High-Frequency Isolated Dual-Bridge Series Resonant DC/DC Converter," in *IEEE Trans. Power Electron.*, vol. 25, no. 4, pp. 850–862, Apr. 2010, doi: 10.1109/TPEL.2009.2034662.
- [121] X. Zhao, L. Zhang, R. Born, and J.-S. Lai, "A High-Efficiency Hybrid Resonant Converter with Wide-Input Regulation for Photovoltaic Applications," in *IEEE Trans. Ind. Electron.*, vol. 64, no. 5, pp. 3684–3695, May 2017, doi: 10.1109/TIE.2017.2652340.
- [122] U. Patil and N. Harischandrapa, "Analysis and Design of a High-Frequency Isolated Full-Bridge ZVT CLL Resonant DC–DC Converter," in *IEEE Trans. on Ind. Applicat.*, vol. 55, no. 5, pp. 4993–5004, Sep. 2019, doi: 10.1109/TIA.2019.2926290.
- [123] R. Panigrahi, S. K. Mishra, S. C. Srivastava, A. K. Srivastava, and N. N. Schulz, "Grid Integration of Small-Scale Photovoltaic Systems in Secondary Distribution Network—A Review", in *IEEE Transactions on Industry Applications*, vol. 56, no. 3, pp. 3178–3195, May 2020, doi: 10.1109/TIA.2020.2979789.
- [124] C. Levis, C. O’Loughlin, T. O’Donnell, and M. Hill, "A comprehensive state-space model of two-stage grid-connected PV systems in transient network analysis," in *International Journal of Electrical Power & Energy Systems*, vol. 110, pp. 441–453, Sep. 2019, doi: 10.1016/j.ijepes.2019.03.032.
- [125] F. Blaabjerg, R. Teodorescu, M. Liserre, and A. V. Timbus, "Overview of Control and Grid Synchronization for Distributed Power Generation Systems," in *IEEE Transactions on Industrial Electronics*, vol. 53, no. 5, pp. 1398–1409, Oct. 2006, doi: 10.1109/TIE.2006.881997.
- [126] U. R. Prasanna and A. K. Rathore, "Dual Three-Pulse Modulation-Based High-Frequency Pulsating DC Link Two-Stage Three-Phase Inverter for Electric/Hybrid/Fuel Cell Vehicles Applications," in *IEEE J. Emerg. Sel. Topics Power Electron.*, vol. 2, no. 3, pp. 477–486, Sep. 2014, doi: 10.1109/JESTPE.2014.2304472.
- [127] A. Ghoshal, X. Pan, and A. K. Rathore, "Analysis and Design of Closed-Loop Control of Electrolytic Capacitor-Less Six-Pulse DC Link Three-Phase Inverter," in *IEEE Trans. on Ind. Applicat.*, vol. 53, no. 5, pp. 4957–4964, Sep. 2017, doi: 10.1109/TIA.2017.2695543.

- [128] V. K. Kanakesh, D. B. Yelaverthi, A. Ghoshal, A. K. Rathore and R. Mahanty, "Analysis and Implementation of Closed-Loop Control of Electrolytic Capacitor-Less Six-Pulse DC-Link Bidirectional Three-Phase Grid-Tied Inverter," in *IEEE Transactions on Industry Applications*, vol. 54, no. 1, pp. 539-550, Jan.-Feb. 2018, doi: 10.1109/TIA.2017.2757438.
- [129] T. Shimizu, K. Wada, and N. Nakamura, 'Flyback-Type Single-Phase Utility Interactive Inverter With Power Pulsation Decoupling on the DC Input for an AC Photovoltaic Module System', *IEEE Transactions on Power Electronics*, vol. 21, no. 5, pp. 1264–1272, Sep. 2006, doi: 10.1109/TPEL.2006.880247.
- [130] G. H. Tan, J. Z. Wang, and Y. C. Ji, 'Soft-switching flyback inverter with enhanced power decoupling for photovoltaic applications', *IET Electric Power Applications*, vol. 1, no. 2, pp. 264–274, Mar. 2007, doi: 10.1049/iet-epa:20060236.
- [131] M. Sarvi and A. Azadian, "A comprehensive review and classified comparison of MPPT algorithms in PV systems," in *Energy Syst*, vol. 13, no. 2, pp. 281–320, May 2022, doi: 10.1007/s12667-021-00427-x.
- [132] A. Garrigós, J. M. Blanes, J. A. Carrasco, and J. B. Ejea, "Real time estimation of photovoltaic modules characteristics and its application to maximum power point operation," in *Renewable Energy*, vol. 32, no. 6, pp. 1059–1076, May 2007, doi: 10.1016/j.renene.2006.08.004.
- [133] A. K. Podder, N. K. Roy, and H. R. Pota, "MPPT methods for solar PV systems: a critical review based on tracking nature," in *IET Renewable Power Generation*, vol. 13, no. 10, pp. 1615–1632, 2019, doi: 10.1049/iet-rpg.2018.5946.
- [134] M. Y. Worku et al., "A Comprehensive Review of Recent Maximum Power Point Tracking Techniques for Photovoltaic Systems under Partial Shading," in *Sustainability*, vol. 15, no. 14, Art. no. 14, Jan. 2023, doi: 10.3390/su151411132.
- [135] S. R. Kiran, C. H. H. Basha, V. P. Singh, C. Dhanamjayulu, B. R. Prusty and B. Khan, "Reduced Simulative Performance Analysis of Variable Step Size ANN Based MPPT Techniques for Partially Shaded Solar PV Systems," in *IEEE Access*, vol. 10, pp. 48875-48889, 2022, doi: 10.1109/ACCESS.2022.3172322.

- [136] S. Chtita et al., "A novel hybrid GWO–PSO-based maximum power point tracking for photovoltaic systems operating under partial shading conditions", in *Sci Rep*, vol. 12, no. 1, p. 10637, Jun. 2022, doi: 10.1038/s41598-022-14733-6.
- [137] D. Sera, L. Mathe, T. Kerekes, S. V. Spataru, and R. Teodorescu, "On the Perturb-and-Observe and Incremental Conductance MPPT Methods for PV Systems," in *IEEE Journal of Photovoltaics*, vol. 3, no. 3, pp. 1070–1078, Jul. 2013, doi: 10.1109/JPHOTOV.2013.2261118.
- [138] N. Femia, G. Petrone, G. Spagnuolo and M. Vitelli, "A Technique for Improving P&O MPPT Performances of Double-Stage Grid-Connected Photovoltaic Systems," in *IEEE Transactions on Industrial Electronics*, vol. 56, no. 11, pp. 4473-4482, Nov. 2009, doi: 10.1109/TIE.2009.2029589.
- [139] M. A. Elgendy, B. Zahawi and D. J. Atkinson, "Assessment of the Incremental Conductance Maximum Power Point Tracking Algorithm," in *IEEE Transactions on Sustainable Energy*, vol. 4, no. 1, pp. 108-117, Jan. 2013, doi: 10.1109/TSTE.2012.2202698.
- [140] A. Safari and S. Mekhilef, "Incremental conductance MPPT method for PV systems," *2011 24th Canadian Conference on Electrical and Computer Engineering(CCECE)*, Niagara Falls, ON, Canada, 2011, pp. 000345-000347, doi: 10.1109/CCECE.2011.6030470.
- [141] Y. Jiang, J. A. Abu Qahouq and T. A. Haskew, "Adaptive Step Size With Adaptive-Perturbation-Frequency Digital MPPT Controller for a Single-Sensor Photovoltaic Solar System," in *IEEE Transactions on Power Electronics*, vol. 28, no. 7, pp. 3195-3205, July 2013, doi: 10.1109/TPEL.2012.2220158.
- [142] F. Liu, S. Duan, F. Liu, B. Liu and Y. Kang, "A Variable Step Size INC MPPT Method for PV Systems," in *IEEE Transactions on Industrial Electronics*, vol. 55, no. 7, pp. 2622-2628, July 2008, doi: 10.1109/TIE.2008.920550.
- [143] A. Lashab, D. Sera, J. M. Guerrero, L. Mathe and A. Bouzid, "Discrete Model-Predictive-Control-Based Maximum Power Point Tracking for PV Systems: Overview and Evaluation," in *IEEE Transactions on Power Electronics*, vol. 33, no. 8, pp. 7273-7287, Aug. 2018, doi: 10.1109/TPEL.2017.2764321.

- [144] A. Lashab, D. Sera and J. M. Guerrero, "A Dual-Discrete Model Predictive Control-Based MPPT for PV Systems," in *IEEE Transactions on Power Electronics*, vol. 34, no. 10, pp. 9686-9697, Oct. 2019, doi: 10.1109/TPEL.2019.2892809.
- [145] S. M. Reza Tousi, M. H. Moradi, N. S. Basir and M. Nemati, "A Function-Based Maximum Power Point Tracking Method for Photovoltaic Systems," in *IEEE Transactions on Power Electronics*, vol. 31, no. 3, pp. 2120-2128, March 2016, doi: 10.1109/TPEL.2015.2426652.
- [146] R. B. Bollipo, S. Mikkili and P. K. Bonthagorla, "Hybrid, optimal, intelligent and classical PV MPPT techniques: A review," in *CSEE Journal of Power and Energy Systems*, vol. 7, no. 1, pp. 9-33, Jan. 2021, doi: 10.17775/CSEEJPES.2019.02720.
- [147] P. K. Pathak, A. K. Yadav, and P. A. Alvi, "A state-of-the-art review on shading mitigation techniques in solar photovoltaics via meta-heuristic approach," *Neural Comput & Applic*, vol. 34, no. 1, pp. 171–209, Jan. 2022, doi: 10.1007/s00521-021-06586-3.
- [148] S. Mirjalili, S. M. Mirjalili, and A. Lewis, "Grey Wolf Optimizer," *Advances in Engineering Software*, vol. 69, pp. 46–61, Mar. 2014, doi: 10.1016/j.advengsoft.2013.12.007.
- [149] J. Kennedy and R. Eberhart, "Particle swarm optimization," *Proceedings of ICNN'95 - International Conference on Neural Networks*, Perth, WA, Australia, 1995, pp. 1942-1948 vol.4, doi: 10.1109/ICNN.1995.488968.
- [150] M. Dorigo, M. Birattari and T. Stutzle, "Ant colony optimization," in *IEEE Computational Intelligence Magazine*, vol. 1, no. 4, pp. 28-39, Nov. 2006, doi: 10.1109/MCI.2006.329691.
- [151] W. -M. Lin, C. -M. Hong and C. -H. Chen, "Neural-Network-Based MPPT Control of a Stand-Alone Hybrid Power Generation System," in *IEEE Transactions on Power Electronics*, vol. 26, no. 12, pp. 3571-3581, Dec. 2011, doi: 10.1109/TPEL.2011.2161775.
- [152] M. J. Alshareef, 'An Enhanced Fractional Open Circuit Voltage MPPT Method for Rapid and Precise MPP Tracking in Standalone Photovoltaic Systems', *IEEE Access*, vol. 13, pp. 34115–34131, 2025, doi: 10.1109/ACCESS.2025.3543327.

- [153] Z. Zhao et al., ‘Hierarchical Pigeon-Inspired Optimization-Based MPPT Method for Photovoltaic Systems Under Complex Partial Shading Conditions’, IEEE Transactions on Industrial Electronics, vol. 69, no. 10, pp. 10129–10143, Oct. 2022, doi: 10.1109/TIE.2021.3137595.
- [154] ‘A Differential Evolution Based MPPT Method for Photovoltaic Modules under Partial Shading Conditions - Tey - 2014 - International Journal of Photoenergy - Wiley Online Library’. Accessed: May 23, 2025. [Online]. Available: <https://onlinelibrary.wiley.com/doi/10.1155/2014/945906>
- [155] V. Roederstein, “Metallized Polypropylene DC-Link Film Capacitor Automotive Grade”. [Online]. Available: <https://www.vishay.com/docs/26078/mkp1848hdcl.pdf>.
- [156] [Online]. Available: https://www.mouser.com/ds/2/212/KEM_A4036_ALS40_41-953237.pdf.

List of Publications

Journals:

- [1] **P. J. Barnawal**, V. N. Lal and R. K. Singh, "Electrolytic Capacitor-Less Dual-Half Active Bridge Resonant Converter With PSO-Based MPP Tracking," in *IEEE Transactions on Power Electronics*, vol. 39, no. 9, pp. 11281-11294, Sept. 2024, doi: 10.1109/TPEL.2024.3405326.
- [2] **P. J. Barnawal**, V. N. Lal and R. K. Singh, "A Dual Half-Active Bridge Resonant Converter for Solar PV Integration Using Grey Wolf Optimization," in *IEEE Transactions on Industry Applications*, vol. 60, no. 5, pp. 7087-7097, Sept.-Oct. 2024, doi: 10.1109/TIA.2024.3428445.
- [3] R. Kumar Keshari, **P. J. Barnawal**, R. Kumar Singh and V. Nandan Lal, "Expandable Input Impedance Sourced Isolated Resonant Converter Operated with PSO for PSCs," in *IEEE Transactions on Industry Applications*, doi: 10.1109/TIA.2025.3568402.
- [4] **P. J. Barnawal**, V. N. Lal and R. K. Singh, "A Virtual DC link-based Isolated Two-stage Topology with Seamless Solar Power Tracking Capability," in *IEEE Transactions on Power Electronics*. **(Under Major Revision)**

Conferences:

- [1] **P. J. Barnawal**, V. N. Lal and R. K. Singh, "Analysis and Design of LLC Based Dual Half Active Bridge Resonant Converter," *2022 IEEE Energy Conversion Congress and Exposition (ECCE)*, Detroit, MI, USA, 2022, pp. 1-5, doi: 10.1109/ECCE50734.2022.9947911.
- [2] **P. J. Barnawal**, V. N. Lal and R. K. Singh, "Current-fed LLC Based Dual Half Active Bridge Resonant Converter," *2022 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Jaipur, India, 2022, pp. 1-5, doi: 10.1109/PEDES56012.2022.10080558.

- [3] **P. J. Barnawal**, V. Nandan Lal and R. K. Singh, "Bidirectional Asymmetrical Dual Active Bridge Resonant Converter for Renewable to DC Microgrid Interface," *2023 IEEE 14th International Conference on Power Electronics and Drive Systems (PEDS)*, Montreal, QC, Canada, 2023, pp. 1-6, doi: 10.1109/PEDS57185.2023.10246597.
- [4] R. Kumar Keshari, **P. J. Barnawal**, R. Kumar Singh and V. Nandan Lal, "A High Gain Expandable DC-DC Converter with PSO-based MPPT Tracking for Partial Shading Conditions," *2023 IEEE 14th International Conference on Power Electronics and Drive Systems (PEDS)*, Montreal, QC, Canada, 2023, pp. 1-6, doi: 10.1109/PEDS57185.2023.10246670.
- [5] **P. J. Barnawal**, M. Kumar, M. K. Mishra, V. N. Lal and R. K. Singh, "Electrolytic Capacitor-less Isolated Resonant Converter-fed BLDC Drive for Solar Water Pumping Application," *2024 IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES)*, Mangalore, India, 2024, pp. 1-4, doi: 10.1109/PEDES61459.2024.10961175.