Bibliography

- [1] Lalau, Y., Al Asmi, I., Olives, R., Dejean, G., Meffre, A. and Py, X., "Energy analysis and life cycle assessment of a thermal energy storage unit involving conventional or recycled storage materials and devoted to industrial waste heat valorisation", Journal of Cleaner Production, 330, pp.129950, 2022.
- [2] Le, H.P. and Sarkodie, S.A., "Dynamic linkage between renewable and conventional energy use, environmental quality and economic growth: Evidence from Emerging Market and Developing Economies", Energy Reports, vol. 6, pp.965-973, 2020.
- [3] B. Mohandes, M. S. E. Moursi, N. Hatziargyriou and S. E. Khatib, "A Review of Power System Flexibility With High Penetration of Renewables," IEEE Transactions on Power Systems, vol. 34, no. 4, pp. 3140-3155, July 2019.
- [4] Jurasz, J., Canales, F.A., Kies, A., Guezgouz, M. and Beluco, A., "A review on the complementarity of renewable energy sources: Concept, metrics, application and future research directions", Solar Energy, vol. 195, pp.703-724,2020.
- [5] A. Qazi et al., "Towards Sustainable Energy: A Systematic Review of Renewable Energy Sources, Technologies, and Public Opinions," IEEE Access, vol. 7, pp. 63837-63851, 2019.
- [6] Nassar, I.A., Hossam, K. and Abdella, M.M., "Economic and environmental benefits of increasing the renewable energy sources in the power system", Energy Reports, vol. 5, pp.1082-1088, 2019.
- [7] V. R. Pannase and H. B. Nanavala, "A review of PV technology power generation, PV material, performance and its applications," International Conference on Inventive Systems and Control (ICISC), pp. 1-5., 2017.
- [8] A. Narayanan, T. Kaipia and J. Partanen, "Economic benefits of photovoltaic-based systems for residential customers participating in open electricity markets," IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT-Europe), pp. 1-6, 2016.
- [9] M. Rabiul Islam, A. M. Mahfuz-Ur-Rahman, K. M. Muttaqi and D. Sutanto, "State-ofthe-Art of the Medium-Voltage Power Converter Technologies for Grid Integration of Solar Photovoltaic Power Plants," IEEE Transactions on Energy Conversion, vol. 34, no. 1, pp. 372-384, March 2019.

- [10] M. N. H. Khan, M. Forouzesh, Y. P. Siwakoti, L. Li, T. Kerekes and F. Blaabjerg, "Transformerless Inverter Topologies for Single-Phase Photovoltaic Systems: A Comparative Review," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 1, pp. 805-835, March 2020.
- [11] 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," IEEE Transactions on Industry Applications, vol. 56, no. 3, pp. 3178-3195, May-June 2020.
- [12] Hairat, M.K. and Ghosh, S., "100 GW solar power in India by 2022–A critical review", Renewable and Sustainable Energy Reviews, 73, pp.1041-1050, 2017.
- [13] K. Alluhaybi, I. Batarseh and H. Hu, "Comprehensive Review and Comparison of Single-Phase Grid-Tied Photovoltaic Microinverters," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 2, pp. 1310-1329, June 2020.
- [14] Sahoo, S.K., Sukchai, S. and Yanine, F.F., "Review and comparative study of single-stage inverters for a PV system", Renewable and Sustainable Energy Reviews, vol. 91, pp.962-986, 2018.
- [15] L. B. G. Campanhol, S. A. O. da Silva, A. A. de Oliveira and V. D. Bacon, "Single-Stage Three-Phase Grid-Tied PV System With Universal Filtering Capability Applied to DG Systems and AC Microgrids," IEEE Transactions on Power Electronics, vol. 32, no. 12, pp. 9131-9142, Dec. 2017.
- [16] A. Shawky, T. Takeshita and M. A. Sayed, "Single-Stage Three-Phase Grid-Tied Isolated SEPIC-Based Differential Inverter With Improved Control and Selective Harmonic Compensation," IEEE Access, vol. 8, pp. 147407-147421, 2020.
- [17] H. Xiao, "Overview of Transformerless Photovoltaic Grid-Connected Inverters," IEEE Transactions on Power Electronics, vol. 36, no. 1, pp. 533-548, Jan. 2021.
- [18] Y. Wu, J. Lin and H. Lin, "Standards and Guidelines for Grid-Connected Photovoltaic Generation Systems: A Review and Comparison," IEEE Transactions on Industry Applications, vol. 53, no. 4, pp. 3205-3216, July-Aug. 2017.
- [19] M. Mirhosseini, J. Pou and V. G. Agelidis, "Single- and Two-Stage Inverter-Based Grid-Connected Photovoltaic Power Plants With Ride-Through Capability Under Grid Faults," IEEE Transactions on Sustainable Energy, vol. 6, no. 3, pp. 1150-1159, July 2015.

- [20] Y. Han, Y. Feng, P. Yang, L. Xu, Y. Xu and F. Blaabjerg, "Cause, Classification of Voltage Sag, and Voltage Sag Emulators and Applications: A Comprehensive Overview," IEEE Access, vol. 8, pp. 1922-1934, 2020
- [21] A. Camacho, M. Castilla, J. Miret, L. G. de Vicuña and G. L. Miguel Andrés, "Control Strategy for Distribution Generation Inverters to Maximize the Voltage Support in the Lowest Phase During Voltage Sags," IEEE Transactions on Industrial Electronics, vol. 65, no. 3, pp. 2346-2355, March 2018.
- [22] M. A. Khan, A. Haque, V. S. B. Kurukuru and M. Saad, "Advanced Control Strategy with Voltage Sag Classification for Single-Phase Grid-Connected Photovoltaic System," IEEE Journal of Emerging and Selected Topics in Industrial Electronics, to be published, doi: 10.1109/JESTIE.2020.3041704.
- [23] X. Liang, "Emerging Power Quality Challenges Due to Integration of Renewable Energy Sources," IEEE Transactions on Industry Applications, vol. 53, no. 2, pp. 855-866, March-April 2017.
- [24] P. K. Ray, S. R. Das and A. Mohanty, "Fuzzy-Controller-Designed-PV-Based Custom Power Device for Power Quality Enhancement," IEEE Transactions on Energy Conversion, vol. 34, no. 1, pp. 405-414, March 2019.
- [25] O. P. Mahela et al., "Recognition of Power Quality Issues Associated With Grid Integrated Solar Photovoltaic Plant in Experimental Framework," IEEE Systems Journal, vol. 15, no. 3, pp. 3740-3748, Sept. 2021.
- [26] N. Kumar, B. Singh and B. K. Panigrahi, "LLMLF-Based Control Approach and LPO MPPT Technique for Improving Performance of a Multifunctional Three-Phase Two-Stage Grid Integrated PV System," IEEE Transactions on Sustainable Energy, vol. 11, no. 1, pp. 371-380, Jan. 2020.
- [27] Q. Liu, Y. Li, L. Luo, Y. Peng and Y. Cao, "Power Quality Management of PV Power Plant With Transformer Integrated Filtering Method," IEEE Transactions on Power Delivery, vol. 34, no. 3, pp. 941-949, June 2019.
- [28] S. Sahoo, S. Prakash and S. Mishra, "Power Quality Improvement of Grid-Connected DC Microgrids Using Repetitive Learning-Based PLL Under Abnormal Grid Conditions," IEEE Transactions on Industry Applications, vol. 54, no. 1, pp. 82-90, Jan.-Feb. 2018.

- [29] N. Babu P, J. M. Guerrero, P. Siano, R. Peesapati and G. Panda, "An Improved Adaptive Control Strategy in Grid-Tied PV System With Active Power Filter for Power Quality Enhancement," IEEE Systems Journal, vol. 15, no. 2, pp. 2859-2870, June 2021.
- [30] E. Afshari et al., "Control Strategy for Three-Phase Grid-Connected PV Inverters Enabling Current Limitation Under Unbalanced Faults," IEEE Transactions on Industrial Electronics, vol. 64, no. 11, pp. 8908-8918, Nov. 2017.
- [31] X. Guo, W. Liu and Z. Lu, "Flexible Power Regulation and Current-Limited Control of the Grid-Connected Inverter Under Unbalanced Grid Voltage Faults," IEEE Transactions on Industrial Electronics, vol. 64, no. 9, pp. 7425-7432, Sept. 2017.
- [32] K. -P. Huang, Y. Wang and R. -J. Wai, "Design of Power Decoupling Strategy for Single-Phase Grid-Connected Inverter Under Nonideal Power Grid," IEEE Transactions on Power Electronics, vol. 34, no. 3, pp. 2938-2955, March 2019.
- [33] W. Liang, Y. Liu, B. Ge, H. Abu-Rub, R. S. Balog and Y. Xue, "Double-Line-Frequency Ripple Model, Analysis, and Impedance Design for Energy-Stored Single-Phase Quasi-Z-Source Photovoltaic System," IEEE Transactions on Industrial Electronics, vol. 65, no. 4, pp. 3198-3209, April 2018.
- [34] G. S. Chawda et al., "Comprehensive Review on Detection and Classification of Power Quality Disturbances in Utility Grid With Renewable Energy Penetration," IEEE Access, vol. 8, pp. 146807-146830, 2020.
- [35] E. Hossain, M. R. Tür, S. Padmanaban, S. Ay and I. Khan, "Analysis and Mitigation of Power Quality Issues in Distributed Generation Systems Using Custom Power Devices," IEEE Access, vol. 6, pp. 16816-16833, 2018.
- [36] A. Anzalchi, A. Sundararajan, A. Moghadasi and A. Sarwat, "High-Penetration Grid-Tied Photovoltaics: Analysis of Power Quality and Feeder Voltage Profile,"IEEE Industry Applications Magazine, vol. 25, no. 5, pp. 83-94, Sept.-Oct. 2019.
- [37] R. Kuntner and N. Ji, "The challenges and opportunities of the new IEC 62586 standards on power quality instrument type tests," China International Conference on Electricity Distribution (CICED), pp. 1725-1729, 2014.
- [38] A. E. Legarreta and J. H. Figueroa, "An IEC 61000-4-30 class a Power quality monitor with a flicker meter based on Hilbert transform," 11th International Conference on Electrical Power Quality and Utilisation, pp. 1-5, 2011.

- [39] Ramachandran, M., Mary, A.M.C., Muthukumaran, M., Ganesan, J., Krishnaveni, A. and Selvaraj, D.E., "A review on basic concepts and important standards of power quality in power system," International Journal of Science and Engineering Applications, vol. 4 no. 5, pp.299-303, 2015.
- [40] A. Sahli, F. Krim, A. Laib and B. Talbi, "Energy management and power quality enhancement in grid-tied single-phase PV system using modified PUC converter," IET Renewable Power Generation, vol. 13, no. 14, pp. 2512-2521, 2019.
- [41] M. Reveles-Miranda, M. Flota-Bañuelos, F. Chan-Puc, V. Ramirez-Rivera and D. Pacheco-Catalán, "A Hybrid Control Technique for Harmonic Elimination, Power Factor Correction, and Night Operation of a Grid-Connected PV Inverter," IEEE Journal of Photovoltaics, vol. 10, no. 2, pp. 664-675, March 2020.
- [42] Elkholy, A., "Harmonics assessment and mathematical modeling of power quality parameters for low voltage grid connected photovoltaic systems", Solar Energy, vol. 183, pp.315-326, 2019.
- [43] X. Liang and C. Andalib -Bin- Karim, "Harmonics and Mitigation Techniques Through Advanced Control in Grid-Connected Renewable Energy Sources: A Review," IEEE Transactions on Industry Applications, vol. 54, no. 4, pp. 3100-3111, July-Aug. 2018.
- [44] J. Roldán-Pérez, A. Rodríguez-Cabero and M. Prodanović, "Harmonic Virtual Impedance Design for Parallel-Connected Grid-Tied Synchronverters," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 7, no. 1, pp. 493-503, March 2019.
- [45] O. S. Nduka and B. C. Pal, "Harmonic Domain Modeling of PV System for the Assessment of Grid Integration Impact," IEEE Transactions on Sustainable Energy, vol. 8, no. 3, pp. 1154-1165, July 2017.
- [46] J. Xu, Q. Qian, B. Zhang and S. Xie, "Harmonics and Stability Analysis of Single-Phase Grid-Connected Inverters in Distributed Power Generation Systems Considering Phase-Locked Loop Impact," IEEE Transactions on Sustainable Energy, vol. 10, no. 3, pp. 1470-1480, July 2019.
- [47] G. Wu et al., "Parameter Design Oriented Analysis of the Current Control Stability of the Weak-Grid-Tied VSC," IEEE Transactions on Power Delivery, vol. 36, no. 3, pp. 1458-1470, June 2021.

- [48] S. Sang, N. Gao, X. Cai and R. Li, "A Novel Power-Voltage Control Strategy for the Grid-Tied Inverter to Raise the Rated Power Injection Level in a Weak Grid," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 6, no. 1, pp. 219-232, March 2018.
- [49] M. Saeedian, B. Eskandari, S. Taheri, M. Hinkkanen and E. Pouresmaeil, "A Control Technique Based on Distributed Virtual Inertia for High Penetration of Renewable Energies Under Weak Grid Conditions," IEEE Systems Journal, vol. 15, no. 2, pp. 1825-1834, June 2021.
- [50] "IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces -Amendment 1: To Provide More Flexibility for Adoption of Abnormal Operating Performance Category III," IEEE Std 1547a-2020 (Amendment to IEEE Std 1547-2018), vol., no., pp.1-16, 15 April 2020.
- [51] J. Joshi, A. K. Swami, V. Jately and B. Azzopardi, "A Comprehensive Review of Control Strategies to Overcome Challenges During LVRT in PV Systems," IEEE Access, vol. 9, pp. 121804-121834, 2021.
- [52] M. A. Khan, A. Haque and V. S. B. Kurukuru, "Dynamic Voltage Support for Low-Voltage Ride-Through Operation in Single-Phase Grid-Connected Photovoltaic Systems," IEEE Transactions on Power Electronics, vol. 36, no. 10, pp. 12102-12111, Oct. 2021.
- [53] M. Rajeev and V. Agarwal, "Low Voltage Ride-Through Capability of a Novel Grid Connected Inverter Suitable for Transformer-Less Solar PV–Grid Interface," IEEE Transactions on Industry Applications, vol. 56, no. 3, pp. 2799-2806, May-June 2020.
- [54] A. Benali, M. Khiat, T. Allaoui and M. Denaï, "Power Quality Improvement and Low Voltage Ride Through Capability in Hybrid Wind-PV Farms Grid-Connected Using Dynamic Voltage Restorer," IEEE Access, vol. 6, pp. 68634-68648, 2018.
- [55] M. Nasiri, A. Arzani and J. M. Guerrero, "LVRT Operation Enhancement of Single-Stage Photovoltaic Power Plants: An Analytical Approach," IEEE Transactions on Smart Grid, vol. 12, no. 6, pp. 5020-5029, Nov. 2021.

- [56] H. M. Hasanien, "An Adaptive Control Strategy for Low Voltage Ride Through Capability Enhancement of Grid-Connected Photovoltaic Power Plants," IEEE Transactions on Power Systems, vol. 31, no. 4, pp. 3230-3237, July 2016.
- [57] P. Patel, Y. Patel and K. Shimada, "Indian Grid Code Based Low Voltage Ride Through Control Development for Large Scale Solar PCS," IEEE Texas Power and Energy Conference (TPEC), 2020, pp. 1-6.
- [58] Q. Zheng, J. Li, X. Ai, J. Wen and J. Fang, "Overivew of grid codes for photovoltaic integration," IEEE Conference on Energy Internet and Energy System Integration (EI2), 2017, pp. 1-6.
- [59] X. He, H. Geng, R. Li and B. C. Pal, "Transient Stability Analysis and Enhancement of Renewable Energy Conversion System During LVRT," IEEE Transactions on Sustainable Energy, vol. 11, no. 3, pp. 1612-1623, July 2020.
- [60] H. Wang, Q. Zhang, D. Wu and J. Zhang, "Advanced Current-Droop Control for Storage Converters for Fault Ride-Through Enhancement," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 3, pp. 2461-2474, Sept. 2020.
- [61] "IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Energy Resources with Electric Power Systems and Associated Interfaces," IEEE Std 1547.1-2020, vol., no., pp.1-282, May 2020.
- [62] A. Timbus, M. Liserre, R. Teodorescu, P. Rodriguez, and F. Blaabjerg, "Evaluation of current controllers for distributed power generation systems," IEEE Transactions on Power Electronics, vol. 24, no. 3, pp. 654–664, Mar. 2009.
- [63] W. Jiang, W. Ma, J. Wang, L. Wang and Y. Gao, "Deadbeat Control Based on Current Predictive Calibration for Grid-Connected Converter Under Unbalanced Grid Voltage," IEEE Transactions on Industrial Electronics, vol. 64, no. 7, pp. 5479-5491, July 2017.
- [64] O. Kukrer, S. Bayhan and H. Komurcugil, "Model-Based Current Control Strategy With Virtual Time Constant for Improved Dynamic Response of Three-Phase Grid-Connected VSI," IEEE Transactions on Industrial Electronics, vol. 66, no. 6, pp. 4156-4165, June 2019.
- [65] A. Cabrera-Tobar, E. Bullich-Massagué, M. Aragüés-Peñalba, and O. Gomis-Bellmunt, "Capability curve analysis of photovoltaic generation systems," Solar Energy, vol. 140, pp. 255-264, 2016.

- [66] Z. Liu, J. Liu, and Y. Zhao, "A unified control strategy for three-phase inverter in distributed generation," IEEE Transactions on Power Electronics, vol. 29, no. 3, pp. 1176–1191, Mar. 2014.
- [67] Y. Tao, Q. Liu, Y. Deng, X. Liu, and X. He, "Analysis and mitigation of inverter output impedance impacts for distributed energy resource interface," IEEE Transactions on Power Electronics, vol. 30, no. 7, pp. 3563–3576, Jul. 2015.
- [68] T. Ye, N. Dai, C. Lam, M. Wong and J. M. Guerrero, "Analysis, Design, and Implementation of a Quasi-Proportional-Resonant Controller for a Multifunctional Capacitive-Coupling Grid-Connected Inverter," IEEE Transactions on Industry Applications, vol. 52, no. 5, pp. 4269-4280, Sept.-Oct. 2016.
- [69] J. Xia, Y. Guo, X. Zhang, J. Jatskevich and N. Amiri, "Robust Control Strategy Design for Single-Phase Grid-Connected Converters Under System Perturbations," IEEE Transactions on Industrial Electronics, vol. 66, no. 11, pp. 8892-8901, Nov. 2019.
- [70] F. Hans, W. Schumacher, S. F. Chou and X. Wang, "Design of Multifrequency Proportional–Resonant Current Controllers for Voltage-Source Converters," IEEE Trans. Power Electron., vol. 35, no. 12, pp. 13573-13589, Dec. 2020.
- [71] S. Golestan, E. Ebrahimzadeh, J. M. Guerrero and J. C. Vasquez, "An Adaptive Resonant Regulator for Single-Phase Grid-Tied VSCs," IEEE Transactions on Power Electronics, vol. 33, no. 3, pp. 1867-1873, March 2018.
- [72] R. Errouissi, H. Shareef and A. Wahyudie, "A Novel Design of PR Controller With Antiwindup Scheme for Single-Phase Interconnected PV Systems," IEEE Transactions on Industry Applications, vol. 57, no. 5, pp. 5461-5475, Sept.-Oct. 2021.
- [73] X. Guo, Y. Yang and X. Zhang, "Advanced Control of Grid-Connected Current Source Converter Under Unbalanced Grid Voltage Conditions," IEEE Transactions on Industrial Electronics, vol. 65, no. 12, pp. 9225-9233, Dec. 2018.
- [74] Z. Lin, X. Ruan, L. Wu, H. Zhang and W. Li, "Multi resonant Component-Based Grid-Voltage-Weighted Feedforward Scheme for Grid-Connected Inverter to Suppress the Injected Grid Current Harmonics Under Weak Grid," IEEE Transactions on Power Electronics, vol. 35, no. 9, pp. 9784-9793, Sept. 2020.

- [75] B. Xie et al., "Analysis and Improved Design of Phase Compensated Proportional Resonant Controllers for Grid-Connected Inverters in Weak Grid," IEEE Transactions on Energy Conversion, vol. 35, no. 3, pp. 1453-1464, Sept. 2020.
- [76] X. Li, J. Fang, Y. Tang, X. Wu and Y. Geng, "Capacitor-Voltage Feedforward With Full Delay Compensation to Improve Weak Grids Adaptability of LCL-Filtered Grid-Connected Converters for Distributed Generation Systems," IEEE Transactions on Power Electronics, vol. 33, no. 1, pp. 749-764, Jan. 2018.
- [77] Y. Han, Z. Li, P. Yang, C. Wang, L. Xu and J. M. Guerrero, "Analysis and Design of Improved Weighted Average Current Control Strategy for LCL-Type Grid-Connected Inverters," IEEE Transactions on Energy Conversion, vol. 32, no. 3, pp. 941-952, Sept. 2017.
- [78] Z. Wang, B. Wu, D. Xu, M. Cheng and L. Xu, "DC-Link Current Ripple Mitigation for Current-Source Grid-Connected Converters Under Unbalanced Grid Conditions," IEEE Transactions on Industrial Electronics, vol. 63, no. 8, pp. 4967-4977, Aug. 2016.
- [79] Y. Gui, C. Kim, C. C. Chung, J. M. Guerrero, Y. Guan and J. C. Vasquez, "Improved Direct Power Control for Grid-Connected Voltage Source Converters," IEEE Transactions on Industrial Electronics, vol. 65, no. 10, pp. 8041-8051, Oct. 2018.
- [80] Y. Gui, G.H. Lee, C. Kim, and C.C. Chung "Direct power control of grid connected voltage source inverters using port-controlled Hamiltonian system" International Journal of Control Automation and Systems, vol. 15, no. 5, pp. 2053-2062, 2017.
- [81] R. Kabiri, D. G. Holmes and B. P. McGrath, "Control of Active and Reactive Power Ripple to Mitigate Unbalanced Grid Voltages," IEEE Transactions on Industry Applications, vol. 52, no. 2, pp. 1660-1668, March-April 2016.
- [82] A. Mora, R. Cárdenas, M. Urrutia, M. Espinoza and M. Díaz, "A Vector Control Strategy to Eliminate Active Power Oscillations in Four-Leg Grid-Connected Converters Under Unbalanced Voltages," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 2, pp. 1728-1738, June 2020.
- [83] R. Errouissi and A. Al-Durra, "Disturbance-Observer-Based Control for Dual-Stage Grid-Tied Photovoltaic System Under Unbalanced Grid Voltages," IEEE Transactions on Industrial Electronics, vol. 66, no. 11, pp. 8925-8936, Nov. 2019.

- [84] K. Takagi and H. Fujita, "A Three-Phase Grid-Connected Inverter Equipped With a Shunt Instantaneous Reactive Power Compensator," IEEE Transactions on Industry Applications, vol. 55, no. 4, pp. 3955-3966, July-Aug. 2019.
- [85] B. Liu, M. Su, J. Yang, D. Song, D. He and S. Song, "Combined Reactive Power Injection Modulation and Grid Current Distortion Improvement Approach for H6 Transformer-Less Photovoltaic Inverter," IEEE Transactions on Energy Conversion, vol. 32, no. 4, pp. 1456-1467, Dec. 2017.
- [86] H. Khan, S. J. Chacko, B. G. Fernandes and A. Kulkarni, "Reliable and Effective Ride-Through Controller Operation for Smart PV Systems Connected to LV Distribution Grid Under Abnormal Voltages," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 3, pp. 2371-2384, Sept. 2020.
- [87] Y. Zhang, J. Liu, H. Yang and J. Gao, "Direct Power Control of Pulsewidth Modulated Rectifiers Without DC Voltage Oscillations Under Unbalanced Grid Conditions," IEEE Transactions on Industrial Electronics, vol. 65, no. 10, pp. 7900-7910, Oct. 2018.
- [88] J. Jiang, S. Pan, J. Gong, F. Liu, X. Zha and Y. Zhuang, "A Leakage Current Eliminated and Power Oscillation Suppressed Single-Phase Single-Stage Nonisolated Photovoltaic Grid-Tied Inverter and Its Improved Control Strategy," IEEE Transactions on Power Electronics, vol. 36, no. 6, pp. 6738-6749, June 2021.
- [89] J. Joshi, A. K. Swami, V. Jately and B. Azzopardi, "A Comprehensive Review of Control Strategies to Overcome Challenges During LVRT in PV Systems," IEEE Access, vol. 9, pp. 121804-121834, 2021.
- [90] L. Chen et al., "SMES-Battery Energy Storage System for the Stabilization of a Photovoltaic-Based Microgrid," IEEE Transactions on Applied Superconductivity, vol. 28, no. 4, pp. 1-7, June 2018.
- [91] P. Mohammadi, A. Eskandari, J. Milimonfared and J. S. Moghani, "LVRT capability enhancement of single-phase grid connected PV array with coupled supercapacitor," 9th Annual Power Electronics, Drives Systems and Technologies Conference (PEDSTC), 2018, pp. 193-198.
- [92] A. Benali, M. Khiat, T. Allaoui and M. Denaï, "Power Quality Improvement and Low Voltage Ride Through Capability in Hybrid Wind-PV Farms Grid-Connected Using Dynamic Voltage Restorer," IEEE Access, vol. 6, pp. 68634-68648, 2018.

- [93] M. A. Khan, A. Haque and V. S. B. Kurukuru, "Dynamic Voltage Support for Low-Voltage Ride-Through Operation in Single-Phase Grid-Connected Photovoltaic Systems," IEEE Transactions on Power Electronics, vol. 36, no. 10, pp. 12102-12111, Oct. 2021.
- [94] E. Afshari et al., "Control Strategy for Three-Phase Grid-Connected PV Inverters Enabling Current Limitation Under Unbalanced Faults," IEEE Transactions on Industrial Electronics, vol. 64, no. 11, pp. 8908-8918, Nov. 2017.
- [95] M. Graungaard Taul, X. Wang, P. Davari and F. Blaabjerg, "Current Reference Generation Based on Next-Generation Grid Code Requirements of Grid-Tied Converters During Asymmetrical Faults," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 4, pp. 3784-3797.
- [96] X. Zhao, J. M. Guerrero, M. Savaghebi, J. C. Vasquez, X. Wu and K. Sun, "Low-Voltage Ride-Through Operation of Power Converters in Grid-Interactive Microgrids by Using Negative-Sequence Droop Control," IEEE Transactions on Power Electronics, vol. 32, no. 4, pp. 3128-3142, April 2017.
- [97] A. Merabet, L. Labib, A. M. Y. M. Ghias, C. Ghenai and T. Salameh, "Robust Feedback Linearizing Control With Sliding Mode Compensation for a Grid-Connected Photovoltaic Inverter System Under Unbalanced Grid Voltages," IEEE Journal of Photovoltaics, vol. 7, no. 3, pp. 828-838, May 2017.
- [98] M. Rajeev and V. Agarwal, "Low Voltage Ride-Through Capability of a Novel Grid Connected Inverter Suitable for Transformer-Less Solar PV–Grid Interface," IEEE Transactions on Industry Applications, vol. 56, no. 3, pp. 2799-2806, May-June 2020.
- [99] F. Lin, K. Lu and B. Yang, "Recurrent Fuzzy Cerebellar Model Articulation Neural Network Based Power Control of a Single-Stage Three-Phase Grid-Connected Photovoltaic System During Grid Faults," IEEE Transactions on Industrial Electronics, vol. 64, no. 2, pp. 1258-1268, Feb. 2017.
- [100] M. M. Shabestary and Y. A. I. Mohamed, "Advanced Voltage Support and Active Power Flow Control in Grid-Connected Converters Under Unbalanced Conditions," in IEEE Transactions on Power Electronics, vol. 33, no. 2, pp. 1855-1864, Feb. 2018.

- [101] Y. Zhang et al., "Dynamic Performance Improving Sliding-Mode Control-Based Feedback Linearization for PV System Under LVRT Condition," IEEE Transactions on Power Electronics, vol. 35, no. 11, pp. 11745-11757, Nov. 2020.
- [102] M. M. Shabestary and Y. A. I. Mohamed, "An Analytical Method to Obtain Maximum Allowable Grid Support by Using Grid-Connected Converters," IEEE Transactions on Sustainable Energy, vol. 7, no. 4, pp. 1558-1571, Oct. 2016.
- [103] D. Venkatramanan and V. John, "Dynamic Phasor Modeling and Stability Analysis of SRF-PLL-Based Grid-Tie Inverter Under Islanded Conditions," IEEE Transactions on Industry Applications, vol. 56, no. 2, pp. 1953-1965, March-April 2020.
- [104] N. Femia, G. Petrone, G. Spagnuolo and M. Vitelli, "A Technique for Improving P&O MPPT Performances of Double-Stage Grid-Connected Photovoltaic Systems," IEEE Transactions on Industrial Electronics, vol. 56, no. 11, pp. 4473-4482, Nov. 2009.
- [105] B. Subudhi and R. Pradhan, "A New Adaptive Maximum Power Point Controller for a Photovoltaic System," IEEE Transactions on Sustainable Energy, vol. 10, no. 4, pp. 1625-1632, Oct. 2019.
- [106] Y. Shi, R. Li, Y. Xue and H. Li, "High-Frequency-Link-Based Grid-Tied PV System With Small DC-Link Capacitor and Low-Frequency Ripple-Free Maximum Power Point Tracking," IEEE Transactions on Power Electronics, vol. 31, no. 1, pp. 328-339, Jan. 2016.
- [107] Y. Gui, F. Blaabjerg, X. Wang, J. D. Bendtsen, D. Yang and J. Stoustrup, "Improved DC-Link Voltage Regulation Strategy for Grid-Connected Converters," IEEE Transactions on Industrial Electronics, vol. 68, no. 6, pp. 4977-4987, June 2021.
- [108] M. K. Mishra and V. N. Lal, "An Advanced Proportional Multiresonant Controller for Enhanced Harmonic Compensation With Power Ripple Mitigation of Grid-Integrated PV Systems Under Distorted Grid Voltage Conditions," IEEE Transactions on Industry Applications, vol. 57, no. 5, pp. 5318-5331, Sept.-Oct. 2021.
- [109] V. N. Lal and S. N. Singh, "Control and Performance Analysis of a Single-Stage Utility-Scale Grid-Connected PV System," IEEE Systems Journal, vol. 11, no. 3, pp. 1601-1611, Sept. 2017.
- [110] S. A. Khajehoddin, M. Karimi-Ghartemani and M. Ebrahimi, "Optimal and Systematic Design of Current Controller for Grid-Connected Inverters," IEEE Journal

of Emerging and Selected Topics in Power Electronics, vol. 6, no. 2, pp. 812-824, June 2018.

- [111] X. Chen, X. Ruan, D. Yang, W. Zhao and L. Jia, "Injected Grid Current Quality Improvement for a Voltage-Controlled Grid-Connected Inverter," IEEE Transactions on Power Electronics, vol. 33, no. 2, pp. 1247-1258, Feb. 2018.
- [112] Chang Seop Koh, Jae Seop Ryu and K. Fujiwara, "Convergence acceleration of the Newton-Raphson method using successive quadratic function approximation of residual," IEEE Transactions on Magnetics, vol. 42, no. 4, pp. 611-614, April 2006.
- [113] R. Errouissi, H. Shareef and A. Wahyudie, "A Novel Design of PR Controller With Antiwindup Scheme for Single-Phase Interconnected PV Systems," IEEE Transactions on Industry Applications, vol. 57, no. 5, pp. 5461-5475, Sept.-Oct. 2021.
- [114] Y. Yang, K. Zhou and F. Blaabjerg, "Enhancing the Frequency Adaptability of Periodic Current Controllers With a Fixed Sampling Rate for Grid-Connected Power Converters," IEEE Transactions on Power Electronics, vol. 31, no. 10, pp. 7273-7285, Oct. 2016.
- [115] Y. Yang, K. Zhou and F. Blaabjerg, "Enhancing the Frequency Adaptability of Periodic Current Controllers With a Fixed Sampling Rate for Grid-Connected Power Converters," IEEE Transactions on Power Electronics, vol. 31, no. 10, pp. 7273-7285, Oct. 2016.
- [116] K. Liao, Y. Xu, M. Yin and Z. Chen, "A Virtual Filter Approach for Wind Energy Conversion Systems for Mitigating Power System Frequency Fluctuations," IEEE Transactions on Sustainable Energy, vol. 11, no. 3, pp. 1268-1277, July 2020.
- [117] "IEEE Std 1547-2018 IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces," IEEE Standards Coordinating Committee 21, pp.1-138, April 2018.
- [118] O. Kukrer, S. Bayhan and H. Komurcugil, "Model-Based Current Control Strategy With Virtual Time Constant for Improved Dynamic Response of Three-Phase Grid-Connected VSI," IEEE Transactions on Industrial Electronics, vol. 66, no. 6, pp. 4156-4165, June 2019.
- [119] C. A. Busada, S. G. Jorge and J. A. Solsona, "Resonant Current Controller With Enhanced Transient Response for Grid-Tied Inverters," IEEE Transactions on Industrial Electronics, vol. 65, no. 4, pp. 2935-2944, April 2018.

- [120] Y. Gui, X. Wang and F. Blaabjerg, "Vector Current Control Derived from Direct Power Control for Grid-Connected Inverters," IEEE Transactions on Power Electronics, vol. 34, no. 9, pp. 9224-9235, Sept. 2019.
- [121] J. Adhikari, P. IV and S. K. Panda, "Reduction of Input Current Harmonic Distortions and Balancing of Output Voltages of the Vienna Rectifier Under Supply Voltage Disturbances," IEEE Transactions on Power Electronics, vol. 32, no. 7, pp. 5802-5812, July 2017.
- [122] H. Komurcugil, N. Altin, S. Ozdemir and I. Sefa, "Lyapunov-Function and Proportional-Resonant-Based Control Strategy for Single-Phase Grid-Connected VSI With LCL Filter," IEEE Transactions on Industrial Electronics, vol. 63, no. 5, pp. 2838-2849, May 2016.
- [123] Y. Gui, X. Wang, F. Blaabjerg and D. Pan, "Control of Grid-Connected Voltage-Source Converters: The Relationship Between Direct-Power Control and Vector-Current Control," IEEE Industrial Electronics Magazine, vol. 13, no. 2, pp. 31-40, June 2019.
- [124] A. Mora, R. Cárdenas, M. Urrutia, M. Espinoza and M. Díaz, "A Vector Control Strategy to Eliminate Active Power Oscillations in Four-Leg Grid-Connected Converters Under Unbalanced Voltages," IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 2, pp. 1728-1738, June 2020.
- [125] "IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems," IEEE Std 519-2014 (Revision of IEEE Std 519-1992), vol., no., pp.1-29, 11 June 2014.
- [126] S. Golestan, J. M. Guerrero and J. C. Vasquez, "A PLL-Based Controller for Three-Phase Grid-Connected Power Converters," IEEE Transactions on Power Electronics, vol. 33, no. 2, pp. 911-916, Feb. 2018.
- [127] M. Mirhosseini, J. Pou and V. G. Agelidis, "Grid-Connected Photovoltaic Power Plant Without Phase Angle Synchronization Able to Address Fault-Ride-Through Capability," in IEEE Journal of Emerging and Selected Topics in Power Electronics, vol. 8, no. 4, pp. 3467-3476, Dec. 2020.
- [128] Y. Yang, K. Zhou, H. Wang and F. Blaabjerg, "Analysis and Mitigation of Dead-Time Harmonics in the Single-Phase Full-Bridge PWM Converter With Repetitive

Controllers," IEEE Transactions on Industry Applications, vol. 54, no. 5, pp. 5343-5354, Sept.-Oct. 2018.

- [129] M. A. Khan, A. Haque and V. S. B. Kurukuru, "Dynamic Voltage Support for Low-Voltage Ride-Through Operation in Single-Phase Grid-Connected Photovoltaic Systems," IEEE Transactions on Power Electronics, vol. 36, no. 10, pp. 12102-12111, Oct. 2021.
- [130] L. Ji et al., "A Multi-Objective Control Strategy for Three Phase Grid-Connected Inverter During Unbalanced Voltage Sag," IEEE Transactions on Power Delivery, vol. 36, no. 4, pp. 2490-2500, Aug. 2021.

List of Publications

Peered Reviewed Journals

- [1] M. K. Mishra and V.N Lal., "An Enhanced Control Strategy to Mitigate Grid Current Harmonics and Power Ripples of Grid-Tied PV System Without PLL Under Distorted Grid Voltages", *IEEE Journals of Emerging and Selected Topics in Power Electronics* 2021, (Early access).
- [2] M. K. Mishra and V. N. Lal, "An Advanced Proportional Multiresonant Controller for Enhanced Harmonic Compensation with Power Ripple Mitigation of Grid-Integrated PV Systems Under Distorted Grid Voltage Conditions," *IEEE Transactions on Industry Applications*, vol. 57, no. 5, pp. 5318-5331, Sept.-Oct. 2021.
- [3] M. K. Mishra and V. N. Lal, "An improved methodology for reactive power management in grid integrated solar PV system with maximum power point condition," *Solar Energy*, vol. 199, pp.230-245, 2020.
- [4] A research paper entitled "A Multi-Objective Control Strategy for Harmonic Current Mitigation with Enhanced LVRT Operation of a Grid-Tied PV System without PLL under Abnormal Grid Conditions", has been communicated *in IEEE Journals of Emerging and Selected Topics in Power Electronics*, (Under Review)

Peered Reviewed Conferences

- [1] M. K. Mishra, A Mishra and V. N. Lal, "An Advanced PLL-less Control Scheme for LVRT Capability with Harmonics Current Mitigations in Grid-tied PV System Under Weak and Distorted Grid" *IEEE Applied Power Electronics Conference and Exposition (APEC)*, pp. 1298-1304, 2022.
- [2] M. K. Mishra and V. N. Lal, "An Improved Proportional Resonant Controller for Current Harmonics Reduction and Power Ripples Mitigation of Self-Synchronized Grid-tied PV System Under Distorted Grid Voltages," *IEEE Energy Conversion Congress and Exposition (ECCE)*, pp. 939-944, 2021.

- [3] M. K. Mishra and V. N. Lal, "An Enhanced Control Strategy for Harmonic Current Suppression of Grid-Connected PV System without Phase-Locked Loop Under Distorted Grid Voltage Conditions," *IEEE Applied Power Electronics Conference and Exposition (APEC)*, pp. 2702-2707, 2021.
- [4] M. K. Mishra and V. N. Lal, "Modified Proportional Resonant Current Controller with MPPT for Three Phase Single Stage Grid Integrated PV System," *IEEE Applied Power Electronics Conference and Exposition (APEC)*, pp. 3293-3297, 2020.