

Bibliography

- [1] K. Chen, A. Bouscayrol, A. Berthon, P. Delarue, D. Hissel, and R. Trigui, "Global modeling of different vehicles," *IEEE Vehicular Technology Magazine*, vol. 4, no. 2, pp. 80–89, Jun. 2009, doi: 10.1109/MVT.2009.932540.
- [2] H. Fathabadi, "Plug-In Hybrid Electric Vehicles: Replacing Internal Combustion Engine with Clean and Renewable Energy Based Auxiliary Power Sources," *IEEE Transactions on Power Electronics*, vol. 33, no. 11, pp. 9611–9618, Nov. 2018, doi: 10.1109/TPEL.2018.2797250.
- [3] D. Kim, S. Hwang, and H. Kim, "Vehicle stability enhancement of four-wheel-drive hybrid electric vehicle using rear motor control," *IEEE Transactions on Vehicular Technology*, vol. 57, no. 2, pp. 727–735, Mar. 2008, doi: 10.1109/TVT.2007.907016.
- [4] D. W. Gao, C. Mi, and A. Emadi, "Modeling and simulation of electric and hybrid vehicles," *Proceedings of the IEEE*, vol. 95, no. 4, pp. 729–745, 2007, doi: 10.1109/JPROC.2006.890127.
- [5] S. S. Williamson and A. Emadi, "Comparative assessment of hybrid electric and fuel cell vehicles based on comprehensive well-to-wheels efficiency analysis," *IEEE Transactions on Vehicular Technology*, vol. 54, no. 3, pp. 856–862, May 2005, doi: 10.1109/TVT.2005.847444.
- [6] A. Emadi, K. Rajashekar, S. S. Williamson, and S. M. Lukic, "Topological overview of hybrid electric and fuel cell vehicular power system architectures and configurations," *IEEE Transactions on Vehicular Technology*, vol. 54, no. 3, pp. 763–770, May 2005, doi: 10.1109/TVT.2005.847445.
- [7] A. Emadi, Y. J. Lee, and K. Rajashekar, "Power electronics and motor drives in electric, hybrid electric, and plug-in hybrid electric vehicles," *IEEE Transactions on Industrial Electronics*, vol. 55, no. 6, pp. 2237–2245, 2008, doi: 10.1109/TIE.2008.922768.
- [8] S. G. Wirasingha and A. Emadi, "Classification and review of control strategies for plug-in hybrid electric vehicles," *IEEE Transactions on Vehicular Technology*, vol. 60, no. 1, pp. 111–122, Jan. 2011, doi: 10.1109/TVT.2010.2090178.
- [9] Y. Gao and M. Ehsani, "Design and control methodology of plug-in hybrid electric vehicles," in *IEEE Transactions on Industrial Electronics*, Feb. 2010, pp. 633–640, doi: 10.1109/TIE.2009.2027918.
- [10] D. S. Gautam, F. Musavi, W. Eberle, and W. G. Dunford, "A zero-voltage switching full-bridge DC - DC converter with capacitive output filter for plug-in hybrid electric vehicle battery charging," *IEEE Transactions on Power Electronics*, vol. 28, no. 12, pp. 5728–5735, 2013, doi: 10.1109/TPEL.2013.2249671.
- [11] S. G. Wirasingha and A. Emadi, "Pihef: Plug-in hybrid electric factor," *IEEE Transactions on Vehicular Technology*, vol. 60, no. 3, pp. 1279–1284, Mar. 2011, doi: 10.1109/TVT.2011.2115263.

- [12] R. Ghorbani, E. Bibeau, and S. Filizadeh, "On conversion of hybrid electric vehicles to plug-in," *IEEE Transactions on Vehicular Technology*, vol. 59, no. 4, pp. 2016–2020, May 2010, doi: 10.1109/TVT.2010.2041563.
- [13] F. Berthold, A. Ravey, B. Blunier, D. Bouquain, S. Williamson, and A. Miraoui, "Design and Development of a Smart Control Strategy for Plug-In Hybrid Vehicles Including Vehicle-to-Home Functionality," *IEEE Transactions on Transportation Electrification*, vol. 1, no. 2, pp. 168–177, Aug. 2015, doi: 10.1109/TTE.2015.2426508.
- [14] S. S. Williamson, A. Emadi, and K. Rajashekara, "Comprehensive efficiency modeling of electric traction motor drives for hybrid electric vehicle propulsion applications," *IEEE Transactions on Vehicular Technology*, vol. 56, no. 4 I, pp. 1561–1572, Jul. 2007, doi: 10.1109/TVT.2007.896967.
- [15] S. S. Williamson, A. K. Rathore, and F. Musavi, "Industrial Electronics for Electric Transportation: Current State-of-the-Art and Future Challenges," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 5, pp. 3021–3032, May 2015, doi: 10.1109/TIE.2015.2409052.
- [16] A. Babin, N. Rizoug, T. Mesbahi, D. Boscher, Z. Hamdoun, and C. Larouci, "Total Cost of Ownership Improvement of Commercial Electric Vehicles Using Battery Sizing and Intelligent Charge Method," in *IEEE Transactions on Industry Applications*, Institute of Electrical and Electronics Engineers Inc., Mar. 2018, pp. 1691–1700. doi: 10.1109/TIA.2017.2784351.
- [17] S. Dutta, S. Gangavarapu, A. K. Rathore, R. K. Singh, S. K. Mishra, and V. Khadkikar, "Novel Single-Phase Cuk-Derived Bridgeless PFC Converter for On-Board EV Charger with Reduced Number of Components," *IEEE Transactions on Industry Applications*, vol. 58, no. 3, pp. 3999–4010, 2022, doi: 10.1109/TIA.2022.3148969.
- [18] J. Wirtz, "On-board vs. Off board charging," 2011. Accessed: May 25, 2023. [Online]. Available: <https://s3.amazonaws.com/automotiveworld/slides/amusa2012/John+Wirtz+-+Eaton.pdf>
- [19] "Plugged in: How americans charge their electric vehicles," Dec. 2015.
- [20] V. Monteiro, H. Goncalves, J. C., and J. L., "Batteries Charging Systems for Electric and Plug-In Hybrid Electric Vehicles," in *New Advances in Vehicular Technology and Automotive Engineering*, InTech, 2012. doi: 10.5772/45791.
- [21] S. Li, L. Tong, J. Xing, and Y. Zhou, "The Market for Electric Vehicles: Indirect Network Effects and Policy Design," *J Assoc Environ Resour Econ*, vol. 4, no. 1, pp. 89–133, Mar. 2017, doi: 10.1086/689702.
- [22] W. Sierzechula, S. Bakker, K. Maat, and B. van Wee, "The influence of financial incentives and other socio-economic factors on electric vehicle adoption," *Energy Policy*, vol. 68, pp. 183–194, May 2014, doi: 10.1016/j.enpol.2014.01.043.
- [23] H. Bångtsson and M. Alaküla, "Cost Analysis of Electric Land Transport."

- [24] R. K. Singh and S. Mishra, "A magnetically coupled feedback-clamped optimal bidirectional battery charger," *IEEE Transactions on Industrial Electronics*, vol. 60, no. 2, pp. 422–432, 2013, doi: 10.1109/TIE.2012.2186776.
- [25] M. Abbasi and J. Lam, "An Interleaved Bridgeless AC/DC Stacked SiC Switches Based LLC Converter with Semi-Active Rectifiers for EV High Voltage Battery Systems," in *2021 IEEE Energy Conversion Congress and Exposition, ECCE 2021 - Proceedings*, Institute of Electrical and Electronics Engineers Inc., 2021, pp. 1853–1859. doi: 10.1109/ECCE47101.2021.9595215.
- [26] Siqi Li, Junjun Deng, and C. C. Mi, "Single-Stage Resonant Battery Charger With Inherent Power Factor Correction for Electric Vehicles," *IEEE Transactions on Vehicular Technology*, vol. 62, no. 9, pp. 4336–4344, Nov. 2013, doi: 10.1109/TVT.2013.2265704.
- [27] S. Li and C. C. Mi, "Wireless power transfer for electric vehicle applications," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 3, no. 1, pp. 4–17, Mar. 2015, doi: 10.1109/JESTPE.2014.2319453.
- [28] H. M. de Oliveira Filho, D. de S. Oliveira, and C. E. de Alencar e Silva, "Three-Stage Static Power Converter for Battery Charging Feasible for Small Wind Energy Conversion Systems," *IEEE Transactions on Industry Applications*, vol. 50, no. 5, pp. 3602–3610, Sep. 2014, doi: 10.1109/TIA.2014.2309723.
- [29] A. Iraklis, T. Schirmer, H. Dittus, A. Lusiewicz, and J. Winter, "Overview of Three-Stage Power Converter Topologies for Medium Frequency-Based Railway Vehicle Traction Systems," *IEEE Transactions on Vehicular Technology*, vol. 68, no. 4, pp. 3268–3278, Apr. 2019, doi: 10.1109/TVT.2019.2895500.
- [30] N. Khan, H. Matsumoto, and O. Trescases, "Wireless Electric Vehicle Charger With Electromagnetic Coil-Based Position Correction Using Impedance and Resonant Frequency Detection," *IEEE Transactions on Power Electronics*, vol. 35, no. 8, pp. 7873–7883, Aug. 2020, doi: 10.1109/TPEL.2020.2965476.
- [31] J. Zhang, D. Sha, and P. Ma, "A Dual Active Bridge DC–DC-Based Single Stage AC–DC Converter With Seamless Mode Transition and High Power Factor," *IEEE Transactions on Industrial Electronics*, vol. 69, no. 2, pp. 1411–1421, Feb. 2022, doi: 10.1109/TIE.2021.3057016.
- [32] N. Hou and Y. W. Li, "Overview and Comparison of Modulation and Control Strategies for a Nonresonant Single-Phase Dual-Active-Bridge DC–DC Converter," *IEEE Transactions on Power Electronics*, vol. 35, no. 3, pp. 3148–3172, Mar. 2020, doi: 10.1109/TPEL.2019.2927930.
- [33] M. M. Biswas, D. Chowdhury, and V. R. Chowdhury, "Efficiency and Thermal Analysis of Si and SiC-Based Bidirectional DC-DC Converters for Transactive Energy Systems," in *2019 IEEE 7th Workshop on Wide Bandgap Power Devices and Applications (WiPDA)*, IEEE, Oct. 2019, pp. 325–331. doi: 10.1109/WiPDA46397.2019.8998818.
- [34] S. Kurm and V. Agarwal, "Characterization of ZVS Behavior and Optimum Control Point Determination for Three-Port Current-Fed Dual Active Bridge Converter," *IEEE*

- Transactions on Industry Applications*, vol. 58, no. 4, pp. 4816–4824, Jul. 2022, doi: 10.1109/TIA.2022.3163363.
- [35] M. C. Kisacikoglu, M. Kesler, and L. M. Tolbert, “Single-phase on-board bidirectional PEV charger for V2G reactive power operation,” *IEEE Trans Smart Grid*, vol. 6, no. 2, pp. 767–775, Mar. 2015, doi: 10.1109/TSG.2014.2360685.
- [36] S. Wang *et al.*, “Multifunction capability of SiC bidirectional portable chargers for electric vehicles,” *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 9, no. 5, pp. 6184–6195, Oct. 2021, doi: 10.1109/JESTPE.2021.3052841.
- [37] L. Xue, Z. Shen, D. Boroyevich, P. Mattavelli, and D. Diaz, “Dual Active Bridge-Based Battery Charger for Plug-in Hybrid Electric Vehicle with Charging Current Containing Low Frequency Ripple,” *IEEE Transactions on Power Electronics*, vol. 30, no. 12, pp. 7299–7307, Dec. 2015, doi: 10.1109/TPEL.2015.2413815.
- [38] D. Patil and V. Agarwal, “Compact Onboard Single-Phase EV Battery Charger with Novel Low-Frequency Ripple Compensator and Optimum Filter Design,” *IEEE Transactions on Vehicular Technology*, vol. 65, no. 4, pp. 1948–1965, Apr. 2016, doi: 10.1109/TVT.2015.2424927.
- [39] S. A. Assadi, H. Matsumoto, M. Moshirvaziri, M. Nasr, M. S. Zaman, and O. Trescases, “Active Saturation Mitigation in High-Density Dual-Active-Bridge DC-DC Converter for On-Board EV Charger Applications,” *IEEE Transactions on Power Electronics*, vol. 35, no. 4, pp. 4376–4387, Apr. 2020, doi: 10.1109/TPEL.2019.2939301.
- [40] D. S. Gautam, F. Musavi, W. Eberle, and W. G. Dunford, “A zero-voltage switching full-bridge DC - DC converter with capacitive output filter for plug-in hybrid electric vehicle battery charging,” *IEEE Transactions on Power Electronics*, vol. 28, no. 12, pp. 5728–5735, 2013, doi: 10.1109/TPEL.2013.2249671.
- [41] M. Tong, M. Cheng, W. Hua, and S. Ding, “A Single-Phase On-Board Two-Stage Integrated Battery Charger for EVs Based on a Five-Phase Hybrid-Excitation Flux-Switching Machine,” *IEEE Transactions on Vehicular Technology*, vol. 69, no. 4, pp. 3793–3804, Apr. 2020, doi: 10.1109/TVT.2020.2974019.
- [42] B. Whitaker *et al.*, “A high-density, high-efficiency, isolated on-board vehicle battery charger utilizing silicon carbide power devices,” *IEEE Transactions on Power Electronics*, vol. 29, no. 5, pp. 2606–2617, May 2014, doi: 10.1109/TPEL.2013.2279950.
- [43] S. R. Meher and R. K. Singh, “A Two-stage Standard On-Board Electric Vehicle Charger with Minimum Switch Count,” in *2021 IEEE Energy Conversion Congress and Exposition, ECCE 2021 - Proceedings*, Institute of Electrical and Electronics Engineers Inc., 2021, pp. 1681–1686. doi: 10.1109/ECCE47101.2021.9595146.
- [44] V. Monteiro, J. C. Ferreira, A. A. Nogueiras Melendez, C. Couto, and J. L. Afonso, “Experimental Validation of a Novel Architecture Based on a Dual-Stage Converter for Off-Board Fast Battery Chargers of Electric Vehicles,” *IEEE Transactions on Vehicular Technology*, vol. 67, no. 2, pp. 1000–1011, Feb. 2018, doi: 10.1109/TVT.2017.2755545.

- [45] M. Restrepo, J. Morris, M. Kazerani, and C. A. Canizares, "Modeling and Testing of a Bidirectional Smart Charger for Distribution System EV Integration," *IEEE Trans Smart Grid*, vol. 9, no. 1, pp. 152–162, Jan. 2018, doi: 10.1109/TSG.2016.2547178.
- [46] Seung-Hee Ryu, Dong-Hee Kim, Min-Jung Kim, Jong-Soo Kim, and Byoung-Kuk Lee, "Adjustable Frequency–Duty-Cycle Hybrid Control Strategy for Full-Bridge Series Resonant Converters in Electric Vehicle Chargers," *IEEE Transactions on Industrial Electronics*, vol. 61, no. 10, pp. 5354–5362, Oct. 2014, doi: 10.1109/TIE.2014.2300036.
- [47] M. Yilmaz and P. T. Krein, "Review of battery charger topologies, charging power levels, and infrastructure for plug-in electric and hybrid vehicles," *IEEE Transactions on Power Electronics*, vol. 28, no. 5, pp. 2151–2169, 2013. doi: 10.1109/TPEL.2012.2212917.
- [48] H. Tu, H. Feng, S. Srdic, and S. Lukic, "Extreme Fast Charging of Electric Vehicles: A Technology Overview," *IEEE Transactions on Transportation Electrification*, vol. 5, no. 4, pp. 861–878, Dec. 2019, doi: 10.1109/TTE.2019.2958709.
- [49] R. Kushwaha and B. Singh, "Power Factor Improvement in Modified Bridgeless Landsman Converter Fed EV Battery Charger," *IEEE Transactions on Vehicular Technology*, vol. 68, no. 4, pp. 3325–3336, Apr. 2019, doi: 10.1109/TVT.2019.2897118.
- [50] S. Kim and F. Kang, "Multi-functional On-board Battery Charger for Plug-in Electric Vehicles," *IEEE Transactions on Industrial Electronics*, pp. 1–1, 2014, doi: 10.1109/TIE.2014.2376878.
- [51] 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*, Institute of Electrical and Electronics Engineers Inc., Jan. 2018, pp. 539–550. doi: 10.1109/TIA.2017.2757438.
- [52] S. Sharma, M. V. Aware, and A. Bhowate, "Integrated Battery Charger for EV by Using Three-Phase Induction Motor Stator Windings as Filter," *IEEE Transactions on Transportation Electrification*, vol. 6, no. 1, pp. 83–94, Mar. 2020, doi: 10.1109/TTE.2020.2972765.
- [53] J. Gupta, R. Maurya, and S. R. Arya, "Improved Power Quality On-Board Integrated Charger with Reduced Switching Stress," *IEEE Transactions on Power Electronics*, vol. 35, no. 10, pp. 10810–10820, Oct. 2020, doi: 10.1109/TPEL.2020.2981955.
- [54] M. Truntič, T. Konjedic, M. Milanović, P. Šlibar, and M. Rodič, "Control of integrated single-phase PFC charger for EVs," *IET Power Electronics*, vol. 11, no. 11, pp. 1804–1812, Sep. 2018, doi: 10.1049/iet-pel.2017.0663.
- [55] K. Rajashekara, "Present status and future trends in electric vehicle propulsion technologies," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 1, no. 1, pp. 3–10, 2013, doi: 10.1109/JESTPE.2013.2259614.
- [56] N. Sakr, D. Sadarnac, A. Gascher, and S.-+ Renault, "A Review Of On-board Integrated Chargers For Electric Vehicles."

- [57] M. Y. Metwly, M. S. Abdel-Majeed, A. S. Abdel-Khalik, R. A. Hamdy, M. S. Hamad, and S. Ahmed, "A Review of Integrated On-Board EV Battery Chargers: Advanced Topologies, Recent Developments and Optimal Selection of FSCW Slot/Pole Combination," *IEEE Access*, vol. 8, pp. 85216–85242, 2020, doi: 10.1109/ACCESS.2020.2992741.
- [58] J. Cai and X. Zhao, "An On-Board Charger Integrated Power Converter for EV Switched Reluctance Motor Drives," *IEEE Transactions on Industrial Electronics*, vol. 68, no. 5, pp. 3683–3692, May 2021, doi: 10.1109/TIE.2020.2982112.
- [59] H. J. Raherimihaja, Q. Zhang, T. Na, M. Shao, and J. Wang, "A Three-Phase Integrated Battery Charger for EVs Based on Six-Phase Open-End Winding Machine," *IEEE Transactions on Power Electronics*, vol. 35, no. 11, pp. 12122–12132, Nov. 2020, doi: 10.1109/TPEL.2020.2986798.
- [60] C. Viana, M. Pathmanathan, and P. W. Lehn, "Dual-Inverter-Integrated Three-Phase EV Charger Based on Split-Phase Machine," *IEEE Transactions on Power Electronics*, vol. 37, no. 12, pp. 15175–15185, Dec. 2022, doi: 10.1109/TPEL.2022.3187568.
- [61] S. Haghbin, S. Lundmark, M. Alakula, and O. Carlson, "Grid-connected integrated battery chargers in vehicle applications: Review and new solution," *IEEE Transactions on Industrial Electronics*, vol. 60, no. 2. Institute of Electrical and Electronics Engineers Inc., pp. 459–473, 2013. doi: 10.1109/TIE.2012.2187414.
- [62] D.-H. Kim, M.-J. Kim, and B.-K. Lee, "An Integrated Battery Charger With High Power Density and Efficiency for Electric Vehicles," *IEEE Transactions on Power Electronics*, vol. 32, no. 6, pp. 4553–4565, Jun. 2017, doi: 10.1109/TPEL.2016.2604404.
- [63] Cocconi A., "Combined motor drive and battery recharge system," US5341075A, Aug. 23, 1994
- [64] C. Shi, Y. Tang, and A. Khaligh, "A Three-Phase Integrated Onboard Charger for Plug-In Electric Vehicles," *IEEE Transactions on Power Electronics*, vol. 33, no. 6, pp. 4716–4725, Jun. 2018, doi: 10.1109/TPEL.2017.2727398.
- [65] G. Pellegrino, E. Armando, and P. Guglielmi, "An integral battery charger with power factor correction for electric scooter," *IEEE Transactions on Power Electronics*, vol. 25, no. 3, pp. 751–759, 2010, doi: 10.1109/TPEL.2009.2033187.
- [66] I. Subotic, N. Bodo, and E. Levi, "An EV Drive-Train with Integrated Fast Charging Capability," *IEEE Transactions on Power Electronics*, vol. 31, no. 2, pp. 1461–1471, Feb. 2016, doi: 10.1109/TPEL.2015.2424592.
- [67] I. Subotic, N. Bodo, E. Levi, and M. Jones, "Onboard Integrated Battery Charger for EVs Using an Asymmetrical Nine-Phase Machine," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 5, pp. 3285–3295, May 2015, doi: 10.1109/TIE.2014.2345341.
- [68] M. S. Diab, A. A. Elserougi, A. S. Abdel-Khalik, A. M. Massoud, and S. Ahmed, "A Nine-Switch-Converter-Based Integrated Motor Drive and Battery Charger System for EVs Using Symmetrical Six-Phase Machines," *IEEE Transactions on Industrial Electronics*, vol. 63, no. 9, pp. 5326–5335, Sep. 2016, doi: 10.1109/TIE.2016.2555295.

- [69] I. Subotic, N. Bodo, and E. Levi, "Single-phase on-board integrated battery chargers for EVs based on multiphase machines," *IEEE Transactions on Power Electronics*, vol. 31, no. 9, pp. 6511–6523, Sep. 2016, doi: 10.1109/TPEL.2015.2504400.
- [70] I. Subotic, N. Bodo, E. Levi, M. Jones, and V. Levi, "Isolated chargers for EVs incorporating six-phase machines," *IEEE Transactions on Industrial Electronics*, vol. 63, no. 1, pp. 653–664, Jan. 2016, doi: 10.1109/TIE.2015.2412516.
- [71] I. Subotic, N. Bodo, E. Levi, B. Dumnic, D. Milicevic, and V. Katic, "Overview of fast on-board integrated battery chargers for electric vehicles based on multiphase machines and power electronics," *IET Electric Power Applications*, vol. 10, no. 3. Institution of Engineering and Technology, pp. 217–229, Mar. 01, 2016. doi: 10.1049/iet-epa.2015.0292.
- [72] S. Dusmez and A. Khaligh, "A compact and integrated multifunctional power electronic interface for plug-in electric vehicles," *IEEE Transactions on Power Electronics*, vol. 28, no. 12, pp. 5690–5701, 2013, doi: 10.1109/TPEL.2012.2233763.
- [73] A. Khaligh and S. Dusmez, "Comprehensive topological analysis of conductive and inductive charging solutions for plug-in electric vehicles," *IEEE Transactions on Vehicular Technology*, vol. 61, no. 8, pp. 3475–3489, 2012, doi: 10.1109/TVT.2012.2213104.
- [74] Y. Li *et al.*, "Analysis, Design, and Experimental Verification of a Mixed High-Order Compensations-Based WPT System with Constant Current Outputs for Driving Multistring LEDs," *IEEE Transactions on Industrial Electronics*, vol. 67, no. 1, pp. 203–213, Jan. 2020, doi: 10.1109/TIE.2019.2896255.
- [75] S. A. Q. Mohammed and J.-W. Jung, "A Comprehensive State-of-the-Art Review of Wired/Wireless Charging Technologies for Battery Electric Vehicles: Classification/Common Topologies/Future Research Issues," *IEEE Access*, vol. 9, pp. 19572–19585, 2021, doi: 10.1109/ACCESS.2021.3055027.
- [76] F. Musavi and W. Eberle, "Overview of wireless power transfer technologies for electric vehicle battery charging," *IET Power Electronics*, vol. 7, no. 1, pp. 60–66, Jan. 2014, doi: 10.1049/iet-pel.2013.0047.
- [77] Z. Zhang, H. Pang, A. Georgiadis, and C. Cecati, "Wireless Power Transfer—An Overview," *IEEE Transactions on Industrial Electronics*, vol. 66, no. 2, pp. 1044–1058, Feb. 2019, doi: 10.1109/TIE.2018.2835378.
- [78] Z. Huang, S.-C. Wong, and C. K. Tse, "Design of a Single-Stage Inductive-Power-Transfer Converter for Efficient EV Battery Charging," *IEEE Transactions on Vehicular Technology*, vol. 66, no. 7, pp. 5808–5821, Jul. 2017, doi: 10.1109/TVT.2016.2631596.
- [79] T. Kan, T.-D. Nguyen, J. C. White, R. K. Malhan, and C. C. Mi, "A New Integration Method for an Electric Vehicle Wireless Charging System Using LCC Compensation Topology: Analysis and Design," *IEEE Transactions on Power Electronics*, vol. 32, no. 2, pp. 1638–1650, Feb. 2017, doi: 10.1109/TPEL.2016.2552060.

- [80] M. Bojarski, E. Asa, K. Colak, and D. Czarkowski, "Analysis and Control of Multiphase Inductively Coupled Resonant Converter for Wireless Electric Vehicle Charger Applications," *IEEE Transactions on Transportation Electrification*, vol. 3, no. 2, pp. 312–320, Jun. 2017, doi: 10.1109/TTE.2016.2566921.
- [81] D. H. Tran, V. B. Vu, and W. Choi, "Design of a High-Efficiency Wireless Power Transfer System With Intermediate Coils for the On-Board Chargers of Electric Vehicles," *IEEE Transactions on Power Electronics*, vol. 33, no. 1, pp. 175–187, Jan. 2018, doi: 10.1109/TPEL.2017.2662067.
- [82] A. Ramezani, S. Farhangi, H. Iman-Eini, B. Farhangi, R. Rahimi, and G. R. Moradi, "Optimized LCC-Series Compensated Resonant Network for Stationary Wireless EV Chargers," *IEEE Transactions on Industrial Electronics*, vol. 66, no. 4, pp. 2756–2765, Apr. 2019, doi: 10.1109/TIE.2018.2840502.
- [83] F. Liu, K. Chen, Z. Zhao, K. Li, and L. Yuan, "Transmitter-Side Control of Both the CC and CV Modes for the Wireless EV Charging System With the Weak Communication," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 6, no. 2, pp. 955–965, Jun. 2018, doi: 10.1109/JESTPE.2017.2759581.
- [84] Y. Lin and Z. Zhao, "Topology and control strategy on transformerless wireless power station for future electric transportation systems," *International Transactions on Electrical Energy Systems*, vol. 31, no. 9, Sep. 2021, doi: 10.1002/2050-7038.13019.
- [85] X. Wei, H. Sekiya, T. Nagashima, M. K. Kazimierczuk, and T. Suetsugu, "Steady-State Analysis and Design of Class-D ZVS Inverter at Any Duty Ratio," *IEEE Transactions on Power Electronics*, vol. 31, no. 1, pp. 394–405, Jan. 2016, doi: 10.1109/TPEL.2015.2400463.
- [86] H. Sekiya, X. Wei, T. Nagashima, and M. K. Kazimierczuk, "Steady-State Analysis and Design of Class-DE Inverter at Any Duty Ratio," *IEEE Transactions on Power Electronics*, vol. 30, no. 7, pp. 3685–3694, Jul. 2015, doi: 10.1109/TPEL.2014.2339355.
- [87] A. Ayachit, F. Corti, A. Reatti, and M. K. Kazimierczuk, "Zero-Voltage Switching Operation of Transformer Class-E Inverter at Any Coupling Coefficient," *IEEE Transactions on Industrial Electronics*, vol. 66, no. 3, pp. 1809–1819, Mar. 2019, doi: 10.1109/TIE.2018.2838059.
- [88] A. Mediano and N. O. Sokal, "A Class-SE₂ RF Power Amplifier With a Flat-Top Transistor-Voltage Waveform," *IEEE Transactions on Power Electronics*, vol. 28, no. 11, pp. 5215–5221, Nov. 2013, doi: 10.1109/TPEL.2013.2242097.
- [89] A. Grebennikov, "High-Efficiency Class E/F Lumped and Transmission-Line Power Amplifiers," *IEEE Trans Microw Theory Tech*, vol. 59, no. 6, pp. 1579–1588, Jun. 2011, doi: 10.1109/TMTT.2011.2114672.
- [90] Z. Kaczmarczyk, "High-Efficiency Class E, h_{box}EF₂, and h_{box} E/F₃ Inverters," *IEEE Transactions on Industrial Electronics*, vol. 53, no. 5, pp. 1584–1593, Oct. 2006, doi: 10.1109/TIE.2006.882011.

- [91] S. D. Kee, I. Aoki, A. Hajimiri, and D. Rutledge, "The class-E/F family of ZVS switching amplifiers," *IEEE Trans Microw Theory Tech*, vol. 51, no. 6, pp. 1677–1690, Jun. 2003, doi: 10.1109/TMTT.2003.812564.
- [92] S. Aldhafer, D. C. Yates, and P. D. Mitcheson, "Modeling and Analysis of Class EF and Class E/F Inverters With Series-Tuned Resonant Networks," *IEEE Transactions on Power Electronics*, vol. 31, no. 5, pp. 3415–3430, May 2016, doi: 10.1109/TPEL.2015.2460997.
- [93] S. Aldhafer, D. C. Yates, and P. D. Mitcheson, "Design and Development of a Class EF₂ Inverter and Rectifier for Multimegahertz Wireless Power Transfer Systems," *IEEE Transactions on Power Electronics*, vol. 31, no. 12, pp. 8138–8150, Dec. 2016, doi: 10.1109/TPEL.2016.2521060.
- [94] S. Aldhafer, D. C. Yates, and P. D. Mitcheson, "Load-Independent Class E/EF Inverters and Rectifiers for MHz-Switching Applications," *IEEE Transactions on Power Electronics*, vol. 33, no. 10, pp. 8270–8287, Oct. 2018, doi: 10.1109/TPEL.2018.2813760.
- [95] G. Pellegrino, E. Armando, and P. Guglielmi, "An integral battery charger with power factor correction for electric scooter," *IEEE Transactions on Power Electronics*, vol. 25, no. 3, pp. 751–759, 2010, doi: 10.1109/TPEL.2009.2033187.
- [96] M. Tong, M. Cheng, S. Wang, and W. Hua, "An On-Board Two-Stage Integrated Fast Battery Charger for EVs Based on a Five-Phase Hybrid-Excitation Flux-Switching Machine," *IEEE Transactions on Industrial Electronics*, vol. 68, no. 2, pp. 1780–1790, Feb. 2021, doi: 10.1109/TIE.2020.2988242.
- [97] S. Wang and P. W. Lehn, "A Three-Phase Electric Vehicle Charger Integrated With Dual-Inverter Drive," *IEEE Transactions on Transportation Electrification*, vol. 8, no. 1, pp. 82–97, Mar. 2022, doi: 10.1109/TTE.2021.3102192.
- [98] Y. Xiao, C. Liu, and F. Yu, "An Integrated On-Board EV Charger with Safe Charging Operation for Three-Phase IPM Motor," *IEEE Transactions on Industrial Electronics*, vol. 66, no. 10, pp. 7551–7560, Oct. 2019, doi: 10.1109/TIE.2018.2880712.
- [99] S. Gangavarapu and A. K. Rathore, "A Three-Phase Single-Sensor-Based Cuk-Derived PFC Converter With Reduced Number of Components for More Electric Aircraft," *IEEE Transactions on Transportation Electrification*, vol. 6, no. 4, pp. 1767–1779, Dec. 2020, doi: 10.1109/TTE.2020.2988154.
- [100] S. Gangavarapu, A. K. Rathore, and V. Khadkikar, "High-Efficiency Three-Phase Single-Stage Isolated Flyback-Based PFC Converter With a Novel Clamping Circuit," *IEEE Transactions on Industry Applications*, vol. 56, no. 1, pp. 718–729, Jan. 2020, doi: 10.1109/TIA.2019.2941571.
- [101] A. Dixit, K. Pande, S. Gangavarapu, and A. K. Rathore, "DCM-Based Bridgeless PFC Converter for EV Charging Application," *IEEE Journal of Emerging and Selected Topics in Industrial Electronics*, vol. 1, no. 1, pp. 57–66, Jul. 2020, doi: 10.1109/JESTIE.2020.2999595.

- [102] U. B. S., V. Khadkikar, H. H. Zeineldin, S. Singh, H. Otrok, and R. Mizouni, "Direct Electric Vehicle to Vehicle (V2V) Power Transfer Using On-Board Drivetrain and Motor Windings," *IEEE Transactions on Industrial Electronics*, vol. 69, no. 11, pp. 10765–10775, Nov. 2022, doi: 10.1109/TIE.2021.3121707.
- [103] D.-W. Lee, B.-S. Lee, J.-H. Ahn, J.-Y. Kim, and J.-K. Kim, "New Combined OBC and LDC System for Electric Vehicles With 800 V Battery," *IEEE Transactions on Industrial Electronics*, vol. 69, no. 10, pp. 9938–9951, Oct. 2022, doi: 10.1109/TIE.2022.3148730.
- [104] M. Elshaer, C. Bell, A. Hamid, and J. Wang, "DC–DC Topology for Interfacing a Wireless Power Transfer System to an On-Board Conductive Charger for Plug-In Electric Vehicles," *IEEE Transactions on Industry Applications*, vol. 57, no. 6, pp. 5552–5561, Nov. 2021, doi: 10.1109/TIA.2021.3103700.
- [105] A. K. Singh, M. Badoni, and Y. N. Tatte, "A Multifunctional Solar PV and Grid Based On-Board Converter for Electric Vehicles," *IEEE Transactions on Vehicular Technology*, vol. 69, no. 4, pp. 3717–3727, Apr. 2020, doi: 10.1109/TVT.2020.2971971.
- [106] F. C. Lee, Q. Li, and A. Nabih, "High Frequency Resonant Converters: An Overview on the Magnetic Design and Control Methods," *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 9, no. 1, pp. 11–23, Feb. 2021, doi: 10.1109/JESTPE.2020.3011166.
- [107] I. O. Lee, "Hybrid PWM-Resonant Converter for Electric Vehicle On-Board Battery Chargers," *IEEE Transactions on Power Electronics*, vol. 31, no. 5, pp. 3639–3649, May 2016, doi: 10.1109/TPEL.2015.2456635.
- [108] Y.-C. Chuang, Y.-L. Ke, H.-S. Chuang, and J.-T. Chen, "A Novel Loaded-Resonant Converter for the Application of DC-to-DC Energy Conversions," *IEEE Transactions on Industry Applications*, vol. 48, no. 2, pp. 742–749, Mar. 2012, doi: 10.1109/TIA.2011.2180875.
- [109] D. Cittanti, M. Gregorio, E. Vico, F. Mandrile, E. Armando, and R. Bojoi, "High-Performance Digital Multiloop Control of LLC Resonant Converters for EV Fast Charging With LUT-Based Feedforward and Adaptive Gain," *IEEE Transactions on Industry Applications*, vol. 58, no. 5, pp. 6266–6285, 2022, doi: 10.1109/TIA.2022.3178394.
- [110] K. B. Park, B. H. Lee, G. W. Moon, and M. J. Youn, "Analysis on center-tap rectifier voltage oscillation of LLC resonant converter," *IEEE Transactions on Power Electronics*, vol. 27, no. 6, pp. 2684–2689, 2012, doi: 10.1109/TPEL.2012.2186614.
- [111] Robert W. Erickson and Dragan Maksimović, *Fundamentals of Power Electronics*. 2020.
- [112] "Half-bridge LLC Resonant Converter Design Using FSFR-series Fairchild Power Switch (FPS™)," 2007. [Online]. Available: www.fairchildsemi.com
- [113] P. Wang, C. Liu, and L. Guo, "Modeling and Simulation of Full-bridge Series Resonant Converter Based on Generalized State Space Averaging."

- [114] Yang E. X.-Q., “Extended describing function method for small-signal modeling of resonant and multi-resonant converters,” Ph.D. dissertation, Virginia Polytechnic Institute and State University, Blacksburg, Blacksburg, 2005.
- [115] H. Huang, “Feedback Loop Design of an LLC Resonant Power Converter,” 2010. [Online]. Available: www.ti.com.
- [116] Abdel-Rahman Sam, “Infineon-Design example resonant LLC converter operation and design-AN-v01_00-EN,” Sep. 2012.
- [117] A. K. Rathore and V. R. Vakacharla, “A Simple Technique for Fundamental Harmonic Approximation Analysis in Parallel and Series-Parallel Resonant Converters,” *IEEE Transactions on Industrial Electronics*, vol. 67, no. 11, pp. 9963–9968, Nov. 2020, doi: 10.1109/TIE.2019.2952820.
- [118] G. E. Mejía-Ruiz, N. Muñoz-Galeano, and J. M. López-Lezama, “Modeling and development of a bridgeless PFC Boost rectifier,” *Revista Facultad de Ingeniería Universidad de Antioquia*, no. 82, pp. 9–21, Mar. 2017, doi: 10.17533/udea.redin.n82a02.
- [119] J. C. Gómez and M. M. Morcos, “Impact of EV battery chargers on the power quality of distribution systems,” *IEEE Transactions on Power Delivery*, vol. 18, no. 3, pp. 975–981, Jul. 2003, doi: 10.1109/TPWRD.2003.813873.
- [120] Choi H., “Half-bridge LLC resonant converter design using FSFR-series Fairchild power switch (FPS).”
- [121] H. Wang, S. Dusmez, and A. Khaligh, “Design and analysis of a full-bridge LLC-based PEV charger optimized for wide battery voltage range,” *IEEE Transactions on Vehicular Technology*, vol. 63, no. 4, pp. 1603–1613, 2014, doi: 10.1109/TVT.2013.2288772.
- [122] C. Shi, Y. Tang, and A. Khaligh, “A single-phase integrated onboard battery charger using propulsion system for plug-in electric vehicles,” *IEEE Transactions on Vehicular Technology*, vol. 66, no. 12, pp. 10899–10910, Dec. 2017, doi: 10.1109/TVT.2017.2729345.
- [123] C. Shi and A. Khaligh, “A Two-Stage Three-Phase Integrated Charger for Electric Vehicles with Dual Cascaded Control Strategy,” *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 6, no. 2, pp. 898–909, Jun. 2018, doi: 10.1109/JESTPE.2018.2797913.
- [124] J. Lu, A. Mallik, S. Zou, and A. Khaligh, “Variable DC-Link Control Loop Design for an Integrated Two-Stage AC/DC Converter,” *IEEE Transactions on Transportation Electrification*, vol. 4, no. 1, pp. 99–107, Sep. 2017, doi: 10.1109/TTE.2017.2755772.
- [125] L. R. Chen, “Design of duty-varied voltage pulse charger for improving Li-ion battery-charging response,” *IEEE Transactions on Industrial Electronics*, vol. 56, no. 2, pp. 480–487, 2009, doi: 10.1109/TIE.2008.2002725.
- [126] L. R. Chen, N. Y. Chu, C. S. Wang, and R. H. Liang, “Design of a reflex-based bidirectional converter with the energy recovery function,” *IEEE Transactions on*

Industrial Electronics, vol. 55, no. 8, pp. 3022–3029, 2008, doi: 10.1109/TIE.2008.918609.

- [127] A. Al-Haj Hussein and I. Batarseh, “A Review of Charging Algorithms for Nickel and Lithium Battery Chargers,” *IEEE Transactions on Vehicular Technology*, vol. 60, no. 3, pp. 830–838, Mar. 2011, doi: 10.1109/TVT.2011.2106527.
- [128] M. M. Jovanović, “Dual AC-Input Power System Architectures,” 2002.
- [129] I. Laird, X. Yuan, J. Scoltock, and A. J. Forsyth, “A Design Optimization Tool for Maximizing the Power Density of 3-Phase DC-AC Converters Using Silicon Carbide (SiC) Devices,” *IEEE Transactions on Power Electronics*, vol. 33, no. 4, pp. 2913–2932, Apr. 2018, doi: 10.1109/TPEL.2017.2705805.

List of Publications

Journals/Transactions:

- [1] S. R. Meher and R. K. Singh, "A Standard Two Stage On-Board Charger With Single Controlled PWM and Minimum Switch Count," in *IEEE Transactions on Industry Applications*, vol. 59, no. 4, pp. 4628-4639, July-Aug. 2023, doi: 10.1109/TIA.2023.3267334.
- [2] S. R. Meher, S. Banerjee, B. T. Vankayalapati and R. K. Singh, "A Reconfigurable On-Board Power Converter for Electric Vehicle With Reduced Switch Count," in *IEEE Transactions on Vehicular Technology*, vol. 69, no. 4, pp. 3760-3772, April 2020, doi: 10.1109/TVT.2020.2973316.
- [3] S. R. Meher and R. K. Singh, "A Multimode Power Processor with Wired and Wireless Battery Charging for Electric Vehicle," in *IEEE Transactions on Industrial Electronics*, doi: 10.1109/TIE.2023.3277094. (Early Access)
- [4] Soumya Ranjan Meher, Rajeev Kumar Singh, "Single-Phase Wireless Electric Vehicle Charger Using EF₂ Inverter", *International Transactions on Electrical Energy Systems*, vol. 2023, Article ID 6038394, 14 pages, 2023, doi: 10.1155/2023/6038394.

IEEE Conferences:

- [1] S. R. Meher and R. K. Singh, "A Two-stage Standard On-Board Electric Vehicle Charger with Minimum Switch Count," 2021 IEEE Energy Conversion Congress and Exposition (ECCE), Vancouver, BC, Canada, 2021, pp. 1681-1686, doi: 10.1109/ECCE47101.2021.9595146.
- [2] S. R. Meher, D. Gautam and R. Singh, "Wireless Power Transfer using EF₂ Inverter with Fixed Coil Capacitor and Air core Inductor," 2020 IEEE Applied Power Electronics Conference and Exposition (APEC), New Orleans, LA, USA, 2020, pp. 3588-3593, doi: 10.1109/APEC39645.2020.9124566.
- [3] S. R. Meher, Y. Choudhary and R. K. Singh, "An Optimal Wireless Battery Charger for Electric Vehicle using EF₂ Inverter at 6.78 MHz," 2022 IEEE Energy Conversion Congress and Exposition (ECCE), Detroit, MI, USA, 2022, pp. 1-5, doi: 10.1109/ECCE50734.2022.9947370.

- [4] S. R. Meher, R. K. Singh and V. N. Lal, "An Adaptable Feedback Clamped Optimal Battery Charger Using Fourth-Order Minimum-Phase Bidirectional DC-DC Converter," *IECON 2022 – 48th Annual Conference of the IEEE Industrial Electronics Society*, Brussels, Belgium, 2022, pp. 1-6, doi: 10.1109/IECON49645.2022.9968469.