

## PUBLICATIONS LIST

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### Part I: Nonlinear Parameter Identification & Control

- **Z. Liu**, X. Fan, W. Kong, L. Cao and R. Qu, “Improved Small-Signal Injection-Based Online Multi-parameter Identification Method for IPM Machines Considering Cross-Coupling Magnetic Saturation”. *IEEE Transactions on Power Electronics*, vol. 37, no. 12, pp. 14362-14374, Dec. 2022
- **Z. Liu**, W. Kong, X. Fan and R. Qu, “Online Multi-Parameter Observation of IPM Machine with Reconstructed Nonlinear Small-Signal Model Based on Dual EKF”. *IEEE Transactions on Industrial Electronics*, vol. 71, no. 2, pp. 1234-1245, Feb. 2024

### Part II: AC Machine Position Sensorless Control

- **Z. Liu**, B. Shen, W. Kong, X. Fan, K. Peng and R. Qu, “Analytical Approach for Position Observation Error Correction in IPMSM Sensorless Drives Using Online Multi-Parameter Estimation”. *IEEE Transactions on Power Electronics*, vol. 39, no. 8, pp. 9230-9243, Aug. 2024
- **Z. Liu**, W. Kong, X. Fan, F. Wang and R. Qu, “Online Multiparameter Estimation with Position Error Correction for Unified Synchronous Machine Sensorless Drives”. *IEEE Energy Conversion Congress and Exposition (ECCE)*, 2023, pp. 4882-4888
- **Z. Liu**, W. Kong, H. Liu, K. Peng, F. Wang, X. Fan, R. Qu. “Online Multiparameter Estimation with Position Error Correction for Unified Synchronous Machine Sensorless Drives.” *IEEE Transactions on Industry Applications*, vol. 61, no. 1, pp. 345-358, Jan.-Feb. 2025

### Part III: Real-time Thermal Modelling and Temperature Estimation

- **Z. Liu**, W. Kong, X. Fan, Z. Li, P. Kai, R. Qu, “Hybrid Thermal Modeling with LPTN-Informed Neural Network for Multi-Node Temperature Estimation in PMSM” *IEEE Transactions on Power Electronics*, vol. 39, no. 9, pp. 10897-10909, Sept. 2024
- **Z. Liu**, W. Kong, X. Fan, Z. Li, P. Kai, R. Qu, “Hybrid Thermal Modeling with LPTN-Informed Neural Network for Multi-Node Temperature Estimation in PMSM” *IEEE Dataport*, doi: <https://dx.doi.org/10.21227/sbwe-k671>
- **Z. Liu**, W. Kong, X. Fan, H. Guo, K. Peng, R. Qu, “Electro-Thermal Fusion in Physics-Informed Neural ODEs for Noninvasive Stator and Rotor Temperature Estimation of PMSM” (In progress)

### Others

- **Z. Liu**, W. Yu, H. Guo, W. Kong, C. Gan and R. Qu, “A Capacitor Voltage Sorting Algorithm for Modular Multilevel Converters (MMC) under Low-Frequency Carrier Modulation”. *International Conference on Electrical Machines and Systems (ICEMS)*, Harbin, China, 2019, pp. 1-4
- L. Li, X. Fan, **Z. Liu**, D. Li, T. Zou, X. Chen, R. Qu, “A Computationally Efficient Semi-Analytical Method for Circulating Current Loss of High-Speed Permanent Magnet Machines”. *IEEE Transactions on Energy Conversion*, vol. 39, no. 1, pp. 675-687, March 2024
- J. Liu, R. Qu, **Z. Liu**, W. Kong, D. Li, “Torque Ripple Mitigation Strategy for Bearingless Flux-Reversal Slice Motors Considering Rotor Eccentricity”. *IEEE Transactions on Transportation Electrification*, 2025, doi: 10.1109/TTE.2025.3550169.
- Z. Li, W. Kong, **Z. Liu**, B. Shen and R. Qu, “A Novel Adaptive Nonlinear Reaching Law for DC-link Voltage Control of DC-biased Vernier Reluctance Generator”. *IEEE Transactions on Transportation Electrification*, vol. 11, no. 1, pp. 922-933, Feb. 2025
- Y. Shao, W. Kong, **Z. Liu**, H. Guo, L. Wang, D. Li and R. Qu, “Active Zero-Sequence Voltage Injection Modulation Strategy for Capacitor Current Suppression in Dual Sector PMSM Systems”. *Journal of*

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- H. Guo, Y. Shao, W. Kong, **Z. Liu**, L. Li and R. Qu, “A multi-Frequency Equivalent Harmonic Modeling Method for Digital Discontinuous PWM”. *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 13, no. 1, pp. 418-431, Feb. 2025
- H. Liu, X. Wu, W. Kong, G. Long, H. Lou, **Z. Liu**, D. Li, “Dead-Time Compensation Based on Current Phase Estimation for High-Frequency Cascaded Transformer Multilevel Inverter” *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 12, no. 4, pp. 3540-3551, Aug. 2024
- H. Liu, W. Kong, G. Long, H. Lou, W. Long, D. Li, **Z. Liu**, M. Dong, Z. Zhao, Y. Wen. “Modeling and Optimization Algorithm of Coupling Noise for SiC MOSFET Active Gate Driver Considering Common-Source Inductance,” *IEEE Transactions on Power Electronics* vol. 39, no. 11, pp. 14271-14283, Nov. 2024
- H. Zheng, J. Hao, M. Zha, **Z. Liu** and W. Kong, “Sensorless Control and Inductance Parameter Identification of PMSM Based on Two-Orientation High-Frequency Square Wave Injection”. *IEEE 6th International Electrical and Energy Conference (CIEEC)*, Hefei, China, 2023, pp. 585-590
- L. Cao, X. Fan, D. Li, W. Kong, R. Qu and **Z. Liu**, “Improved LPTN-Based Online Temperature Prediction of Permanent Magnet Machines by Global Parameter Identification”. *IEEE Transactions on Industrial Electronics*, vol. 70, no. 9, pp. 8830-8841, Sept. 2023
- R. Wang, X. Fan, D. Li, R. Qu, **Z. Liu** and L. Li, “Comparison of Heat Transfer Characteristics of the Hollow-Shaft Oil Cooling System for High-Speed Permanent Magnet Synchronous Machines”. *IEEE Transactions on Industry Applications*, vol. 58, no. 5, pp. 6081-6092, Sept.-Oct. 2022
- S. Yang, W. Kong, Z. Li, **Z. Liu**, “Parameter Identification for DC-biased Vernier Reluctance Motor Considering Harmonic Current and Inverter Nonlinearity”. *International Conference on Smart Energy and Electrical Engineering (SEEE)*, Wuhan, China, 2022