

REFERENCES

- [1] M. Naidu, T. W. Nehl, S. Gopalakrishnan, and L. Wurth, "Keeping Cool While Saving Space and Money: A Semi-Integrated, Sensorless PM Brushless Drive for a 42-V Automotive HVAC Compressor," *IEEE Ind. Appl. Magazine*, vol. 11, no. 4, pp. 20-28, July/Aug. 2005.
- [2] A. Lelkes and M. Bufe, "BLDC Motor for Fan Application with Automatically Optimized Commutation Angle," in 2004 *Proc. IEEE PESC Conf.*, pp. 2277-2281.
- [3] J. Goetz, W. Hu, and J. Milliken, "Sensorless Digital Motor Controller for High Reliability Applications," in 2006 *Proc. IEEE APEC Conf.*, pp. 1645-1650.
- [4] S. Rajagopalan, J. M. Aller, J. A. Restrepo, T. G. Habetler, and R. G. Harley, "Analytical-Wavelet-Ridge-Based Detection of Dynamic Eccentricity in Brushless Direct Current (BLDC) Motors Functioning Under Dynamic Operating Conditions," *IEEE Trans. Ind. Electron.*, vol. 54, no. 3, pp. 1410-1419, June 2007.
- [5] C. Cavallaro, A. O. D. Tommaso, R. Miceli, A. Raciti, G. R. Galluzzo, and M. Trapanese, "Efficiency Enhancement of Permanent-Magnet Synchronous Motor Drives by Online Loss Minimization Approaches," *IEEE Trans. Ind. Electron.*, vol. 52, no. 4, pp. 1153-1160, Aug. 2005.
- [6] C. H. Chen and M. Y. Cheng, "Implementation of a Highly Reliable Hybrid Electric Scooter Drive," *IEEE Trans. Ind. Electron.*, vol. 54, no. 5, pp. 2462-2473, Oct. 2007.
- [7] Z. Y. Pan and F. L. Luo, "Steady State Reference Current Determination Technique for Brushless DC Motor Drive System," *IEE Proc.-Electr. Power Appl.*, vol. 152, no. 6, November 2005, pp. 1585-1594.
- [8] J. K. Seok, K. T. Kim, and D. C. Lee, "Automatic Mode Switching of P/PI Speed Control for Industry Servo Drives Using Online Spectrum Analysis of Torque

- Command,” *IEEE Trans. Ind. Electron.*, vol. 54, no. 5, pp. 2642-2647, Oct. 2007.
- [9] Y. Zhang, C. M. Akujuobi, W. H. Ali, C. L. Tolliver and L. S. Shieh, “Load Disturbance Resistance Speed Controller Design for PMSM,” *IEEE Trans. Ind. Electron.*, vol. 53, no. 4, pp. 1198-1207, Aug. 2006.
- [10] A. W. Moore, “Phase-Locked Loops for Motor-Speed Control,” *IEEE Spectrum*, pp. 61-67, April 1973.
- [11] J. Tal, “Speed Control by Phase-Locked Servo Systems,” *IEEE Trans. Ind. Electronics and Control. Instrumentation*, vol. IECI-24, no.1, pp.118-125, February 1977.
- [12] P. C. Sen and M. L. Macdonald, “Stability Analysis of Induction Motor Drives Using Phase-Locked Loop Control System,” *IEEE Trans. Ind. Electronics and Control Instrumentation*, vol. IECI-27, no.3, pp.147-155, august 1980.
- [13] A. Takano, “Quick-Response Torque-Controlled Induction Motor Drives Using Phase-Locked Loop Speed Control with Disturbance Compensation,” *IEEE Trans. Ind. Electronics*, vol. 43, no. 6, pp.640-646, December 1996.
- [14] G. C. Hsieh and J. C. Hung, “Phase-Locked Loop Techniques-A Survey,” *IEEE Trans. Ind. Electron.*, vol. 43, no. 6, pp. 609-615, Dec. 1996.
- [15] E. S. N. Prasad, G. K. Dubey and S. S. Prabhu, “High-Performance DC Motor Drive with Phase-Locked Loop Regulation,” *IEEE Trans. Ind. Appl.*, vol. IA-21, no.1, pp.192-201, January/February 1985.
- [16] R. E. Best, *Phase-Locked Loop Design, Simulation & Applications*. The McGraw-Hall International, Taipei, 2003, pp.109-114.
- [17] S. Pavljasevic and F. Dawson, “Synchronization to Disturbed Utility-Network Signals Using a Multirate Phase-Locked Loop,” *IEEE Trans. Ind. Electron.*, vol. 53, no. 5, pp. 1410-1417, Oct. 2006.
- [18] L. G. B. Rolim, D. R. da Costa Jr., and M. Aredes, “Analysis and Software

- Implementation of a Robust Synchronizing PLL Circuit Based on the pq Theory,” *IEEE Trans. Ind. Electron.*, vol. 53, no. 6, pp. 1919-1926, Dec. 2006.
- [19] R. Krishnan, “A Novel Single Switch Per Phase Converter Topology for Four-Quadrant PM Brushless DC Motor Drive,” *IEEE Trans. Ind. Appl.*, vol. 33, no. 5, pp. 1154-1161, Sept./Oct. 1997.
- [20] R. Krishnan, *Electric Motor Drives Modeling, Analysis, and Control*. NJ: Prentice-Hall, ISBN 0-13-093067-9, 2001.
- [21] J. Rodriguez, J. Pontt, C. A. Silva, P. Correa, P. Lezana, P. Cortes, and U. Ammann, “Predictive Current Control of a Voltage Source Inverter,” *IEEE Trans. Ind. Electron.*, vol. 54, no. 1, pp. 495-503, Feb. 2007.
- [22] International Rectifier, “IR2175(S) linear circuit sensing IC,” Data sheet, NO.PD60208-A.
- [23] Y. Zhang, R. Zane, A. Prodic, R. Erickson, and D. Maksimovic, “Online Calibration of MOSFET On-State Resistance for Precise Current Sensing,” *IEEE Power Electronic Letters*, vol. 2, pp. 100-103, Sep. 2004.
- [24] Becerra, T. M. Jahns, and M. Ehsani, “Four Quadrant Sensorless Brushless ECM Drive,” in *Proc. IEEE Appl. Power Electron. Conf. and Expo.*, 1991, pp. 202–209.
- [25] T. M. Jahns, R. C. Becerra, and M. Ehsani, “Integrated Current Regulation for a Brushless ECM Drive,” *IEEE Trans. Power Electron.*, vol. 6, no. 1, pp. 118–126, Jan. 1991.
- [26] R. C. Becerra, M. Ehsani, and T. M. Jahns, “Four Quadrant Brushless ECM Drive with Integrated Current Regulation,” *IEEE Trans. Ind. Appl.*, vol. 28, no. 4, pp. 833-841, July/Aug. 1992.
- [27] S. R. MacMinn, W. J. Rzesos, P. M. Szczesny, and T. M. Jahns, “Application of Sensor Integration Techniques to Switched Reluctance Motor Drives,” *IEEE Trans. Ind. Appl.*,

vol. 28, no. 6, pp. 1339–1344, Nov./Dec. 1992.

- [28] S. Chakrabarti, T. M. Jahns, and R. D. Lorenz, “A Current Reconstruction Algorithm for Three-Phase Inverters Using Integrated Ccurrent Sensor as Low Side Switches,” in *Proc. IEEE Ind. Appl. Soc. Annu. Meeting*, Salt Lake City, UT, Oct. 2003, pp. 925–932.
- [29] Y. Xiao, J. Cao, J. D. Chen, and K. Spring, “Current Sensing Trench Power MOSFET for Automotive Applications,” *IEEE Applied Power Electronics Conf. Exposition*, vol. 2, March 2005, pp. 766–770.
- [30] S. Chakrabarti, T. M. Jahns, and R. D. Lorenz, “Current Regulation for Surface Permanent-Magnet Synchronous Motor Drives Using Integrated Current Sensors in Low-Side Switches,” *IEEE Trans. Ind. Appl.*, vol. 42, no. 4, pp. 1080–1091, July/Aug. 2006.
- [31] S. Chakrabarti, T. M. Jahns, and R. D. Lorenz, “A Current Control Technique for Regulation for Induction Machine Drives Using Integrated Pilot Current Sensors in the Low-Side Switches,” *IEEE Trans. Power Electron.*, vol. 22, no. 1, pp. 272–281, Jan. 2007.
- [32] Becerra, T. M. Jahns, and M. Ehsani, “Four Quadrant Ssensorless Brushless ECM Drive,” in *Proc. IEEE Appl. Power Electron. Conf. and Expo.*, 1991, pp. 202–209.
- [33] T. M. Jahns, R. C. Becerra, and M. Ehsani, “Integrated Current Regulation for a Brushless ECM Drive,” *IEEE Trans. Power Electron.*, vol. 6, no. 1, pp. 118–126, Jan. 1991.
- [34] R. C. Becerra, M. Ehsani, and T. M. Jahns, “Four Quadrant Brushless ECM Drive with Integrated Current Regulation,” *IEEE Trans. Ind. Appl.*, vol. 28, no. 4, pp. 833–841, July/Aug. 1992.
- [35] W. C. Lee, D. S. Hyun, and T. K. Lee, “Novel Control Method for Three Phase PWM

- Rectifiers Using a Single Current Sensor,” *IEEE Trans. Power Electron.*, vol. 15, no. 5, pp. 861–870, Sep. 2000.
- [36] T. S. Kim, S. C. Ahn, and D. S. Hyun, “A New Current Control Algorithm for Torque Ripple Reduction of BLDC Motors,” *IECOM’01: the 27th annual conference of the IEEE Industrial Electronics Society*, 2001, pp.1521-1526.
- [37] T. M. Wolbank and P. Macheiner, “An Improved Observer-Based Current Controller for Inverter Fed AC Machines with Single DC-Link Current Measurement,” in *Proc. PESC, Cairns, Australia*, Jun. 23–27, 2002, pp. 1003–1008.
- [38] J. H. Song and Ick Choy, “Commutation Torque Ripple Reduction in Brushless DC Motor Drives Using a Single DC Current Sensor,” *IEEE Trans. on Power Electronics*, vol. 19, no. 2, pp. 312-319, March 2004.
- [39] M. Bertoluzzo, G. Buja, and R. Menis, “Direct Torque Control of an Induction Motor Using a Single Current Sensor,” *IEEE Trans. Ind. Electron.*, vol. 53, no. 3, pp. 778-784, June 2006.
- [40] H. Kim and T. M. Jahns, “Phase Current Reconstruction for AC Motor Drives Using a DC Link Single Current Sensor and Measurement Voltage Vectors,” *IEEE Trans. Power Electron.*, vol. 21, no. 5, pp. 1413–1419, Sep. 2006.
- [41] H. Kim and T. M. Jahns, “Current Control for AC Motor Drives Using a Single DC-Link Current Sensor and Measurement Voltage Vectors,” *IEEE Trans. Ind. Appl.*, vol. 42, no. 6, pp. 1539-1547, Nov./Dec. 2006.
- [42] R. Dubey, P. Agarwal, and M. K. Vasantha, “Programmable Logic Devices for Motion Control-A Review,” *IEEE Trans. Ind. Electron.*, vol. 54, no. 1, pp. 559-566, Feb. 2007.
- [43] E. Monmasson and M. N. Cirstea, “FPGA Design Methodology for Industrial Control Systems – A Review,” *IEEE Trans. Ind. Electron.*, vol. 54, no. 4, pp. 1824-1842, Aug. 2007.

- [44] M. W. Naouar, E. Monmasson, A. A. Naassani, I. S. Belkhodja, and N. Patin, "FPGA-Based Current Controllers for AC Machine Drives – A Review," *IEEE Trans. Ind. Electron.*, vol. 54, no. 4, pp. 1907-1925, Aug. 2007.
- [45] A. Zaki and S. Ibrahim, "Modeling and Analysis of PM Brushed DC Motor Using FEM," *European Conference on Power Electr. and Appl.*, Sept. 2005, pp. 1-6.
- [46] P. Pillay and R. Krishnan, "Modeling of Permanent Magnet Motor Drives," *IEEE Trans. Ind. Electron.*, vol. 35, no. 4, pp. 537-541, November 1988.
- [47] P. Pillay and R. Krishnan, "Modeling, Simulation, and Analysis of Permanent-Magnet Motor Drives, Part II: The Brushless DC Motor Drive," *IEEE Trans. Ind. Appl.*, vol. 25, no. 2, pp. 274-279, March/Aprl 1989.
- [48] I. L. Chien and P. S. Fruehauf, "Consider IMC Tuning to Improve Controller Performance," *Chem. Eng. Progress*, vol. 86, no. 10, pp. 33-41, Oct., 1990.
- [49] Qing-Guo Wang, Qiang Bi, and Yong Zhang, "Partial Internal Model Control," *IEEE Trans. Ind. Electron.*, vol. 48, no. 5, pp. 976-982, Oct. 2001.
- [50] L. Harnefors and Hans-Peter Nee, "Model-Based Current Control of AC Machines Using the Internal Model Control Method," *IEEE Trans. Ind. Electron.*, vol. 34, no. 1, pp. 133-141, Jan./Feb. 1998.
- [51] J. Golten and A. Verwer, *Control System Design and Simulation*. New York: McGraw-Hill, 1992, pp.356-359.