World Academy of Science, Engineering and Technology
International Journal of Electrical and Computer Engineering
Vol:10, No:02, 2016

Robust Speed Sensorless Control to Estimated Error for PMa-SynRM

Authors : Kyoung-Jin Joo, In-Gun Kim, Hyun-Seok Hong, Dong-Woo Kang, Ju Lee

Abstract : Recently, the permanent magnet-assisted synchronous reluctance motor (PMa-SynRM) that can be substituted for the induction motor has been studying because of the needs of the development of the premium high efficiency motor for the minimum energy performance standard (MEPS). PMa-SynRM is required to the speed and position information for motor speed and torque controls. However, to apply the sensors has many problems that are sensor mounting space shortage and additional cost, etc. Therefore, in this paper, speed-sensorless control based on model reference adaptive system (MRAS) is introduced to eliminate the sensor. The sensorless method is constructed in a reference model as standard and an adaptive model as the state observer. The proposed algorithm is verified by the simulation.

Keywords : PMa-SynRM, sensorless control, robust estimation, MRAS method
Conference Title : ICEEE 2016 : International Conference on Electrical and Electronics Engineering
Conference Location : Melbourne, Australia
Conference Dates : February 04-05, 2016