



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس التوثيق الإلكتروني والميكروفيلم

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Ain Shams University
Faculty Of Engineering
Electrical Power & Machines Department

Improving Dynamic Performance of a Five-Phase Induction Motors Drive Based on Speed Sensor-Less

A thesis submitted for partial fulfillment of the requirements for the M.Sc. degree in

Electrical Engineering

(Electrical Power & Machines Department)

Submitted by:

Mohamed Adel Hussien

Faculty of Engineering, Ain shams university, 2012

Bachelor of Science in Electrical Engineering

(Electrical Power and Machines Department)

Supervised By

Prof. Dr. Hussien Faried Soliman

Dr. El-Hussein Abbas Mahmoud

Cairo - (2020)



AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING
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Statement

This thesis is submitted to Ain Shams University in partial fulfillment of the requirements of Master of Science degree in Electrical Engineering.

The included work in this thesis has been carried out by the author at the department of electrical power and machines, Ain Shams University. No part of this thesis has been submitted for a degree or a qualification at any other university or institution.

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Mohamed Adel Hussien

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Publications

- 1- Mohamed A. Hussien ., Elhussien A. Mahmoud . " Improved Speed Sensorless Dynamic Performance of a Five-Phase Induction Motors Drive Based Wiener Filter"
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Thesis Summary

Recently, multiphase motor drives are fostered to exchange three-phase drives in high power applications. Among the various advantages of multiphase induction motor drives, operation and self-starting under some phases open is considered the most vital feature of such drives. With some phases open, optimal current control is used to produce disturbance-free operation with some objective functions and with some operational constraints. Therefore, studying the electrical drives behaviour throughout a different operational condition is that the key to confirm system fidelity.

This study introduces a sensorless operation by estimating motor speed exploitation wiener filter estimator. The projected estimator uses a first order model for the five phase induction motor this reduces the computational process time. The Discrete Fourier Transform(DFT) and also the Inverse Discrete Fourier Transform (IDFT) are used to convert from time domain to frequency domain and back words. The system under study compromises of a five phase induction motor (IM), a hysteresis current controller (HCC), an Indirect Field Oriented Control(IFOC), a PI speed controller and also the projected speed estimator connected with model parameter calculator. completely different operational conditions are distributed to analyze the estimator fidelity. The simulation study is performed exploitation MATLAB / SIMULINK platform. The simulations results show a promising performance of the projected speed estimator.

Keywords:

Sensorless speed estimation, Five-phase Induction Motor, wiener filter.

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