

بسم الله الرحمن الرحيم



HOSSAM MAGHRABY



شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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B/0909



**Tanta University,
Faculty of Engineering,
Computers and Automatic
Control Engineering Department**

**MEASURING, ACQUIRING AND RECORDING
OF THE NEUTRON FLUX INTENSITY AT THE
CAIRO FOURIER DIFFRACTOMETER**

Thesis

**Submitted As Partial Fulfillment for the Degree of M.Sc. in Electrical
Engineering
(Computers and Automatic Control Engineering)**

To

**The Department of Computers and Automatic Control Engineering
Faculty of Engineering
University of Tanta**

By

Magdy Ibrahim Khalil El-Sharkawy

Supervisors

**Prof.Dr. Mohammed Talat Faheem
Vice Dean for Community Service
and Environment Development
Faculty of Engineering
Tanta University**

**Dr. Al-Sayed Abd-El Hameed Sallam
Faculty of Engineering
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَبِهِ نَسْتَعِينُ

Acknowledgments

The author would like to express his deepest gratitude to Prof. Dr. **Mohammed Talat Faheem**, Vice Dean for Community Service and Environment Development, Faculty of Engineering, Tanta University for his kind supervision, deep interest and helpful advises.

The author is also grateful to Dr. **Al-Sayed Abd El-Hameed Sallam**, Computers and Automatic Control Engineering, Faculty of Engineering, Tanta University, for his keen interest, stimulating discussions, and continuous help during the progress of this work.

I would like to express my deepest gratitude to my Prof. Dr. **Refaat M.A. Maayouf**, Head of Condensed Matter Research Group, Reactor Physics Dept, NRC, Atomic Energy Authority, for suggesting the research plan and his great support through the course of.

The author is also grateful to Prof. Dr. **Mahmoud Fahmy**, Head of Computers and Automatic Control Engineering Dept., Faculty of Engineering, Tanta University, for his keen interest, stimulating discussions and fruitful advises.

The keen interest and kind support of Prof. Dr. **Fekria SayedAhmed**, Head of Reactor Physics Dept., NRC, Atomic Energy Authority is deeply acknowledged with thanks.

Abstract

The present work deals with a simple and accurate system for measuring, acquiring and recording of the neutron flux intensity at the Cairo Fourier diffractometer facility (CFDF). Accordingly, the suitable detector, followed by preamplifier, amplifier and discriminator is connected to a data acquisition system designed specially for this purpose. This system applies a PC interface board and software handler based on the periodic interrupt technique to periodically acquire the number of digital pulses that arrive from one or more neutron counters during a certain time period and stores these data, along with the relative time-channel, in the PC's memory. The instant variations of the neutron flux can be displayed for monitoring purpose. The whole information from the detectors can be preserved and made available for software analysis and statistics; such as computing the average and integral flux during any time period. The main features of the system are simplicity and low cost, so it can be widely applied.

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