



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



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بعض الوثائق الأصلية تالفة



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بالرسالة صفحات
لم ترد بالأصل

Menoufia University
Faculty of Science
Physics Department

**"CHARGED PARTICLES REGISTRATION IN SOLID STATE
DETECTORS (SSDs) AND ITS APPLICATIONS"**

Thesis
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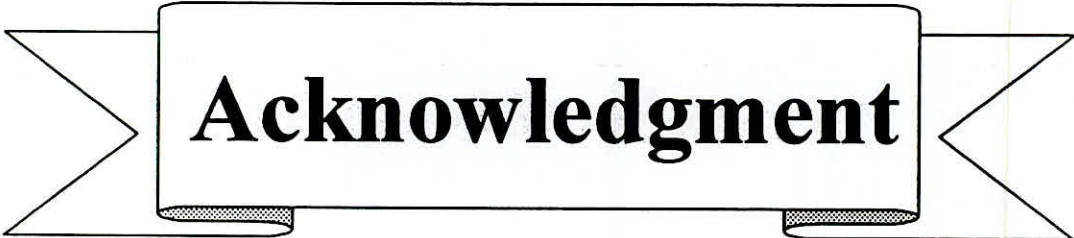
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**To my parent, brothers,
wife and lovely daughter Zeinb**



Acknowledgment

Acknowledgment

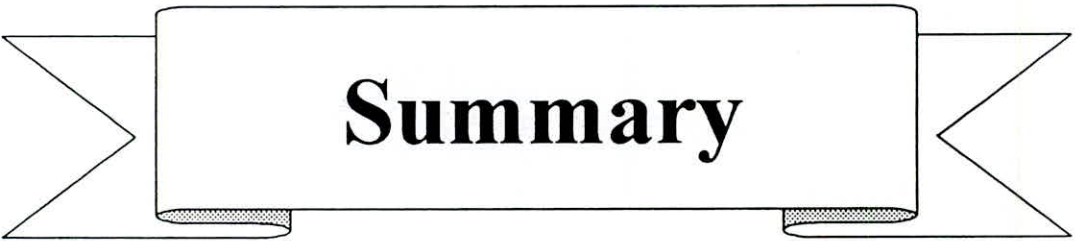
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Summary

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Charged particle registration in SSDs specially SSNTDs is an interesting and important phenomenon. Many applications of SSNTDs were taken, viz., uranium and thorium determination in natural samples, rocks, plants, water and soils.

The aim of this work is to study the different factors affecting the response function of LR-115 type 2 detectors, to improve the energy registration domain and to discover an empirical relationship to fit the V_B data covering a wide range of concentrations and temperatures. A spark counter unit was also designed and constructed in this work and was successfully used to improve track shape parameters which consequently led to an increase in accuracy in measuring track response and efficiency. Also, determination of both uranium and thorium contents in natural granite rocks was carried out without the need of standard sources. Measurements of radon gas emanating from the studied samples were also included using a specially constructed chamber.

This thesis contains five chapters. The first is an introduction in which reviews previous studies on the effect of radiation on rocks and minerals.

The second chapter deals with the theoretical aspects of track formation where various models and mechanism of track formation are considered. Also, the relation between alpha particle energies and ranges are investigated. Efficiencies of internal and external sources were also discussed at the end of this chapter.

The third chapter presents the experimental procedure and various techniques used in this work. Including a constructed spark counter circuit and radon measuring chamber.

Chapter four discusses the different factors affecting the response function of LR-115 type 2 detectors. Fitted equation that relates the bulk etch rate to both etching solution, normalities and temperatures was deduced. Also, the excess etch rate ratio as a function of both restricted energy loss (REL) and residual range (R) was described in an empirical formula.

The application part of this thesis is in chapter five in which both uranium and thorium contents in natural granite rocks were determined. Specific radon gas concentrations in pCi / l were also calculated for some of studied samples.

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