بسم الله الرحمن الرحيم

شبكة المعلومـــــات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

﴿ قـــسـم ﴾

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون آية 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 %

بعض الوثائق الأصلية تالفة

بالرسالة صفحات

لم ترد بالأصـــل

EXPERIMENTAL STUDY USING GAS FILLED DETECTOR IN NUCLEAR MEASUREMENT AND ITS APPLICATION

THESIS
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Master of Science (Physics)
By

HANAN AWAD SAYED ALY
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Supervisors

Prof. Dr. Hamed M.Abu -Zeid
Prof. of Nuclear Physics and Former Head of Neutron and Reactor, Physics Department Atomic Energy Authority

Prof. Dr.Hosnia M.Abu -Zeid
Prof. of Nuclear Physics and Head of Physics Department, Faculty of Women for Art, Science and Education ,Ain Shams University

Dr. Bothina R. EL-Ezaby
Teacher in Physics Department Faculty of Women for Art, Science and Education ,Ain Shams University

Dr. Afaf A.E. Nada
Teacher in Physics Department Faculty of Women for Art, Science and Education ,Ain Shams University

To
Physics Department
Faculty of Women for Art, Science and Education
,Ain Shams University

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CONTENTS

CHAPTER 4

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ABSTRACT

Investigations are made on the wire-plane streamer corona detector (SCD) characteristics in relation to their dependence on the anode applied voltages V_a as well as on anode-wire diameter ϕ and interelectrode separation h. Relation between the two parameters ϕ and h is represented. It has been shown that ϕ & h have a decisive effect on pure streamer region length (V_s - V_o) and on corona current characteristics.

To differentiate between streamer pulses and spark pulses a diode clipping circuit is used. Hence it has been possible to separate counting response of streamer pulses from that pulses of spark region i.e. both streamer and spark zones have been separated and examined.

In connection with the present studies, the free charge electric field as well as capacitance per unit length and charge per unit length are calculated, and the results have been applied to practical configuration.

The extrapolated number- distance range of α-particles has been measured for different α - particle sources, namely, ^{210}Po, ^{226}Ra, ^{241}Am & ^{239}Pu, as well as for different ϕ & h. The wire-plane SCD has shown a very good reliability to determine the range of α - particles.

Pulse height spectra from wire-plane SCD, due to passage of α-particles from different α-sources are determined, at controlled anode voltages for different values of ϕ, h and different α-source heights h_s from anode-wire. These spectra of pulse amplitudes are carefully studied and with the help of previous authors results on corona current discharge explained. Incidentally this has given the possibility of suggesting an avalanche mechanism for streamers creation in wire-plane configuration due to passage of α- particles.

INTRODUCTION