Lihat sebelah

PRELIMINARY STUDY OF HALL EFFECT OF CHITOSAN THIN FILM WITH SALICYLIC ACID

By
Hamidah Binti Ibrahim

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the requirement for the award of the degree of
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DEPARMENT OF PHYSICAL SCIENCES
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PENGAKUAN DAN PENGESAHAN LAPORAN PITA I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:...Preliminary.....
Study of Hall Effect of Chitosan Thin Film with Salicylic Acid.....
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oleh...Hamidah Ibrahim.....,no. matrik: ...uk 12207.....
telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Fizik sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah ...SMSG...Fizik Elektronik dan Instrumentasi....., Fakulti Sains dan Teknologi, UMT.

Disahkan oleh:

.....
Penyelia Utama
Nama PROF. MADYA DR. SALLEH HARUN
Cop Rasmi: Pensyarah
Jabatan Sains Fizik
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 5/5/2008

.....
Penyelia Bersama (jika ada)
Nama: DR. MOHD IKMAR NIZAM BIN MOHAMAD ISA
Cop Rasmi Pensyarah
Jabatan Sains Fizik
Fakulti Sains dan Teknologi
Universiti Malaysia Terengganu
21030 Kuala Terengganu

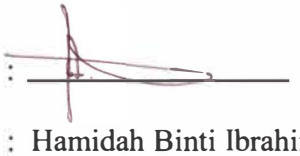
Tarikh: 4/5/08

.....
Ketua Jabatan Sains Fizik
Nama: PROF. DR. SENIN BIN HASSAN
Cop Rasmi: Head
Department of Physical Sciences
Faculty of Science and Technology
University Malaysia Terengganu
21030 Kuala Terengganu

Tarikh: 5/5/08

DECLARATION

I hereby declare that this thesis entitled Preliminary of Study Hall Effect of Chitosan Thin Film with Salicylic Acid is the result of my own research except as cited in the references.

Signature : 

Name : Hamidah Binti Ibrahim

Matrix No : UK 12207

Date : 10 April 2008

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ABSTRACT

Today, chitosan have become the attraction to among the researchers as important source to produce the voltage. The main purpose of this project is to study the preliminary of Hall Effect for the thin film system. The thin film consists of salicylic acid was prepared. The value of concentration of salicylic acid was varied from 0 wt.% to 50 wt.%. Another sample containing chitosan and varied salt concentration plus 1 molar of $MnCl_2$ also have been prepared. This experiment involved the instrument like Electrochemical Impedance Spectroscopy (EIS), Scanning Electron Microscope (SEM), Four Point Probes (FPP) and Hall Measurement System. The value of resistivity, magnetic field and conductivity was determined in order to assure the Hall Effect value can be calculated. From the EIS measurement, the value of conductivity in range 9.24×10^{-4} to 1.82×10^{-6} $(\Omega m)^{-1}$. From the FPP measurement that was obtained in the range of 6.97×10^{-3} to 5.79×10^{-6}. From SEM measurement thickness was obtained in the range 32.35μm to 42.40μm. By applying the value of thickness from SEM measurement, the value of estimation of hall voltage can be calculated.

ABSTRAK

Kajian tentang chitosan akhir-akhir ini banyak menarik minat para pengkaji sebagai sumber yang penting bagi menghasilkan voltan. Tujuan utama kajian ini adalah sebagai kajian awal terhadap kesan Hall dalam sistem filem nipis. Filem nipis yang mengandungi asid salisilik telah disediakan dengan peratus kepekatan asid salisilik adalah tetap iaitu di antara 0 wt. % to 50 wt. %. Bagi sebelas sampel yang kedua, peratus kepekatan asid salisilik adalah tetap tetapi sampel ini telah ditambah dengan 1 molar mangan (II) klorida. Untuk kajian ini, kami menggunakan "Electrochemical Impedance Spectroscopy" (EIS), Mikroskop eleckron pengimbasan (SEM), Penguja Empat Titik (FPP) dan "Hall Measurement system". Daripada ujian-ujian menggunakan instrumen di atas, kita akan memperoleh nilai-nilai bagi kerintangan, medan magnet, konduktiviti, ketebalan filem nipis dan juga dapat membuat anggaran terhadap nilai voltan hall yang bakal diperoleh. Daripada ujian EIS yang dilakukan, nilai konduktiviti yang di peroleh adalah diantara $9.24 \times 10^{-4}(\Omega m)^{-1}$ hingga $1.82 \times 10^{-6}(\Omega m)^{-1}$. untuk ujian konduktiviti menggunakan Penguja Empat Titik pula, nilai konduktiviti yang di peroleh adalah dintara julat $6.97 \times 10^{-3}(\Omega m)^{-1}$ hingga $5.79 \times 10^{-6}(\Omega m)^{-1}$. Daripada ujian ketebalan yang dilakukan dengan menggunakan SEM pula, nilai ketebalan yang diperolehi adalah diantara 32.35μm hingga 42.40μm. Dengan mengaplikasikan nilai ketebalan sampel yang telah di peroleh, nilai bagi voltan hall akan dapat dikira dengan menggunakan persamaan voltan hall.