

الآية

قال تعالى :

(اقْرَأْ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ (1) خَلَقَ الْإِنْسَانَ مِنْ
عَلَقٍ (2) اقْرَأْ وَرَبُّكَ الْأَكْرَمُ (3) الَّذِي عَلَّمَ بِالْقَلَمِ (4)
عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ (5))

صدق الله العظيم

سورة العلق ، الآية (1-5)

Dedication

This research work is dedicated to:

My mother

My father

And

All those

Whom I love

Manahil

Acknowledgment

I would like to express my deep gratitude to my supervisor Dr. Kamal Mahir Sulieman for his guidance, without his help this work would be difficult , If not impossible to accomplish .Deep thanks to Dr. Awad Musa .

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Firstly and finally, thanks and praise be to Allah , the almighty.

الخلاصه

فى هذا البحث تم تناول اكسيد الخارصين ((ZnO) لاهميته كماده شبه موصله واستخدامها فى كثير من التطبيقات وتناولت الدراسه تاثير درجه الحراره على الخصائص الكهربيه (Resistance – Conductivity) ودراسة التركيب بواسطة الاشعه السينيه .

لإيجاد المقاومة والموصلية، تم دراسة ثلاثة عينات من اكسيد الخارصين التجاري ، والхарصين المؤكسد إلى أكسيد الخارصين في درجة حرارة 950 °C وكبريتيد الخارصين المؤكسد الى أكسيد الخارصين في درجة حرارة 550 °C ، حيث وجد أن العينات الثلاثة لها خواص شبيهة بخواص أشباه الموصلات، وأيضاً وجد أن المقاومة تقل بزيادة درجة الحرارة.

سُخنت العينات الثلاثة لأكسيد الخارصين ((ZnO في درجات حرارة مختلفة

وتمت دراستها بواسطة الأشعة السينية (X-Ray).

استنتج من الدراسة أن درجة الحرارة لها تأثير وان أكسيد الخارصين التجاري

ZnO هو الأفضل وربما يعزى ذلك الى درجة نقائه ونقصان في كمية

الاكسجين لبقية المواد.

Abstract

This study aims to investigate the importance of ZnO as a semiconductor material, and its usages in various applications also the effect of temperature on electrical properties (Resistance-Conductivity), and the structure by X-Ray diffraction.

To find the Resistance and conductivity of ZnO, three sample of commercial ZnO, Zn oxidized at 950 °C and ZnS oxidized at 550 °C have been investigated, and it founded that all samples have a similar properties of semiconductors, and also founded that the Resistance decrease by the temperature while the conductivity increases.

The three samples of ZnO have been annealed at different temperatures and characterized using X-Ray.

The most important and the best finding achieved through the study is commercial ZnO powder has the best structure and electrical properties that the other and this maybe for the high purity of the powder and oxygen vacancy in the oxidized powders.

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