

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## الآية

قال تعالى :

{ وَقَالَ رَبِّ أَوْزِنِّي أَنْ أَشْكُرَ بِنِعْمَتِكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَىٰ وَالِدَيَّ وَأَنْ أَعْمَلَ  
عَالِمًا تَرْضَاهُ وَأَدْخِلْنِي بِرَحْمَتِكَ فِي عِبَادِكَ الصَّالِحِينَ } سورة النمل 19

صدق الله العظيم

# *DEDICATION*

*I guide this research:*

*\*\*To the spring that never stops giving, to my mother who weaves my happiness with strings from her merciful heart... to my grandmother.*

*\*\*To whom he strives to bless comfort and welfare and never stints what he owns to push me in the success way who taught me to promote life stairs wisely and patiently, to my dearest father.*

*\*\*To whose love flows in my veins and my heart always remembers them, to my sisters.*

*\*\*To them tasted of the most beautiful moments of my friends.*

*Towl*

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## **Abstracts:**

In this study is the Cadmium Sulfide (*CdS*) was prepared and its structure and optical properties has been studied.

The (*CdS*) compound was prepared by using a chemical method, its optical properties was studied by UV/VIS absorption spectrum ,and the use of models (Tauc), the energy gap was **3.1783** eV, absorption coefficient of (*CdS*) has been calculated which was in the range of (2.4 to 3.3) electron volts.

The structural properties are studied using x-rays diffraction. The results show that the type of crystal structure of (*CdS*) was hexagonal [wutzeile]. The distance between the crystalline levels(d-spacing), lattice constant and the crystallite size was calculated using Debye –Scherrer’s formula. Finally dislocation density was calculated.

## المخلص:

فى هذا الدراسة الحاليه تم تحضير مركب CdS ودراسة خواصها التركيبية والضوئية حيث تم تحضير مركب كبريتيد الكاديوم باستخدام الطريقة الكيميائية .

وتمت دراسة خصائصه البصرية من خلال طيف الامتصاص UV/VI وباستخدام نموذج (Tauc) تمت حساب معامل الامتصاص وقيمة فجوة الطاقة التى كانت ضمن (2.4-3.3) الكترن فولت .

وتمت استخدام جهاز حيود الاشعة السنية لدراسة الخواص التركيبية وبين النتائج ان التركيب البلورى لكبريت الكاديوم من النوع السداسى [ wutzeile ] , تم حساب المسافة بين المستويات البلورية (d) و (FWHM) و ثابت الشبيكة و معدل الحجم الحبيبي باستخدام صيغنة (Scherrer formula) و كثافة الانخلاعات.

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