

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

**قال تعالى:**

هُوَ الَّذِي خَلَقَ لَكُمْ مَا فِي الْأَرْضِ ﴿١﴾  
جَمِيعًا ثُمَّ اسْتَوَىٰ إِلَى السَّمَاءِ فَسَوَّاهُنَّ  
سَبْعَ سَمَاوَاتٍ ﴿٢﴾ وَهُوَ بِكُلِّ شَيْءٍ عَلِيمٌ

**صدق الله العظيم**  
الآية (29) من سورة  
البقرة

## **Dedication**

*To my mother .....My first teacher*

*To my father ..... My hero*

*To my brothers and sisters*

*To my friends*

*To all those unbelievable persons*

*I am trying to say thank you*

## **Acknowledgements**

I would like to Thank and praise worthy Allah who taught me all the knowledge. I Would like also to express my gratitude to my supervisor prof .Mubarak Derar for his supervision and valuable help and fruitful suggestion.This work was completed under his careful guidance for his revision and provision with references

## **Abstract:**

In this work attempts was made to relate temperature change to the change of spectra of some gases which are Butane(  $C_4H_{10}$  ) , Carbon dioxide ( $CO_2$ ), Carbon Monoxide (CO), Oxygen ( $O_2$ ), Nitrogen ( $N_2$ ), Neon (Ne), [Fluorine](#)(  $F_2$ ) and [chlorine](#) ( $CL_2$ ). The spectra of this gas were displayed by USB2000 spectrometer, when their temperature changes from (300 to 337)  $^{\circ}K$  considerable change in the spectral intensity was observed. These changes can be explained theoretically by using non-equilibrium statistical distribution by using plasma equation, beside the laws of quantum mechanics and Semi Classical Harmonic Oscillator Model.

## المستخلص

في هذا البحث أجريت محاولة لربط التغير في درجة الحرارة إلى التغير في الطيف لبعض الغازات، وهي البيوتان ( $C_4H_{10}$ )، ثاني أكسيد الكربون ( $CO_2$ )، النيتروجين ( $N_2$ )، الأكسجين ( $O_2$ )، أول أكسيد الكربون ( $CO$ )، الكلور ( $Cl_2$ )، والكلور ( $F_2$ )، الفلور ( $Ne$ )، النيون تم تسخين هذه الغازات في (300-337 k درجة حرارة في حدود 300-337) ، تم عرض أطيف من هذه ، النتيجة أظهرت تغيير ملحوظ في USB2000 الغازات عن طريق مطياف شدة الطيف . هذه التغييرات شرحت من الناحية النظرية على أساس عدم الإترن الإحصائي باستخدام معادلة البلازما وقوانين ميكانيكا الكم التي تربط شدة الإشعاع بالإلكترونات والذرات المثارة و نموذج المتذبذب التوافقي شبه التقليدي.

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