

بسم الله الرحمن الرحيم

الآيات

قال تعالى :

شهد الله أنه لا إله إلا هو والملائكة وأولوا العلم قائمًا بالقسط لا

(إله إلا هو العزيز الحكيم)

آل عمران - 18

Dedication

I dedicate this thesis

To whom my words are not
enough to express my deep
indebtedness, thanks and
gratefulness.

To my parents the sustainable
source of tenderness, kindness
support and specific.

And my sisters

And my fiancée

And my friends

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Praise Allah and thanks to Allah before and after to facilitate this work, and thanks to all thanks to my parents for their support and their support to me, also thanks to my teacher Dr. Mubarak Dirar Abdallah for this support and help and patience with me, and my teacher, and friends and all who helped me.

Abstract

Theory of waveguide shows that absorption depends on the dimensions of waveguide .This theory utilized to see how one can construct laser system that have efficiency dependent on their dimensions. Nano rectangular waveguide can produce laser under certain conditions. It can produce high frequency electromagnetic wave if the dimensions of the waveguide are become very small to be of the order of the wave length of the incident electromagnetic wave. At low frequency wave can be produced if the amplification factor is proportional to the wave number, frequency, and conductivity of material.

المستلخص

تبين نظرية الدليل الموجي أن الإمتصاص يعتمد على ابعاد الدليل الموجي و تستخدم هذه النظرية في إنشاء نظام ليزري متناهي الصغر ذات كفاءة تعتمد على الأبعاد. كما أنه يمكن إنتاج الليزر بواسطة الدليل الموجي على هيئة متوازي مستويات متناهي الصغر تحت ظروف معينة.

حيث يمكن إنتاج موجات كهرومغناطيسية عالية التردد إذا كان ابعاد الدليل الموجي بقدر طول الموجة الساقطة

اما الموجات ذات التردد المنخفض يمكن إنتاجها اذا كان معامل التضخيم متناسب طرديا مع العدد الموجي والتتردد وموصلية المادة.

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