

الأية

بسم الله الرحمن الرحيم

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(سورة الكهف الاية 96).

Acknowledgement

Before of all, the praise and thanks be to Allah whom to be ascribed all perfection and majesty. The thanks after Allah must be to my virtuous teacher professor **Mubark Dirar Abd- Alla** who supervised this research and guide me in patience until the results of this research are obtained classmates for any support that. I wish to express my thanks to Sudan university of science and technology and department of physics. My humble thanks to would like everyone help and encourage me during this work. I also to thanks my friends and make me complete this research.

Dedication

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 the soul of my father God bless him in haven.

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

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

To those who taught us letters of gold and words of jewel of the utmost and sweetest sentences in the whole knowledge. Who reworded to us their knowledge simply and from their thoughts made a lighthouse success path guides us through the knowledge and, To our honored teachers and professors.

Abstract

In this work the magnetic behavior of nano copper material is studied, namely the magnetic susceptibility. Three sample of copper nano particles having three nano sizes were examined .the examination is concerned with studying the magnetic properties of them .this is done by inserting powder samples in a glass tube and then inducing magnetic field inside them by using electric coil in which magnetic flux density of each sample was measured .it was found that the diamagnetic permeability decreases as nano size is increased this may be attributed to the fact that increasing nano size decreased the number of tiny nano coils which decreases induced magnetic flux density which in turn decreases magnetic permeability.

مستخلص البحث

في هذا البحث تمت دراسة السلوك المغناطيسي لمادة النحاس النانوي وبالتحديد القابلية المغناطيسية .

تم إختبار ثلاث عينات من مواد النحاس النانوي ذات ثلاث أحجام نانوية .

ويهتم هذا الاختبار بدراسة على الخواص المغناطيسية لهذه المواد. وتم ذلك بادخال بكرة العينات في أنبوب زجاجي وتم توليد مجال مغناطيسي داخل هذه العينات باستخدام ملف كهربائي والتي تم قياس الفيض المغناطيسي لكل واحد منها. ووجد أن القابلية الدايمغناطيسية تقل بزيادة الحجم النانوي وهذا قد يعزى لحقيقة أن زيادة الحجم النانوي يقلل عدد الملفات النانوية الصغيرة والتي تقلل من كثافة الفيض المغناطيسي والتي بدورها تقلل من القابلية المغناطيسية.

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