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Robotic coating by using the doped nanoparticles with the help of copper and zinc nanoparticles

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ABSTRACT

Nowadays nano particles play a major role in doing the research work and our intention is to develop the Robots by using the copper and it can develop major intentions to give a more potential to develop major things. By doing this work we can develop the Robots in major intentions to give more life in the extension of signaling and memory by using the coating of a material. The major intention is to develop an analysis of a Robot. nano particles solved and improved their role in various applications. These nano particles are successfully prepared by coprecipitation method. These are mostly used to characterize the microstructure and morphology at various instances.

Keywords: *Robotics, Copper and Zinc nanoparticles doping.*

1. INTRODUCTION

Semiconductors are widely used materials to prepare solar cells moderate band gap of these materials make them suitable to absorb sunlight and produce electricity band gap of semi-conductors can be tuned to absorb UV, visible and IR radiation of sunlight.

In solar cells, these are equalized to four generations, in the first generation solar cells elemental semiconductors such as si and age are used but in that generation, we have mostly used si because these are mostly available. These are used because of having a less bandgap of 1ev of which it provides a less output voltage. These solar cells are made up of a bulk material for which makes them an expensive and rigid for establishment and maintenance.

In second generation solar cells thin films of semiconductors are used for which these makes that the solar cells are less in weight and expensive and these are flexible to handle. For which these having a band gap of 1.5ev to 2.5ev compare to before generation semiconductors, these semiconductors provide higher efficiencies, in this generation of semiconductors, Cds, Cdse which are commonly used.

In the third generation solar cells some of the special and advanced types of solar cells are developed which are Dye-sensitized solar cells (DSSC) and Quantum dot sensitized solar cells(QDSC) are developed which are using wide band gap semiconductors and quantum dots respectively.

Tio2 is mostly used for DSSC material where as ZnO and CuO are also used for DSSC materials as an oxide. Because of these materials are commonly known as a wide band gap semiconductors because of them have a band gap of 3ev.

But in the fourth generation, solar cells also known as a polymer solar cells are in pre-search research. Presently now we are in this generation and we are implementing this polymer.

These semiconductors are divided into n-type and p-type semiconductors but in this, we are mostly using the n-type semiconductors in n-type semiconductors si is a group 14 element with four valance electrons. In the crystal of si, each atom forms four covalent bonds with its neighbors. When doped with group 15 elements like phosphorus or arsenic, the element doped occupies the some of the lattice sites in silicon.

Four out of five valance electrons are used to form four single covalent bonds with neighboring si atoms. The extra unbounded electron is delocalized electrons of the doped element increase conductivity of si. Semiconductor doped with an electron-rich impurity is called n-type semiconductor because the increase in the conductivity is due to the negatively charged electron.

Now we come to p-type semiconductors Boron, aluminum or gallium, the element of group 13 has only three valance electrons. When such an element is doped with silicon, four bonds are formed. The place where the fourth valance electron is missing is called electron vacancy or electron hole. An electron of the neighbouring atom can come and fill the electron vacancy, but in doing so it would leave an electron-hole in its original position. It appears as if the electron vacancy has moved in the direction opposite to that of the electron that filled it, under the influence of electric field. Semiconductors doped with electron deficient impurity is called p-type semiconductor because the increase in conductivity is due to the positively charged electron hole.

N-type and p-type semiconductors are used for making electronic components. Diode pnp or npn semiconductors are transistors, used in the detection and amplification of audio signals. A p-n function type of semiconductor is a solar cell, used for the conversion of radiant energy into electrical energy.

2. PROCEDURE

At first take a 20ml of h20 in a burette and with the help of magnetic stirrer mix that in zinc oxide by stirring and after that solution check the ph value so that the ph value is above to 7 and less than to 10 so that the solution is prepared and then take that solution in beaker and put that solution in orbital shaker so that the solution will not be evaporated and we have to know whether the material is fermented or not and then take that solution and mix that solution in 0.2 molar of cuo with the help of magnetic stirrer and then check the ph value make sure that the ph value is less than 7 else we have stirrer to develop the ph and then take the solution and put that solution in centrifuge with normal parameters so that the solgel solution is developed to solid form and then take that solution and put the solution in owen so that the precipitation material is concentrated and finally the material is in the solid form.

3. FIGURES

Procedure Solution Prepared By Magnetic Stirring

UV-VIS Spectrometer

Centrifuge

orbital shaker.mp4

4. TABLES

$H_2O_{(ml)}$	$CUO_{(gm)}$	$Soln_{(cuo)}$
20	10	20.2

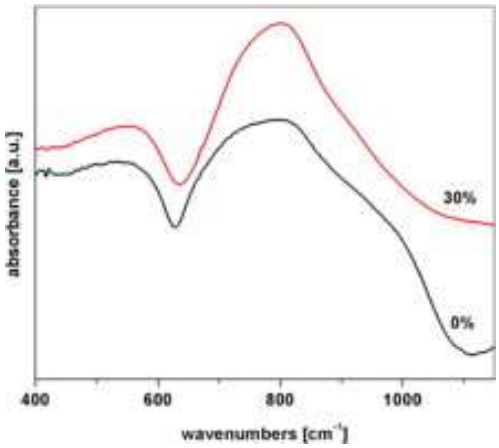
$CUO_{(soln)}$	$ZNO_{(gm)}$	$ZNO_{(CUO)(SOLN)}$
20.2	10	20.45

Aerogel designation	Molar ratio ($Zn(NO_3)_2{\cdot}6H_2O$: $CuCl_2{\cdot}2H_2O$)	Mass of $Zn(NO_3)_2{\cdot}6H_2O$ (g)	Mass of $CuCl_2{\cdot}2H_2O$(g)	Volume of epoxide (mL)
$Zn\text{-}Cu_{90:10}$	90:10	0.892	0.052	1.6
$Zn\text{-}Cu_{80:20}$	80:20	0.802	0.012	1.6
$Zn\text{-}Cu_{50:50}$	50:50	0.403	0.215	1.6

5. RESULTS

ZnO Nano Powder

Cuo ZnO doped nano particle



Wave length and the absorbance of ZnO and Cu particles in the red color indicates the ZnO and black color indicates the cuo nano particles.

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