Dedication

To everyone loves me and pray for me
   In this world
   To my beloved
      Mother
      Father
   To my kids
      &
      Friends
And before all I dedicate this work to my husband
   And every person who helped me to finish it.
Acknowledgement

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Abstract

In this research, polymer solar cells were fabricated to determine their efficiency and energy gaps. The polymer was deposited on the ITO glass with concentration of ITO, and another layer of dye concentration was deposited with concentration of ITO, 3 mg in 1 mL of ethanol. Making the electrode is made from silver “anode” and ITO glass represents the “cathode”. The area of all cells equal 0.26 cm². Absorbance was measured dye for (Rohdamin B, Coumarin 500, Lawsonia, Blue 8GX, Roselle, DDTTC and Ero-Chrom black T) and polymer (MEH-PPV) with UV-Ultra violet device were found. Spectra the energy gaps and levels were determined. The relation between current and voltage was displayed and the fill factor and efficiency of cells. Based on transmittance and photoluminescence, the composition and the morphology of the samples were investigated using the X-ray diffraction analysis and field emission scanning electron microscopy.

The energy levels and energy gaps for Semiconductors, donors, and acceptors in polymer solar cells were found. Polymer doped with Coumarin, Lawsonia, Rohdamin B, Blue 8GX, Roselle, DDTTC and Ero-Chrom black, by means of the values of absorption and transmission spectra, beside values of absorption coefficient-intensity relations of them. The results obtained for shows that the absorption spectra which relates intensity and emitted wave lengths for them gives the values of donor and acceptor levels which are 5.07, 4.41, 5.08, 5.12, 4.57, 4.88, 5.54, respectively 2.43, 2.25, 2.45, 2.84, 2.32, 2.41, 2.33 respectively. The transmission spectra for Coumarin, Lawsonia, Rohdamin B, Blue 8GX, Roselle, DDTTC and Ero-Chrom black is closely related to their energy gaps which were found to be these values are in conformity with the results obtained by the absorption coefficient - intensity relations which
predicts the energy gaps, and which are in agreement with the standard values. The efficiencies of these cells were found to be strongly dependent on the width of energy gaps and energy levels locations.
ملخص البحث

في هذا البحث صنعت عدد 7 خلية شمسية بوليمرية وحسبت كفاءتها وفجوة الطاقة. تم بناء هذه الخلايا عن طريق بوليمر MEH-PPV بتوكل 10 مل جرام في 0.5 مول من الكولونوم على شريحة ITO ورسمت طبقة أخرى من الأصباغ الأثنتين (Rohdamin B, Coumarin 500, Lawsonia, Blue 8GX, Roselle, DDTTC و Ero-Chrom black T) بتوكلي 3 مل جرام من الصبغة مذابة في 1 ملي ليتر من الأيثانول. حيث يمثل القطب السالب للخلية وتمت إضافة القضية لتتمثل القطب الموجب للخلية الشمسية. مساحة الخلية الواحدة 0.26 سم² حسب الامتثالية للخلايا بواسطة جهاز UV البينسجية لحساب فجوة الطاقة. من علاقة الجهد والتبشير حسب معامل المدى والكفاءة للخلايا. ولدراسة التركيب البنوى للخلايا استخدم جهاز كيوز الأشعة المبكرة والتصوير بالمجهر الإلكتروني.

امتدت الطاقة وفجوة الطاقة لأنهاء الموصلات (المحشات والمستقبلات) للخلايا البوليمرية حسبت Rohdamin B, Coumarin 500, Lawsonia, Blue 8GX, Roselle, DDTTC و Ero-Chrom black T.

القياس التالية (5.54, 4.88, 5.12, 4.57, 5.08, 4.41, 5.07) للموانا مكايل (2.84, 2.45, 2.25, 2.32, 2.41, 2.32) للمستقبلات.

طيف الامتثال للاصباغ مقابل فجوة الطاقة هي متواقة مع معامير الامتثال للخلايا الشمسية.

ما أعطي هذه الخلايا كفاءة جيدة، وجعل استخدام هذه الخلايا في مستوى واسع في نطاق الطيف.