CHARACTERISTICS OF HETEROSTRUCTURE FORMED BY MDMO-PPV SPIN-COATED ON n-GaAs

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n type GaAs (100)/MDMO-PPV (poly(2-methoxy-5-(3’,7’dimethyloctyloxy)-1,4-phenylenevinylene)) thin film heterojunction diode was fabricated by depositing MDMO-PPV thin film using spin-coating process on n-GaAs. The junction properties were evaluated by measuring $I-V$ characteristics. $I-V$ characteristics exhibited well defined rectifying behavior with a barrier height of 0.75 eV and ideality factor of 2.17. The optical band gap of the MDMO-PPV film using optical absorption method was found to be 2.21 eV and the fundamental absorption edge in the film is formed by the direct allowed transitions. At higher electric fields, the conductivity mechanism of the film shows a trap charge limited current mechanism. The obtained results indicate that the electronic parameters of the heterojunction diode are affected by properties of MDMO-PPV organic film.