

A review of the modification of PCDTBT structure used in the polymeric solar cells

ABSTRACT

This paper is a review about the modification of poly[N-9'-heptadecanyl2,7-carbazole-alt-5,5-(4',7'-di-2-thienyl-2',1',3'-benzothiadiazole)] (PCDTBT) structure over the last few years. This manuscript presents the various carbazole, benzothiadiazole, and π -bridge modified units in PCDTBT. These modifications include fluorination, π -bridge alteration, ladderization of donor unit, substitution of selenium, and architecture of donor-acceptor arrangement along the polymeric backbone, such as D- π A1- π -A2- π and et cetera. All the resulting PCDTBT derivatives were studied for the purpose to enhance the photovoltaic performance of the resulting polymeric solar cell. Although the power conversion efficiency of these modified PCDTBTs has yet surpassed 10%, PCDTBT-based copolymers still remain as one of the significant polymers in the research of the polymeric solar cell.