COMBINATION OF DONOR CHARACTERS
IN A DONOR-ACCEPTOR-DONOR (DAD) TYPE POLYMER
CONTAINING BENZOTHIAZOLE AS THE ACCEPTOR UNIT

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A benzothiadiazole bearing donor–acceptor–donor (D–A–D) type monomer (M3) was synthesized using the combination of 3, 4-ethylenedioxythiophene (EDOT) and thiophene donor units to understand the effect of donor strength on the optoelectronic and electrochemical properties. The resulting monomer was polymerized electrochemically (P3) and compared with its symmetrical thiophene (P1) and EDOT (P2) bearing homologues whether there exists a combination of the electrochemical and optical characteristics. Also, copolymer studies were performed with symmetrical thiophene (M1) and EDOT (M2) containing monomers in order to compare the results with P3. Cyclic voltammetry (CV) and spectroelectrochemistry results revealed that P3 is a low band gap polymer (1.18 eV) having both p-and n-type property which is superior to the copolymers synthesized using M1 and M2 [1].

Figure 1. Normalized neutral absorbance spectra of each copolymer film prepared from different compositions, P1, P2 and P3.

Reference