Abstract Submitted
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TBD[1] LEMI DEJA, MULUGETA BEKELE, member — The research work that I intend to present mainly deals with the the transport properties of charge carriers in π-conjugated polymeric materials using a Monte Carlo simulation technique. The transport model is based on uncorrelated on-site disorder energy which is extracted from a Gaussian distribution function of material specific width. The basic transport process is described by the Miller-Abrahams type of hopping rate and a Monte Carlo approach is used to calculate the charge carrier distribution in the conducing channel as well as the mobilities of the carriers as a function of source-drain electric field, temperature and charge carrier concentration. The Coulomb interaction potential between charge carriers has been incorporated, and the mobility of a conjugated polymer used as electroactive material in a field-effect transistor device has been calculated.

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