Title: Charge Transport Properties in Disordered Organic Semiconductor as a Function of Charge Density: Monte Carlo Simulation.

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We have done Kinetic Monte Carlo (KMC) simulations to investigate the effect of charge carrier density on the electrical conductivity and carrier mobility in disordered organic semiconductors using a lattice model. The density of state (DOS) of the system are considered to be Gaussian and exponential. Our simulations reveal that the mobility of the charge carrier increases with charge carrier density for both DOSs. In contrast, the mobility of charge carriers decreases as the disorder increases. In addition the shape of the DOS has a significance effect on the charge transport properties as a function of density which are clearly seen. On the other hand, for the same distribution width and at low carrier density, the change occurred on the conductivity and mobility for a Gaussian DOS is more pronounced than that for the exponential DOS.

Biography

Seyfan Kelil has completed his Msc at the age of 25 years from Addis Abeba University and Currently he is PhD student at Addis Abeba University. He is the lecture of Jigjiga University departement of physics