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Crossover from recombination limited charge transport to mobility restricted charge transport in organic LED[1] VLADIMIR PRIGODIN, ARTHUR EPSTEIN, Physics Department, Ohio State Unversity, Columbus, OH 43210-1117 — The model of bipolar charge transport in organic semiconductors where the current solely is provided by e-h recombination (LEDs structures) is studied [1]. We have shown that depending on recombination rate there are two basic regimes of charge transport. For recombination rate above the critical value the current is space charge limited and the current as a function of recombination rate decreases with increasing the recombination rate. At recombination rate below the critical value the recombination takes place over the whole sample volume of sample and as a result the current is only contact limited. As a function of recombination rate the current increases with increasing recombination rate. Critical value for recombination rate depends on the thickness of sample, applied voltage and on both the hole and electron mobilities. [1] J.D. Bergeson *et al.*, Phys. Rev. Lett. **100**, 067201 (2008).

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