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Effect of mismatched base pair on electrical current through homogeneous DNA molecule NERANJAN EDIRISINGHE, Georgia State University, VADYM APALKOV, Georgia State Univetrsity — The fact that GA mispair causes only small geometrical changes, makes GA mispair recognition a formidable task; and , on the other hand, local, though relatively significant changes on the transfer integral, makes electrical characteristic a favorable tool. We have investigated the possibility of utilizing electrical properties, through I-V characteristic, in recognizing the presence of GA mispair in homogeneous DNA strand. Ab-into calculations were performed to find transfer integrals and onsite energies. Then within the tight binding model the I-V characteristics of DNA molecule with mispair were calculated numerically. The changes in electrical current due to mispair are visible for DNA molecule with upto 90 base pairs.

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