

Report 0

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Following the work of [1] “refer to the source for the mentioned equations”, the the Current-Voltage characteristic of a single diode model was implemented with Python 3.6. First, voltage is computed explicitly using equation (2) using appropriate current values as observed from figures 2 and 3 for the blue and grey solar cells data respectively. The following figures are obtained:

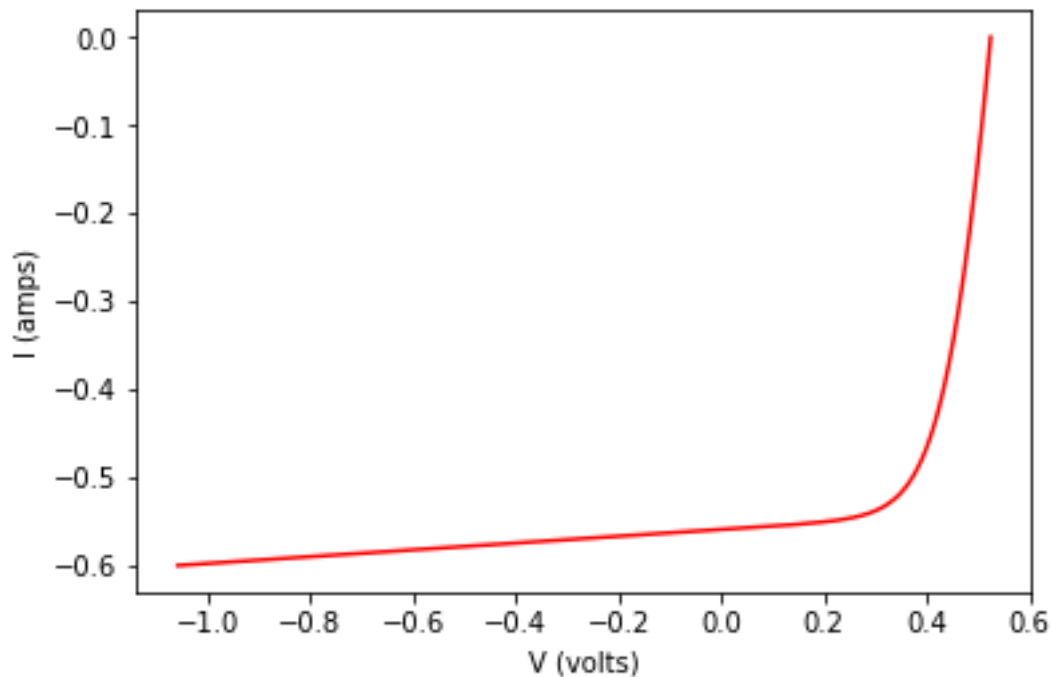
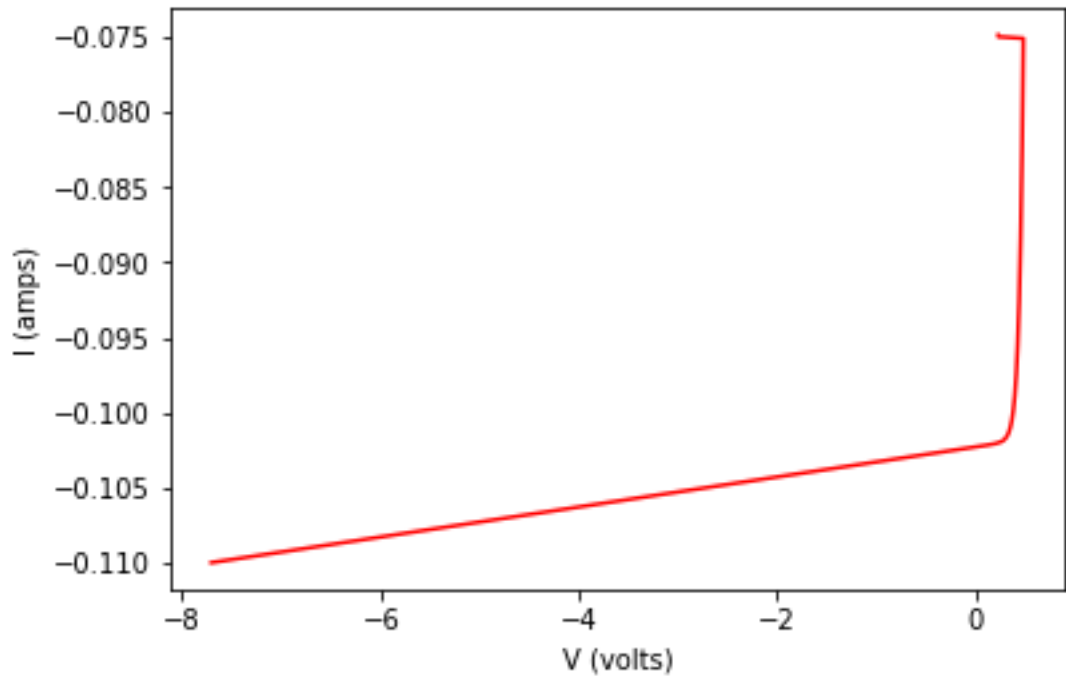


Figure II. Gray solar cell I-V characteristic (using equation 2).

The expected overflow of for the blue solar cell is clear to observe as shown in figure I which is not an issue in the case of the grey solar cell in figure II. Next, equation 3 and 4 were used as transformation to obtain equation 6 that is computable with less overflow chances. The following figures shows the obtained results for the same blue and grey solar cells conditions.

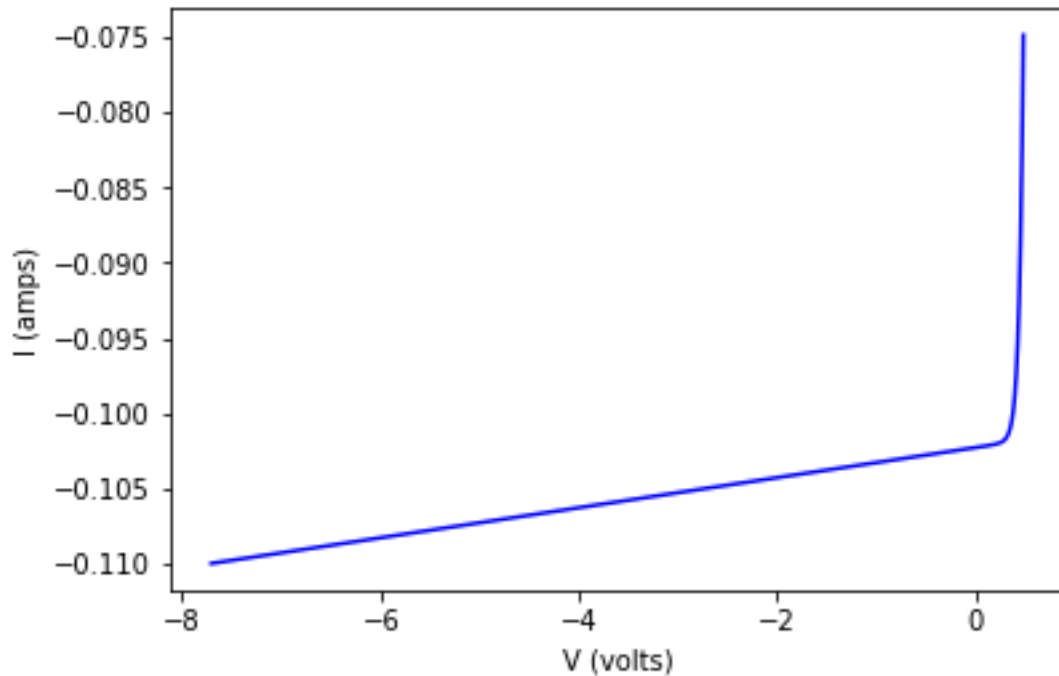


Figure III. Blue solar cell I-V characteristic (using equation 6).

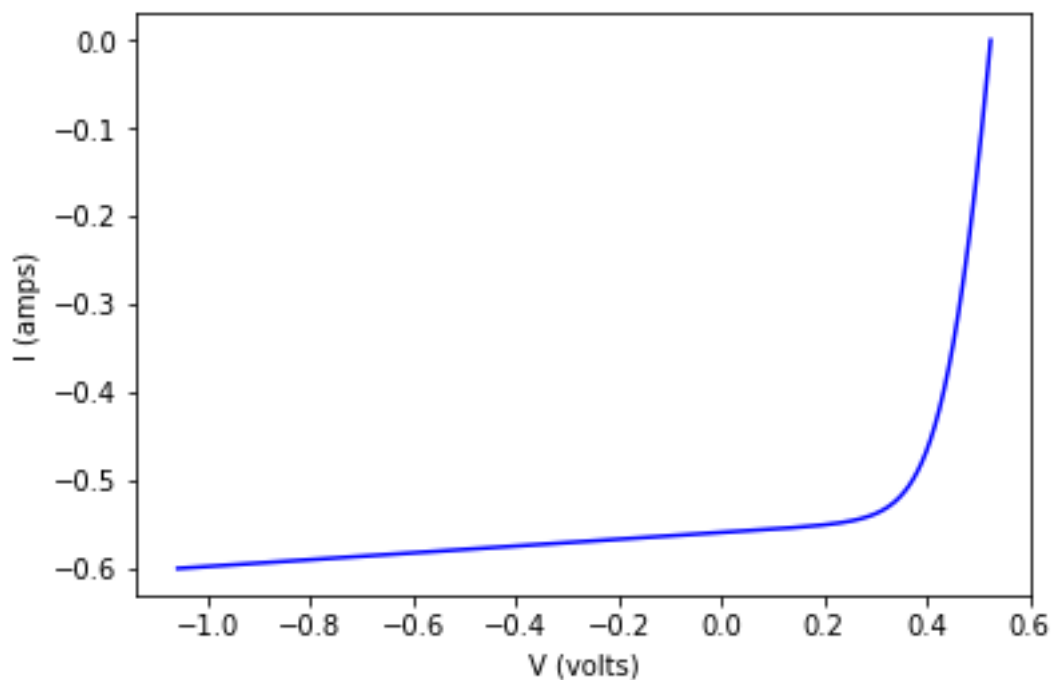


Figure IV. Gray solar cell I-V characteristic (using equation 6).

[1]Roperts, Valluri, "On Calculating The Current-Voltage Characteristic Of Multi-Diode Models For Organic Solar Cells".