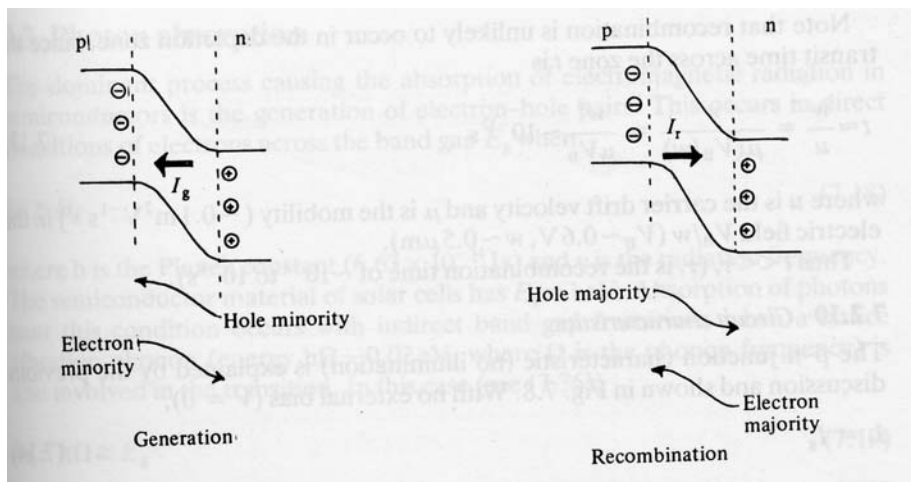


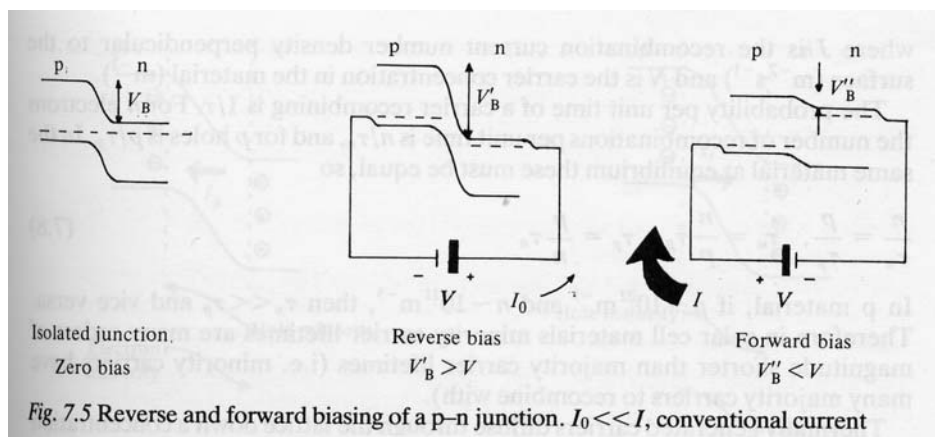
Problem 2.

Describe how the solarcell (or photovoltaic cell) becomes an electrical current source driven by a flux of solar radiation. Both pn junction, biasing and solar absorption should be included in the description.

Pn material connected introduce a flow of charge across the boader. A voltage V_B is established, $V_B = E_g - \phi_n - \phi_p$

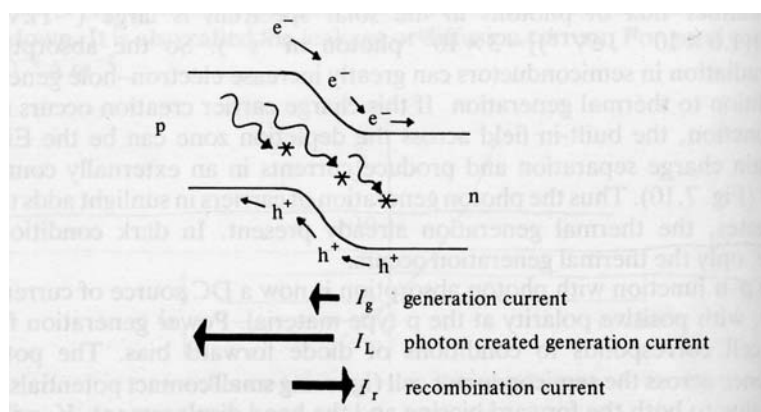


By forward biasing of a pn junction a current can be generated in across the junction.



With a reverse bias a saturation current is established.

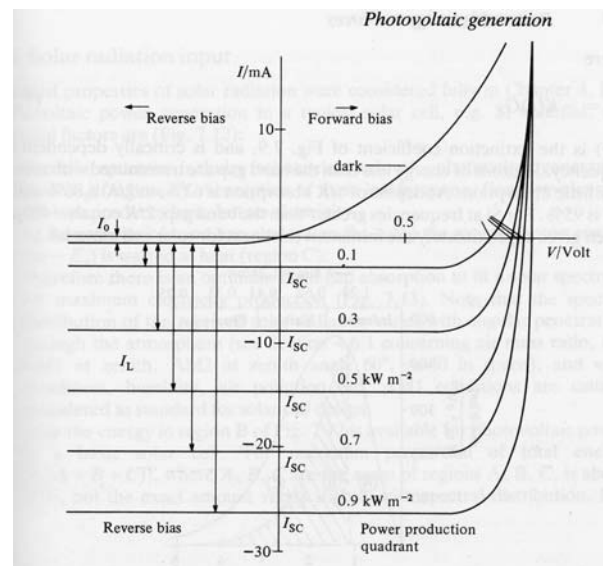
For a solar cell, absorption of photons at introduce electron/hole



cell, absorption the junction additional pairs, thus a

photoninduced current is created.

In the forward biased direction a power can be gained from the external circuit.



By including the solar cell into a storage battery, which can be loaded as the solar cell is illuminated. A current source as been established. Higher voltage can be obtained by connecting several solar cells into a serial circuit.

b)

