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Research

Currently, there are very few solar cell designs known to be viable for energy collection. The focus of this research is to use mathematical computation techniques to produce a variety of novel and viable solar cell designs. Genetic algorithms will be implemented to combine existing solar cell designs to produce more effective designs for both electron excitation and electron collection.

In the algorithm written, solar cells are represented by 4-dimensional matrices in MATLAB. The first three dimensions delineate the dimensions of the proposed solar cells, with each cubic unit representing a 1 nm2 “voxel” of the device.