

Research course—physical modeling of solar cells

Title: Physical modeling of solar cells-I

Prerequisite: Advanced fundamentals of semiconductor devices EE6201 or instructor's consent

Credit hour and course delivery: 3 credit hour research course, 2½ hour weekly meeting, minimum 10 hours of directed unsupervised activity per week.

Course Synopsis:

We will start from basic 1D solar cell models built during one of our previous grad courses on solar cells and develop these models using advanced 2D simulators. Their simulation results will be compared and contrasted to learn more about 2D models and later on these models will be evolved to take into account several other physical phenomena which were ignored in the basic 1D models. The out outcome of the course is intended to be a research paper targeted for a local conference or journal.

Resources:

MINIMOS-NT or SILVACO –2D physical simulator

AMPS1D—1D solar simulator