

Crystalline Silicon Solar Cells

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This tutorial will describe the fundamentals of crystalline silicon solar cells. Beginning with a brief review of semiconductors, the presentation will cover the absorption of light, recombination, carrier transport, and p- n junctions in crystalline silicon. It will then describe solar cell operation for ideal solar cells, including a definition of solar cell parameters, resistive effects, and temperature effects. Following a survey of silicon solar cell designs, the presentation will conclude with a description of processes for manufacturing silicon wafers and solar cell production.