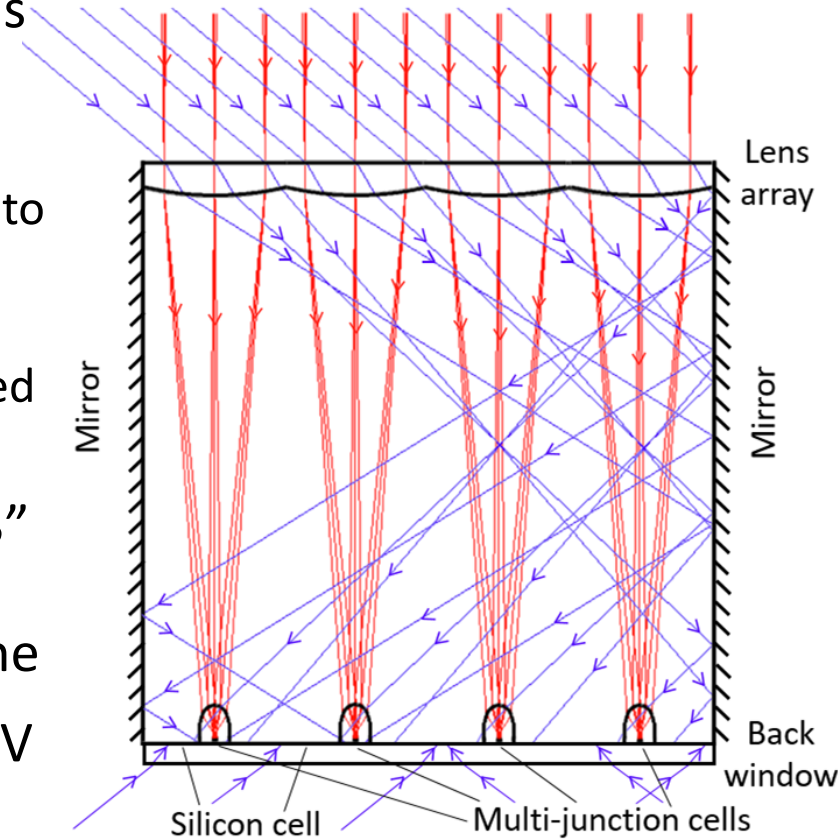


Practical hybrid PV module to double energy output



- Hybrid PV panel will use modified float glass lens array entrance to efficiently separate direct sunlight and diffuse sky components
 - Diffuse sky and backlight components transmitted to 20%-efficient bifacial Si cells
 - Direct sunlight component focused onto mm-size multijunction PV cells, 43% → 50% efficient, mounted directly on the silicon cells that act as heat sinks
- Set! demo prototype shown will be a working 3" section of a full-scale module. Energy output to be compared in the field to the same Si cell alone
- Good potential for LCOE lower than for silicon PV
- Overcomes the fundamental losses of CPV. Not limited to high DNI regions - close to 100% increase in energy output across the USA



Demo will have a low cost entrance window of glass formed as a continuous array of 18 mm square lenses, by unique "float and blow" modification of the float glass process

Side mirrors ensure full response to diffuse rays, as for a full 1 m x 2 m panel with same size lenses

Projected energy gain vs Si on single axis

Location	Projected energy gain vs Si on single axis
Phoenix	115%
Kansas City	105%
New York City	95%



Roger Angel



Zach Holman



Nick Didato