



Achievement:

We have developed composite **luminescent concentrator photovoltaic system** that embeds large scale, interconnected arrays of microscale silicon solar cells in thin matrix layers loaded with **luminescent dopants**. We have efficiently launched wavelength-downconverted photons that waveguide into the sides and bottom surfaces of the sparse cells to **increase** further their power output, **by more than 300%**.

Significance:

Integration as **robust flexible modules** with potential to provide high performance in light weight, low cost form factors. Theory rationalized designs could provide fully **passive forms of solar tracking**.

J. Yoon et al., *Nature Communications* DOI: 10.1038/ncomms1318 (2011)

