



Achievement:

We have shown that **maximizing light emission** is the key to approaching the Shockley-Queisser fundamental efficiency limits. Fluorescence efficiency is therefore crucial in selecting a material system. Even with the best materials, the highest efficiencies cannot be achieved unless the solar cell is also **designed as a good LED**.

Significance:

From single-junction cells to novel third-generation devices, our **analysis will guide solar cell design**. As applied to GaAs cells, we predict **30% efficient single-junction, flat-plate solar cells** in the near future.

O. Miller, E. Yablonovitch, and S. Kurtz, arXiv:1106.1603v3 (2011)