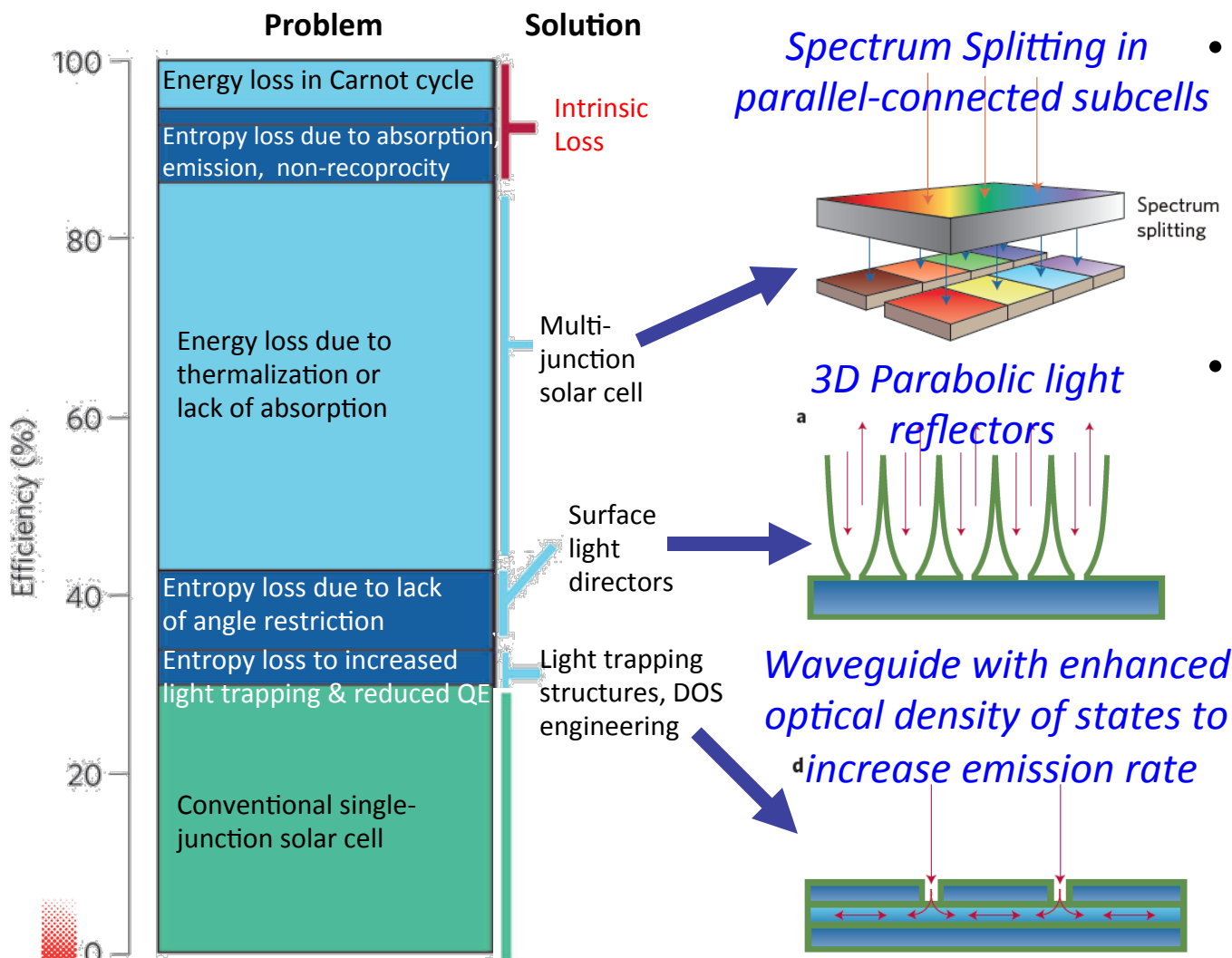


# Photonic design principles for ultrahigh-efficiency photovoltaics

Harry A. Atwater & Albert Polman



- For decades, solar-cell efficiencies have remained below the **thermodynamic limits**.
- Here, we show several new approaches for **light management** inside solar cells that may overcome some of the thermodynamic losses and pave the way for **ultrahigh efficiency photovoltaics**.

Polman & Atwater, Nature Materials **11**, 174-177 (2012)

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LIGHT-MATERIAL INTERACTIONS IN ENERGY CONVERSION

