

# Lattice battery solar cell (LBSC)

-- Toward 70% efficiency

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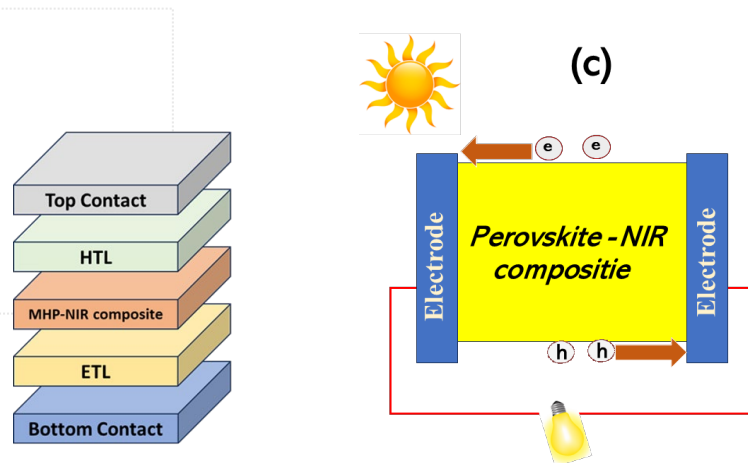
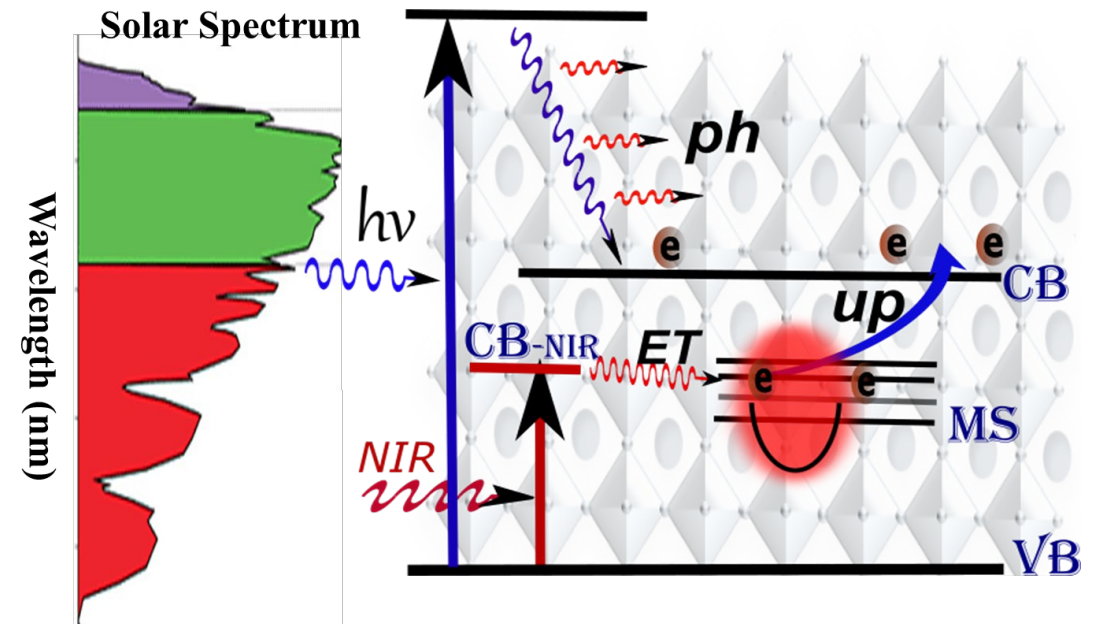
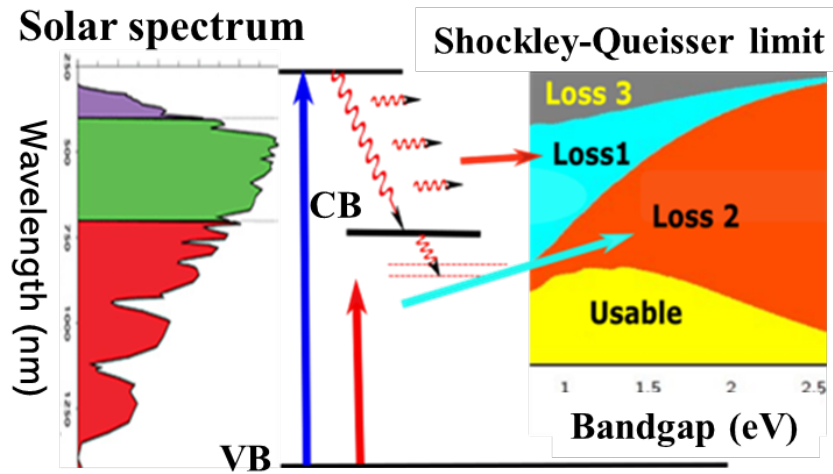
# Lattice battery solar cell (LBSC) – toward 70% efficiency in single layer

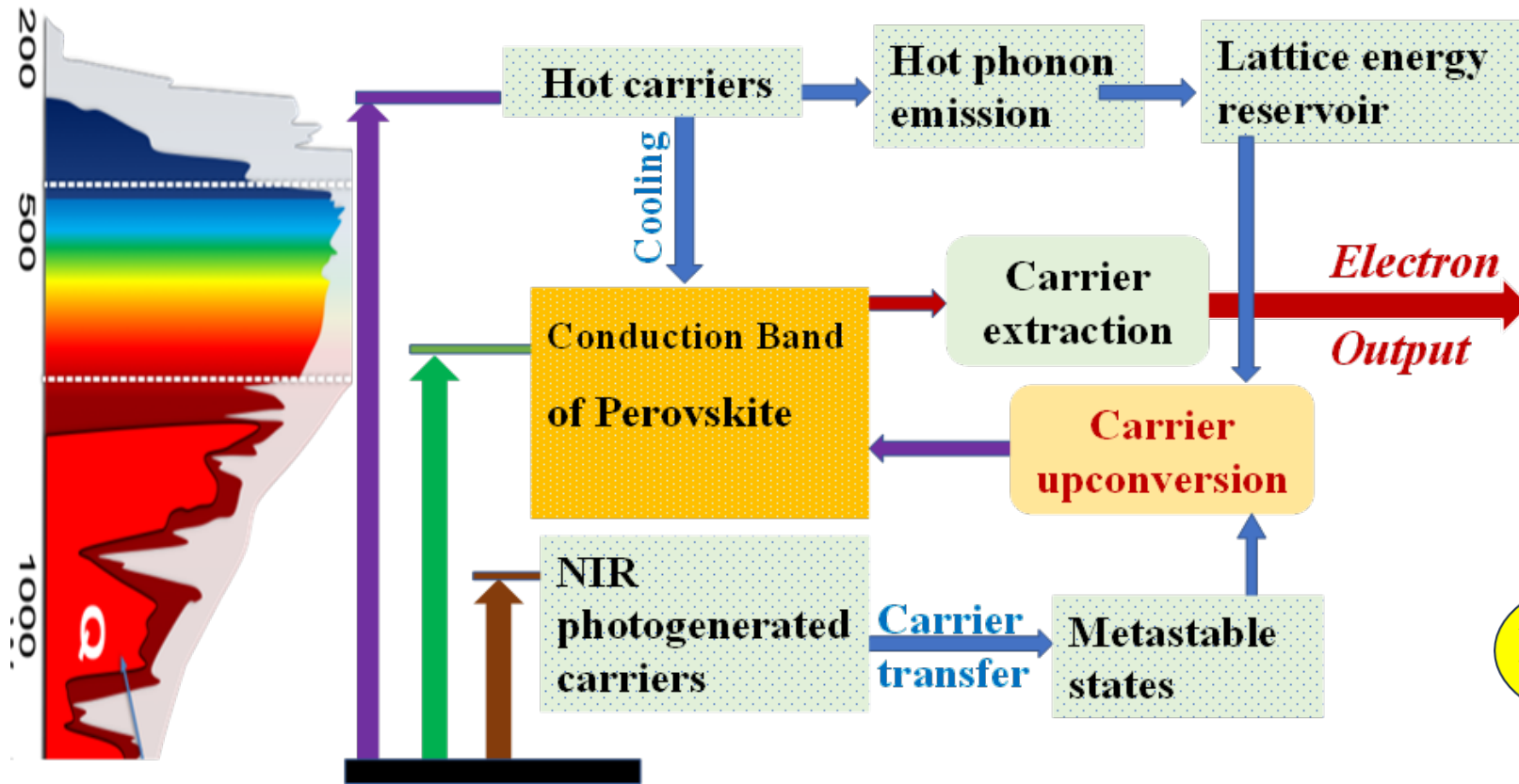
Single junction solar cells have intrinsic Loss1: hot phonon and Loss2: unabsorbed infrared → efficiency limit of 33%.

**LBSC** is a revolutionary solar cell – overcome energy Loss1 and Loss2 → theoretical efficiency exceed 70%!

**Lattice energy reservoir** is newly found in soft lattice perovskites: hot phonon energy can be stored and then drive carrier upconversion.

**Perovskite-infrared composite** will be used as absorber in LBSC for full solar spectrum harvesting. Infrared photons are absorbed and are upconverted as output electricity!





## Significant advantages over other solar cells:

A perfect triangle of solar cell

1. **70%** efficiency, much higher than Shockley–Queisser limit.
2. **high stability**, thermal energy is converted to electricity.
3. simple structure with low-cost fabrication

