

Energy Colloquium

Ultra-efficient photovoltaics: solar concentration vs external photon recycling

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17:00

Skoltech Campus, E-B4-3007



ABSTRACT:

The maximum efficiency of any solar cell (so-called Shockley-Queisser limit) can be evaluated in terms of its ability to emit light in open circuit (OC) and to quench the luminescence in short circuit (SC). In first part of my lecture I will review the basic principles of ultra-high efficient photovoltaics as well as their experimental realization using optical concentration of sunlight and external photon recycling.

At the second part of the lecture I will raise a question (and give some preliminary answers) if this strategy can be applied to emerging photovoltaic technology based on metal-halide perovskite solar cells.