

NEW JOB OF CONCENTRATED SUNLIGHT: IS IT RESONABLE WITH PEROVSKITES?

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Abstract:

In the first part of the lecture, I will explain why the power conversion efficiency (PCE) of an ideal solar cell should increase with light intensity, from the point of view of both thermodynamics and semiconductor device physics.

Second, I will discuss the requirements, achievements, and challenges for the realization of these basic advantages in real concentrator photovoltaics (CPV) [1-4] with emphasis to the new concept for CPV applications in space [5]. In this context, I will share our arguments for the perovskite micro-CPV cells for space applications as well our recent experimental results in this research direction.

Finally, I will talk about the use of concentrated sunlight for accelerated studies of photoinduced degradation in metal halide perovskites [6-8] and, in particular, about recent demonstration of a new setup for the *in-situ* study of degradation of perovskite photoluminescence excited by concentrated sunlight, in a wide range of solar concentrations and sample temperatures [9].

References

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