

## **In operando photoluminescence characterization of the ageing of perovskite solar cells**

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Despite their good efficiencies and relatively simple synthesis process, perovskite-based solar cells encounter stability issues during their operation, acting as a break on the commercialization of this technology. Light (UV in particular), high temperature, moisture and oxygen are known factors that lead to a degradation of their power conversion efficiencies [1]. There are many studies that investigate the effects of one of these stressors via different characterization techniques [2,3], sometimes leading to opposite results, knowing that the results strongly depend on the perovskite composition and on the different test conditions. Besides, few of them are conducted in operando, i.e. in cell's operating conditions [4,5], that means that most of them are conducted "post-mortem" which leads to a lack of information on the kinetics of the degradation. We believe that this information could bring a new point of view on the mechanisms involved in the degradation process during the ageing of perovskite solar cells. For this purpose we have set up a photoluminescence (PL) characterization bench inside a climate chamber (solar simulator, temperature and humidity control), allowing to acquire PL spectra during the simulated ageing with different stressors than can also be combined.

The aim of the poster is to present this characterization technique in more details, as well as giving some first analysis results on the kinetics of the ageing of perovskite solar cells.

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