

## عنوان مقاله:

Improving the Performance of 3D Perovskite Solar Cell by Adding a Moisture Stable Layer

## محل انتشار:

نشریه متدهای شیمیایی، دوره 7، شماره 6 (سال: 1402)

تعداد صفحات اصل مقاله: 13

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## خلاصه مقاله:

Among the important factors that affect the stability of 3D Perovskite cell are humidity, ultraviolet radiation, oxygen, and temperature. Therefore, different methods have been tried to solve the stability problem of perovskite material and increase the lifetime of perovskite solar cell. In this research, two strategies were used to improve the thermal, optical, and moisture stability of the material. The first strategy is to use four amino Azobenzenes and to halide them, which, due to the property of transitioning between their cis and trans spatial forms, absorbs harmful ultraviolet radiation and creates thermal balance, and thus improves stability. In this research, by reacting this material with chlorine, a new cation was prepared for the synthesis of two-dimensional perovskite. In the second strategy, perovskite solar cells were encapsulated using silica airgel minerals and epoxy resin adhesive. The stability of the devices exposed to the environment, UV light and ۸۵-۸۰% temperature was investigated. The results of optical and moisture stability show the stability improvement of encapsulated devices. According to test results in dark conditions, with ambient humidity of ۲۷% or ۳۰%, encapsulation has improved stability. After placing the best device for ۳۰ days in the environment conditions, it has maintained approximately ۷۱% of its efficiency. Also, in the results of the UV light and humidity test, the improvement of the performance of devices with encapsulation has been observed.

## کلمات کلیدی:

Solar Panel Perovskite Solar Cell Encapsulation Silica Airgel Chlorinated Two, Dimensional Epoxy Resin

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1650703>

