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# Enhancing CsPbIBr2 films through solvent engineering

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The power conversion efficiencies of perovskite solar cells have more than proved themselves over the past decade leading to an increasing focus on the stability of these materials. My work aims to achieve this goal by optimizing the one-step spin coating procedure. This will be done through solvent engineering techniques, namely the development of an antisolvent quenching method, which is the first of its kind for this material, and the optimization of the precursor solution. My results show that the application of isopropanol 10 seconds after the spin program has commenced leads to an important increase in the stability, crystallinity, and morphology of the CsPbIBr2 film. The results suggest that films quenched using the method can expect to outperform freshly prepared ones with no antisolvent applied, even after they have been stored for 5 weeks in air. In terms of the precursor optimization, preliminary results support the claim that a dimethylsulfoxide: dimethylformamide volumetric ratio of 2:1 yields the best fresh film quality however it remains to be seen whether this will translate into higher stability. Since spin coated CsPbIBr2 has been made almost always using only DMSO as a solvent in the past, the inclusion of dimethylformamide (DMF) as a co-solvent could provide a simple method for enhancing many of the previously published results.

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