Acid-blasted solar cells

Are acid etched solar cells better than acid textured solar cells?
MACE acid etched solar cells exhibited better performancethan the acid textured DWS and acid textured MWSS cells with an overall enhancement in V O C and J S C of 0.7 mV and 0.64 mA/cm 2 and 1.8 mV and 0.29 mA/cm 2,respectively.

Can facile acetic acid passivate Sno 2-based perovskite solar cells?
Low-temperature solution-processed SnO 2 -based perovskite solar cells (PSCs) have achieved great progress recently,but they still suffer from a critical drawback due to the defects at the SnO 2 /perovskite interface. Herein,we report a facile acetic acid post-treatment strategy to effectively passivatethe surface defects.

How to control crystal growth and morphology of perovskite solar cells?
Crystal growth and morphology of perovskite can be controlled by taking advantage of the weak chemical interaction in the adduct. We have successfully fabricated highly reproducible CH 3 NH 3 PbI 3 perovskite solar cells with PCE as high as 19.7% via adducts of PbI 2 with oxygen-donor N,N ?-dimethyl sulfoxide.

How can a dense perovskite layer improve the efficiency of solar cells?
Through the utilization of an anisole and benzoic acid mixed antisolvent,a dense perovskite layer devoid of pinholes was achieved,providing a suitable base for the subsequent HTL deposition. This approach resulted in an interface with fewer charge defects,enhancing the efficiency of the solar cells.

How does PEDOT PSS affect the performance of solar cells?
However,PEDOT:PSS has undesirable characteristics that can negativelyaffect the stability and performance of the solar cells. The hygroscopicity associated with hydrophilicity may limit the grain size of the perovskite layers,and its acidity can erode the metal or conductive oxide layers (Fig. 12a-c).

Who are the authors of a review article on crystalline silicon solar cells?
Authors are thankful to Prof. K. L. Narasimhan, Prof. B. M. Arora, Mr. Sandeep Kumbhar, Mr. Almoazzam Khan and other students and staff members of the "Crystalline Silicon Solar Cells" group of NCPRE for the helpful discussions and guidance in preparing the review article.

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By using formamidine sulfinic acid (FSA) as a reducing agent and a solution of PEAI in toluene as an antisolvent (a method called "integration strategy"), they synthesized FA 0.85 Cs 0.15 Sn 0.5 Pb 0.5 I 3 films with improved morphologies compared to the control films, demonstrating a solar cell with a 17.4% PCE and excellent ...

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Herein, we introduce iminodiacetic acid (IDA) to modify the SnO 2 ETL, yielding three key advantages: (1) IDA can neutralize excess -OH groups and passivate the defects in SnO 2, diminishing the decomposition of perovskite layer; (2) the IDA-modified SnO 2 exhibits superior electron conductivity and film quality, while providing improved energy ...

The resulting solar cells deliver comparable power conversion efficiencies: 14.0% for the cells fabricated using recycled PbI 2 and 14.7% for the cells constructed using commercial PbI 2. This work paves a new and feasible path to applying ...

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2 ???· Scientists from the École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland have fabricated a tandem solar cell based on a perovskite top cell and a heterojunction (HJT) bottom device ...

Additive engineering plays a vital role in enhancing perovskite solar cells (PSCs) by passivating defects within the perovskite films. Carboxyl and ester groups are commonly used for their strong binding with under-coordinated Pb2+ ions. However, the impact of additive acidity on the long-term stability of PSCs remains unclear. This study investigates the ...

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