Solar cells by substrate

Which substrates are suitable for flexible solar cells?
The substrate configuration also widens the choice of flexible substrates: we achieve 24.1% and 20.3% efficient flexible all-perovskite tandem solar cells on copper-coated polyethylene naphthalene and copper metal foil,respectively.

Do thin-film solar cells need a substrate configuration?
Preparing thin-film solar cells in the substrate configuration is conducive for their upscaling,as the incorporation of metal grids,which are needed for the resistance-free extraction of charges from the transparent conducting oxide electrode,is not expected to interfere with the fabrication of the device.

Are SB 2(S) 3 solar cells a potential development in photovoltaics?
Sb 2 (S,Se) 3 solar cells represent a potential developmentin the field of photovoltaics due to their high light absorption coefficient (>10 5 cm -1),low costs and excellent long-term stability [8,9].

Can a substrate-configuration metal-halide perovskite solar cell be fabricated on planarized steel?
To date, substrate-configuration metal-halide perovskite solar cells (PSCs) fabricated on opaque substrates such as metal foils provide inferior efficiencies compared with superstrate-configuration cells on transparent substrates such as glass. Herein, a substrate-configuration PSC on planarized steel is presented.

Can vapour transport deposition be used in SB 2(S) 3 solar cells?
The vapour transport deposition (VTD) approach has shown promisein fabricating Sb 2 (S,Se) 3 solar cells. However,conventional VTD depends on varying substrate positions for managing the temperature differential between source and substrate.

Can perovskite solar cells be fabricated using vacuum-deposition methods?
Here,we demonstrate the fabricationof perovskite solar cells in the substrate configuration using vacuum-deposition methods. The best cells have a power conversion efficiency (PCE) of ~19%,which is comparable to that of the simultaneously fabricated conventional superstrate cells (PCE ~19.5%).

CdTe Solar Cells. Alessandro Romeo, in McEvoy"s Handbook of Photovoltaics (Third Edition), 2018. 14.2 Substrate configuration. More work has been done on substrate configuration, simply because the choice of a suitable substrate is much simpler.However, in substrate configuration the efficiencies are lower even on glass substrate [165,166] and it becomes more critical if, ...

Here, we demonstrate a cell design combining additive and substrate engineering that yields consistently high power conversion efficiencies and discuss various design ...

In this study, we developed an eco-friendly, ultra-flexible substrate with high solvent resistance, outstanding

mechanical durability, and excellent light transmittance by constructing an ethoxylated trimethylolpropane ...

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1 Introduction. Flexible perovskite solar cells (fPSCs) [1-48] are of significant interest due to their high power-per-weight ratios, potential for low cost fabrication on inexpensive flexible substrates, such as roll-to-roll (R2R) manufacturing, and the rising demand for niche applications of solar power (vehicle integrated photovoltaics, space applications, Internet of ...

Schematic structure of solar cells comprising various functional materials: a flexible substrate, two electrodes, and an active layer. The direction of light entry to the active ...

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The solar power is one of the most promising renewable energy resources, but the high cost and complicated preparation technology of solar cells become the bottleneck of the wide application in many fields. The most important ...

Self-assembled monolayers (SAMs) have significantly contributed to the advancement of hole transporting materials (HTMs) for inverted perovskite solar cells (PSCs). However, uneven distribution of SAMs on the ...

III-V compound semiconductors and SiGe alloys can be combined to develop multijunction solar cells on Silicon substrates with optimum bandgap combinations. Current implementations of such devices have reached efficiencies over 20%, using thick -and thus costly- buffer layers which induce the appearance of cracks in large area samples. ...

Stainless steel (SS) foil is made of abundant materials and is a durable and flexible substrate, but the efficiency of a solar cell on SS foil deteriorates via the diffusion of impurities from the SS substrate into a Cu 2 ZnSn(S,Se) 4 (CZTSSe) absorber layer. In this work, the properties of the diffusion barrier for CZTSSe solar cells is investigated by X-ray diffraction (XRD), secondary ...

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