Ultra-high efficiency photovoltaic containers for tunnels

Here we innovatively integrate a poly-Si (p +)/poly-Si (n +) tunnelling recombination layer (poly-Si TRL) into a high-efficiency perovskite/TOPCon TSC.

This newly developed tandem device has achieved a remarkable photoelectric conversion efficiency of 29.2%, which is one of the highest values reported to date for ...

The development of high-performance tunnel junctions is critical for achieving high efficiency in multi-junction solar cells (MJSC) that can operate at high concentrations.

Efforts to extract power from solar energy have benefited from the high efficiency of solar cell technology [1, 2]. Multijunction solar cells attract more attention than traditional structures ...

The p++-InGaAs/i-InGaAs/n++-InGaAs tunnel junction demonstrated a peak tunneling current density of 495 A/cm 2 and a resistivity of 9.3 × 10 -4 Ocm 2, allowing the ...

Here, we demonstrate the first use of tunnel junctions using a stack of p + /n + polysilicon passivating contacts deposited directly on the tunnel oxide to overcome the ...

This early design offers a fast and reliable route to push the efficiency towards the maximum solar conversion limit and represents a promising way to develop new-generation ...

High performance tunnel junctions have been developed for concentrated photovoltaic (CPV) solar cell applications. High peak tunneling currents and optical ...

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To further improve the performance of mechanically stacked microconcentrator photovoltaic devices, we have studied high-transparency tunnel junctions for inclusion in triple ...

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