

Is the ASMA a good tool to optimize PV models?

The ASMA is employed to derive optimal parameters of PV models and assessed utilizing a total number of eight well-known optimization algorithms. The findings show that the ASMA is very competitive in terms of accuracy and convergence speed and that this is supported by a wealth of evidence.

What is a PV module?

PV module is a packaged and protected system in which multiple PV cells are connected to deliver the electric power. Generally, PV cells in a PV module may be crystalline, semi-crystalline, or amorphous and they are safely packaged in multiple protective layers including front cover, encapsulate, and back sheet.

How does outdoor operation affect the performance of PV cells?

During the long time operation at outdoor conditions, PV cells experience significant morphological and structural changes, optical absorption decay, and impairment of the optoelectronic properties, which adversely affect the performance of the PV module [7, 8].

What are PV cells encapsulated with?

Encapsulate: PV cells as mounted in PV modules are encapsulated with a polymeric material to protect against weather, corrosive environment, UV radiation, low mechanical stress, and low energy impacts. Most often polymeric encapsulate material is ethylene vinyl acetate (EVA) film.

Can UV curable acrylate adhesive be used as encapsulate for PV module?

In a study, a UV curable acrylate adhesive with phenyl ether functionality has been employed as encapsulate for the PV module. Phenyl ether groups enhanced the barrier performance of acrylate encapsulate by providing hydrophobicity to the acrylate matrix and also promoted their adhesive nature with untreated PET substrate.

Can cellulose microfibers encapsulate a PV module?

In a study, Surlyn (a copolymer of ethylene & methacrylic acid) has been reinforced by cellulose microfibers, and the composite material was used as encapsulate for the PV module.

In this session, ASMA has been employed to determine the parameters of two practical PV panel models: monocrystalline STM6-40/36 (M3) and polycrystalline STP6-120/36 (M4). It is worth noting that, for the sake of fairness, both ...

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