

What is a Schottky junction based solar-cell?

Solar-cells based on Schottky junctions between metals and semiconductors (without or with an intermediate insulator) are among the main possibilities towards economical photovoltaic conversion of the solar energy. This is mainly due to their structural simplicity and hence the ease of their realization.

What is Schottky-junction in solar cells?

The Schottky-junction is an attempt to increase the efficiency of solar cells by introducing an impurity energy level in the band gap. This impurity can absorb more lower energy photons, which improves the power conversion efficiency of the cell.

Are Schottky barrier solar cells scalable?

Although vulnerable to higher rates of thermionic emission, manufacturing of Schottky barrier solar cells proves to be cost-effective and industrially scalable.

Are Schottky-based solar-cells effective?

We have studied the specific example of Schottky-based solar-cells and demonstrated their efficiency. The light-trapping in these devices takes place thanks to the excitation of plasmonic modes of gold nano-antennas. These nano-antenna arrays are shown to operate better than the generally used anti-reflection layers.

Does plasmonically enhanced Schottky cell have a practical efficiency limit?

The analysis of simulations shows that with the proposed plasmonically enhanced Schottky cell, the practical efficiency limit can be achieved as both models are close to the performance of the proposed Schottky cell.

What materials are used in Schottky junction solar cells?

Schottky junction solar cells can be constructed using many different material types. One material is cadmium selenide. As a direct bandgap semiconductor, CdSe has many applications in modern technology. Previous experiments using CdSe in solar cells resulted in a power-conversion efficiency of approximately 0.72%.

Atomically-thin Schottky-like photo-electrocatalytic cross-flow membrane reactors for ultrafast remediation of persistent organic pollutants ?????????????????????????????????

Using a metal-semiconductor-metal back-to-back Schottky contacted ZnO microwire device, we have demonstrated the piezoelectric effect on the output of a photocell. An externally applied strain produces a piezopotential in the microwire, which tunes the effective height of the Schottky barrier (SB) a ...

The full form of TTL is Transistor Transistor Logic. This is a logic family which is mainly build up of NPN transistors, PN junction diodes and diffused resistors. The ...

In this study, the current-voltage characteristics of non-doped and distinct graphene (Gr)-doped polyvinyl alcohol (PVA) interlayers in metal/organic polymer semiconductor type Schottky junction structures (SJSs) were investigated on both forward and reverse biases under distinct levels of illumination. The distinct doping concentration ratios (1%, 3% and 7%) ...

schottky barrier photocell detector barrier photocell detector schottky Prior art date 1980-03-07 Legal status (The legal status is an assumption and is not a legal conclusion. Google has not performed a legal analysis and makes no representation as to the accuracy of the status listed.) Granted Application number JP3043581A Other languages ...

The double Schottky barriers lead to an additional pathway for harvesting hot electrons, which is enhanced through multiple reflections between the two barriers with different energy ranges.

Structure and strategy of the fabrication of the photocell on the base of the Schottky barrier contact Pd-n-GaAs are considered. There is measured I(V)-features of photocells, their C-V-features ...

The proposed approach follows a stringent sequence of steps to optimize various parameters of the studied HITs. Furthermore, we have revealed the effects of the metal ...

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The deployment of two-dimensional (2D) materials for solar energy conversion requires scalable large-area devices. Here, we present the design, modeling, fabrication, ...

The photovoltaic effect of Schottky junction with double-layer Graphene shows a PCE of 1.95%, which is better than Schottky junction with single-layer Graphene . By implementing a Graphene/Insulator/Graphene structure for Graphene/GaAs junction, Xiaoqiang Li et al. obtained a solar cell with a PCE of 18.5% and a V_{oc} of 0.96 V [19].

Way of the fabrication and results of studies of photoelectric features of photocell with two Schottky barrier opaque contacts Al-p-Si on one party of the silicon plate and ohmic silicide contact ...

Graphene/silicon Schottky junction solar cell fabrication steps a cleaving the Si wafer with desired dimensions; b clean Si substrates through different steps; c hydrophobic of Si substrate after ...

Schottky-Barrier Photocell With Intermediate Metal Layer Device output and durability increased. Photosensitive GaAs Schottkybarrier device modified by addition of intermediate layer of ...

Using a metal-semiconductor-metal back-to-back Schottky contacted ZnO microwire device, we have demonstrated the piezoelectric effect on the output of a photocell.

The present work highlights a newly designed compact photo-cell reactor for online photoproduction of H₂ in a sacrificial agent assistance. The (Pd, Pt, Au)/TiO₂ P25 Schottky junctions were ...

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