Solar cells and optical communication chips

How to improve the on-chip communication capability of integrated chips?
In order to improve the whole on-chip communication capability of integrated chips,it is imperative to comprehensively consider the overall effect of the light-detection performance. 28 Furthermore,photonic integrated chips with the basic function of on-chip optical communication are still concentrated in the visible light band at present.

What is the on-chip UVC optical communication system for video transmission?
Especially, a record-breaking on-chip UVC optical communication rate of 150 Mbps is realized, and the transient response time is on the order of nanoseconds. The practical on-chip UVC optical communication system for video transmission is built and demonstrated for the first time. II. DESIGN AND ANALYSIS

What is an on-chip optical communication system?
The on-chip optical communication system is built to achieve the practical video signals transmission application,which is a formidable contender for the core module of future large-scale photonic integrated circuits.

Does solar blind light affect on-chip optical signal transmission?
The on-chip optical signal transmission of the solar blind integrated chip is basically not affectedby the extremely weak solar blind light in the ambient background.

What is the function of integrated chip in optical microscope?
For the working integrated chip shown in the optical microscope image in Fig. 1 (a),the one on the left is used as LED to emit light signalsand that on the right is used as PD to detect light signals.

What is a solar cell & how does it work?
The solar cell is a self-styled passive device,which can convert optical signals into electrical signals. The generated energy can potentially be used to power user terminals or at least to prolong operation time. This work is an important step towards the future local area networks and vehicle to vehicle communication.

The flexibility and translucency aspects are unparalleled advantages of organic solar cells (OSCs), which have attracted great attention from the scientific and industrial communities. Currently, the key to improve the performance of flexible semi-transparent OSCs (ST-OSCs) lies in flexible transparent electrodes (FTEs) and the light-absorbing active layer. ...

1612 IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, VOL.33,NO.8,AUGUST 2015 On the Design of a Solar-Panel Receiver for Optical Wireless Communications With Simultaneous Energy Harvesting Zixiong Wang, Member, IEEE, Dobroslav Tsonev, Member, IEEE, Stefan Videv, and Harald

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Haas, Member, IEEE Abstract--This paper proposes a novel ...

Live Demonstration: Optical Communications using Solar Cells Abstract: This live demonstration showcases an optical communication system dubbed Optical Frequency Identification (OFID) ...

The integrated chips enable stable on-chip optical communication under a high-speed communication rate of 150 Mbps, while the rise/decay time is both on the order of ...

In particular, optical communication, optical perception, and optical chips are considered to be the most promising research directions in the future. At present, optical communication focuses on core technical issues, ...

Live Demonstration: Optical Communications using Solar Cells Abstract: This live demonstration showcases an optical communication system dubbed Optical Frequency Identification (OFID) that can be used to identify and track objects or animals as well as to sense environmental variables.

Utilising solar cells as receivers in optical communication holds importance by enabling energy-efficient data reception, harnessing the power of ambient light to support sustainable and self-powered communication ...

In this work, we successfully realize monolithically inte? grated chip fabrication of solar blind LEDs, waveguides, and PDs on an AlGaN MQW structure wafer. Combined with finite difference time ...

Using optical communications for smart dust applications enables small size of transceivers and offers a potentially large power advantage over RF. This paper presents an optically powered transceiver, which consists of on-chip solar cells, an optical receiver, a storage capacitor, and a passive transmitter formed by a liquid crystal ...

The reliable VLC system based on energy-efficient a-Si thin-film solar cells opens a new pathway for future satellite-air-ground-ocean optical wireless communication to realize connectivity among millions of Internet of Things devices. Enhancing robustness and energy efficiency is critical in visible light communication (VLC) to support large-scale data ...

Ultrathin films of a semiconductor that emits and detects light can be stacked on top of silicon wafers, researchers report in a study that could help bring optical communication onto silicon chips.

In this work, we successfully realize monolithically inte? grated chip fabrication of solar blind LEDs, waveguides, and PDs on an AlGaN MQW structure wafer. Combined with finite difference time domain (FDTD) simulation, the strong light constraint and advantages of horizontal blind TM modes are demonstrated.

chip optical communication capability of solar blind monolithically integrated chips presents excellent performances compared to those of independent or integrated...

Abstract: In this paper, a solar panel utilized as a photodetector with simultaneous energy harvesting is proposed in visible light communication (VLC). The solar cell is a self-styled ...

Signal transmission without the interference from ambient light is prerequisite for optical communications. Min et al. design an asymmetric 2D-3D-2D perovskite photodetector with frequency ...

In a new paper published in Light: Science & Applications, researchers from the University of Strathclyde and the University of St. Andrews have demonstrated a plastic solar panel that ...

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