

# Dielectric solar container and smart sensing direction





## Overview

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This chapter explores the relationship between dielectric properties, remote sensing, and sensor technology in revolutionizing agricultural practices. This paper introduces an effective technique for assessing the insulation conditions in power transformers, which are crucial for ensuring reliable energy transfer. Dielectric properties serve as fundamental indicators of soil moisture content, nutrient levels, and plant health.



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### Understanding Sun Sensor Arrays: Instruments for ...

Discover the pivotal role of sun sensor arrays in optimizing solar panel performance and enhancing energy efficiency. These sophisticated instruments detect ...

### New dielectric-based smart sensor with multi-probe arrays for in-vivo

In this study, we designed and developed a new smart sensor for in vivo monitoring of TWC distribution in the radial direction of the trunk. The sensor consists of five modules: a dielectric measurement ...



### Dielectric Sensing-Based Systems and Applications

Dear Colleagues, Dielectric properties are fundamental characteristics of materials and, as such, they are often used to describe the "fingerprint" of a material in ...

### Sensors , Topical Collection : Dielectric Sensing-Based Systems and

In order to improve the sensitivity of liquid dielectric constant measurements, a liquid dielectric constant sensor based on a cubic



container structure is proposed for the first time.

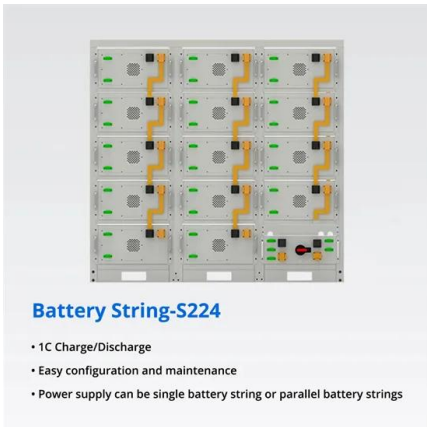


### A review on sun position sensors used in solar applications

A sun position sensor is a device that senses the direction of the Sun with respect to the sensor's position. A variety of sun position sensors have been designed and improved over the last ...

### A Review on Reconfigurable Liquid Dielectric Antennas

The advancements in wireless communication impose a growing range of demands on the antennas performance, requiring multiple functionalities to be present in a single device. To ...



### Dielectric Elastomer Actuator-Based Multifunctional Smart ...

Moreover, this smart window is equipped with another layer of transparent micro-perforated dielectric elastomer actuator (DEA), which acts like Helmholtz resonators serving as a tunable and



## New dielectric-based smart sensor with multi-probe arrays for in-vivo

Request PDF , On Dec 1, 2024, Xianglin Cheng and others published New dielectric-based smart sensor with multi-probe arrays for in-vivo monitoring of trunk water content distribution of a tree in



## ConGPS: A Smart Container Positioning System Using Inertial Sensor ...

We propose a novel system named ConGPS that integrates inertial sensor data and electronic map data. ConGPS estimates the speed and heading direction of a moving container based on the inertial ...

## Selenium substitution for dielectric constant improvement and hole

Here, authors report selenium substitution on central core of acceptors to improve dielectric constant, realizing devices with efficiency of 19.0%.



## My Innovative Light Direction Sensor for Advanced Solar Power Systems

In this article, I will share my groundbreaking work on a light direction sensor that overcomes these limitations and its integration into solar power systems. This innovation not only ...



### New dielectric-based smart sensor with multi-probe arrays

Currently, sensor techniques can hardly measure the TWC distribution in vivo to characterize the water dynamics of phloem and xylem in the field. In this study, we designed and developed a new smart ...

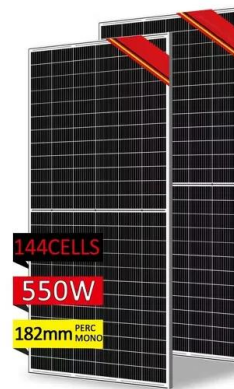


### New dielectric-based smart sensor with multi-probe arrays for in-vivo

Here we develop a frequency-domain (FD) dielectric sensor operating at 100 MHz with an innovative interdigitated-electrodes (IE) probe design for measuring StWC. We characterize the ...

### Smart Sensing for Container Trucks

To tackle these challenges, the authors propose a smart sensing system that intelligently achieves the container load measurement and operational situation recognition. In this paper, the ...



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This paper proposes a novel system named ConGPS that integrates both inertial sensor and electronic map data. ConGPS estimates the speed and heading direction of a moving container ...



## Corona discharge-driven platform for precise manipulation of high

Moreover, dielectric droplets are utilized as micro-containers for performing on-droplet chemical and biological assays. The platform also enables efficient aspiration and release of high ...

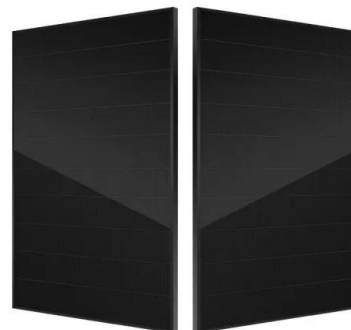


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## Development of a Novel Spherical Light-Based Positioning Sensor in

In this study, a novel spherical light-based positioning sensor is proposed to locate a light source in spherical angular form. This sensor offers applicability for various control techniques like those ...



## [2504.10765] Minimal Sensing for Orienting a Solar Panel

A solar panel harvests the most energy when pointing in the direction that maximizes the total illumination (irradiance) falling on it. Given an arbitrary panel orientation and an arbitrary ...



## Wireless Capacitive Liquid-Level Detection Sensor Based on Zero ...

The results show that the sensor node offers a high sensitivity of 2.15°/mm to the liquid-level variation. Additionally, the sensor can be used within or outside the container for the accurate ...

## MetaSensing: Reconfigurable Intelligent Surface Assisted RF ...

MetaSensing: Reconfigurable Intelligent Surface Assisted RF Sensing and Localization ACK: Boyao Di, Hongliang Zhang, Lingyang Song, Jingzhi Hu, Haobo Zhang



## Optoelectronic refractometric sensing device for gases based on

The transformation of an hydrogenated amorphous silicon solar cell (aSiH) into an optoelectronic refractometric sensor has been possible through the addition of dielectric bow-tie ...



### ConGPS: A Smart Container Positioning System Using Inertial Sensor ...

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### Leveraging Dielectric Properties, Remote Sensing, and Sensor

The integration of dielectric properties, remote sensing, and sensor technology marks a transformative leap forward in agriculture, guided by Industry principles and emerging technologies.

### Sun sensor

A Sun sensor is a navigational instrument used by spacecraft to detect the position of the Sun. [1][2] Sun sensors are used for attitude control, solar array pointing, gyro updating, and fail-safe recovery. [3][4]



### Diffuse Solar Micro-Concentrators Using Dielectric Total Internal

Here, a novel implementation of dielectric total internal reflection concentrators (DTIRCs) utilizing a piecewise smooth sidewall profile with an intermediate segment is developed.



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