Category: **Photometry and Measurement of Optical Pulse Characteristics**

**Optically Gated Transistor Light Detector**

Innovative transistor-based light detector using optically gated technology for precise light wavelength detection.

**Problem Statement**

The detection of specific wavelengths of light, especially non-visible spectra such as ultraviolet (UV) and infrared (IR), is crucial in various scientific and industrial applications. This semiconductor device can be placed in a hand-held package, and operate at room temperature, providing wavelength sensitivity without the need for a large piece of equipment with sensitive optical components.

**Technology Overview**

This patent presents an optically gated transistor (OGT) light detector. The device comprises a substrate that generates charge separation when exposed to a specified first wavelength of light. An active material is deposited on this substrate, which is configured to conduct current in the presence of a second wavelength of light. The first wavelength may be non-visible light, while the second wavelength is typically visible light. Two electrodes are connected to the active material, and current conduction is monitored to detect the presence of the first wavelength of light.

**Applications:**

* Scientific Research: Precision detection of UV and IR light in laboratory settings.
* Industrial Monitoring: Monitoring and detection of specific light wavelengths in manufacturing processes.
* Environmental Sensing: Detection of UV light for environmental monitoring and protection.
* Medical Devices: Use in medical imaging and diagnostic devices requiring precise light wavelength detection.

**Benefits:**

* High Sensitivity: Detects specific wavelengths of light with high accuracy.
* Temperature Efficiency: Operates without the need for extremely low temperatures.
* Versatile Applications: Useful for detecting both visible and non-visible wavelengths of light.
* Layered Material Structure: Utilizes alternating layers of semiconductors and additional elements to enhance detection capabilities.



Contact us about this technology:

Office of Technology Transfer

techtransfer@boisestate.edu

(208) 426-5765

Matter# BSU241

IP Status:

Patent Issued

[11,450,779](https://patents.google.com/patent/US11450779B2/en?oq=11%2c450%2c779)

Phase of Development

TRL:3-4

Working Prototype

Inventor

[Kris Campbell, PhD](https://www.boisestate.edu/coen-ece/directory/kris-campbell/)