

PULSE OXIMETER USING AMBIENT LIGHT

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PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20220039708	02/10/2022	2018-211

BRIEF DESCRIPTION

Most pulse oximeters are linked with one or two LEDs, depending on which scheme was used. In this invention, we demonstrate pulse oximetry with no controlled LEDs, utilizing ambient light as the light source, and use two spectrally-selective OPDs. Organic absorbers are selected so that the fabricated OPDs will be able to sense green, red, and NIR.

SUGGESTED USES

Flexible and stretchable electronics are well suited for wearable sensing and medical monitoring applications, in that they form conformal contact with human body. This provides better SNR compared to rigid electronics, and also allows them to be easily integrated into garments or accessories. Pulse oximetry can also benefit from this trait by using flexible optoelectronics. When optoelectronics are well-interfaced with the skin, effect of ambient light that contributes to noise can be minimized.

ADVANTAGES

By using flexible organic PDs (OPDs) and conforming them well to the skin, the noise current from ambient light can be considerably reduced. OPDs also demonstrate other advantages such as light weight, decreased fabrication complexity and cost, and mechanical flexibility. These are all essential characteristics of components for wearable and portable applications, which makes OPD an ideal candidate.

RELATED MATERIALS

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Printed All-Organic Reflectance Oximeter Array](#)
- ▶ [Biodegradable Potentiometric Sensor to Measure Ion Concentration in Soil](#)
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- ▶ [A Potentiometric Mechanical Sensor](#)
- ▶ [Simultaneous Doctor Blading Of Different Colored Organic Light Emitting Diodes](#)
- ▶ [Organic Multi-Channel Optoelectronic Sensors For Smart Wristbands](#)
- ▶ [Printed Organic Leds And Photodetector For A Flexible Reflectance Measurement-Based Blood Oximeter](#)

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OTHER INFORMATION

KEYWORDS

pulse oximetry

CATEGORIZED AS

- » **Optics and Photonics**
 - » [All Optics and Photonics](#)
- » **Medical**
 - » [Diagnostics](#)
 - » [Disease: Blood and Lymphatic System](#)
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