



ISTITUTO ITALIANO  
DI TECNOLOGIA

## TITLE

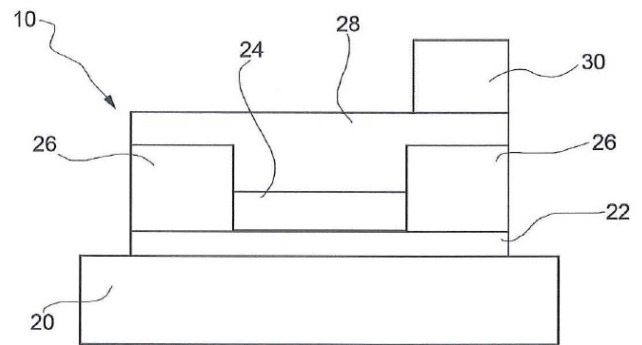
A self-assembling molecular photo-detecting device

## INVENTORS

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## DESCRIPTION

Photo-detector device including an active layer adapted to absorb an optical radiation and to generate in a corresponding way pairs of electrical charge carriers, comprised between a first and a second electrode layer including a respective electrically conductive material, at least one of which is a layer of optically transparent material, arranged to be connected to an external electrical signal processing circuit, characterized in that the said active layer includes a self-assembling monolayer of molecules comprising a donor group facing the first electrode layer and an acceptor group facing the second electrode layer, the said molecules being adapted to assume a charge transfer state resulting from the absorption of the optical radiation whereby the charge carriers generated reside separately on the donor group and on the acceptor group and are transferred therefrom to the adjacent electrode layers, in such a manner as to determine a flow of a detection electrical current in the signal processing circuit.



## APPLICATIONS

## KEYWORDS

Photo-detector, self-assembling monolayer, electrical charge carriers

## BIBLIOGRAPHIC DATA

Dispositivo foto-rivelatore molecolare auto-assemblante

Application Number

TO2012A000826

Priority Date

September 24, 2012

Applicants

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## CONTACTS

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