

Title (en)

ELECTROMAGNETIC WAVE SENSOR WITH TETRAHERTZ BANDWIDTH

Title (de)

ELEKTROMAGNETISCHER WELLENSENSOR MIT TETRAHERTZBANDBREITE

Title (fr)

DETECTEUR D'ONDES ELECTROMAGNETIQUES A BANDE PASSANTE TERAHERTZ

Publication

EP 1941261 A1 20080709 (FR)

Application

EP 06819125 A 20061024

Priority

- EP 2006067695 W 20061024
- FR 0510875 A 20051025

Abstract (en)

[origin: WO2007048778A1] The invention concerns high frequency electromagnetic wave detection. The invention is applicable to a wide range of bandwidths, but the preferred field of application is the field of tetrahertz frequencies. The core of the sensing device consists of a so-called active material (100) whereof the absorption coefficient in the optical domain depends on the strength of the tetrahertz signal to be detected. By measuring the variations of the absorption coefficient at least of one optical probe (200), the strength of the tetrahertz signal is thus determined. Through this means, a frequency transduction is effected into a frequency domain where the measurement involves no technical problems. The sensitivity of the sensor can be particularly enhanced by providing antennae (101) adapted on the active medium, using semiconductive or quantum well materials. In this way, it is also possible to produce a matrix or an array of tetrahertz sensors thereby enabling either tetrahertz imaging or tetrahertz spectroscopy to be performed.

IPC 8 full level

G01N 21/35 (2006.01); **G01J 3/42** (2006.01)

CPC (source: EP US)

G01J 3/42 (2013.01 - EP US); **G01N 21/3581** (2013.01 - EP US)

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

FR 2892514 A1 20070427; EP 1941261 A1 20080709; JP 2009512865 A 20090326; US 2008283752 A1 20081120; WO 2007048778 A1 20070503

DOCDB simple family (application)

FR 0510875 A 20051025; EP 06819125 A 20061024; EP 2006067695 W 20061024; JP 2008537077 A 20061024; US 9152606 A 20061024