

Title (en)

A CHEMICAL SENSOR USING CHEMICALLY INDUCED ELECTRON-HOLE PRODUCTION AT A SCHOTTKY BARRIER

Title (de)

CHEMISCHER SNESOR BASIEREND AUF DER CHEMISCH INDUZIERTEN GENERIERUNG VON ELEKTRON-LOCHPAAREN IN EINEM SCHOTTKY-ÜBERGANG

Title (fr)

DETECTEUR CHIMIQUE UTILISANT UNE PRODUCTION DE TROUS D'ELECTRONS INDUITE CHIMIQUEMENT AU NIVEAU D'UNE BARRIERE DE SCHOTTKY

Publication

EP 1254478 A4 20041201 (EN)

Application

EP 99973730 A 20000119

Priority

US 9929363 W 20000119

Abstract (en)

[origin: WO0154171A1] Electron-hole production at a Schottky barrier has recently been observed experimentally as a result of chemical processes. This conversion of chemical energy to electronic energy may serve as a basic link between chemistry and electronics and offers the potential for generation of unique electronic signatures for chemical reactions and the creation of a new class of solide state chemical sensors. Detection of the following chemical species was established: hydrogen, deuterium, carbon monoxide, molecular oxygen. The detector (1b) consists of a Schottky diode between an Si layer and an ultrathin metal layer with zero force electrical contacts.

IPC 1-7

H01L 21/00; **G01N 27/00**

IPC 8 full level

G01N 27/414 (2006.01); **B01J 23/50** (2006.01); **C23C 14/16** (2006.01); **G01N 27/00** (2006.01); **G01N 27/416** (2006.01); **H01L 29/47** (2006.01); **H01L 29/872** (2006.01)

CPC (source: EP)

G01N 27/129 (2013.01); **H01L 2224/48463** (2013.01); **H01L 2224/4918** (2013.01)

Citation (search report)

- [Y] US 5362975 A 19941108 - VON WINDHEIM JESKO [US], et al
- [Y] US 5602324 A 19970211 - YANAGIDA HIROAKI [JP], et al
- [A] US 5979934 A 19991109 - SHIRK BRYAN W [US], et al
- [A] WO 9958964 A1 19991118 - NORDIC SENSOR TECHNOLOGIES AB [SE], et al
- [A] DE 19718584 C1 19981119 - FRAUNHOFER GES FORSCHUNG [DE]
- [A] PATENT ABSTRACTS OF JAPAN vol. 0122, no. 98 (P - 744) 15 August 1988 (1988-08-15)
- See references of WO 0154171A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

WO 0154171 A1 20010726; AU 6333300 A 20010731; EP 1254478 A1 20021106; EP 1254478 A4 20041201; JP 2003520351 A 20030702

DOCDB simple family (application)

US 9929363 W 20000119; AU 6333300 A 20000119; EP 99973730 A 20000119; JP 2001553564 A 20000119