

Title (en)
NANOTUBE ELECTRO-OPTICAL COMPONENT, OPTRONIC OR OPTICAL LINK-BASED HYBRID INTEGRATED CIRCUIT INTEGRATING THIS COMPONENT, AND METHOD OF FABRICATION

Title (de)
ELEKTROOPTISCHE NANORÖHRCHENKOMPONENTE, AUF OPTRONISCHER ODER OPTISCHER VERBINDUNG BASIERENDE INTEGRIERTE HYBRIDSCHALTUNG MIT DIESER KOMPONENTE UND HERSTELLUNGSVERFAHREN

Title (fr)
COMPOSANT ÉLECTRO-OPTIQUE À NANOTUBES, CIRCUIT INTÉGRÉ HYBRIDE OPTRONIQUE OU À LIEN OPTIQUE INTÉGRANT CE COMPOSANT, ET PROCÉDÉ DE FABRICATION

Publication
EP 2583133 A1 20130424 (FR)

Application
EP 11735496 A 20110615

Priority
• FR 1054744 A 20100615
• FR 2011051355 W 20110615

Abstract (en)
[origin: WO2011157948A1] The present invention relates to a photonic component comprising at least one linear optical waveguide, of which a so-called active portion is surrounded over all or part of its periphery by a grouping of one or more essentially semiconducting nanotubes. These nanotubes interact with their exterior environment in an active zone extending on either side of the optical waveguide, so as to thus induce an optical coupling between an electrical or optical signal applied to the nanotubes and on the other hand an optical signal in the active portion of the waveguide. Such a component can carry out in particular bipolar electro-optical functions as light source, or modulator or detector, inside the optical guide, for example with an electro-optical coupling between on the one hand an electrical signal applied between the electrodes, and on the other hand an optical signal emitted or modified in the active portion of the optical waveguide towards the remainder of said optical guide. It furthermore relates to an electronic and optical hybrid integrated circuit whose optical and electronic circuits interact through at least one such electro-optical component; as well as to a method of fabrication of such a component or integrated circuit.

IPC 8 full level
B82Y 10/00 (2011.01); **C01B 31/02** (2006.01); **G02B 6/00** (2006.01); **G02F 1/065** (2006.01); **H01L 51/00** (2006.01); **H01L 51/44** (2006.01); **H01L 51/50** (2006.01); **H03K 17/78** (2006.01)

CPC (source: EP US)
B82Y 10/00 (2013.01 - EP US); **B82Y 30/00** (2013.01 - EP US); **G02B 6/12** (2013.01 - US); **G02F 1/065** (2013.01 - EP US); **H01L 21/302** (2013.01 - US); **H01S 5/50** (2013.01 - US); **H10K 30/65** (2023.02 - EP US); **B82Y 20/00** (2013.01 - US); **H10K 85/221** (2023.02 - EP US); **Y02E 10/549** (2013.01 - EP US); **Y02P 70/50** (2015.11 - EP US)

Citation (search report)
See references of WO 2011157948A1

Citation (examination)
TAKENOBU TAISHI ET AL: "Optical evidence of Stark effect in single-walled carbon nanotube transistors", APPLIED PHYSICS LETTERS, A I P PUBLISHING LLC, US, vol. 89, no. 26, 29 December 2006 (2006-12-29), pages 263510 - 263510, XP012087930, ISSN: 0003-6951, DOI: 10.1063/1.2425009

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
FR 2961320 A1 20111216; FR 2961320 B1 20130426; EP 2583133 A1 20130424; JP 2013535028 A 20130909; JP 6033770 B2 20161130; US 2013216178 A1 20130822; US 9568671 B2 20170214; WO 2011157948 A1 20111222

DOCDB simple family (application)
FR 1054744 A 20100615; EP 11735496 A 20110615; FR 2011051355 W 20110615; JP 2013514768 A 20110615; US 201113704452 A 20110615