

Title (en)

CATALYTIC AND DIRECTIONAL GROWTH OF INDIVIDUAL CARBON NANOTUBES, AND APPLICATION THEREOF FOR COLD ELECTRON SOURCES

Title (de)

KATALYTISCHES UND GERICHTETES WACHSTUM VON INDIVIDUELLEN KOHLENSTOFFNANORÖHREN UND ANWENDUNG DAVON FÜR KALTE ELEKTRONENQUELLEN

Title (fr)

CROISSANCE CATALYTIQUE ET DIRECTIONNELLE DE NANOTUBES DE CARBONE INDIVIDUELS, APPLICATION A DES SOURCES FROIDES D'ELECTRONS

Publication

EP 1971703 A2 20080924 (FR)

Application

EP 04767596 A 20040707

Priority

- FR 2004001761 W 20040707
- FR 0308365 A 20030709

Abstract (en)

[origin: WO2005005685A2] The invention relates to the catalytic growth of individual carbon nanotubes which are oriented essentially perpendicularly to the substrate (14). The invention is characterised by the use of: a first chamber (11) forming a source of carbon product ions (13); and a second growth chamber (12) in which the substrate (14) is placed on a heating support (15), the aforementioned ions (13) being accelerated towards the substrate (14) by an electron-optical system (16, 17, 18) which directs same essentially perpendicularly to the surface of the substrate (14). The invention can be used to optimise the characteristics of the nanotubes in terms of height, position and direction of growth. In this way, the nanotubes thus obtained have excellent field emission characteristics and are particularly suitable for use as cold electron sources.

IPC 8 full level

C23C 16/26 (2006.01); **C01B 31/02** (2006.01); **C23C 16/02** (2006.01); **C23C 16/452** (2006.01); **D01F 9/127** (2006.01)

CPC (source: EP)

B82Y 30/00 (2013.01); **B82Y 40/00** (2013.01); **C01B 32/162** (2017.07); **D01F 9/1271** (2013.01); **D01F 9/1275** (2013.01); **C01B 2202/08** (2013.01)

Citation (search report)

See references of WO 2005005685A2

Designated contracting state (EPC)

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

DOCDB simple family (publication)

FR 2857379 A1 20050114; EP 1971703 A2 20080924; WO 2005005685 A2 20050120; WO 2005005685 A3 20050407

DOCDB simple family (application)

FR 0308365 A 20030709; EP 04767596 A 20040707; FR 2004001761 W 20040707