Number of documents: 25

KR101447478	Ceramic paste composition using carbon nanotube or carbon nanotube-metal complex, and conductive film containing same BIONEER
WO201380912	Process for producing carbon nanotube composition and carbon nanotube composition ZEON
WO200972478	Method for producing carbon nanotube-containing conductor DAIDO MEIJO NANO CARBON MEIJYO NANO CARBON PAINT SUMITA NANOTECHNOLOGIES
TW201540764	Manufacturing method of macromolecule composite particle containing carbon TAIWAN CARBON NANOTUBE TECHNOLOGY
US20100258238	Reduced feed roll wear using carbon nanotube additives in rubbers XEROX
WO201347796	Carbon nanotube composite material NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE & TECHNOLOGY NATIONAL RESEARCH & DEVELOPMENT INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE & TECHNOLOGY
WO2013133292	Surface-treated carbon nanotube and resin composition ASAHI KASEI CHEMICALS
CN105238034	Carbon nanotube modified polyurethane composite material CHUZHOU HUANQIU POLYURETHANE TECHNOLOGY
WO201433810	Carbon nanotube dispersion and method for manufacturing dispersion MEIJO NANO CARBON
KR20050036390	Electromagnetic shielding material having carbon nanotube and metal as electrical conductor ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE KOREA ELECTRONICS TELECOMM
WO200876473	Metal oxide coatings for electrically conductive carbon nanotube films EIKOS
US20100261821	Dispersible carbon nanotube, carbon nanotube-polymer composite and method of manufacturing the carbon nanotube-polymer composite KOREA ADVANCED INSTITUTE OF SCIENCE & TECHNOLOGY (KAIST) SAMSUNG ELECTRONICS
WO2013168955	Carbon nanotube composite having improved pressure-resistance sensitivity, method for manufacturing the carbon nanotube composite, and pressure sensor including carbon nanotube composite KOREA RESEARCH INSTITUTE OF STANDARDS & SCIENCE
WO201629798	Liquid phase continuous mixing process for highly dispersed carbon nanotube masterbatch and rubber product thereof SHANDONG DAZHAN NANO MAT SHANDONG DAZHAN NANO MATERIALS
WO2014115560	Carbon nanotube dispersion, method for manufacturing same, carbon nanotube composition, and method for manufacturing same ZEON
WO201257321	Method for manufacturing liquid dispersion of carbon-nanotube aggregates TORAY TORAY INDUSTRIES
WO200570825	Secondary matrix composite containing carbon nanotube

	SANC SALAAM COPRORATION
CN103318868	Method for making semiconducting single wall carbon nanotubes HON HAI PRECISION INDUSTRY HONGFUJIN PRECISION INDUSTRY SHENZHEN TSINGHUA UNIVERSITY
WO201402885	Dispersion liquid of carbon nanotube-containing composition and conductive molded body TORAY INDUSTRIES
US20140072723	Method for making carbon nanotube composite film BEIJING FUNATE INNOVATION TECHNOLOGY
CN102795613	Method for making graphene/carbon nanotube composite structure HON HAI PRECISION INDUSTRY HONGFUJIN PRECISION INDUSTRY SHENZHEN QIINGHUA UNIVERSITY TSINGHUA UNIVERSITY
CN102875843	Modified carbon nanotube and preparation method thereof SOOCHOW UNIVERSITY
CN103059343	Modified carbon nanotube and preparation method thereof SOOCHOW UNIVERSITY
WO201331958	Carbon nanotube composite material and conductive material NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE & TECHNOLOGY NATIONAL RESEARCH & DEVELOPMENT INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE & TECHNOLOGY
CN101671442	Method for making composite material having carbon nanotube array HON HAI PRECISION INDUSTRY HONGFUJIN PRECISION INDUSTRY SHENZHEN QIINGHUA UNIVERSITY TSINGHUA UNIVERSITY

Ceramic paste composition using carbon nanotube or carbon nanotube-metal complex, and conductive film containing same

KR101447478

- **Patent Assignee**
  BIONEER
- **Inventor**
  PARK HAN OH
  KIM JAE HA
  KIM JUN PYO
- **International Patent Classification**
  C04B-035/52 C04B-035/74 C04B-035/80 C04B-041/45 H01B-001/00 H01B-001/24 H01B-005/14
- **CPC Code**
  C04B-035/52; C04B-035/74; C04B-035/80; H01B-001/04; H01B-001/18 H01B-001/24;

- **Publication Information**
  KR101447478 B1 2014-10-06 [KR101447478]
- **Priority Details**
  2013KR-0082105 2013-07-12
  2014WO-KR06141 2014-07-09

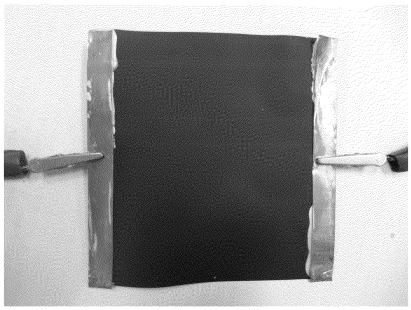
- **Fampat family**

KR101447478	B1	2014-10-06	[KR101447478]
WO2015005665	A1	2015-01-15	[WO201505665]
CN105493198	A	2016-04-13	[CN105493198]
EP3021328	A1	2016-05-18	[EP3021328]
US2016254072	A1	2016-09-01	[US20160254072]
JP2016533001	A	2016-10-20	[JP2016533001]
EP3021328	A4	2017-01-18	[EP3021328]

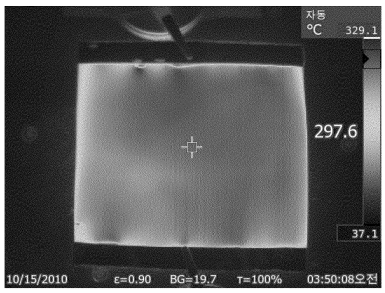
- **Abstract:**

(EP3021328)
Provided is a ceramic paste composition including **carbon** nanotubes or a **carbon nanotube**-metal composite and a **silicone** adhesive, wherein the **silicone** adhesive includes 45 to 65 wt% of **silicon** dioxide, and 0.1 to 10 wt% of a silanol group, and has a weight ratio of a methyl group: a phenyl group of 1: 0.3 to 2.5. The ceramic paste composition according to the present invention is characterized by having low sheet resistance, through which an excellent heat generating property, and shielding, absorbing and conducting properties may be implemented. Further, though the ceramic paste composition has a very high heat generating temperature of 400 °C, as compared with general paste based on **carbon** nanotubes, the physical properties thereof may be maintained stably, thereby implementing the inherent properties of ceramic paste. In addition, the ceramic paste may be easily formed into a planar conductive film by a simple process, and thus, widely used in various fields including heat generating products such as those for keeping warmth or heating, and products for electromagnetic wave shielding and absorption, electrodes, electronic circuits, antennas, and the like.

【FIG. 1】



【FIG. 2】



Process for producing carbon nanotube composition and carbon nanotube composition

WO201380912

- **Patent Assignee**
  ZEON
- **Inventor**
  SHIGETA MASAHIRO
  NAGAMUNE TSUTOMU
  HOANG THE BAN
  UEJIMA MITSUGU
- **International Patent Classification**
  B82Y-030/00 B82Y-040/00 C01B-031/02 C08J-003/20 C08J-003/215 C08K-003/04 C08K-007/24 C08L-009/04 C08L-101/00 H01B-001/24
- **US Patent Classification**
  PCLO=252511000
- **CPC Code**
  B82Y-030/00; B82Y-040/00; C01B-031/02/33; C01B-031/02/73; C01B-2202/32; C08J-003/215; C08J-2309/04; C08K-007/24; C08K-2201/006; C08K-2201/011 H01B-001/24;

- **Publication Information**
  WO2013080912 A1 2013-06-06 [WO201380912]
- **Priority Details**
  2011JP-0259257 2011-11-28
  2012JP-0140152 2012-06-21
  2012WO-JP80451 2012-11-26
  2013JP-0508050 2012-11-26

- **Fampat family**

WO2013080912	A1	2013-06-06	[WO201380912]
JP5263463	B1	2013-08-14	[JP5263463]
CN103946316	A	2014-07-23	[CN103946316]
KR20140105439	A	2014-09-01	[KR20140105439]
EP2787044	A1	2014-10-08	[EP2787044]
US2014353556	A1	2014-12-04	[US20140353556]
JPWO2013080912	A1	2015-04-27	[JP2013080912W]
EP2787044	A4	2015-08-19	[EP2787044]

- **Abstract:**
(EP2787044)
A method of the present invention for producing a **carbon nanotube** includes: a dispersing step of dispersing a **carbon nanotube** in a solvent by carrying out a dispersion treatment that brings about a cavitation effect, the **carbon nanotube** having an average diameter (Av) and a diameter distribution (3Ã) that satisfy 0.60>3Ã/Av>0.20; and a mixing step of mixing **carbon nanotube** slurry obtained in the dispersing step with latex.

		実施例1	実施例2	実施例3	実施例4	実施例5	実施例6	比較例1	比較例2	比較例3
組成	樹脂	NBR	HNBR	NBR	NBR	SBR	NBR	NBR	NBR	NBR
	カーボンナノチューブ	SGCNT-1	SGCNT-2	SGCNT-2	NC7000	Lot.1234	NC7000	HiPCO	Lot.1232	SGCNT-1
CNT特性	平均直径（Av）	3.3	5.9	5.9	9.3	76.8	9.3	1.1	51.1	3.3
	直径分布（3σ）	1.9	3.3	3.3	2.6	19.4	2.6	0.2	9.8	1.9
	3σ/Av	0.58	0.56	0.56	0.28	0.25	0.28	0.18	0.19	0.58
製造プロセス	CNT分散処理	超音波	高剪断攪拌装置	ジェットミル	超音波	超音波	超音波	超音波	超音波	ボールミル
	分散剤	LA1275	SDS	SDS	ペレックスSS-L	リパール870P	SDBS	SDS	SDS	SDS
評価	収率	95%	95%	96%	92%	52%	87%	85%	28%	88%
	体積導電率	0.8S/cm	2.2S/cm	2.3S/cm	1×10^{-3}S/cm	4.2×10^{-6}S/cm	8×10^{-4}S/cm	N.D.	1.4×10^{-6}S/cm	N.D.

Method for producing carbon nanotube-containing conductor
WO200972478

- **Patent Assignee**
  DAIDO MEIJO NANO CARBON MEIJYO NANO CARBON PAINT SUMITA NANOTECHNOLOGIES
- **Inventor**
  MORIMOTO YOSHIYUKI
  KUBOSAKI NOBUO
  NAKAMURA NORIYUKI
  SUMITA YUZO
- **International Patent Classification**
  B32B-027/18 B44C-001/175 B82Y-030/00 C01B-031/02 H01B-013/00
- **US Patent Classification**
  PCLO=156241000 PCLX=977842000 PCLX=977902000
- **CPC Code**
  B82Y-030/00; B82Y-040/00; C01B-031/02/73; C01B-2202/02; C01B-2202/06; C01B-2202/28; C01B-2202/34; C01B-2202/36; H01B-001/24; H01B-013/00; H01L-051/44/4 H01L-051/44/4; Y02E-010/549; Y02P-070/521 Y02P-070/521;

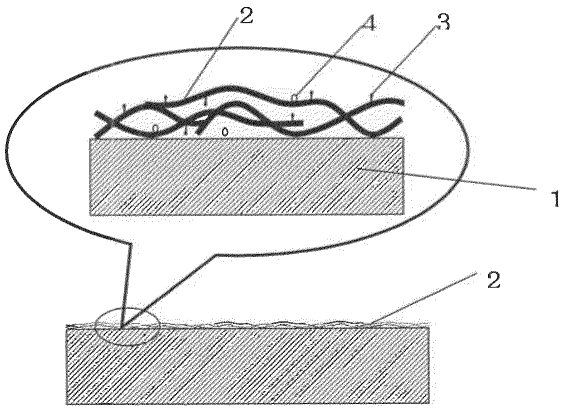
- **Publication Information**
  WO2009072478 A1 2009-06-11 [WO200972478]
- **Priority Details**
  2007JP-0316965 2007-12-07
  2008WO-JP71839 2008-12-02
  2009JP-0544670 2008-12-02

- **Fampat family**

WO2009072478	A1	2009-06-11	[WO200972478]
KR20100088155	A	2010-08-06	[KR20100088155]
US2010252184	A1	2010-10-07	[US20100252184]
JP5431960	B2	2014-03-05	[JP5431960]
US8778116	B2	2014-07-15	[US8778116]
KR101601988	B1	2016-03-09	[KR101601988]

- **Abstract:**

(WO200972478)
Disclosed is a method for producing a low-cost **carbon nanotube**-containing conductor having high transparency, high conductivity and excellent durability. Specifically disclosed is a method for producing a conductor having a conductive layer on a work substrate, namely a method for producing a **carbon nanotube**-containing conductor, which is characterized by comprising a process wherein a **carbon nanotube** network layer on a release substrate having the **carbon nanotube** network layer is pressed against a transparent work substrate which is coated with an electron beam-curable liquid resin composition so that the **carbon nanotube** network layer is impregnated with the liquid resin composition, next the liquid resin composition is cured by irradiation of an electron beam, and then the release substrate is separated therefrom. Consequently, the **carbon nanotube**-containing conductor is characterized by being composed of a work substrate having, on the surface thereof, a resin composition layer in which **carbon** nanotubes are embedded. By this method, there can be obtained a conductor or a conductive film each having excellent strength and durability in addition to high conductivity and transparency.



Manufacturing method of macromolecule composite particle containing carbon TW201540764

- **Patent Assignee**
  TAIWAN CARBON NANOTUBE TECHNOLOGY
- **Inventor**
  LIN YUHONG
  HUANG WANTING
  WU JINGYI
  LI TINGJUAN
  CAI QUNRONG
  CAI QUNXIAN

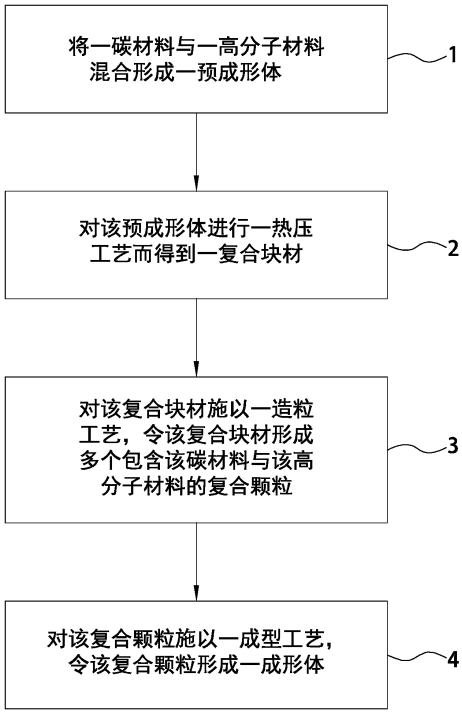
- **International Patent Classification**
  B01F-003/18 B29B-009/02 B29B-009/06 B29B-011/12 B29C-051/10 B29K-507/04 C08J-003/12 C08K-003/04 C08K-007/24 C08L-083/04 C08L-101/00

- **Publication Information**
  TW201540764 A 2015-11-01 [TW201540764]
- **Priority Details**
  2014TW-0114151 2014-04-18
  2015TW-0112347 2015-04-17

- **Fampat family**

TW201540764	A	2015-11-01	[TW201540764]
CN105038285	A	2015-11-11	[CN105038285]

- **Abstract:**
  (CN105038285)
  The present invention provides a manufacturing method of a macromolecule composite particle containing **carbon**. Firstly, **carbon** materials and high polymer materials are mixed to form a preformed reinforcement; secondly, a hot-pressing technology of the preformed reinforcement is performed to obtain a composite block material; finally, a prilling process is applied to the composite block material to allow the composite block material to form a plurality of composite particles containing the **carbon** materials and the high polymer materials. The **carbon** material is selected from the group of **carbon** nano tube, grapheme, **carbon** black and the combination thereof. Therefore, the composite particles are made through the prilling process of the **carbon** materials and the high polymer materials, and the composite particles generate raw materials with excellent engineering properties, electrical conductivities, thermal conductivities and corrosion resistance conductivities.



Reduced feed roll wear using carbon nanotube additives in rubbers
US20100258238

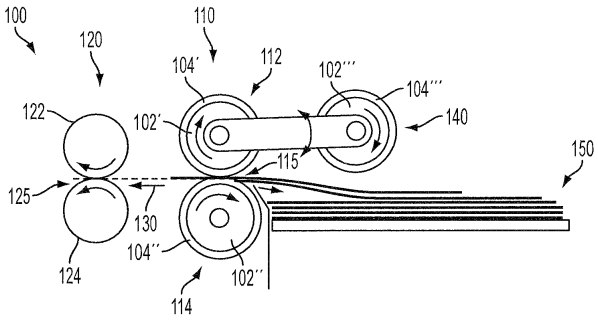
- **Patent Assignee**
  XEROX
- **Inventor**
  HOOVER LINN C
  LAW KOCK-YEE
- **International Patent Classification**
  B65H-003/06 B65H-003/52 B65H-005/06 B65H-027/00 D01F-009/12
- **US Patent Classification**
  PCLO=492028000 PCLX=492053000 PCLX=492056000 PCLX=492059000
- **CPC Code**
  B65H-003/06/38; B65H-2401/11; B65H-2402/80; B65H-2404/1112; B65H-2404/14; B65H-2404/187; B65H-2404/55; B65H-2601/423; B65H-2601/522; B65H-2801/06; G03G-2215/00679; G03G-2215/00683

- **Publication Information**
  US2010258238 A1 2010-10-14 [US20100258238]
- **Priority Details**
  2009US-12423107 2009-04-14

- **Fampat family**

US2010258238	A1	2010-10-14	[US20100258238]
EP2241522	A2	2010-10-20	[EP2241522]
JP2010247991	A	2010-11-04	[JP2010247991]
EP2241522	A3	2013-03-06	[EP2241522]
US8852064	B2	2014-10-07	[US8852064]
JP5749896	B2	2015-07-15	[JP5749896]
EP2241522	B1	2016-10-12	[EP2241522]

- **Abstract:**
  (EP2241522)
  In accordance with the invention, there are media feeding assemblies and methods of making a roll of a media feeding assembly. The method can include providing a soluble **carbon nanotube** composition, providing a first elastomeric rubber composition, and mixing the soluble **carbon nanotube** composition with the first elastomeric rubber composition to form a composite rubber composition, such that the soluble **carbon** nanotubes are substantially uniformly dispersed in the composite rubber composition. The method can also include applying the composite rubber composition to a mold and curing the composite rubber composition to form a composite rubber tire, such that the substantially uniformly dispersed soluble **carbon** nanotubes in the composite rubber tire provide at least about 10 % decrease in wear.



Carbon nanotube composite material
WO201347796

- **Patent Assignee**
  NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE & TECHNOLOGY NATIONAL RESEARCH & DEVELOPMENT INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE & TECHNOLOGY
- **Inventor**
  HATA KENJI
  ATA SEISUKE
  YAMADA TAKEO
- **International Patent Classification**
  B82Y-030/00 C01B-031/02 C08K-003/04 C08L-101/00 H01B-001/24
- **US Patent Classification**
  PCLO=252511000 PCLX=977783000
- **CPC Code**
  B82Y-030/00; C08J-005/04/2; C08J-2301/00; C08K-007/24; C08K-2201/011 C08K-2201/011; H01B-001/24; Y10S-977/783 Y10S-977/783;

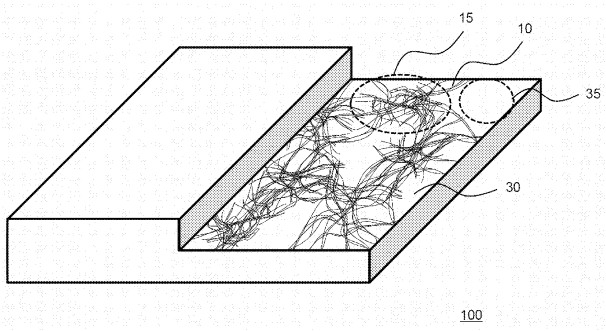
- **Publication Information**
  WO2013047796 A1 2013-04-04 [WO201347796]
- **Priority Details**
  2011JP-0213995 2011-09-29
  2012WO-JP75176 2012-09-28
  2013JP-0536449 2012-09-28

- **Fampat family**

WO2013047796	A1	2013-04-04	[WO201347796]
CN103842290	A	2014-06-04	[CN103842290]
EP2762445	A1	2014-08-06	[EP2762445]
US2014217331	A1	2014-08-07	[US20140217331]
JPWO2013047796	A1	2015-03-30	[JP2013047796W]
EP2762445	A4	2015-05-27	[EP2762445]
JP5900860	B2	2016-04-06	[JP5900860]

- **Abstract:**

(EP2762445)
A **carbon nanotube** composite material capable of exhibiting a high conductivity with a small amount of **carbon** nanotubes is realized. A **carbon nanotube** composite material according to the present invention contains **carbon** nanotubes dispersed in a matrix and includes a **carbon nanotube** group formed of a plurality of **carbon** nanotubes, and a basic material area. The **carbon** nanotubes are contained in an amount of 0.0001% by weight or greater and 1.0% by weight or less; and the **carbon nanotube** composite material has a conductivity of 10 -7 S/cm or greater.



Surface-treated carbon nanotube and resin composition
WO2013133292

- **Patent Assignee**
  ASAHI KASEI CHEMICALS
- **Inventor**
  TAKAGIWA AYA
  SAKUMA TERUAKI
  SHIKANO YASUKAZU
  NODA KAZUYA
- **International Patent Classification**
  B82Y-030/00 B82Y-040/00 C01B-031/02 C07C-059/265 C07D-307/32 C08F-120/06 C08F-210/02 C08F-220/06 C08F-220/08 C08K-009/00 C08K-009/04 C08L-077/00 C08L-077/06 C08L-101/00
- **US Patent Classification**
  PCLO=525183000 PCLX=423415100 PCLX=525327400 PCLX=525329700 PCLX=549261000 PCLX=562590000
- **CPC Code**
  B82Y-030/00; B82Y-040/00; C01B-031/02/2; C01B-031/02/53; C01B-031/02/73; C01B-2202/30 C01B-2202/30; C07C-059/265; C07D-307/32; C08F-120/06; C08F-210/02; C08F-220/06; C08F-220/08; C08K-009/04 C08L-077/06 C08L-077/06;

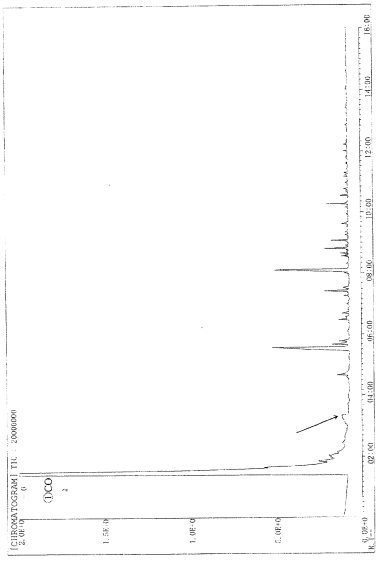
- **Publication Information**
  WO2013133292 A1 2013-09-12 [WO2013133292]
- **Priority Details**
  2012JP-0048374 2012-03-05
  2012JP-0048377 2012-03-05
  2012JP-0048454 2012-03-05
  2012JP-0048459 2012-03-05
  2013WO-JP56041 2013-03-05
  2014JP-0503866 2013-03-05

- **Fampat family**

WO2013133292	A1	2013-09-12	[WO2013133292]
KR20140112499	A	2014-09-23	[KR20140112499]
CN104203815	A	2014-12-10	[CN104203815]
EP2824069	A1	2015-01-14	[EP2824069]
US2015018490	A1	2015-01-15	[US20150018490]
JPWO2013133292	A1	2015-07-30	[JP2013133292W]
EP2824069	A4	2015-11-18	[EP2824069]
JP5848817	B2	2016-01-27	[JP5848817]
KR101626696	B1	2016-06-01	[KR101626696]
CN104203815	B	2017-02-15	[CN104203815B]

- **Abstract:**
  (EP2824069)
  Provided is a surface-treated **carbon nanotube** having few surface fractures, not reducing the molecular weight of the resin to be mixed and having excellent extrudability. In the surface-treated **carbon nanotube**, the thermal reduction amount at 600°C in a nitrogen atmosphere is 0.2 to 40%, the surface oxygen concentration measured by X-ray photoelectron spectroscopy (XPS) is 1.5 to 40 atm% and the surface sulfur concentration is less than 0.1 atm%.

Fig. 1



Carbon nanotube modified polyurethane composite material
CN105238034

- **Patent Assignee**
  CHUZHOU HUANQIU POLYURETHANE TECHNOLOGY
- **Inventor**
  GONG WENXIANG
- **International Patent Classification**
  C08G-018/69 C08G-018/76 C08G-018/79 C08K-003/24 C08K-003/26 C08K-003/34 C08K-003/36 C08K-005/12 C08K-007/08 C08K-007/24 C08K-009/04 C08K-013/06 C08L-027/06 C08L-055/02 C08L-075/14 C08L-079/04

- **Publication Information**
  CN105238034 A 2016-01-13 [CN105238034]
- **Priority Details**
  2015CN-0655431 2015-10-09

- **Fampat family**

CN105238034	A	2016-01-13	[CN105238034]

- **Abstract:**
  (CN105238034)
  The invention discloses a **carbon nanotube** modified **polyurethane** composite material including the raw materials: hydroxyl-terminated polybutadiene, diphenyl methylene diisocyanate, polyisocyanurate, vinyltriethoxysilane, a silane coupling agent KH-560, hydroquinone dihydroxyl ethyl ether, dimethythiotoluene diamine, dibutyltin dilaurate, polyvinyl chloride, an acrylonitrile-styrene-butadiene copolymer, nano calcium carbonate, **carbon** nanotubes, organic modified montmorillonite, nano **silica**, nano barium titanate, calcium sulphate whiskers, dioctyl phthalate, pentaerythritol-tetra-[beta-(3,5-di-tert-butyl-4-hydroxyphenyl)-propionate], and polybenzimidazole. The **carbon nanotube** modified **polyurethane** composite material provided by the invention has the advantages of good water resistance, high strength, excellent heat resistance, and aging resistance.

Carbon nanotube dispersion and method for manufacturing dispersion WO201433810

- **Patent Assignee**
  MEIJO NANO CARBON
- **Inventor**
  HASHIMOTO TAKESHI
- **International Patent Classification**
  B01J-013/00 B82Y-040/00 C01B-031/02 H01M-004/62
- **US Patent Classification**
  PCLO=252511000 PCLX=252502000
- **CPC Code**
  C01B-031/02/73; C01B-2202/06 C01B-2202/06; H01M-004/13; H01M-004/36/6; H01M-004/62/5; H01M-010/0525; Y02P-070/54 Y02P-070/54;

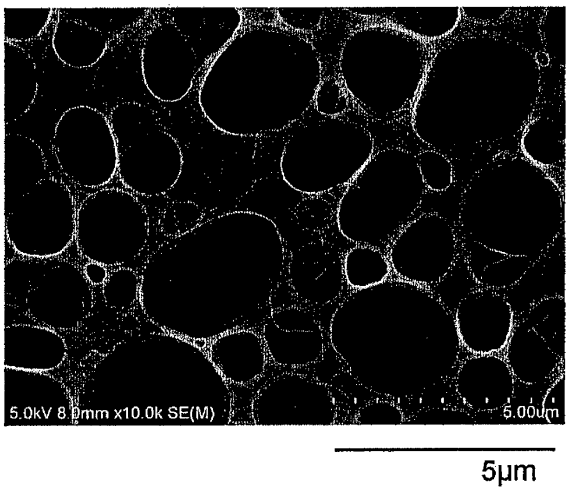
- **Publication Information**
  WO2014033810 A1 2014-03-06 [WO201433810]
- **Priority Details**
  2012WO-JP71581 2012-08-27

- **Fampat family**

WO2014033810	A1	2014-03-06	[WO201433810]
JP5604609	B2	2014-10-08	[JP5604609]
CN104736475	A	2015-06-24	[CN104736475]
KR20150072402	A	2015-06-29	[KR20150072402]
US2015318550	A1	2015-11-05	[US20150318550]
JPWO2014033810	A1	2016-08-08	[JP2014033810W]

- **Abstract:**

(WO201433810)
Disclosed is a manufacturing method which comprises: loading a liquid medium into a dispersing container; loading **carbon** nanotubes into the dispersing container and adjusting the viscosity of the contents of the dispersing container to a prescribed load target value; and subjecting the contents of the dispersing container to a dispersion treatment using an annular gap type bead mill to achieve a prescribed dispersion target value for the viscosity of the contents. This manufacturing method is characterized in that the loading of the **carbon** nanotubes and the dispersion treatment are repeated until the **carbon nanotube** concentration in the contents of the dispersing container reaches a desired value. According to this manufacturing method, even a high concentration **carbon nanotube** dispersion can be homogeneously dispersed.



Electromagnetic shielding material having carbon nanotube and metal as electrical conductor

KR20050036390

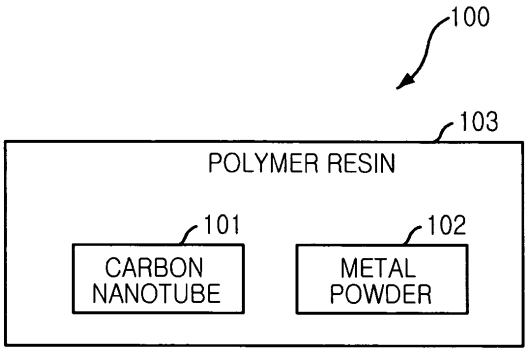
- **Patent Assignee**
  ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE KOREA ELECTRONICS TELECOMM
- **Inventor**
  KWON JONG-HWA
  CHOI HYUNG-DO
  YOON HO-GYU
  KIM YOON-JIN
- **International Patent Classification**
  C08K-003/04 C08K-003/08 C08K-007/24 G12B-017/02 H01B-001/22 H01B-001/24 H01F-001/20 H05K-009/00
- **US Patent Classification**
  PCLO=252503000 PCLX=250515100 PCLX=524495000
- **CPC Code**
  B82Y-010/00; B82Y-030/00; C08K-003/08; C08K-007/24; C08K-2201/011; H01B-001/22; H01B-001/24; H01F-001/20 H05K-009/00/83;

- **Publication Information**
  KR20050036390 A 2005-04-20 [KR20050036390]
- **Priority Details**
  2003KR-0072074 2003-10-16
  2004WO-KR02655 2004-10-15

- **Fampat family**

KR20050036390	A	2005-04-20	[KR20050036390]
WO2005038824	A1	2005-04-28	[WO200538824]
KR100570634	B1	2006-04-12	[KR100570634]
CN1883013	A	2006-12-20	[CN1883013]
US2007018142	A1	2007-01-25	[US20070018142]
US7588700	B2	2009-09-15	[US7588700]

- **Abstract:**
  (WO200538824)
  Disclosed is an electromagnetic shielding material with enhanced shielding effectiveness and mechanical property by employing a **carbon nanotube** and a metal as an electrical conductor. The electromagnetic shielding material includes a polymer resin for a matrix and two conductive fillers having a **carbon nanotube** and a metal, wherein a volume percent of the **carbon nanotube** ranges from about 0.2 % to about 10 % and a volume percent of the metal powder ranges from about 7.0 % to about 30 % so that the total volume percent of the conductive filler is in a range of about 7.2 % to about 40 %.



Metal oxide coatings for electrically conductive carbon nanotube films
WO200876473

- **Patent Assignee**
  EIKOS
- **Inventor**
  TUREVSKAYA EVGENIYA P
  LANDRIS DAVID H
  BRITZ DAVID ALEXANDER
  GLATKOWSKI PAUL J
- **International Patent Classification**
  B05D-005/12 B32B-007/02 B32B-009/00 B32B-017/06 B32B-025/00 B32B-025/02 B32B-027/28 B32B-027/30 B32B-027/32 B32B-027/36 B32B-027/38 B32B-027/40 C01B-031/02 C09D-011/00 H01B-001/00
- **US Patent Classification**
  PCLO=428213000 PCLX=427108000 PCLX=428220000 PCLX=428412000 PCLX=428413000 PCLX=428421000 PCLX=428423100 PCLX=428432000 PCLX=428480000 PCLX=428523000 PCLX=428702000
- **CPC Code**
  H01B-001/04; H01B-001/18; Y10T-428/2495; Y10T-428/31507; Y10T-428/31511; Y10T-428/3154; Y10T-428/31551; Y10T-428/31786; Y10T-428/31938

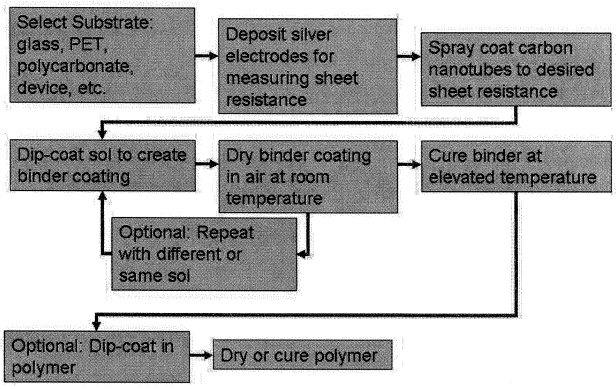
- **Publication Information**
  WO2008076473 A2 2008-06-26 [WO200876473]
- **Priority Details**
  2006US-60826783 2006-09-25
  2006US-60834281 2006-07-31
  2007US-11831748 2007-07-31

- **Fampat family**

WO2008076473	A2	2008-06-26	[WO200876473]
WO2008076473	A3	2008-11-06	[WO200876473]
US2010028634	A1	2010-02-04	[US20100028634]

- **Abstract:**

(WO200876473)
This invention are directed to methods and compositions preferably comprising non-**silicate** metal oxides as a treatment for transparent electrically conductive **carbon nanotube** coatings that prevents resistance changes during exposure to environmental conditions; both chemical effects (for example, water, heat, light, or other compounds) and physical effects (for example, abrasion, scratch, adhesion). The protective properties instilled by these coatings occur preferably through the careful selection of the appropriate metal oxide depending on the application.



Dispersible carbon nanotube, carbon nanotube-polymer composite and method of manufacturing the carbon nanotube-polymer composite

US20100261821

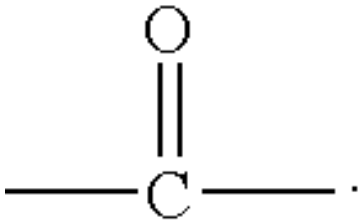
- **Patent Assignee**
  KOREA ADVANCED INSTITUTE OF SCIENCE & TECHNOLOGY (KAIST) SAMSUNG ELECTRONICS
- **Inventor**
  PARK JONG-JIN
  PARK TAE-GWAN
  LEE YU-HAN
  LEE KWANG-HEE
- **International Patent Classification**
  B82B-003/00 C01B-031/00 C01B-031/02 C08G-064/00 C09C-001/44 C09D-169/00
- **US Patent Classification**
  PCLO=423447300 PCLX=423447100 PCLX=977742000
- **CPC Code**
  B82B-003/00; B82Y-030/00; B82Y-040/00; C01B-031/02/73; C01P-2004/13; C08G-064/00; C08J-005/00/5; C09C-001/44 C09C-001/44; C09D-169/00

- **Publication Information**
  US2010261821 A1 2010-10-14 [US20100261821]
- **Priority Details**
  2009KR-0032338 2009-04-14

- **Fampat family**

US2010261821	A1	2010-10-14	[US20100261821]
KR20100113823	A	2010-10-22	[KR20100113823]
US8778296	B2	2014-07-15	[US8778296]
KR101598544	B1	2016-03-02	[KR101598544]

- **Abstract:**
  (US8778296)
  A dispersible **carbon nanotube** (“CNT”) comprising a CNT backbone and an organic moiety attached to the **carbon nanotube** backbone and comprising a hydroxyl substituted C6 to C14 aromatic group are described, as well as a CNT-polymer composite and a method of manufacturing the CNT-polymer composite.



Carbon nanotube composite having improved pressure-resistance sensitivity, method for manufacturing the carbon nanotube composite, and pressure sensor including carbon nanotube composite

WO2013168955

- **Patent Assignee**
  KOREA RESEARCH INSTITUTE OF STANDARDS & SCIENCE
- **Inventor**
  KWON SU-YONG
  PARK YON-KYU
  KIM MIN SEOK
- **International Patent Classification**
  B82B-001/00 C08K-003/04 G06F-003/041 H01L-029/84
- **CPC Code**
  B82B-001/00/2; B82Y-010/00; B82Y-015/00; B82Y-040/00; C01B-031/02/2; C08K-003/04; C08K-003/08; C08K-007/24; C08K-2201/011; G01L-001/20; G06F-003/041/4; H01L-029/06/73 H01L-029/06/73; H01L-029/84

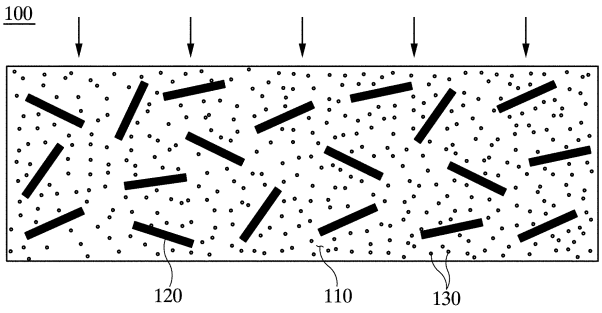
- **Publication Information**
  WO2013168955 A1 2013-11-14 [WO2013168955]
- **Priority Details**
  2012KR-0049466 2012-05-10

- **Fampat family**

WO2013168955	A1	2013-11-14	[WO2013168955]
KR20130125884	A	2013-11-20	[KR20130125884]
KR101412623	B1	2014-07-01	[KR101412623]

- **Abstract:**

(WO2013168955)
The present invention relates to a **carbon nanotube** composite having improved pressure-resistance sensing sensitivity, a method of manufacturing the **carbon nanotube** composite, and a pressure sensor including the **carbon nanotube** composite. A polymer matrix of polydimethylsiloxane, **carbon** nanotubes, and silver nanoparticles are mixed at a mass ratio of 1 : 0.0018 to 0.0022 : 0.032 to 0.048, and the **carbon nanotube** and the metallic nanoparticles are uniformly distributed over the polymer matrix. The silver nanoparticles are not attached to a surface of the **carbon nanotube**, but the **carbon nanotube** and the silver nanoparticles are uniformly distributed over the polymer matrix. Accordingly, the linearity of the **carbon nanotube** can be improved, the **carbon nanotube** composite has improved sensing sensitivity, and the **carbon nanotube** composite can be manufactured very simply.



Liquid phase continuous mixing process for highly dispersed carbon nanotube masterbatch and rubber product thereof

WO201629798

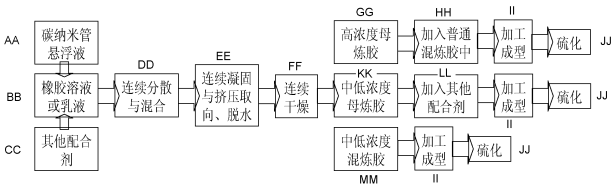
- **Patent Assignee**
  SHANDONG DAZHAN NANO MAT SHANDONG DAZHAN NANO MATERIALS
- **Inventor**
  LI YAN
  XU SIJIAO
  ZHAI JUNXUE
  SHANG JIJIN
  GENG LEI
- **International Patent Classification**
  B29B-007/00 B29B-013/06 C08K-003/04 C08K-007/00 C08K-009/04 C08L-007/00 C08L-007/02 C08L-009/08 C08L-011/02
- **CPC Code**
  B29B-007/00; C08K-003/04; C08L-007/00

- **Publication Information**
  WO2016029798 A1 2016-03-03 [WO201629798]
- **Priority Details**
  2014CN-0422228 2014-08-25

- **Fampat family**

WO2016029798	A1	2016-03-03	[WO201629798]
CN105459284	A	2016-04-06	[CN105459284]

- **Abstract:**
  (WO201629798)
  Disclosed is a liquid phase continuous preparation method for a **carbon nanotube** masterbatch. The method comprises: preparing a **carbon nanotube** suspension; continuously dispersing and mixing the **carbon nanotube** suspension, a rubber solution/emulsion and an arbitrary rubber compounding agent solution/suspension to obtain a **carbon nanotube**/rubber/solvent mixture; solidifying and meanwhile continuously extruding the **carbon nanotube**/rubber/solvent mixture to realize **carbon nanotube** orientation, and removing water or the solvent to obtain a **carbon nanotube**/rubber mixture; and continuously drying the **carbon nanotube**/rubber mixture to obtain a **carbon nanotube** masterbatch. Also disclosed are a **carbon nanotube** masterbatch prepared by the liquid phase continuous preparation method and a rubber product prepared by using the **carbon nanotube** masterbatch.



AA Carbon nanotube suspension
BB Rubber solution or emulsion
CC Other compounding agents
DD Continuous dispersion and mixing
EE Continuous solidification, extrusion and orientation and dehydration
FF Continuous drying
GG High-concentration masterbatch
HH Add into a common rubber compound
II Processing forming
JJ Vulcanization
KK Medium-low concentration masterbatch
LL Add other compounding agents
MM Medium-low concentration rubber compound

图 1 / **Fig. 1**

Carbon nanotube dispersion, method for manufacturing same, carbon nanotube composition, and method for manufacturing same

WO2014115560

- **Patent Assignee**
  ZEON
- **Inventor**
  SONE ATSUSHI
- **International Patent Classification**
  B82Y-030/00 C01B-031/02 C01B-032/152 C01B-032/158 C08K-003/04 C08L-001/02 C08L-001/08 C08L-101/00 H01B-001/24
- **US Patent Classification**
  PCLO=252510000
- **CPC Code**
  B82Y-030/00; C01B-031/02/73; C08K-003/04; C08L-001/08; C08L-101/00 C08L-101/00; H01B-001/24 H01B-001/24;

- **Publication Information**
  WO2014115560 A1 2014-07-31 [WO2014115560]
- **Priority Details**
  2013JP-0010843 2013-01-24
  2014WO-JP00366 2014-01-24

- **Fampat family**

WO2014115560	A1	2014-07-31	[WO2014115560]
CN104936895	A	2015-09-23	[CN104936895]
KR20150110549	A	2015-10-02	[KR20150110549]
EP2949624	A1	2015-12-02	[EP2949624]
US2015368108	A1	2015-12-24	[US20150368108]
EP2949624	A4	2017-01-04	[EP2949624]
JPWO2014115560	A1	2017-01-26	[JP2014115560W]

- **Abstract:**
  (EP2949624)
  A **carbon nanotube** dispersion liquid suppresses aggregation of **carbon** nanotubes and exhibits high dispersion stability. The **carbon nanotube** dispersion liquid includes **carbon** nanotubes, cellulose nanofibers, and a dispersion medium.

Amount 1 of Functional Group (mmol/g) = V (ml) × 0.05/mass of cellulose (g)

Method for manufacturing liquid dispersion of carbon-nanotube aggregates WO201257321

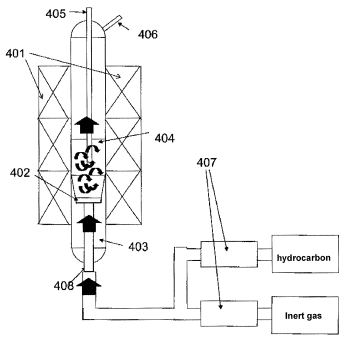
- **Patent Assignee**
  TORAY TORAY INDUSTRIES
- **Inventor**
  HONDO KAZUNORI
  NISHINO HIDEKAZU
  SATO KENICHI
- **International Patent Classification**
  B01F-011/02 B01J-019/10 B05D-001/36 B05D-005/12 B05D-007/24 B32B-007/00 B32B-007/02 B32B-009/00 B32B-027/18 B82Y-030/00 B82Y-040/00 C01B-031/02 G06F-003/041 H01B-001/04 H01B-001/24 H01B-005/14 H01B-013/00 H01B-013/30 H01B-013/32
- **US Patent Classification**
  PCLO=428331000 PCLO=252502000 PCLX=366108000 PCLX=427122000 PCLX=428448000 PCLX=428688000 PCLX=428702000
- **CPC Code**
  B01F-011/02; B01J-019/10; B05D-005/12; B82Y-030/00; B82Y-040/00; C01B-031/02/53; C01B-031/02/73; C01B-031/02; G06F-003/041; G06F-2203/04103; H01B-001/04; H01B-001/24; H01B-005/14; H01B-013/30; H01B-013/32/2 H01B-013/32/2; Y10T-428/259 Y10T-428/259;

- **Publication Information**
  WO2012057321 A1 2012-05-03 [WO201257321]
- **Priority Details**
  2010JP-0243737 2010-10-29
  2011JP-0074643 2011-03-30
  2011JP-0121497 2011-05-31
  2011JP-0155939 2011-07-14
  2011JP-0546467 2011-10-28
  2011JP-0550370 2011-10-28
  2011WO-JP74943 2011-10-28
  2011WO-JP74944 2011-10-28

- **Fampat family**

WO2012057321	A1	2012-05-03	[WO201257321]
WO2012057320	A1	2012-05-03	[WO201257320]
TW201223864	A	2012-06-16	[TW201223864]
TW201230077	A	2012-07-16	[TW201230077]
CN102822092	A	2012-12-12	[CN102822092]
EP2543634	A1	2013-01-09	[EP2543634]
CN103189311	A	2013-07-03	[CN103189311]
US2013209791	A1	2013-08-15	[US20130209791]
US2013214210	A1	2013-08-22	[US20130214210]
EP2634139	A1	2013-09-04	[EP2634139]
JP5316653	B2	2013-10-16	[JP5316653]
KR20130125285	A	2013-11-18	[KR20130125285]
KR20140032349	A	2014-03-14	[KR20140032349]
JP5605373	B2	2014-10-15	[JP5605373]
CN102822092	B	2015-09-09	[CN102822092B]
CN103189311	B	2015-09-30	[CN103189311B]
TWI515165	B	2016-01-01	[TWI515165]
US9443640	B2	2016-09-13	[US9443640]
TWI553667	B	2016-10-11	[TWI553667]

- **Abstract:**
  (EP2634139)
  Provided is a process for producing a dispersion liquid of **carbon nanotube** aggregates in which the **carbon nanotube** aggregates are dispersed in a dispersion medium, comprising the two steps: (A) a step of adsorbing a dispersant to **carbon nanotube** aggregates by physical dispersion treatment in a dispersion medium to prepare a **carbon nanotube** paste with a particle size of 100 nm to 20 µm resulting from partial dissociation of a mass of the **carbon nanotube** aggregates; and (B) a step of dispersing the **carbon nanotube** paste by ultrasonic dispersion treatment. A process for producing a dispersion liquid of **carbon nanotube** aggregates with reduced



destruction and breakage of graphite structure of a **carbon nanotube** aggregate can be provided.

Secondary matrix composite containing carbon nanotube
WO200570825

- **Patent Assignee**
  SANC SALAAM COPRORATION
- **Inventor**
  MIZUKAMI YOSHIKATSU
- **International Patent Classification**
  C01B-031/02 D01F-001/10
- **CPC Code**
  B82Y-030/00; B82Y-040/00; C01B-031/02/53; D01F-001/10

- **Publication Information**
  WO2005070825 A1 2005-08-04 [WO200570825]
- **Priority Details**
  2004JP-0012532 2004-01-21
  2004JP-0233965 2004-08-11
  2004JP-0362418 2004-12-15

- **Fampat family**

WO2005070825	A1	2005-08-04	[WO200570825]

- **Abstract:**
  (WO200570825)
  An inorganic primary composite element which comprises a **carbon nanotube** as a nucleus; a dielectric primary composite element, which comprises a matrix polymer and at least one of a **carbon nanotube** and the above inorganic primary composite element being uniformly dispersed in the matrix polymer in an amount of 0.1 wt % or more relative to the total weight; and a secondary matrix composite which comprises the above dielectric primary composite element in an amount of 0.5 wt % or more relative to the total weight. Preferably, the primary composite element is in the form of a particle or a fiber, and, specifically, for example, a formed article from the secondary matrix composite is a metal, ceramic or glass matrix composite, and is a formed article from an abrasive, friction or coating material, or a formed article from a rubber composition, such as a tire.

本発明の無機コンポジットエレメントはカーボンナノチューブを核とする無機１次コンポジットエレメントである。また本発明の１次コンポジットエレメントはマトリックスポリマー中に斑なく分散したカーボンナノチューブまたは無機１次コンポジットエレメントの少なくとも１種を総重量に対し０．１重量％以上含有した誘電性１次コンポジットエレメントである。本発明の２次マトリックスコンポジットは誘電性１次コンポジットエレメントを総重量に対し０．５重量％以上含有する。好ましくは１次コンポジットエレメントが粒状または繊維状であり、具体的には例えば２次マトリックスコンポジット成形品が金属、セラミックまたはガラスマトリックスコンポジットであり、研磨材、摩擦材またはコーティング材成形品またはタイヤなどのゴム組成物成形品である。

Method for making semiconducting single wall carbon nanotubes
CN103318868

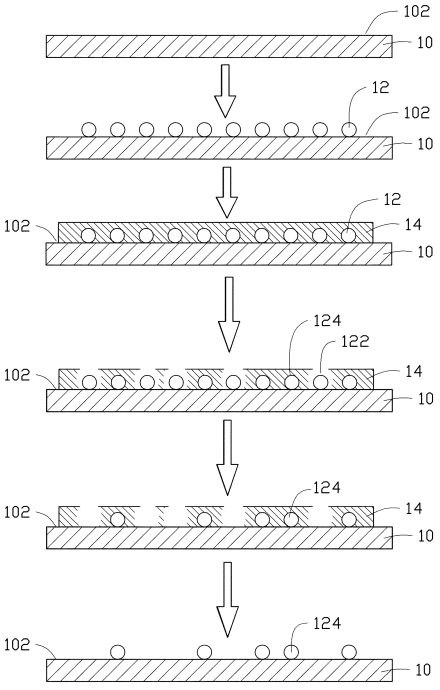
- **Patent Assignee**
  HON HAI PRECISION INDUSTRY HONGFUJIN PRECISION INDUSTRY SHENZHEN TSINGHUA UNIVERSITY
- **Inventor**
  LI JIE
  JIANG KAI-LI
  FAN SHOU-SHAN
- **International Patent Classification**
  B82B-003/00 B82Y-040/00 C01B-031/02 H01L-021/02 H01L-021/20 H01L-051/00
- **US Patent Classification**
  PCLO=001001000
- **CPC Code**
  B82Y-040/00; C01B-031/02/26; C01B-2202/02; H01L-021/02/606; H01L-051/00; Y10S-977/845; Y10S-977/932

- **Publication Information**
  CN103318868 A 2013-09-25 [CN103318868]
- **Priority Details**
  2012CN-0075757 2012-03-21

- **Fampat family**

CN103318868	A	2013-09-25	[CN103318868]
US2013252405	A1	2013-09-26	[US20130252405]
TW201339087	A	2013-10-01	[TW201339087]
TWI477440	B	2015-03-21	[TWI477440]
CN103318868	B	2015-07-01	[CN103318868B]
US9136117	B2	2015-09-15	[US9136117]

- **Abstract:**
(US9136117)
A method for making semiconducting single walled **carbon** nanotubes (SWCNTs) includes providing a substrate. A single walled **carbon nanotube** film including metallic SWCNTs and semiconducting SWCNTs is located on the substrate. At least one electrode is located on the single walled **carbon nanotube** film and electrically connected with the single walled **carbon nanotube** film. A macromolecule material layer is located on the single walled **carbon nanotube** film to cover the single walled **carbon nanotube** film. The macromolecule material layer covering the metallic SWCNTs is removed by an electron beam bombardment method, to expose the metallic SWCNTs. The metallic SWCNTs and the macromolecule material layer covering the semiconducting SWCNTs are removed.



Dispersion liquid of carbon nanotube-containing composition and conductive molded body

WO201402885

- **Patent Assignee**
  TORAY INDUSTRIES
- **Inventor**
  NISHINO HIDEKAZU
  HONDO KAZUNORI
  IMAZU NAOKI
- **International Patent Classification**
  B01F-017/52 B82Y-030/00 B82Y-040/00 C01B-031/02 C08L-001/28 C09D-011/00 C09D-101/28 H01B-001/24 H01B-005/14 H01B-013/00 H01B-019/04
- **US Patent Classification**
  PCLO=428323000 PCLX=252511000 PCLX=427122000 PCLX=977742000 PCLX=977752000
- **CPC Code**
  B82Y-030/00; B82Y-040/00; C01B-031/02/73; C08K-003/04; C09D-101/28/6; H01B-001/24; H01B-005/14; H01B-013/00 H01B-019/04; Y10S-977/742; Y10S-977/752; Y10T-428/25 Y10T-428/25;

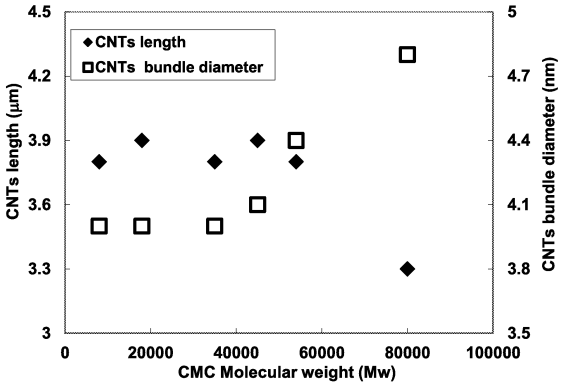
- **Publication Information**
  WO2014002885 A1 2014-01-03 [WO201402885]
- **Priority Details**
  2012JP-0142656 2012-06-26
  2012JP-0142657 2012-06-26
  2013WO-JP67059 2013-06-21

- **Fampat family**

WO2014002885	A1	2014-01-03	[WO201402885]
TW201410600	A	2014-03-16	[TW201410600]
CN104411632	A	2015-03-11	[CN104411632]
KR20150028780	A	2015-03-16	[KR20150028780]
US2015111025	A1	2015-04-23	[US20150111025]
EP2865645	A1	2015-04-29	[EP2865645]
EP2865645	A4	2015-12-09	[EP2865645]
JPWO2014002885	A1	2016-05-30	[JP2014002885W]
CN104411632	B	2016-12-28	[CN104411632B]

- **Abstract:**
  (EP2865645)
  The present invention relates to a dispersion liquid of a **carbon nanotube**-containing composition which contains a **carbon nanotube**-containing composition, a dispersant with a weight-average molecular weight of 5,000 to 60,000 as determined by gel permeation chromatography, and an aqueous solvent. The present invention provides a dispersion liquid of a **carbon nanotube**-containing composition which shows high dispersibility on a base while maintaining high dispersibility for the **carbon nanotube**-containing composition.

Fig. 1



Method for making carbon nanotube composite film
US20140072723

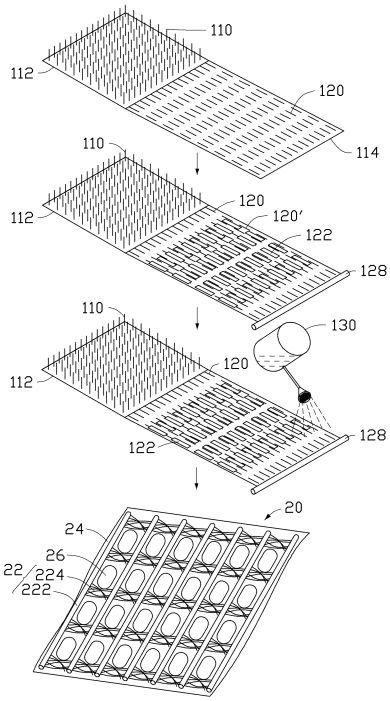
- **Patent Assignee**
  BEIJING FUNATE INNOVATION TECHNOLOGY
- **Inventor**
  FENG CHEN
  QIAN LI
  WANG YU-QUAN
- **International Patent Classification**
  B32B-009/00 B82Y-030/00 C01B-031/02 C23C-016/26 H01B-013/00
- **US Patent Classification**
  PCLO=427552000 PCLX=427113000 PCLX=427555000
- **CPC Code**
  B82Y-030/00; B82Y-040/00; C01B-031/02/2; C01B-031/02/53; C01B-031/02/8 H01B-013/00/3;

- **Publication Information**
  US2014072723 A1 2014-03-13 [US20140072723]
- **Priority Details**
  2012CN-0333720 2012-09-11

- **Fampat family**

US2014072723	A1	2014-03-13	[US20140072723]
TW201410478	A	2014-03-16	[TW201410478]
CN103663406	A	2014-03-26	[CN103663406]
CN103663406	B	2015-09-02	[CN103663406B]
TWI538816	B	2016-06-21	[TWI538816]

- **Abstract:**
  (US20140072723)
  A method for making **carbon nanotube** composite film is provided. An original **carbon nanotube** film includes **carbon** nanotubes joined end to end by van der Waals attractive force. The **carbon** nanotubes substantially extend along a first direction. A patterned **carbon nanotube** film is formed by patterning the original **carbon nanotube** film to define at least one row of through holes arranged in the original **carbon nanotube** film along the first direction. Each row of through holes includes at least two spaced though holes. The patterned **carbon nanotube** film is treated with a polymer solution. The patterned **carbon nanotube** film is shrunk into the **carbon nanotube** composite film.



Method for making graphene/carbon nanotube composite structure
CN102795613

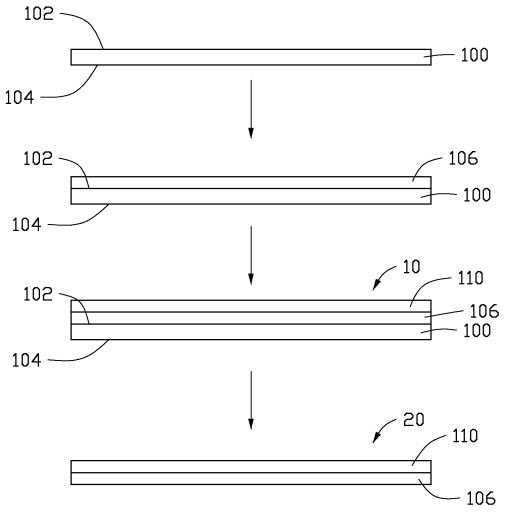
- **Patent Assignee**
  HON HAI PRECISION INDUSTRY HONGFUJIN PRECISION INDUSTRY SHENZHEN QIINGHUA UNIVERSITY TSINGHUA UNIVERSITY
- **Inventor**
  JIANG KAI-LI
  LIN XIAO-YANG
  XIAO LIN
  FAN SHOU-SHAN
- **International Patent Classification**
  B32B-009/00 B82Y-030/00 B82Y-040/00 C01B-031/00 C01B-031/02 C01B-031/04
- **US Patent Classification**
  PCLO=156155000
- **CPC Code**
  B82Y-030/00; B82Y-040/00 B82Y-040/00; C01B-031/04/69; C01B-2204/02; C01B-2204/04; C01B-2204/20; C01B-2204/24 C01B-2204/24;

- **Publication Information**
  CN102795613 A 2012-11-28 [CN102795613]
- **Priority Details**
  2011CN-0140262 2011-05-27

- **Fampat family**

CN102795613	A	2012-11-28	[CN102795613]
US2012298289	A1	2012-11-29	[US20120298289]
TW201247424	A	2012-12-01	[TW201247424]
JP2012246209	A	2012-12-13	[JP2012246209]
JP5379196	B2	2013-12-25	[JP5379196]
TWI427000	B	2014-02-21	[TWI427000]
CN102795613	B	2014-09-10	[CN102795613B]
US8900390	B2	2014-12-02	[US8900390]

- **Abstract:**
  (US8900390)
  The present disclosure relates to a method for making a graphene/**carbon nanotube** composite structure. In the method, at least one graphene film is located on a substrate. At least one **carbon nanotube** layer is combined with the at least one graphene film located on the substrate to form a substrate/graphene/**carbon nanotube** composite structure. The at least one graphene film is in contact with the at least one **carbon nanotube** layer in the substrate/graphene/**carbon nanotube** composite structure. The substrate is removed from the substrate/graphene/**carbon nanotube** composite structure, thereby forming a graphene/**carbon nanotube** composite structure.



Modified carbon nanotube and preparation method thereof
CN102875843

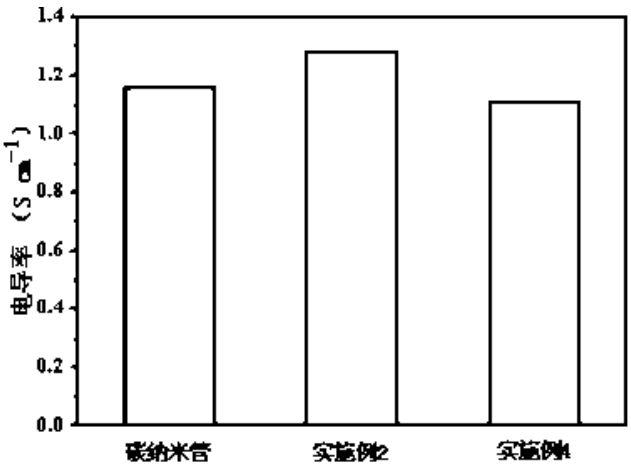
- **Patent Assignee**
  SOOCHOW UNIVERSITY
- **Inventor**
  LIANG GUOZHENG
  QIANG ZHIXIANG
  GU AIJUAN
  ZHANG ZHIYONG
  YUAN LI

- **International Patent Classification**
  C08G-073/02 C08G-081/00 C08K-003/04 C08K-007/00 C08K-009/06 C09C-001/44 C09C-003/12
- **Publication Information**
  CN102875843 A 2013-01-16 [CN102875843]
- **Priority Details**
  2012CN-0390461 2012-10-15

- **Fampat family**

CN102875843	A	2013-01-16	[CN102875843]
CN102875843	B	2014-01-01	[CN102875843B]

- **Abstract:**
  (CN102875843B)
  The invention relates to a modified **carbon nanotube** and a preparation method thereof. The preparation method comprises the following steps: dissolving polyaniline in dimethylsulfoxide, dropwisely adding hyperbranched polysiloxane containing epoxy group, and adding hydrochloric acid to obtain hyperbranched-polysiloxane modified polyaniline; and adding the hyperbranched-polysiloxane modified polyaniline and **carbon nanotube** into dimethylsulfoxide, precipitating in methanol, carrying out vacuum filtration, and washing to obtain the modified **carbon nanotube**. The hyperbranched-polysiloxane modified polyaniline conductive layer is coated on the surface of the **carbon nanotube**, and the content of the coating layer can be regulated to control the conductivity of the modified **carbon nanotube**, thereby providing possibility for preparing conductive and dielectric materials with functions of high dielectric constant, low dielectric loss and the like as well as regulating and controlling properties. The hyperbranched polysiloxane contains epoxy, hydroxy and other active groups, and thus, lays favorable foundation for research and development of modified **carbon nanotube**-resin composite and novel functional materials. The modified **carbon nanotube** provided by the invention has the characteristics of wide preparation method applicability and simple operating technique.



Modified carbon nanotube and preparation method thereof
CN103059343

- **Patent Assignee**
  SOOCHOW UNIVERSITY
- **Inventor**
  LIANG GUOZHENG
  QIANG ZHIXIANG
  GU AIJUAN
  ZHANG ZHIYONG
  YUAN LI
- **International Patent Classification**
  C08G-073/02 C08G-077/452 C08K-003/04 C08K-007/00 C08K-009/06 C09C-001/44 C09C-003/12

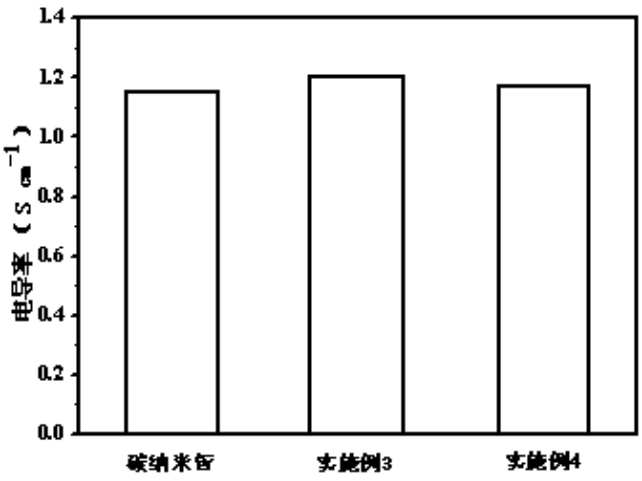
- **Publication Information**
  CN103059343 A 2013-04-24 [CN103059343]
- **Priority Details**
  2012CN-0390428 2012-10-15

- **Fampat family**

CN103059343	A	2013-04-24	[CN103059343]
CN103059343	B	2014-04-16	[CN103059343B]

- **Abstract:**

(CN103059343B)
The invention discloses a modified **carbon nanotube** and a preparation method thereof. The method comprises the following steps: dissolving polyaniline in dimethylsulfoxide, and dropwisely adding epoxy trialkoxysilane and hydrochloric acid to obtain organosilicon-modified polyaniline; dissolving the organosilicon-modified polyaniline in dimethylsulfoxide, adding deionized water and hydrochloric acid, and obtaining highly branched chain polyaniline after the reaction finishes; adding **carbon nanotube** and the highly branched chain polyaniline into dimethylsulfoxide, precipitating in methanol, carrying out vacuum filtration, and washing to obtain the **carbon nanotube**. The highly branched chain polyaniline conductive layer is coated on the surface of the **carbon nanotube**, and the content of the coating layer can be regulated to control the conductivity of the modified **carbon nanotube**, thereby providing possibility for preparing conductive and dielectric materials with functions of high dielectric constant, low dielectric loss and the like as well as regulating and controlling properties. The polysiloxane contains epoxy, hydroxy and other active groups, thereby providing foundation for compounding the modified **carbon nanotube** with resin. The preparation method has the characteristics of wide applicability and simple operating technique.



Carbon nanotube composite material and conductive material
WO201331958

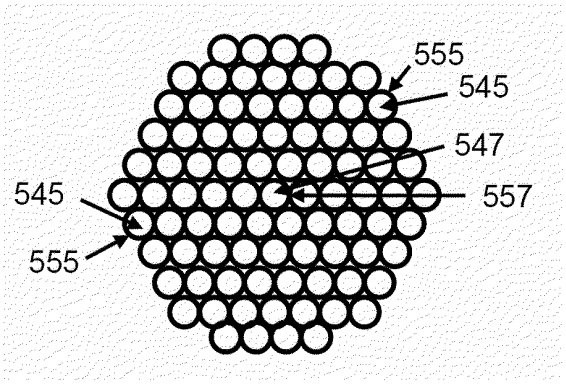
- **Patent Assignee**
  NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE & TECHNOLOGY NATIONAL RESEARCH & DEVELOPMENT INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE & TECHNOLOGY
- **Inventor**
  HATA KENJI
  ATA SEISUKE
  KOBASHI KAZUFUMI
- **International Patent Classification**
  C01B-031/02 C08K-003/04 C08L-101/00 H01B-001/00 H01B-001/24
- **US Patent Classification**
  PCLO=252511000
- **CPC Code**
  B82Y-030/00; B82Y-040/00; C01B-031/02/26; C01B-2202/22; C01B-2202/34; C01B-2202/36; C08K-003/04; C08K-2201/011 H01B-001/24;

- **Publication Information**
  WO2013031958 A1 2013-03-07 [WO201331958]
- **Priority Details**
  2011JP-0191502 2011-09-02
  2012WO-JP72188 2012-08-31
  2013JP-0531427 2012-08-31

- **Fampat family**

WO2013031958	A1	2013-03-07	[WO201331958]
CN103764556	A	2014-04-30	[CN103764556]
US2014291589	A1	2014-10-02	[US20140291589]
JPWO2013031958	A1	2015-03-23	[JP2013031958W]
JP5757542	B2	2015-07-29	[JP5757542]
CN103764556	B	2016-01-06	[CN103764556B]

- **Abstract:**
  (WO201331958)
  Provided are a **carbon nanotube** composite material and a conductive material which have high conductivity and which can exhibit superior resistance to warping and other repetitive stress. This **carbon nanotube** composite material is a conductive material which is formed by **carbon** nanotubes being dispersed in a matrix. In 633nm wavelength Raman spectroscopy, peaks are observed at each of 110±10cm-1, 190±10cm-1, and 200cm-1 and greater regions. A ratio R/R0 of electrical resistance (R) after applying repetitive stress load 100 times at 10% extension to electrical resistance (R0) prior to applying the load is 5 or less. This conductive material also has these **carbon nanotube** composite material characteristics.



Method for making composite material having carbon nanotube array
CN101671442

- **Patent Assignee**
  HON HAI PRECISION INDUSTRY HONGFUJIN PRECISION INDUSTRY SHENZHEN QIINGHUA UNIVERSITY TSINGHUA UNIVERSITY
- **Inventor**
  CHENG QUN-FENG
  WANG JIA-PING
  JIANG KAI-LI
  WEN JIA-JIA
  FAN SHOU-SHAN
- **International Patent Classification**
  B29C-039/10 B29C-039/24 B29C-065/48 B29L-031/34 B32B-037/00 B32B-038/00 B32B-043/00 B82B-003/00 C08F-002/44 C08J-003/20 C08J-003/24 C08K-003/04 C08L-101/00 C23C-016/00
- **US Patent Classification**
  PCLO=156250000 PCLX=156275500 PCLX=156275700 PCLX=156307100 PCLX=156307700 PCLX=427249100 PCLX=427307000 PCLX=427309000
- **CPC Code**
  B29C-070/72; B29K-2105/167; B29K-2707/04; B82Y-030/00; C08F-002/44; C08J-005/00/5; Y10T-156/1052

- **Publication Information**
  CN101671442 A 2010-03-17 [CN101671442]
- **Priority Details**
  2008CN-0216086 2008-09-12

- **Fampat family**

CN101671442	A	2010-03-17	[CN101671442]
US2010065190	A1	2010-03-18	[US20100065190]
JP2010064488	A	2010-03-25	[JP2010064488]
US8052825	B2	2011-11-08	[US8052825]
JP5043911	B2	2012-10-10	[JP5043911]

- **Abstract:**
(US8052825)
A method for producing a composite material having a **carbon nanotube** array, includes the steps of: (a) providing the **carbon nanotube** array, the **carbon nanotube** array has a first end surface and a second end surface opposite to the first end surface; (b) providing a first board and a second board, fixing the first end surface of the **carbon nanotube** array on the first board, fixing the second end surface of the **carbon nanotube** array on the second board; (c) packaging the first board and the second board to form an apparatus having an entrance; (d) providing a liquid polymer precursor, applying the liquid polymer precursor from the entrance to the apparatus until the liquid polymer precursor submerge **carbon nanotube** array; and (e) solidifying the liquid polymer precursor.