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Ca' Foscari
Venezia

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PROMOTING INNOVATION
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Workshop sulla Proprietà Intellettuale

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INTRODUZIONE

Venezia, 6 Dicembre 2016





Cos'è un'invenzione brevettabile?

Una soluzione nuova a un problema tecnico.

Art. 45 Comma 1 e 2 PCI

COS'E' BREVETTABILE

- Un processo,
- Una macchina,
- Una manufatto,
- Una composizione
- o qualunque loro miglioramento

COSA NON E' BREVETTABILE

- Le scoperte
- Le teorie scientifiche
- I metodi matematici
- I metodi chirurgici, terapeutici o diagnostici
- I principi per attività intellettuale, commerciale o per gioco
- **I software**
- Le presentazioni di informazioni
- Le razze animali e i procedimenti per l'ottenimento delle stesse.



Cos'è un'invenzione brevettabile?

Il software

Secondo l'art. 45 comma 3 del D.Lgs. n. 30 del 10 febbraio 2005:

“Le disposizioni del comma 2 escludono la brevettabilità di ciò che in esse è nominato solo nella misura in cui la domanda di brevetto o il brevetto concerna scoperte, teorie, piani, principi, metodi, programmi e presentazioni di informazioni considerati in quanto tali.”

Allo stato attuale in Italia,
tutti i programmi di elaboratore (codice sorgente o codice oggetto) >>> **copyright**,
solo quelli che producono un effetto tecnico >>> **brevetto**



Cos'è un'invenzione brevettabile?

Il software

Secondo l'art. 45 comma 3 del D.Lgs. n. 30 del 10 febbraio 2005:

“Le disposizioni del comma 2 escludono la brevettabilità di ciò che in esse è nominato solo nella misura in cui la domanda di brevetto o il brevetto concerna scoperte, teorie, piani, principi, metodi, programmi e presentazioni di informazioni considerati in quanto tali.”

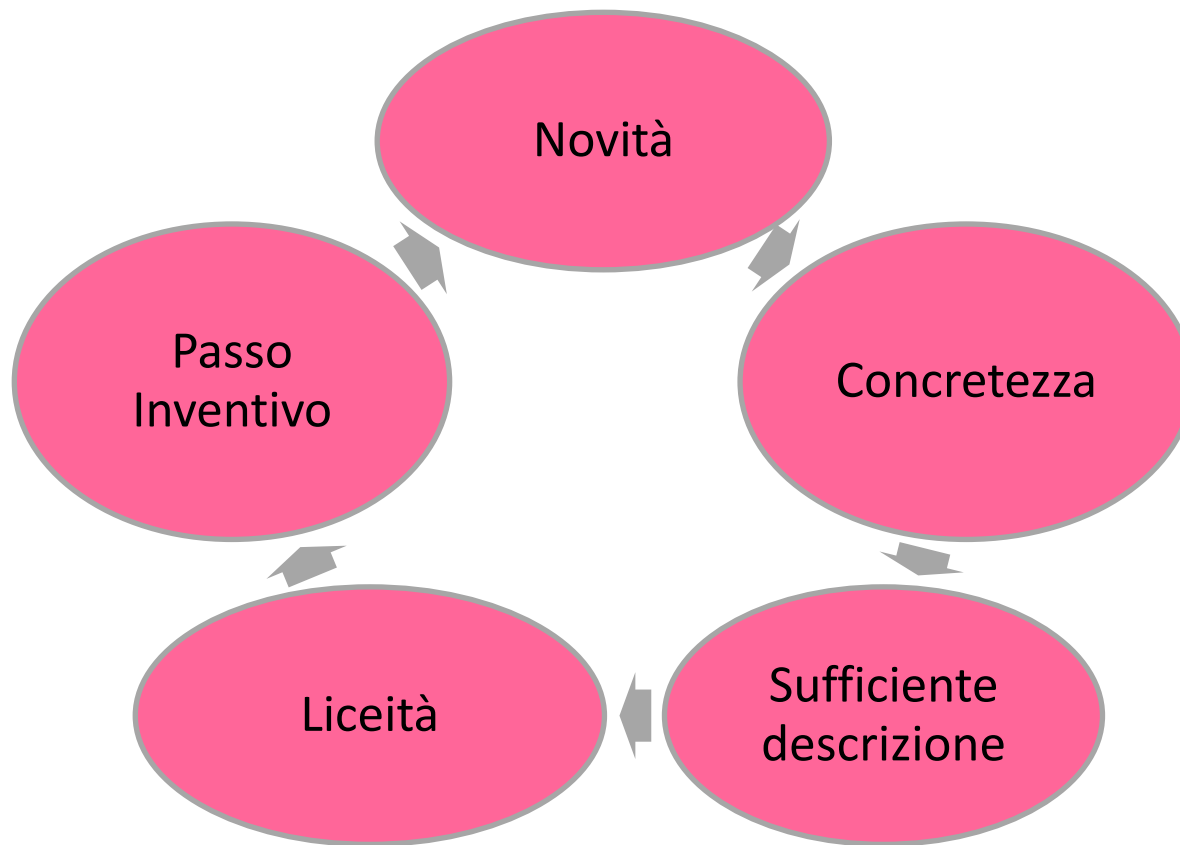
Effetto Tecnico



funzione che va al di là della normale interazione con il computer

Cos'è un'invenzione brevettabile?

I criteri di brevettabilità:



Brevetti e pubblicazioni sono compatibili?

Brevetti e pubblicazioni scientifiche sono compatibili, è solamente una questione di tempistica e di strategia.



* La pubblicazione della domanda di brevetto avviene:

- 18 mesi dalla data di deposito o
- 90 giorni nel caso venga richiesta la pubblicazione anticipata.

Gli effetti del brevetto decorrono dalla data di pubblicazione.

Come è fatto un brevetto?

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)
(19) World Intellectual Property Organization
International Bureau
4 August 2016 (08.08.2016) WIPPO PCT

(10) International Publication Number
WO 2016/120795 A1

(51) International Patent Classification
C03C 2302 (2006.01) A61K 480 (2006.01)

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(22) International Filing Date
27 January 2016 (27.01.2016)

(30) Filing Language
English

(40) Publication Language
English

(60) Priority Data
P1201/000635 29 January 2015 (29.01.2015) IT

(71) Applicant
UNIVERSITÀ CA' FOSCARI ADRIATICO UNIVERSITÀ DI VENEZIA (CA' FOSCARI)

(72) Inventor
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Nuvola di Pavia (CA), BENEDETTI, Andrea (Pordenone, 33139), MESSA, Vincenzo (TI), BELLIO, Paolo (CA, 10100), Gatti, Marco (Genova, 16123)

(73) Designated States (national) indicated, for every class of national protection available: AE, AG, AL, AM, AU, AT, AZ, BA, BB, BG, BR, BS, CA, CB, CC, CD, CE, CF, CG, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DR, EA, EC, EE, EG, ES, FI, FR, GB, GR, GU, HK, HN, HU, IL, IN, JP, KE, KR, KZ, LA, LU, LV, LY, MA, MC, MD, ME, MG, MK, MN, MU, MV, MW, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, SD, SE, SG, SI, SK, SM, SR, SV, SY, TH, TJ, TN, TR, TT, UA, UG, US, UZ, VN, ZA, ZM, ZW

(73) Designated States (international) indicated, for every class of national protection available: ARIPO (GH, GW, KE, LR, LS, MW, SD, SN, SZ, TT, TZ, ZM, ZW), Eurasia (AM, AZ, BY, RU, KG, TJ, UZ), EPO (AT, BE, BG, CH, CY, CZ, DE, DK, DR, ES, FI, FR, GB, GR, HU, IE, IT, LI, LU, LV, MC, NL, NO, PT, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GN, GU, GW, ML, MR, NE, NG, SN, TD, TG).

Declaration under Rule 4.17
as to the status of the inventor (Rule 4.17(a))
as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(b))
of inventorship (Rule 4.17(c))

Published
with international search report (Art. 21(2))

(84) Pub. No. TOTALLY MESOPOROUS ZIRCONIA NANOPARTICLES, USE AND METHOD FOR PRODUCING THEREOF

(87) Abstract: The present invention relates to novel totally mesoporous zirconia nanoparticles as well as a sol-gel synthesis process thereof which includes an inventive nanoporous structure step. Said nanoparticles are characterized by a well-defined mesoporous structure, i.e. a distribution of pores within the so-called mesoporous range (uniformly distributed throughout the entire nanoporous volume).

Figure 1 (a)

WO 2016/120795 1 PCT/IB2016/050394

Description
Title of Invention: TOTALLY-MESOPOROUS ZIRCONIA NANOPARTICLES, USE AND METHOD FOR PRODUCING THEREOF

Technical Field
(1) The scope of the present invention relates to nanoparticles made of zirconium oxide (ZrO₂), a compound commonly referred to as 'zirconia'. More specifically, the invention describes and claims inventive concepts relevant to new ZrO₂ nanoparticles characterized by an amorphous and mesoporous structure. Particularly, the scope of the present invention encompasses a manufacturing method which allows to produce high-purity zirconia nanoparticles of substantially spherical shape, characterized by a totally-mesoporous structure, i.e. a distribution of pores within the so-called mesoporous range, uniformly distributed throughout the entire nanoporous volume.

Background Art
(2) In the last decades, mesoporous nanoparticles have been a topic of intense research because of the many potential applications that can be developed by taking advantage of their high surface area. Actually, these nanoparticles present pores sizes between 2 to 50 nm (and are thus called 'mesopores' according to IUPAC nomenclature), an ideal characteristic in all those applications where a high surface interaction is essential, for example in biomedical applications (e.g. drug delivery or imaging), in the catalysis and filtration (e.g. heavy metals ion sequestration), in sensor devices (e.g. gas sensor) or in cosmetics, just to name a few application fields. Indeed, the presence of pores in the mesoporous range allows the nanoparticles to be loaded with organic molecules such as enzymes, active substances or inorganic nanometric phases having catalytic, magnetic or optical properties. Normally, mesoporosity of the nanoparticle is intimately associated with an amorphous structure because a crystalline structure generally leads to the closure of the pores.

(3) The intense research in the recent years has been substantially devoted to achieve an increasingly better control of the particles at a micro and nano level, and particularly of their physical-chemical and electronic properties. This goal represents the starting point for developing new materials with highly selective functions, or new multi-functional materials, which are able to meet the requirements of different applications e.g. in nanomedicine. This quest in turn encourages research for oxides which can be synthesized in the form of mesoporous nanoparticles.

(4) Among the oxides, silica have been mainly used so far because the synthesis of stable mesoporous silica nanoparticles (or MSNs) is relatively easy to achieve: a

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(a)

(b)

Figure 1

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Claims

[Claim 1] A zirconium oxide having formula ZrO₂ in the form of particles characterized in that said particles:

- are nanoparticles or microparticles of generally spherical shape; and
- have a stable totally-mesoporous structure with a generally uniform pore distribution distributed throughout the entire volume of said particles; and
- have a specific surface area of more than about 200 m²/g.

[Claim 2] The zirconium oxide in the form of particles according to claim 1 characterized in that said particles have an average diameter ranging between about 20 nm to about 2000 nm.

[Claim 3] The zirconium oxide in the form of particles according to claim 1 characterized in that said mesoporous structure contains pores having an average diameter ranging between about 2 nm to about 10 nm.

[Claim 4] The zirconium oxide in the form of particles according to claim 1 characterized in that said particles are well-separated particles.

[Claim 5] The zirconium oxide in the form of particles according to claim 1 characterized in that said particles are non-cytotoxic or substantially non-cytotoxic.

[Claim 6] The zirconium oxide in the form of particles according to one or more of the preceding claims, characterized in that said particles are functionalized with or bound or adsorbed to one or more compounds selected from the group consisting of: organic molecules, macromolecules, metalorganic compounds, inorganic phases, or a combination thereof.

[Claim 7] A biocompatible nano-bio system comprising:

- the zirconium oxide in the form of particles, as recited in one or more of said claims 1 to 6; and
- at least one compound chemically bound or adsorbed onto one or more of said particles, said compound being selected from the group consisting of: enzymes, polypeptides, proteins, antibodies, DNA, RNA, drugs, chemotherapy drugs, chelating agents, nanoparticles, metal oxides inorganic phases, lamniphore agents, fluorophore agents, photocalyner agents, magnetic oxides, magnetic resonance imaging agents, enhancing agents for optical imaging, or a combination thereof.

Dati bibliografici

Figure

Descrizione

Rivendicazioni

Dati bibliografici

Data di pubblicazione

Classi tecnologiche

Data di deposito / priorità

Richiedente

Inventori



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)
(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
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(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PD2015A000015 28 January 2015 (28.01.2015) IT

(71) Applicant: UNIVERSITA' CA' FOSCARI [IT/IT]; Dorsoduro, 3246, 30123 Venezia (IT).

(72) Inventors: SPONCHIA, Gabriele; via Milano, 2, 30020 Noventa di Piave (IT). BENEDETTI, Alvise; Dorsoduro 3733/a, 30123 Venezia (IT). RIBELLO, Pietro; Via Umberto Giordano, 2, 35132 Padova (IT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TD, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:
— as to the identity of the inventor (Rule 4.17(i))
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— of inventorship (Rule 4.17(iv))

Published:
— with international search report (Art. 21(3))

WO 2016/120795 A1

(54) Title: TOTALLY-MESOPOROUS ZIRCONIA NANOPARTICLES, USE AND METHOD FOR PRODUCING THEREOF

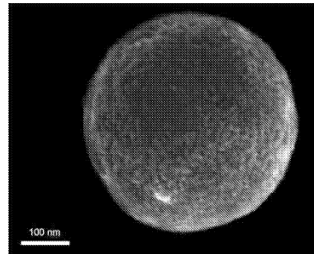


Figure 1 (a)

(57) Abstract: The present invention relates to novel totally-mesoporous zirconium oxide nanoparticles as well as a sol-gel synthesis process thereof which include an innovative nanoparticles purification step. Said nanoparticles are characterized by a totally-mesoporous structure i.e. a distribution of pores within the so-called the mesoporous range uniformly distributed throughout the entire nanoparticle volume. Furthermore, said nanoparticles are non-cytotoxic and present a high surface area, which make particularly suitable in both biomedical and industrial applications (e.g. drug delivery, heavy metals ion sequestration). The manufacturing method is simple and advantageously allows for high control over the shape and diameter of the nanoparticles as well as over the nanoparticles pores.

Giurisdizione

Numero di pubblicazione.

Codici brevettuali:

A = Domanda

B = Brevetto

Titolo

Abstract

Figura principale

Classificazioni: IPC e CPC

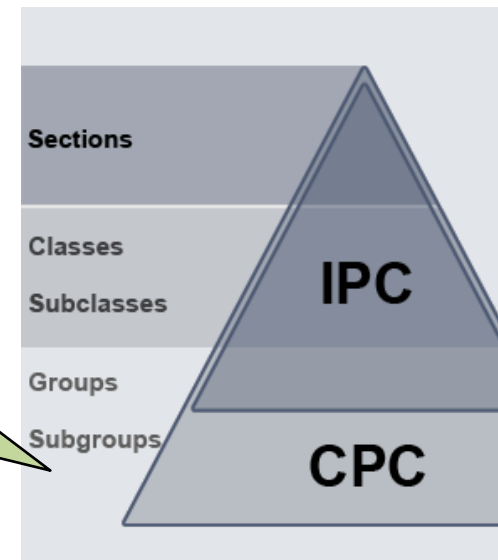
IPC: International
Patent Classification

Symbol	Classification and description
A	HUMAN NECESSITIES
B	PERFORMING OPERATIONS; TRANSPORTING
C	CHEMISTRY; METALLURGY
D	TEXTILES; PAPER
E	FIXED CONSTRUCTIONS
F	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING ENGINES OR PUMPS
G	PHYSICS
H	ELECTRICITY
Y	GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; GENERAL TAGGING OF CROSS-SECTIONAL TECHNOLOGIES SPANNING OVER SEVERAL SECTIONS OF THE IPC; TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS-REFERENCE ART COLLECTIONS [XRACs] AND DIGESTS

8 sezioni (A – H) + 1 (Y)

Struttura gerarchica

CPC: Cooperative Patent
Classification





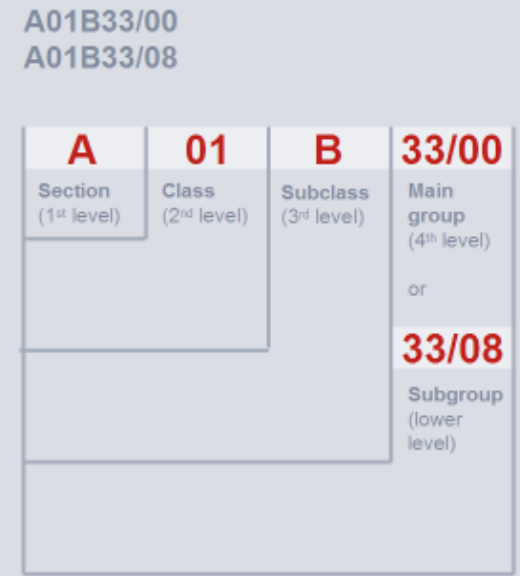
IPC: International Patent Classification

Classificazioni: IPC e CPC

Symbol	Classification and description
C	CHEMISTRY; METALLURGY [2013-01]
	CHEMISTRY [2013-01]
C03	GLASS; MINERAL OR SLAG WOOL [(...)] [2013-01]
C03B	MANUFACTURE, SHAPING, OR SUPPLEMENTARY PROCESSES [2013-01]
	Melting the raw material [2013-01]
C03B 1/00	Preparing the batches [(...)] [2013-01]
C03B 3/00	Charging the melting furnaces [2013-01]
C03B 5/00	Melting in furnaces; Furnaces so far as specially adapted for glass manufacture [2013-01]
C03B 5/005	[(of glass-forming waste materials (...))] [2013-01]
C03B 5/02	in electric furnaces, {e.g. by dielectric heating (...)} [2013-01]
C03B 5/021	• {by induction heating} [2013-01]
C03B 5/023	• {by microwave heating} [2013-01]
C03B 5/025	• {by arc discharge or plasma heating} [2013-01]
C03B 5/027	• by passing an electric current between electrodes immersed in the glass bath, i.e. by resistance heating [2013-01]
C03B 5/0272	• {Pot furnaces} [2013-01]
C03B 5/0275	• {Shaft furnaces (...)} [2013-01]
C03B 5/0277	• {Rotary furnaces} [2013-01]
C03B 5/03	• Tank furnaces [2013-01]
C03B 5/031	• {Cold top tank furnaces} [2013-01]
C03B 5/033	• by using resistance heaters above or in the glass bath, i.e. by indirect resistance heating [2013-01]
C03B 5/0332	• {Tank furnaces} [2013-01]
C03B 5/0334	• {Pot furnaces; Core furnaces} [2013-01]
C03B 5/0336	• {Shaft furnaces (...)} [2013-01]
C03B 5/0338	• {Rotary furnaces} [2013-01]

CPC: Cooperative Patent Classification

Struttura gerarchica



Come è fatto un brevetto

Descrizione

WO 2016/120795 PCT/IB2016/050394

1

Description

Title of Invention: TOTALLY-MESOPOROUS ZIRCONIA NANOPARTICLES, USE AND METHOD FOR PRODUCING THEREOF

Technical Field

[1] The scope of the present invention relates to nanoparticles made of zirconia (ZrO_2), a compound commonly referred to as 'zirconia'. More specifically, the invention describes and claims inventive concepts relevant to new ZrO_2 nanoparticles characterized by an amorphous and mesoporous structure. Particularly, the scope of the present invention encompasses a manufacturing method which allows to produce high-purity grade zirconia nanoparticles of substantially spherical shape, characterized by a totally-mesoporous structure, i.e. a distribution of pores within the so-called mesoporous range, uniformly distributed throughout the entire nanoparticle volume.

Background Art

[2] In the last decades, mesoporous nanoparticles have been a topic of intense research because of the many potential applications that can be developed by taking advantage of their high surface area. Actually, these nanoparticles present pores sizes between 2 to 50 nm (and are thus called 'mesoporous' according to IUPAC nomenclature), an ideal characteristic in all those applications where a high surface interaction is essential, for example in biomedical applications (e.g. drug delivery or imaging), in the catalysis and filtration (e.g. heavy metals ion sequestration), in sensor devices (e.g. gas sensor) or in cosmetics, just to name a few application fields. Indeed, the presence of pores in the mesoporous range allows the nanoparticles to be loaded with organic molecules such as enzymes, active substances or inorganic nanometric phases having catalytic, magnetic or optical properties. Normally, mesoporosity of the nanoparticle is intimately associated with an amorphous structure because a crystalline structure generally leads to the closure of the pores.

The intense research in the recent years has been substantially devoted to achieve an increasingly better control of the particles at a micro and nano level, and particularly of their physical-chemical and electronic properties. This goal represents the starting point for developing new materials with highly selective functions, or new multi-functional materials, which are able to meet the requirements of different applications in nanomedicine. This quest in turn encourages research for oxides which can be used in the form of mesoporous nanoparticles.

Among the oxides, silica have been mainly used so far because the synthesis of stable mesoporous silica nanoparticles (or MSNs) is relatively ease to achieve: a

Art. 51 comma 2 CPI
«L'invenzione deve essere descritta in modo sufficientemente chiaro e completo perché ogni persona esperta del ramo possa attuarla e deve essere contraddistinta da un titolo corrispondente al suo oggetto»

1. Campo tecnologico

2. Stato dell'arte

3. Problema tecnico che l'invenzione vuole risolvere

4. Descrizione dell'invenzione:

- Vantaggi;
- Breve descrizione delle figure;
- Almeno un modo di attuazione.

5. Esempi

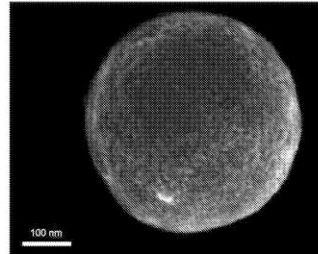
Disegni

Se necessari

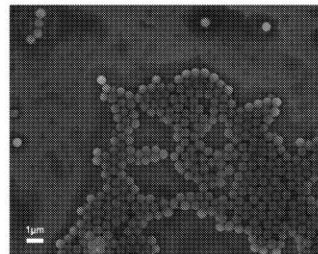
WO 2016/120795

1/5

PCT/IB2016/050394



(a)



(b)

Figure 1

Riferimento nella
descrizione

Rivendicazioni

Rivendicazioni indipendenti

Definiscono l'ambito
di protezione

WO 2016/120795

20

PCT/IB2016/050394

Claims

A zirconium oxide having formula ZrO_2 in the form of particles **characterized in that** said particles:

- are nanoparticles or microparticles of generally spherical shape; and
- have a stable totally-mesoporous structure with a generally uniform pore distribution distributed throughout the entire volume of said particle; and
- have a specific surface area of more than about 200 m²/g.

[Claim 2]

The zirconium oxide in the form of particles according to claim 1 **characterized in that** said particles have an average diameter ranging between about 20 nm to about 2000 nm.

[Claim 3]

The zirconium oxide in the form of particles according to claim 1 **characterized in that** said mesoporous structure contains pores having an average diameter ranging between about 2 nm to about 10 nm.

[Claim 4]

The zirconium oxide in the form of particles according to claim 1 **characterized in that** said particles are well-separated particles.

[Claim 5]

The zirconium oxide in the form of particles according to claim 1 **characterized in that** said particles are non-cytotoxic or substantially non-cytotoxic.

[Claim 6]

The zirconium oxide in the form of particles according to one or more of the preceding claims, **characterized in that** said particles are functionalized with or bound or adsorbed to one or more compounds selected from the group consisting of: organic molecules, macromolecules, metalorganic compounds, inorganic phases, or a combination thereof.

[Claim 7]

A biocompatible nano-bio system comprising:

- the zirconium oxide in the form of particles, as recited in one or more of said claims 1 to 6; and
- at least one compound chemically bound or adsorbed on one or more of said particles, said compound being selected from the group consisting of: enzymes, polypeptides, proteins, antibodies, DNA, RNA, drugs, chemotherapy drugs, chelating agents, nanoparticles, metal oxides inorganic phases, luminophore agents, fluorophore agents, photocatalyzer agents, magnetic oxides, magnetic resonance imaging agents, enhancing agents for optical imaging, or a combination thereof.

Rivendicazioni dipendenti

Rivendicazioni di prodotto
o apparato

Rivendicazioni di processo,
metodo od uso

Rapporto di ricerca

INTERNATIONAL SEARCH REPORT		International application No PCT/IB2016/050394
A. CLASSIFICATION OF SUBJECT MATTER INV. C01G25/02 A61K9/00 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) C01G A61K		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, CHEM ABS Data, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SHAOHENG TANG ET AL: "Hollow Mesoporous Zirconia Nanocapsules for Drug Delivery", ADVANCED FUNCTIONAL MATERIALS, WILEY - V C H VERLAG GMBH & CO. KGAA, DE, vol. 20, no. 15, 9 August 2010 (2010-08-09), pages 2442-2447, XP001556978, ISSN: 1616-301X, DOI: 10.1002/ADFM.201000647	1-10, 23, 24
A	----- the whole document	11-22, 25-27
X	US 2010/051877 A1 (WEI TA-CHEN [US] ET AL) 4 March 2010 (2010-03-04)	1-5
A	paragraphs [0027] - [0045]; claims 25-33 ----- -/-	6-27
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.		<input checked="" type="checkbox"/> See patent family annex.
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "S" document member of the same patent family		
Date of the actual completion of the international search 6 April 2016	Date of mailing of the international search report 06/05/2016	
Name and mailing address of the ISA/ European Patent Office, P.B. 5618 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Corrias, M	

Categorie

X = di particolare rilevanza se considerato singolarmente

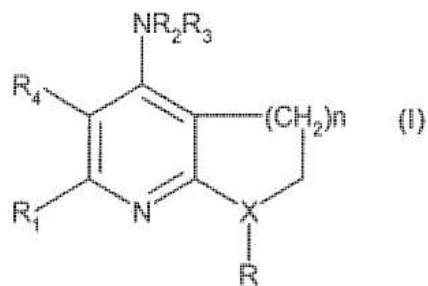
Y = di particolare rilevanza se combinato con un altro documento Y

A = documento facente parte dello stato dell'arte

Documenti anteriori potenzialmente pericolosi



Il brevetto chimico



Brevetto di prodotto (composto chimico di per sé):

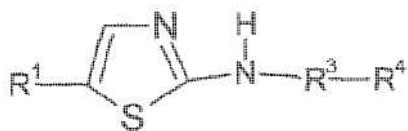
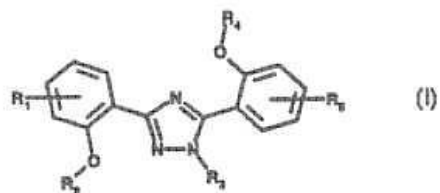
- Deve contenere almeno un processo e un uso
- Strutture chimiche di base con diversi gruppi funzionali opzionali (formule di Markush)

• Processo (metodo di preparazione):

- (Nuovo) Processo per la preparazione di un prodotto nuovo
- Nuovo processo per la preparazione di un prodotto NOTO.

• Uso:

- Uso chimico, uso medico, secondo uso medico



1

Ricerca brevettuale: perché?

15-25% di tutti i costi in R&D vengono sprecati ogni anno in invenzioni che sono già state inventate.

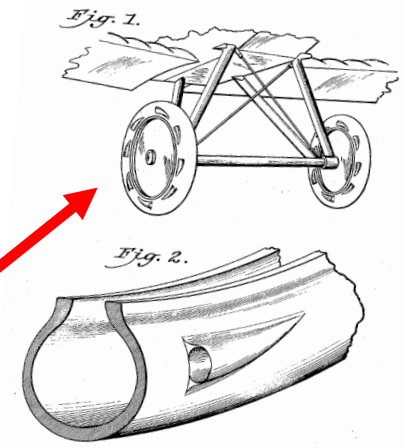
(12) UK Patent Application (19) **GB 2 365 393** (13) **A**
(43) Date of A Publication **20.02.2002**

(21) Application No 0019361.5	(51) INT CL ⁷ B64C 25/40
(22) Date of Filing 07.08.2000	(52) UK CL (Edition T) B7G B8H
(71) Applicant(s) Peter John Ginn 153 Waller Road, New Cross, LONDON, SE14 5LX, United Kingdom	(56) Documents Cited GB 2242401 A GB 2334925 A GB 2193932 A GB 1407358 A US 4040582 A
(72) Inventor(s) Peter John Ginn	(58) Field of Search UK CL (Edition R) B7G INT CL ⁷ B64C 25/40
(74) Agent and/or Address for Service Peter John Ginn 153 Waller Road, New Cross, LONDON, SE14 5LX, United Kingdom	

20.02.2002

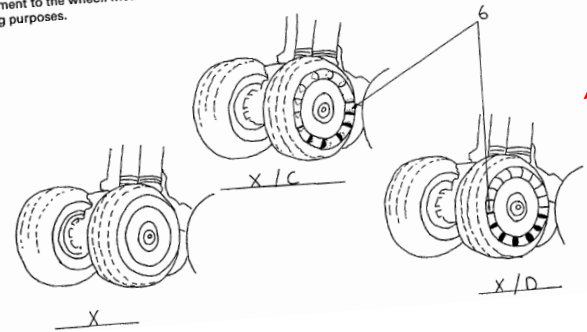
US-A-1833019 - 24.11.1931

Nov. 24, 1931. J. A. FAUCHER ET AL
AIRPLANE TIRE 1,833,019
Filed Nov. 1, 1929



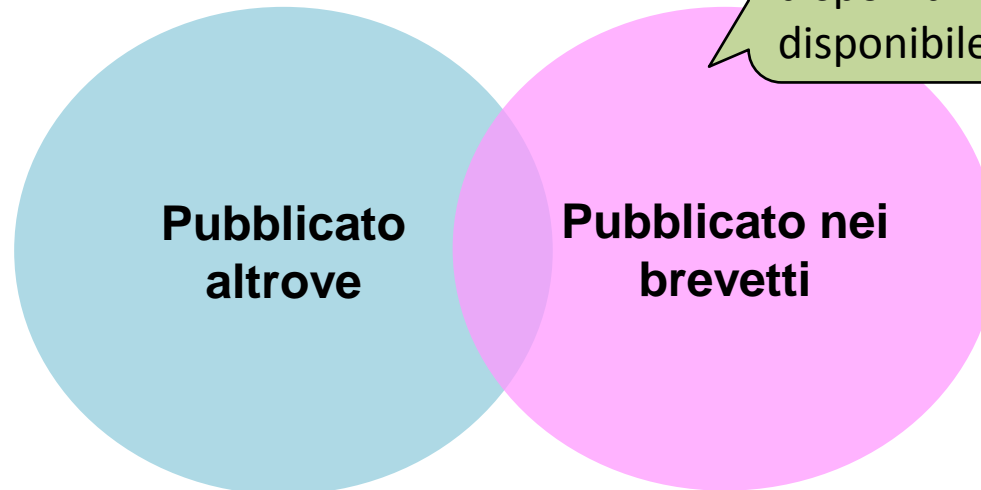
(54) Abstract Title
Rotating aircraft wheels prior to landing

(57) An aircraft tyre or wheel is provided with pockets or ridges 6, which catch the airflow past the wheel and cause the wheel to rotate. The pockets/ridges may be formed in the tyre or an additional member for attachment to the wheel. Means may be provided for diverting air from a pocket into the wheel assembly for cooling purposes.



- Per evitare duplicazioni dell'attività di ricerca
- Per verificare la novità della propria invenzione
- Per evitare di depositare brevetti privi di requisiti

Ricerca brevettuale: perché?



Circa l'80% delle informazioni disponibili nei brevetti non è disponibile altrove

Per conoscere lo stato dell'arte in un determinato settore tecnologico

Per monitorare le tendenze tecnologiche

Per individuare soluzioni esistenti a problemi tecnici

Ricerca brevettuale: quando?

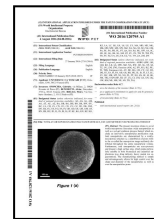
Prima di iniziare qualsiasi progetto per evitare duplicazioni

PROGETTO



Periodicamente durante lo sviluppo del progetto.

Prima del deposito della domanda di brevetto



Ricerca brevettuale: come?

Le ricerche brevettuali possono essere facili...

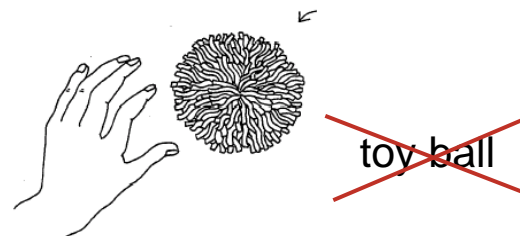


...ma è necessario conoscere alcune
informazioni sul linguaggio brevettuale...

Ricerca brevettuale: come?

Attenzione alle ricerche per parole chiave!!!

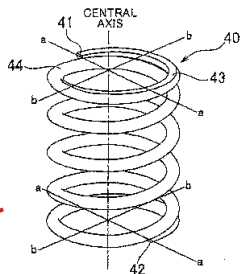
Il linguaggio brevettuale viene utilizzato per ampliare l'ambito di protezione del brevetto...



"spherical object
with floppy filaments"

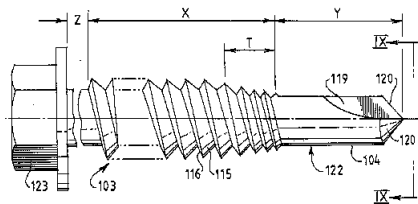
...oppure il richiedente semplicemente non vuole che la sua domanda di brevetto venga trovata

~~spring~~



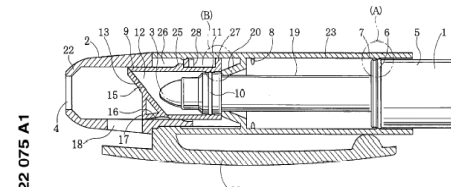
"energy-storing
means"

~~nail, screw, rivet~~



"fastening means"

~~pen~~



"writing instrument"

Ricerche per parole chiave V/S ricerche per classe tecnologica

Ricerche per parole chiave

- Le domande di brevetto non usano un linguaggio comune:
 - Implicazioni legali
 - Ambito di protezione
 - Nascondersi dai concorrenti
- Difficile trovare le parole chiave giuste
- Buoni risultati di solito richiedono esperienza nelle ricerche brevettuali

Ricerche per classe tecnologica

- Ogni brevetto viene classificato da professionisti brevettuali
- Classificazioni gerarchiche e molto dettagliate
- Descrizioni delle classi facili da trovare e comprendere
- MA: le classi IPC potrebbero non corrispondere alle vostre esigenze al 100%







Ricerche combinate parole chiave + classificazioni

Ricerca brevettuale: dove?

Database commerciali

-  LexisNexis® → Total patent
-  minesoft → Patbase
-  ProQuest → Dialog
-  WIPS → WIPS Global
-  STN® → STN; CAS
-  THOMSON REUTERS → Thomson Innovation
-  Questel → Orbit

Database gratuiti

-  Europäisches Patentamt
European Patent Office
Office européen des brevets → Espacenet
-  WIPO → PatentScope
-  MINISTERO DELLO SVILUPPO ECONOMICO → UIBM
-  Google → Patents
-  uspto → PatFT/AppFT
-  JPO
JAPAN PATENT OFFICE → J-Plat Pat


Disponibile a Ca' Foscari

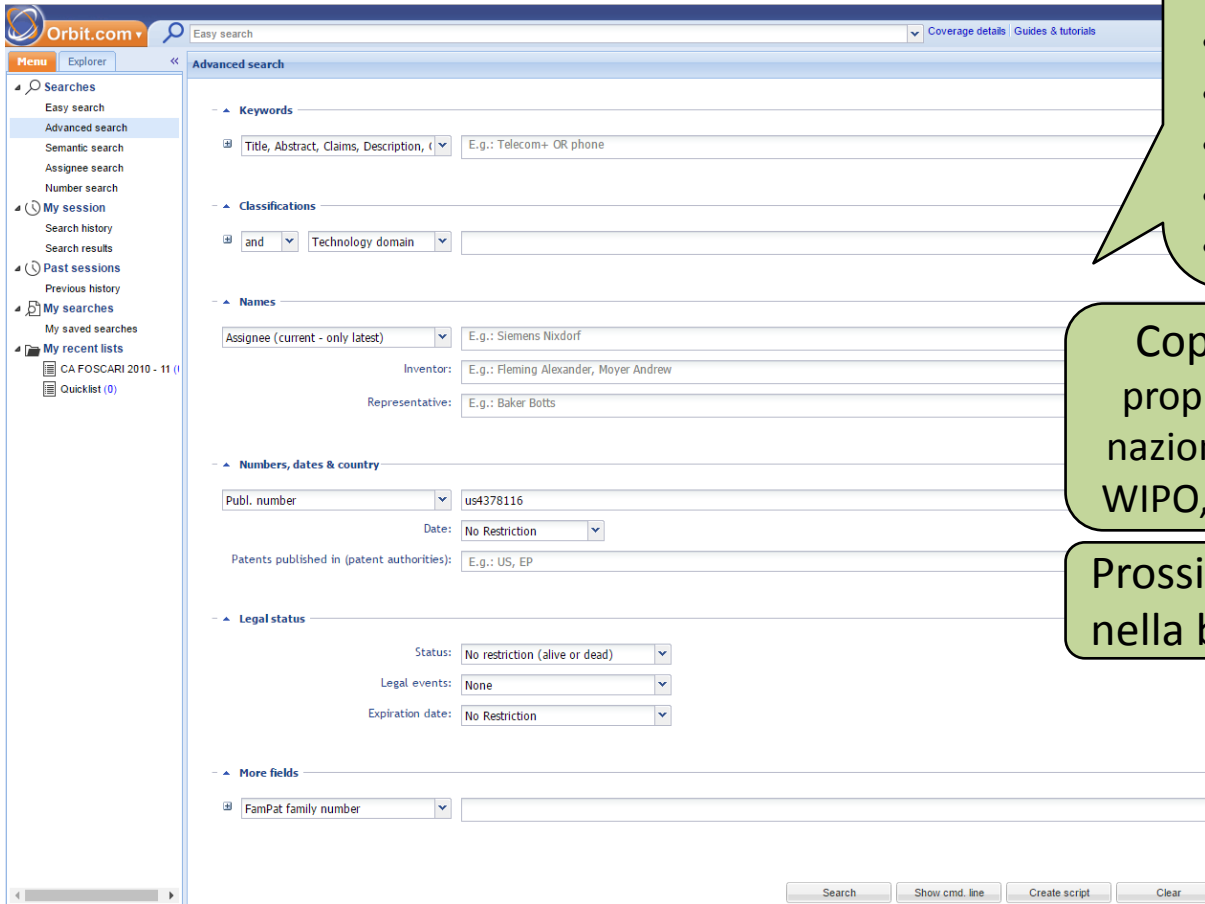
Orbit

Ricerca avanzata per:

- Parole chiave
- Classificazione
- Richiedente/Inventore
- Numero, data, paese
- Legal status
- Etc.

Copertura: oltre 100 uffici di proprietà intellettuale (95 uffici nazionali e 6 uffici regionali: EPO, WIPO, OAPI, ARIPO, EAPO, e CCG)

Prossimamente 1 postazione nella biblioteca 



Orbit.com Easy search Coverage details Guides & tutorials

Menu Explorer

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- Semantic search
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- Number search

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- Search history
- Search results

Past sessions

- Previous history

My searches

- My saved searches
- CA FOSCARI 2010 - 11 (1)
- Quicklist (0)

Keywords

Title, Abstract, Claims, Description, (t) E.g.: Telecom+ OR phone

Classifications

and Technology domain

Names

Assignee (current - only latest) E.g.: Siemens Nixdorf

Inventor: E.g.: Fleming Alexander, Moyer Andrew

Representative: E.g.: Baker Botts

Numbers, dates & country

Publ. number us4378116

Date: No Restriction

Patents published in (patent authorities): E.g.: US, EP

Legal status

Status: No restriction (alive or dead)

Legal events: None

Expiration date: No Restriction

More fields

FamPat family number

Search Show cmd. line Create script Clear





LexisNexis Academic

Ricerca per:

- Parole chiave
- Numero
- Data
- Richiedente/Inventore

LexisNexis® Academic

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 to
 Or Select

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Select a Segment ▼

Useful when you need to narrow your search to something specific, like a legal citation, an author's name, or a word in the headline. For example: HEADLINE(Congress w/5 budget)

Sources

<input checked="" type="checkbox"/> <input type="info"/> All Patents	<input type="checkbox"/> <input type="info"/> Plant Patents
<input type="checkbox"/> <input type="info"/> Combined US Patents	<input type="checkbox"/> <input type="info"/> European Patents
<input type="checkbox"/> <input type="info"/> Utility Patents	<input type="checkbox"/> <input type="info"/> Japan Patent Abstracts
<input type="checkbox"/> <input type="info"/> Design Patents	<input type="checkbox"/> <input type="info"/> Patent Cooperation Treaty Applications

Apply Cancel

Copertura

Espacenet

The screenshot shows the Espacenet advanced search page. At the top, there are logos for the European Patent Office and the text 'Espacenet Patent search'. Below this, there are navigation tabs for 'Search', 'Result list', 'My patents list (0)', 'Query history', 'Settings', and 'Help'. The main search area is titled 'Advanced search' and includes a dropdown menu for 'Select the collection you want to search in' (set to 'Worldwide - collection of published applications from 90+ countries'). There are several input fields for search terms: 'Enter keywords' (with 'plastic and bicycle'), 'Title or abstract' (with 'hair'), 'Publication number' (with 'WC2008014520'), 'Application number' (with 'DE201310112935'), and 'Priority number' (with 'WO1995US15925'). There are also fields for 'Enter one or more dates or date ranges' (with '2014-12-31 or 20141231'), 'Enter name of one or more persons/organisations' (with 'Institut Pasteur' and 'Smith'), and 'Enter one or more classification symbols' (with 'F03G7/10' and 'H03M1/12'). A 'Search' button is at the bottom right.


90 milioni di documenti
brevettuali

Copertura quasi mondiale

Ricerca avanzata per:

- Parole chiave
- Numero
- Data
- Richiedente/Inventore
- Classificazione

Espacenet


 Europäisches Patentamt
European Patent Office
Office européen des brevets

Espacenet
Patent search

Deutsch English Français
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About Espacenet Other EPO online services ▾
 Search Result list My patents list (0) Query history Settings Help

Refine search → Results page 1

Smart search
Advanced search
Classification search

Quick help
 → Can I subscribe to an RSS feed of the result list?
 → What does the RSS reader do with the result list?
 → Can I export my result list?
 → What happens if I click on "Download covers"?
 → Why is the number of results sometimes only approximate?
 → Why is the list limited to 500 results?
 → Can I deactivate the highlighting?
 → Why is it that certain documents are sometimes not displayed in the result list?

Result list

Select all Compact

Approximately 1000 results found in the Worldwide database for: **graphene nanocomposites** in the title or abstract
 Only the first 500 results are displayed.

Results are sorted by date of upload in database

1. **SULFUR-HYDROXYLATED GRAPHENE NANOCOMPOSITES FOR RECHARGEABLE LITHIUM BATTERIES AND METHODS OF MAKING THE SAME**

★ Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority date:
MANTHIRAM ARUMUGAM [US] ZU CHENXI [US]	BOARD OF REGENTS THE UNIV OF TEXAS SYSTEM [US]	C01B31/0484 H01M10/052 H01M10/36 (+13)	H01M10/052 H01M4/133 H01M4/36 (+2)	US20160113711 (A) 2016-10-10	2015-03-31

2. **Structure and reducing graphene oxide nickel oxide and silver nanoparticles as a hole transport layer of organic solar cells**

★ Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority date:
OU ZHEN-FANG [TW] GUO YUN [TW]	NAT UNIV CHIN YI TECHNOLOGY [TW]		H01L31/04	TWM526759 (U) 2016-08-01	2016-04-12

3. **Electrode material, secondary battery including the same, and manufacturing methods thereof**

★ Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority date:
SHIN HYEONJIN [KR] LEE DONGWOOK [KR] (+1)	SAMSUNG ELECTRONICS CO LTD [KR]	H01M10/0525 H01M2220/30 H01M4/0428 (+8)	H01M10/0525 H01M4/04 H01M4/38 (+3)	US2016315326 (A1) 2016-10-27	2015-04-21

4. **ULTRATHIN GRAPHENE-BASED MEMBRANES FOR WATER TREATMENT AND METHODS OF THEIR FORMATION AND USE**

★ Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority date:
YU MIAO [US]	UNIV OF SOUTH CAROLINA [US]	B01D2323/08 B01D2323/10 B01D2323/34 (+13)	B01D61/02 B01D61/24 B01D67/00 (+3)	US2016310908 (A1) 2016-10-27	2013-12-10

5. **Graphene oxide coated with metal oxide nanoparticles polymer composite and preparation method thereof**

★ Inventor:	Applicant:	CPC:	IPC:	Publication info:	Priority date:
			C08K3/04 C08K3/22 C08L75/04	KR20160116711 (A) 2016-10-10	2015-03-31

Per ricevere alert: feed RSS

Cliccare col tasto destro del mouse sul pulsante RSS, scegliere "copia collegamento" e incollare il link nel proprio aggregatore preferito

Per maggiori informazioni sul servizio alert:
https://worldwide.espacenet.com/help?locale=en_EP&method=handleHelpTopic&topic=rss

Espacenet

- Per maggiori informazioni su come effettuare una ricerca in Espacenet:
 - E-learning center: <https://e-courses.epo.org/course/index.php?categoryid=32>
 - Online training: <https://www.epo.org/learning-events/e-learning/modules.html?topic=0002>

PATENTSCOPE

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Home > IP Services > PATENTSCOPE

Field Combination

Front Page	=	
AND WIPO Publication Number	=	
AND Application Number	=	
AND Publication Date	=	
AND English Title	=	
AND English Abstract	=	
AND Applicant Name	=	
AND International Class	=	
AND Inventor Name	=	
AND Office Code	=	
AND English Description	=	
AND English Claims	=	
AND Licensing availability	=	<input type="checkbox"/>
AND Inventor Name	Is Empty:	<input checked="" type="radio"/> N/A <input type="radio"/> Yes <input type="radio"/> No

Language: English Stem: Office: All Specify

0 results Search Reset

(+) Add another search field | (-) Reset search fields Tooltip Help

Copertura:

- Domande PCT
- Brevetti nazionali e regionali (57,600,000)



Google Patents

Ricerca semplice



Include non-patent literature (Google Scholar)

Patent offices JP CN US EP WO DE GB KR FR CA
ES RU NL FI DK LU BE

Copertura

Ricerca avanzata per:

- Parole chiave e classificazioni
- metadata (inventore, richiedente, date, etc)
- Numero di brevetto o di domanda

Google Patents

SEARCH TERMS ?

+ Search term or CPC

SEARCH FIELDS

Before priority YYYY-MM-DD

+ Assignee

MORE ^

After filing YYYY-MM-DD

+ Inventor

+ Patent office

+ Language

+ Filing status

+ Patent type

+ Citing patent

+ CPC

Depositi nazionali titoli PI

MINISTERO DELLO SVILUPPO ECONOMICO

DIREZIONE GENERALE LOTTA ALLA CONTRAFFAZIONE
UFFICIO ITALIANO BREVETTI E MARCHI

Sei in: **dati** / Ricerca avanzata [altre ricerche: Codice Data Provincia Testo Titolare Classe Ricerca avanzata]

La ricerca riguarda le domande depositate tra il **1 gennaio 1980** e il **08 novembre 2016**,
ad eccezione delle ricerche per **titolare** e **priorità**, dove la data di partenza è il **1 ottobre 1989**.

Per le **invenzioni** e i **modelli di utilità**, non sono prese in considerazione le domande coperte da **segreto Militare**.

Scegliere la tipologia: Invenzioni Marchi Disegni Modelli di utilità

Abilita la ricerca per **data** (o intervallo di date). Impostazione predefinita (con ricerca per data **disabilitata**): **1 gennaio 1980 / 08 novembre 2016**

Abilita la ricerca per **testo** (nel Titolo e nella Descrizione).

Abilita la ricerca per **titolare**.

Abilita la ricerca per **inventore**.

Abilita la ricerca per **Classificazione delle Invenzioni Industriali e Modelli di Utilità - C.I.B.**

Abilita la ricerca per **priorità**.

cerca

W3C XHTML 1.0

Ufficio Italiano Brevetti e Marchi - Realizzazione: Andrea Facchini, Lidio Maresca, Andrea Pascucci - © 2008
Dal 27 ottobre 2008: 31923759 accessi all'area dati. Sessioni attualmente aperte: 770

Copertura: Italia da
1 gennaio 1980

Solo dati bibliografici

UIBM:

Database dei brevetti italiani

Ufficio Italiano Brevetti e Marchi - Database Brevetti nazionali

Home **Ricerca testuale** Ricerca per classificazione AAA

Ricerca testuale

Ricerca

Trova risultati

con tutte le parole

con la frase esatta

con almeno una delle parole

che non contengano le parole

con data di deposito da a

Avvia ricerca

Testo brevettuale
completo

Copertura: Italia da 1 luglio
2008, in aggiornamento




Pochi campi di ricerca:

- Parole chiave
- Classificazione



E per le formule chimiche?

Ricerca per struttura chimica

Database commerciali

-  **CAS**
A DIVISION OF THE
AMERICAN CHEMICAL SOCIETY → Scifinder
-  → Reaxys
-  **THOMSON REUTERS** → Pharma

Database gratuiti

-  **EMBL-EBI** → SureChEMBL
-  **WIPO** → PatentScope

Reaxys

The screenshot displays the Reaxys web interface. At the top, there is a navigation bar with the Reaxys logo and a 'New Reaxys' button. Below this is a menu with options: Query, Results, Synthesis Plans, History, Report, My Alerts, My Settings, and Help. A 'Start Over' button is also present. The main search area features an 'Ask Reaxys' input field with a placeholder text 'e.g. Ask Reaxys about the substance 'Atenolol'' and a link to 'Smart searching with Ask Reaxys. See examples >'. Below the search area is a row of icons for 'Reactions', 'Substances', 'Literature', 'Product', and 'Advanced'. The 'Substances' icon is highlighted. A 'Structure' search window is open, showing the 'MarvinJS by ChemAxon' logo and a 'STRUCTURE EDITOR' button. The window contains a 'Create Structure Template from Name' section with several search criteria: Reaxys Registry Number, CAS Registry Number, Chemical Name, and Element Symbols. Each criterion has a dropdown menu and a 'Lookup' button. There are also 'Show AND Buttons' and 'Basic Indexes' sections. A 'Search Substances' button is located at the bottom right of the window. A green speech bubble points to the 'Structure' search window with the text 'Ricerca per struttura chimica'. Another green speech bubble points to the search criteria with the text 'Ricerca per nome della sostanza, CAS number, ...'. A third green speech bubble points to the 'Advanced' search options with the text 'Copertura: USPTO, EPO, WIPO'.

Ricerca per nome
della sostanza,
CAS number, ...

Ricerca per
struttura chimica

Copertura: USPTO,
EPO, WIPO

Reaxys

Ricerca per:

- Parole chiave
- Numero
- Data
- Richiedente/Inventore
- Classificazione

The screenshot shows the Reaxys web interface. At the top right, there is a "New Reaxys" button. Below it is a navigation bar with links for Synthesis Plans, History, Report, My Alerts, My Settings, and Help. The main section features an "Ask Reaxys" search bar with a placeholder text "e.g. Ask Reaxys about the CAS-Number '102625-70-7'" and a link to "See examples". Below the search bar is a row of icons for different search categories: Reactions, Substances, Literature (highlighted with a red border), ReaxysTree, Physical, Spectra, Natural Product, and Advanced. The "Bibliographic Data" section contains a table of search criteria:

Field	Operator	Value	Action
Document Type	is	patent	Lookup X
Authors	is		Lookup X
Common Patent Number	is		Lookup X
Patent Country Code	is		Lookup X
Journal Title	is		Lookup X
Publication Year	=		Lookup X
DOI	is		Lookup X
Title	is		Lookup X
Abstract	is		Lookup X
Keywords	is		Lookup X
Citation Basic Index	is		Lookup X

Below the table is a "Show AND Buttons" link. At the bottom, there is a "Search Literature" button and a row of buttons for "Add to Query:", "Structure", "Molecular Formula", "Alloy", and "Add/Remove Fields...".

Ricerca per:

- Parole chiave
- Numero
- Data
- Richiedente/Inventore
- Classificazione

SureChEMBL

Enter your SureChEMBL query

SureChEMBL Query Help | Quick Reference Guide | Patent Number Search | Clear form | Field Search

Marvin JS
ChemAxon

SELECT STRUCTURE SEARCH

- Substructure
- Similarity
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FILTER BY MOLECULAR WEIGHT

0 to 800

SEARCH FOR STRUCTURE IN DOC SECTION(S)

- All
- Title or Abstract
- Claims
- Description
- Images

PATENT AUTHORITIES

- All chemically annotated authorities
- US Applications
- US Granted
- EP Applications
- EP Granted
- WO
- JP
- All authorities (inc. DocDB)

PUBLICATION DATE

Example: YYYYMMDD; YYYY; YYYYMMDD TO YYYYMMDD; YYYY TO YYYY

Search

Search form help

Ricerca per
struttura chimica

Copertura:
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PATENTSCOPE

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Cross-Lingual Expansion
Chemical compounds

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