

国际科学技术信息网 (STN) 的应用：关于纳米科技的信息

纳米技术是 21 世纪关键技术之一，有些人甚至认为是关键技术。其集合了多种学科：例如：生物，化学，物理和材料科学，纳米技术的应用已经对日常生活带来了巨大的影响，并将在未来引起更大变革。

在研究过程中，纳米技术帮助人们探索单细胞的微观世界，或通过涂层反射镜观察宏观世界。依靠纳米技术带来新发展的工业有：

- ◇ 电子
- ◇ 材料科学
- ◇ 汽车工业
- ◇ 医药工业
- ◇ 能源提供和更多

无论您工作于纳米科技的哪一部分，STN 数据库是不可缺少的最新可靠的数据来源，其覆盖了研究、应用、专利、经济、新闻等各个领域。有关 STN 的相关数据库信息可登陆 www.stn-international.de/stndatabases/c_datab.html。

包含纳米技术信息的数据库列表如下：

数据库	主题
ABI-INFORM	经济和管理
AEROSPACE	航空研究与发展
APOLLIT	聚合物和塑料化学技术
BABS	有机化学
BEILSTEIN	有机化学
BIOSIS	生物医药和生物科学
BIOTECHNO	生物技术
CAplus	化学，生化，化工
CASREACT®	单步或多步化学反应
CEABA-VTB	化工和生物技术
COMPENDEX	机械工程
DGENE	氨基酸和核酸序列
DRUGU/DDFU	药物
EMA	聚合物，陶瓷和化合物
EMBASE	生物医药和药物
ENERGY	能源
ESBIOBASE	最近资料通告
EUROPATFULL	欧洲专利
GENBANK®	核酸序列

IFIPAT	美国专利
INPADOC	全球专利
INSPEC	计算机, 电子, 工程, 物理
JAPIO	日本专利
JICST-EPLUS	日本科技文献
MEDLINE	医学
METADDEX	金属材料
NLDB	经济和工业新闻
PASCAL	多学科, 包括应用科学, 化学, 地球科学, 信息科学, 生命科学, 物理
PATDPAFULL	德国专利
PCTFULL	PCT 专利
PROMT	科技经济信息
RAPRA	橡胶和塑料工业
REGISTRY	有机和无机物质
SCISEARCH®	科技
TEMA	技术和管理
TOXCENTERSM	毒理学
USPATFULL/USPAT2	美国专利
WPIDS/WPINDEX/WPIX	全球专利
WPIFV	全球专利最近资料通告

纳米技术最原始的发明是扫描隧道显微镜(STM),1981年由 GerdBinning 和 Geinrich Rohrer 共同研究,至今,该发明仍是一个非常重要的工具。使用该显微镜,原子量级的结构都能观察。(图1)

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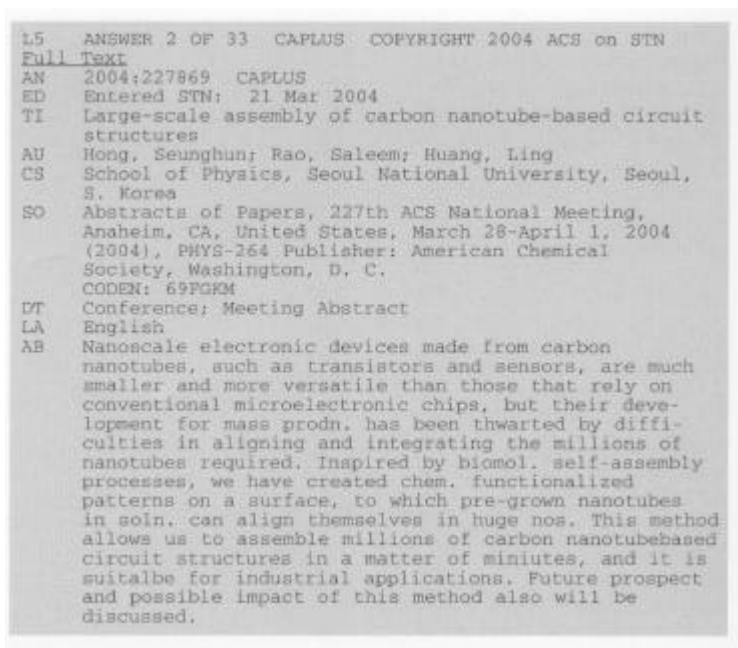
L7 ANSWER 2 OF 2 INSPEC (C) 2004 IEE on STM
Full Text
AN 1982:1910465 INSPEC DN A82086987
TI Surface studies by scanning tunneling microscopy.
AU Binning, G.; Rohrer, H.; Gerber, Ch.; Weibel, W. (IBM
Zurich Res. Lab., Ruschlikon, Switzerland)
SO Physical Review Letters (5 July 1982) vol.49, no.1,
p.57- 61. 14 refs.
CODEN: PRLTAA ISSN: 0031-9007
DT Journal
TC Experimental
CV United States
LA English
AB Surface microscopy using vacuum tunneling is
demonstrated for the first time. Topographic pictures
of surfaces on an atomic scale have been obtained.
Examples for resolved monoatomic steps and surface
reconstructions are shown for (110) surfaces of
CaIrSn4 and Au.
CC A8820 Solid surface structure
CT CALCIUM ALLOYS; GOLD; IRIIDIUM ALLOYS;
SURFACE STRUCTURE; TIN ALLOYS; TUNNELLING
ST surface topography; surface structure; Au (110);
CaIrSn4 (110); scanning tunneling microscopy; vacuum
tunneling; resolved monoatomic steps; surface
reconstructions
ET Ca*Ir*Sn; Ca sy 3; sy 3; Ir sy 3; Sn sy 3; CaIrSn4;
Ca cp; cp; Ir cp; Sn cp; Au

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电子

电子方面的发展同样影响了许多其它工业，很多产品都结合了电子部件。芯片在许多领域中的应用就是一个很好的例子。

碳纳米管在三维芯片生产中的应用是一个令人感兴趣的研究领域，因为碳纳米管是一种极好的导体。将成百万的碳纳米管进行组装，对未来的发展对于相当重要性。(图2)



能源提供

另一个重要的研究是可携带设备的能源自给问题。这是一个相当重要的市场，不仅科技类数据库，而且专利和经济类数据库都应该进行检索，以得到完整的竞争者活动情况。图3是PROMT数据库中一家电子领域企业的经济信息记录。

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L1 ANSWER 1 OF 1 PROMT COPYRIGHT 2004 Gale Group on STN
Full Text
AN 2004:233984 PROMT
TI GEMZ Corp. to Develop Solar-Powered Laptop Solution
Using Nanofilms Which Combine Photovoltaic and
Nanotechnology to Operate under Normal, Indoor
Lighting Conditions.
SO Business Wire, (10 Jun 2004) pp. 5189.
PB Business Wire
DT Newsletter
LA English
WC 533
TX Business Editors/High-Tech Writers

NEW YORK--(BUSINESS WIRE)--June 10, 2004

GEMZ Corp., (OTC: GMEP - News) announced today that
its wholly-owned subsidiary, International
Nanotechnology Corporation (INC) is planning to
develop a solar-powered solution for powering laptop
computers. INC previously announced that it had
signed a letter of intent with Terra Solar Development
Corp., a leading developer of photovoltaic and
nanocell technology to acquire substantially all of
its nanotechnology assets and certain photovoltaic
assets as well. The solar-powered laptop charger will
be the first product resulting from the planned
combination.

While laptop users everywhere need a cost-effective
device that can continually power or recharge laptops
without plugging them in, previous products use
crystalline or polycrystalline silicon photovoltaic
cells don't do the job, as they work only when they
are recharged in direct sunlight. The INC product is
believed to be the first to use PV Nanofilms, which
combine thin films and nanotechnology so they it can
also work indoors in most lighting situations.
Nanofilms have elements below 1000 and even below
100 nanometers...
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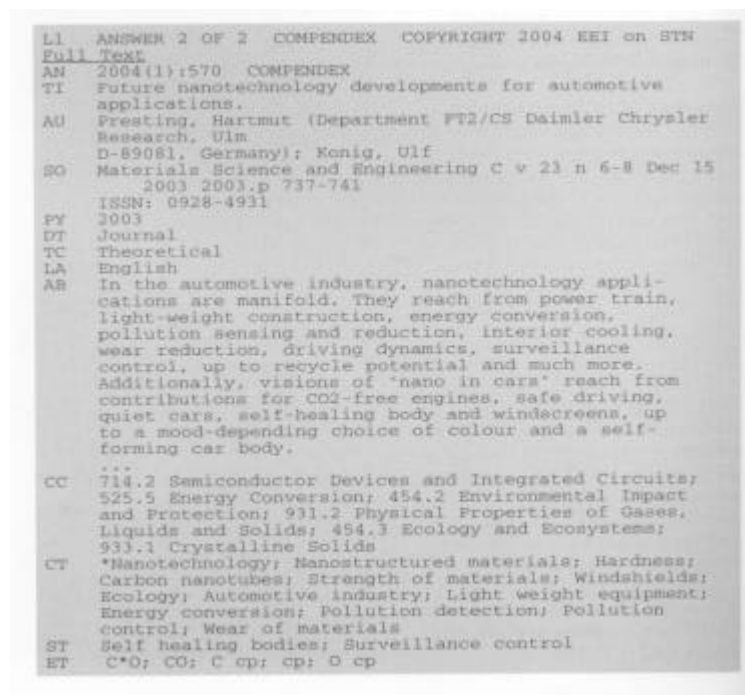
材料

像电子学科一样，材料学科的发展也将是对分支领域非常重要的。新材料将降低车辆的重量，清洁设备的特殊涂层表面，例如自清洁涂层（图4）

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L3 ANSWER 4 OF 10 METADEX COPYRIGHT 2004 CSA on STN
Full Text
AN 2002(1):57-162 METADEX
TI Generation of ultrahydrophobic properties of aluminium
- A first step to self-cleaning transparently coated
metal surfaces.
AU Thieme, M. (Technische Universitat Dresden); Frenzel,
R. (Institut fur Polymerforschung (Dresden)); Schmidt,
S. (Institut fur Polymerforschung (Dresden)); Simon,
F. (Institut fur Polymerforschung (Dresden)); Hennig,
A. (Institut fur Polymerforschung (Dresden)); Worch,
H. (Technische Universitat Dresden); Lunkwitz, K.
(Technische Universitat Dresden); Scharnweber, D.
(Technische Universitat Dresden)
SO Advanced Engineering Materials (Sept. 2001) 3, (9),
691-694, Photomicrographs, Numerical Data, Graphs,
10 ref.
ISSN: 1438-1656
DT Journal
CY Germany, Federal Republic of
LA English
AB In the last few years, significant efforts have been
made to provide surfaces with self-cleaning
properties. This approach utilizes principles which
have been discovered in nature, like the well known
'Lotus-effect'. The transformation of this strategy to
metallic surfaces is a scientifically and techno-
logically challenging target. This publication focuses
on the investigation of different routes for the
generation of the necessary micro-morphological
properties of Al.
CC 57 Finishing
CT Journal Article; Aluminum: Surface finishing;
Embossing; Ablation; Cleaning
ET Al
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汽车工业

电子和材料科学的纳米技术对未来汽车工业也有极其重要的影响。新材料将减轻重量，改善驱动动力，能源转换和循环潜力将得到优化，并减少对环境的污染。传感器可以监控天气，车流密度和其他因素来增加安全性。同样，美观也非常重要，例如可变色漆的使用（图5）。



生命科学

纳米技术让化学和生物实验室浓缩为芯片大小,被认为是“芯片上的实验室”技术。如:微流体毛细管可用于混合、稀释、分离化学品和流体。“芯片上的实验室”技术对研究同样重要:如:单细胞分析,其也可用于医学诊断方面(图6)。

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L1 ANSWER 1 OF 96 BIOSIS COPYRIGHT 2004 BIOLOGICAL
ABSTRACTS INC. on STN
Full Text
AN 2004:290135 BIOSIS
DN PREV200400289947
TI Microfluidic device for bio analytical systems.
AU Min, Junhong [Reprint Author]; Kim, Joon-Ho; Kim,
Sanghyo
CS BioMEMS TG Digital Bio Lab, Samsung Adv Inst Technol,
POB 111, Suwon, 440600, South Korea
junhong.min@samsung.com
SO Biotechnology and Bioprocess Engineering, (March 2004)
Vol. 9, No. 2, pp. 100-106, print.
ISSN: 1226-8172 (ISSN print).
DT Article
General Review: (Literature Review)
LA English
ED Entered STN: 16 Jun 2004
Last Updated on STN: 16 Jun 2004
AB Micro-fluidics is one of the major technologies used
in developing micro-total analytical systems (mu-TAS),
also known as "lab-on-a-chip". With this technology,
the analytical capabilities of room-size laboratories
can be put on one small chip.
...
CC General biology - Miscellaneous 00512
IT Major Concepts
Equipment Apparatus Devices and Instrumentation;
Methods and Techniques
IT Methods & Equipment
bio-analytical systems; laboratory equipment; biolo-
gical analysis; laboratory techniques; micro-total
analytical systems; laboratory equipment; microfluidic
device; laboratory equipment
IT Miscellaneous Descriptors applicable materials;
bioMEMS; chamber modules; lab-on-a-chip;
micro-fluidics; mixer modules; sample prep modules
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医药

医药领域和药理学公司的研究使用纳米技术研发新药，治疗和药物传输方法。

药物以纳米粒子在体内传输至所需部位已申请专利。WPINDEX 记录就述及了一项相关专利的情况（图 7）。

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LJ ANSWER 3 OF 3 WPINDEX COPYRIGHT 2004 THOMSON IERWENT
on SUN
Full Text
AN 1992-433344 [52] WPINDEX
DNC C1992-192346
TI Carrier for admin. of a pharmaceutically active
substance - comprises matrix of a complex of a sterol
e.g. cholesterol, and one or more saponins) having
inert structure.
DC B01
IN LOEVGREN, K; MOREIN, S; LOVGREN, K
PA (KABI) KABI PHARMACIA AB; (BATE-N) BRITISH TECHNOLOGY
GROUP LTD; (ISCO-M) ISCOVENT AB
CYC 37
FI WO 9221331 A1 19921210 (199252)* EN 38
A61K009-51
RW: AT BE CH DE DK ES FR GB GR IT LU MC NL OA SE
W: AT AU BB BG BR CA CH CS DE DK ES FI GB HU JP KP
KR LK LU MG MN MW NL NO PL RO RU SD SE US
SE 9101665 A 19921201 (199304) A61K009-51
AU 9219251 A 19930108 (199315) A61K009-51
FI 9305314 A 19931129 (199406) A61K009-08
...
PRAI SE 1991-1665 19910531
REF 2.Jnl.Ref; EP 231039; EP 415794
IC ICM A61K000-00; A61K009-16; A61K009-50; A61K009-51;
A61K047-28; A61K047-48
ICS A61K031-12; A61K031-415; A61K031-575; A61K031-70;
A61K031-71; A61K031-765; A61K037-43; A61K047-44
AB WO 9221331 A UPAB: 19950314
The use of an inert, structure-giving, deadjuvanted
matrix of a complex of a sterol and one or more
saponins, as a carrier for admin. of a pharmaceutic-
ally active substance, not intended for immunisation
is new. The matrix has an annular basic structure
which can form spheric nano particles with a narrow
size distribution.
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