GT-LNMNE 2004

Nanotecnologia: Arranjos Institucionais em Países Selecionados da Ásia e Oceania

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Roberta Medeiros

São Paulo, 10/SET/2004

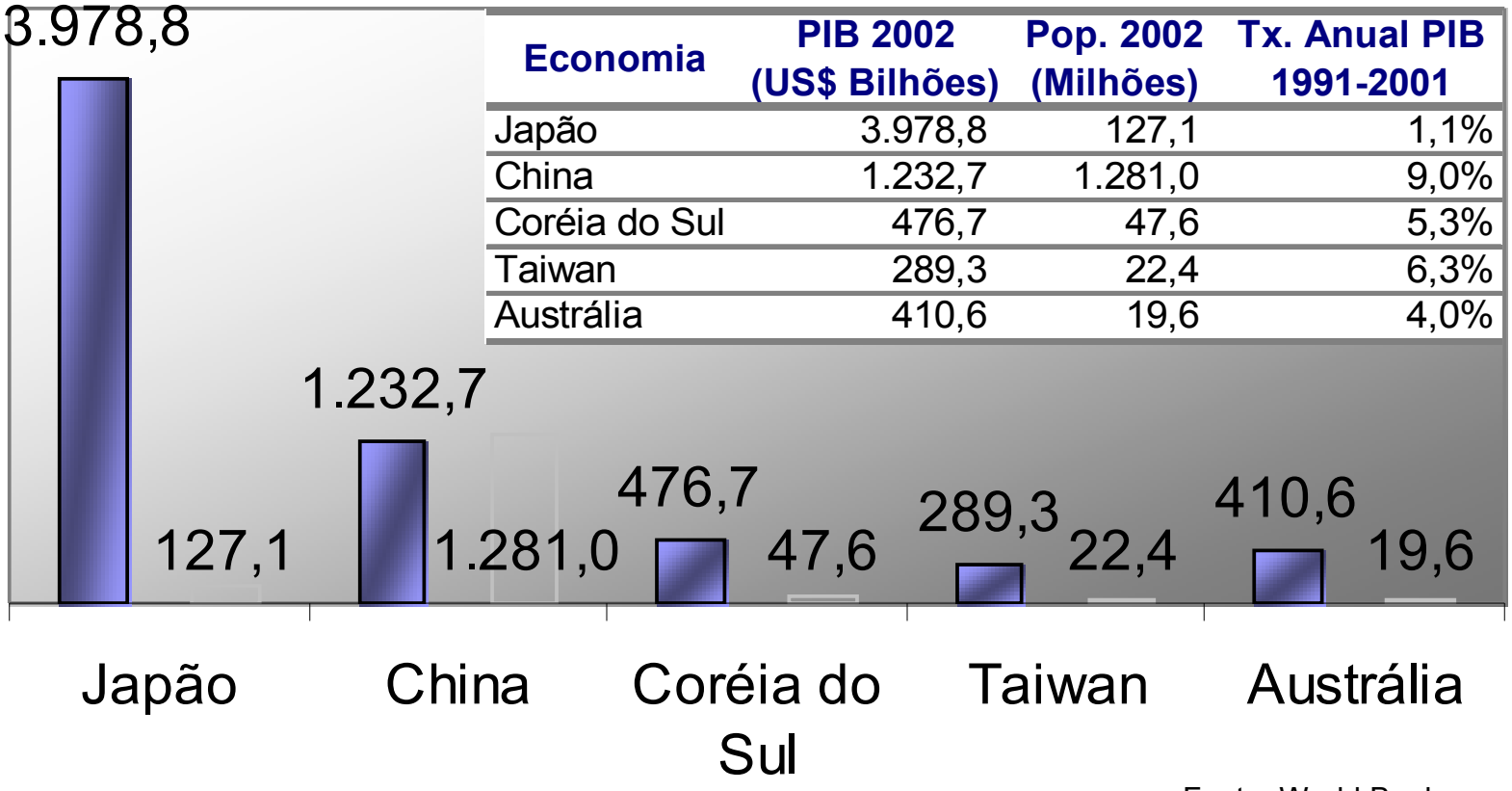
Tópicos Abordados

- Panorama
- Japão
- China
- Coréia
- Taiwan
- Austrália
- Produtos Comerciais

Panorama

PIB 2000 (US$ Bilhões)

Pop. 2002 (Milhões)

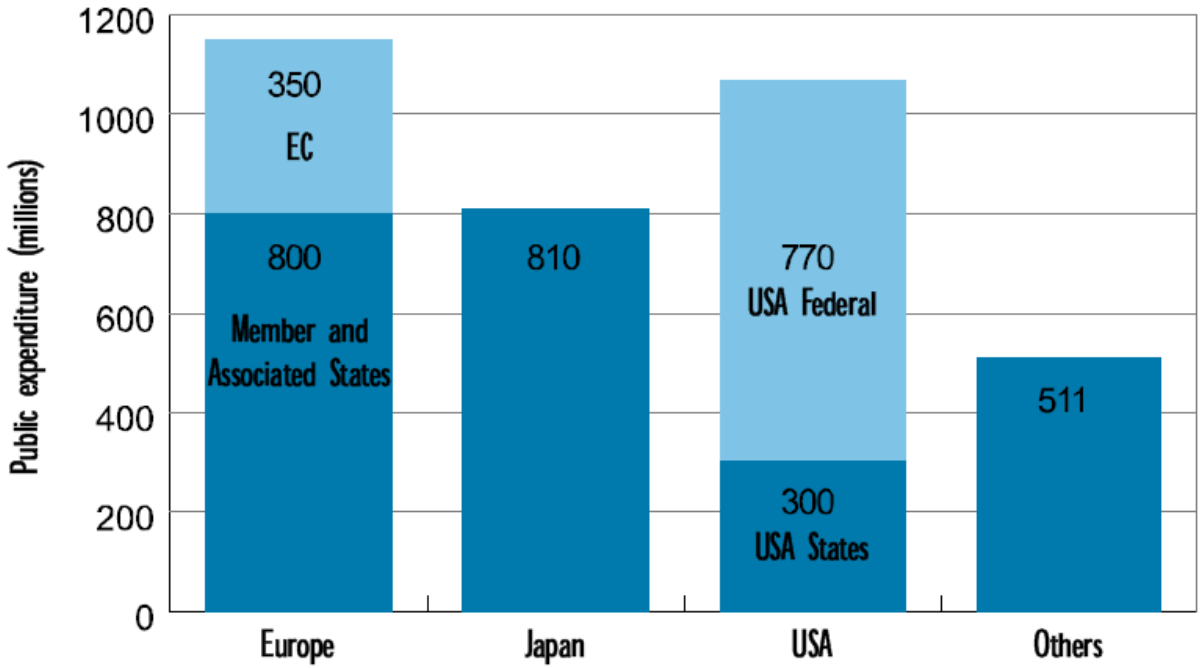


Economia	PIB 2002 (US$ Bilhões)	Pop. 2002 (Milhões)	Tx. Anual PIB 1991-2001
Japão	3.978,8	127,1	1,1%
China	1.232,7	1.281,0	9,0%
Coréia do Sul	476,7	47,6	5,3%
Taiwan	289,3	22,4	6,3%
Austrália	410,6	19,6	4,0%

Fonte: World Bank

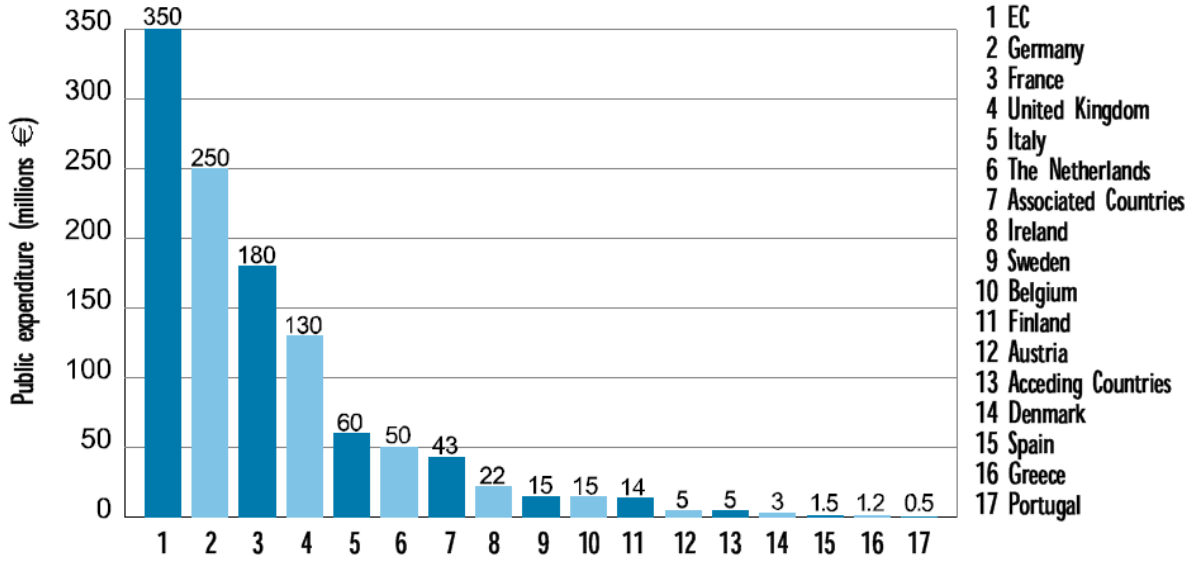
Investimento em NT no Mundo

Fig. 1: Overall levels of public expenditure in nanotechnology in 2003 for: Europe (including CH, IL and NO as FP6 Associated countries), Japan, USA and others (1€ = 1$).



Investimento em NT na Europa

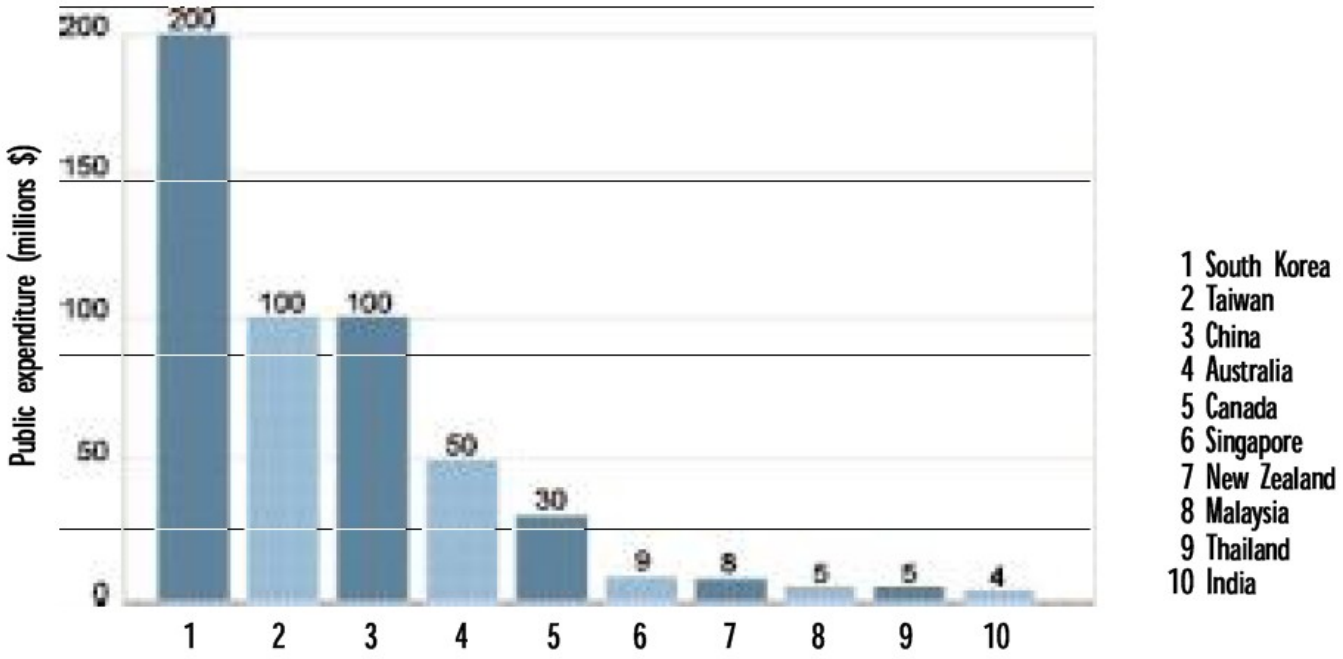
Fig. 2: Level of funding for EU-15 along with some Acceding (CZ, LV, LT, SI) and the main Associated countries (CH, IL and NO) and EC in absolute € terms in 2003.



47 Asia (APNF, ATIP, nABACUS); Europe (Bundesministerium für Bildung und Forschung (Germany), Enterprise Ireland, General Secretariat for Research (Greece), Inspection générale de l'administration de l'éducation nationale et de la recherche (France), Nanoforum, National Contact Points, CORDIS Nanotechnology Database, various sources); USA (NSF); Others (various sources)

Investimento em NT em Outros Países

Fig. 3: Level of funding for major third countries (excluding USA and Japan) with nanotechnology programmes in absolute $ terms in 2003. The potentially large differences in purchasing power should be taken into consideration when reading these figures.



Japão


0 200 400 km
0 200 400 mi
RUS.
CHINA
La Perouse Strait
Hokkaido
Sapporo
Occupied by the Soviet Union in 1945 administered by RUSSIA, claimed by JAPAN.
Tsugaru-kaikyō
NORTH KOREA
Sea of Japan
Hachiro-gata
Akita
Liancourt Rocks
Sendai
SOUTH KOREA
TOKYO
Honshu
Yellow Sea
Fuji
Yokohama
Hiroshima
Kobe
Nagoya
Osaka
NORTH PACIFIC OCEAN
Korea Strait
Fukuoka
Kitakyushu
Shikoku
Kyushu
NAMPO-SHOTŌ
Ōsumi-kaikyō
East China Sea
Philippine Sea
BONIN ISLANDS
SENKAKU-SHOTŌ
Okinawa
RYUKYU ISLANDS
DAITO-SHOTŌ
VOLCANO ISLANDS
130
140
40
30

Japão

- Áreas Prioritárias
  - Nanotecnologia (NT)
  - Biotecnologia (BT)
  - Tecnologia da Informação e Comunicação (ICT)
  - Meio Ambiente

Japão

- Ministry of Economy and Trade Industry (METI)
  - New Energy and Industrial Technology Development Organization (NEDO)
    - Agência Administrativa
    - Industrial Technology Programs
      - Nanotechnology Materials Program (NMP)
        - » US$ 35 Milhões/Ano (5-7 Anos)
      - Manufacturing Technology Program
      - Advanced Display Technology Development Program
      - Biotechnology Basic Research Program

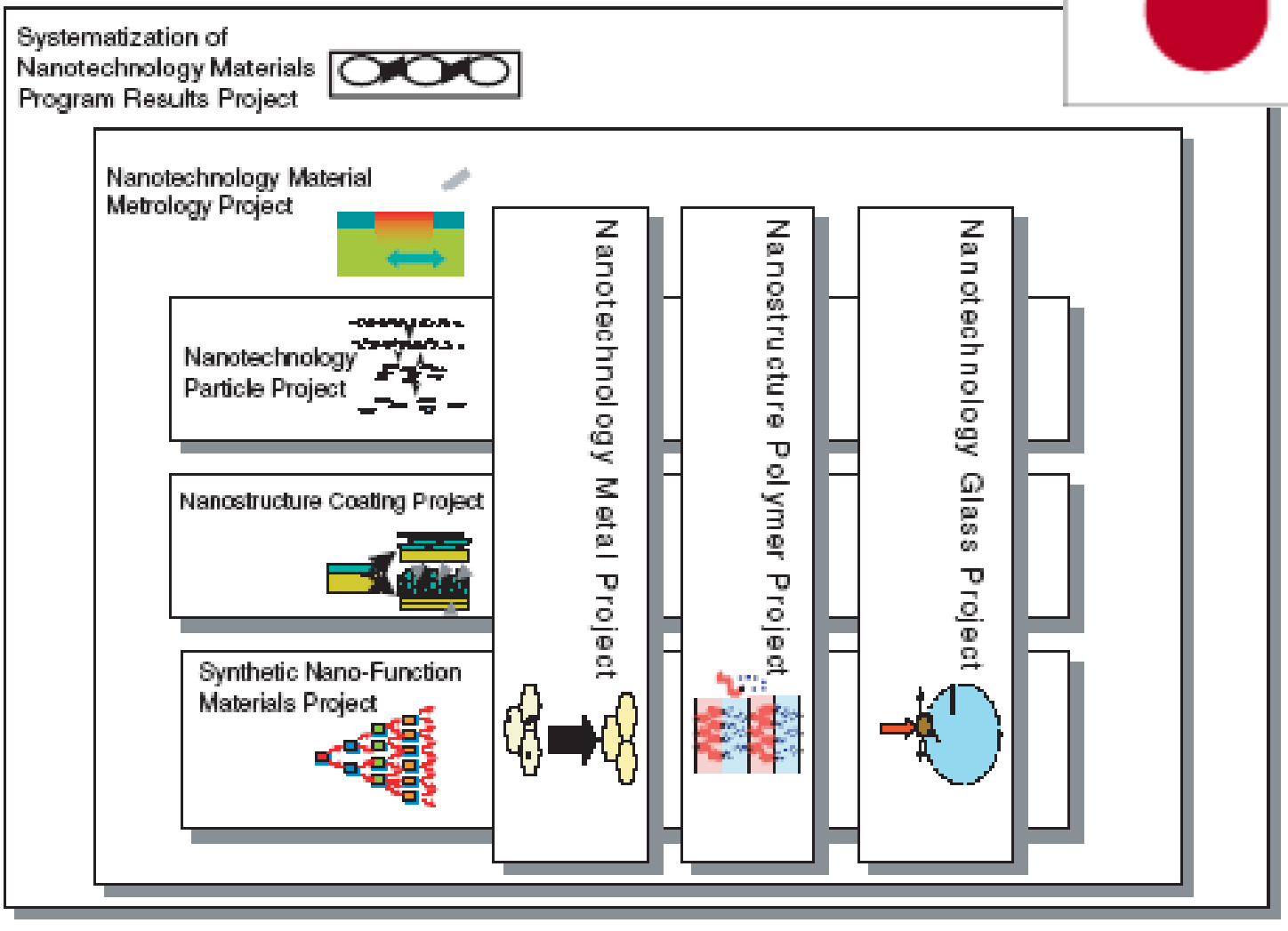
Japão

- Nanotechnology Materials Program (NMP)
  - Governo
    - Investimento e Liderança
  - Academia
    - Desenvolvimento e Implementação de Planejamento para Melhoria da Infra-estrutura e Treinamento de RH
  - Setor Privado
    - Estabelecimento dos Focos de Desenvolvimento
  - Laboratórios Nacionais
    - Apoiar Pesquisa Fundamental de Longo Prazo
    - Metrologia de Materiais e Melhoria de Desenvolvimento

Japão

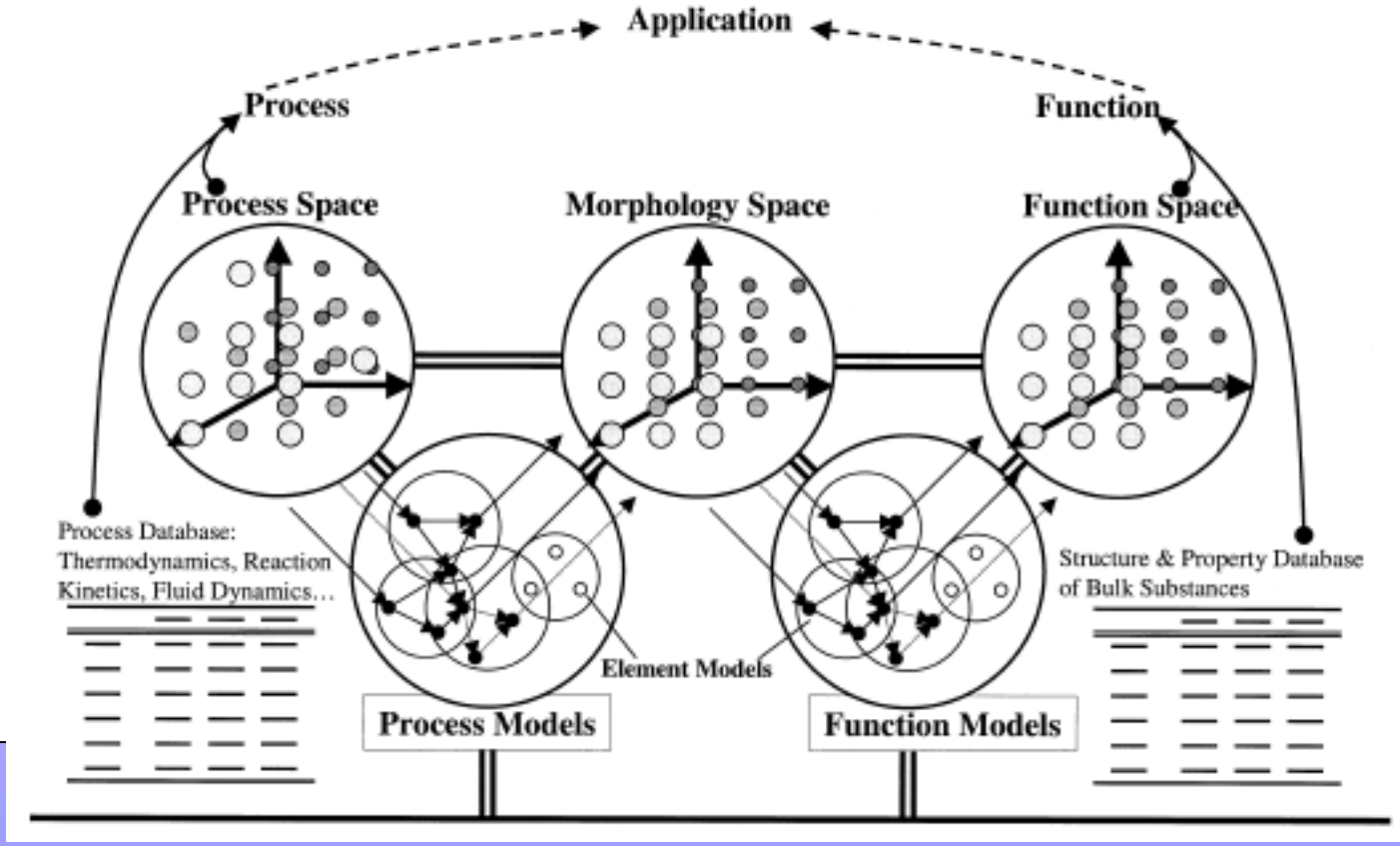
- NMP
  - 8 Projetos
    - Polímeros Nanoestruturados
    - Nanotecnologia de Vidro
    - Nanotecnologia de Metal
    - Nanotecnologia de Partículas
    - Nanotecnologia de Deposição
    - Materiais Sintéticos Nano-Funcionais
    - Metrologia de Materiais Nanotecnológicos
    - Sistematização dos Resultados do NMP

Japão


Systematization of Nanotechnology Materials Program Results Project
Nanotechnology Material Metrology Project
Nanotechnology Particle Project
Nanostructure Coating Project
Synthetic Nano-Function Materials Project
Nanotechnology Metal Project
Nanostructure Polymer Project
Nanotechnology Glass Project

Japão

- NMP – Estruturação do Conhecimento



N&N em países selecionados da Ásia e Oceania

Japão

Project	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007
Nanostructure Polymer Project		1300	1150	950				
Nanotechnology Glass Project	300	600	620	430				
Nanotechnology Glass Project for Display				250				
Nanotechnology Glass Project for Electron Device				260				
Nanotechnology Metal Project		300	670	490				
Nanocarbon Technology Project/Advanced Nanocarbon Application Project			750	1270				
Carbon Nanotube FED Project				810				
Advanced Diamond Technology Project				810				
Nanotechnology Particle Project		900	910	640				
Nanostructure Coating Project		500	520	360				
Synthetic Nano-Function Materials Project		250	360	250				
Nanotechnology Material Metrology Project		230	230	160				
Systematization of Nanotechnology Materials Program Results Project		220	270	190				
Sum of the budgets (million yen, 100yen=8.4USD	**300**	**4300**	**5480**	**6870**				

Japão

- Nanotechnology and Materials Technology Development Department (NMTDD)
  - Atividades
    - Promover a Comercialização
    - Promover a Disseminação da Informação
      - Nano-Tech Mailing List
        - » www.nanofuture.jp/mlist/
    - Gerenciar as Pesquisas e Promover a Articulação entre os Projetos
      - Sistematização dos Resultados do NMP

NEDO
技術開発機構

Japão

- Outras Instituições
  - Lideranças de Projetos
    - National Institute of Advanced Industrial Science and Technology (AIST)
  - Programas Específicos
    - Ministry of Education, Culture, Sports, Science and Technology (MEXT)
    - Council for Science and Technology Policy

Japão

- Investimentos Totais - MEXT
  - Nanotecnologia e Ciência de Materiais
    - US$ 713 Milhões (2002)
    - US$ 753 Milhões (2003)
    - US$ 783 Milhões (2004)
      - Exclui dados das Universidades Nacionais

Japão

- Workshop on Nanotechnology Networking and International Cooperation
  - 11-12/10/2003, Yokohama
  - Global Nanotechnology Network (GNN)
- Agenda
  - nano tech 2005
    - 23-25/02/2005, Tokyo
    - www.ics-inc.co.jp/nanotech

China


Caspian Sea
KAZAKHSTAN
Aral Sea
Lake Balkhash
RUSSIA
Lake Baikal
Amur
NORTH PACIFIC OCEAN
UZB.
TURKM.
KYR.
TAJ.
MONGOLIA
Harbin
Urumqi
Turpan Pendi
Shenyang
Sea of Japan
JAPAN
N. KOR.
BEIJING
Tianjin
S. KOR.
Huang He
IRAN
AFG.
Indian claim
Lanzhou
Zhengzhou
Yellow Sea
Xi'an
Indus
PAK.
Line of Actual Control
Nanjing
Shanghai
Chengdu
Wuhan
Brahmaputra
Lhasa
Mekong
Chongqing
Chang Jiang
East China Sea
NEPAL
Mount Everest
Ganges
Taipei
Philippine Sea
BHU.
INDIA
Guangzhou
Taiwan
Arabian Sea
Hong Kong S.A.R.
Macau S.A.R.
BANGL.
BURMA
VIET.
LAOS
Hainan Dao
South China Sea
PHIL.
THAL.
0 400 800 km
0 400 800 mi

China

- Chinese Academy of Sciences (CAS)
  - Conferências (desde 1990)
    - Intercâmbio Acadêmico (Nac e Int'l)
  - Fomento
    - National Natural Science Foundation of China (NSFC)
    - State Science and Technology Commission (SSTC)
  - Projeto de Nanociência e Nanotecnologia (2000)
    - 11 Institutos
    - US$ 3 Milhões
      - Knowledge Innovation Program

China

- Centro Nacional para Nanociência e Nanotecnologia
  - 2000
  - US$ 33 Milhões
  - 20 Institutos
  - www.nanoctr.cn

China

- Ministry of Science and Technology (MOST)
  - Projeto Nacional "Nanomaterial and Nanostructures" (1999)
    - Pesquisa Básica em Áreas –Chaves (Nanotubos)
  - High Tech Research and Development (863) Program for Nano Science and Technology (2002)
    - US$ 20 Milhões
    - 63 Projetos
- National High Technology Plan
  - Projetos para Nanomateriais

China

- Dados Estatísticos (P&D de Nanociência e Nanotecnologia)
  - 50 Universidades
  - 20 Institutos da CAS
  - 100 Empresas
  - 3000 Pesquisadores
  - Scientific Citation Index
    - Artigos em Nanotubos de Carbono
      - USA
      - Japão
      - China
  - Fomento
    - Governamental
      - US$ 7 Milhões (1990-2000)
      - US$ 53 Milhões (2001-2004)

China

- Estratégia
  - Curto Prazo
    - Integrar Nanotecnologia a Setores Tradicionais para Desenvolvimento de Produtos
    - Plataforma para Comercialização
      - Nanotechnology Industrialization Base of China
        - » TianJin (100 km de Pequim)
        - » www.nibc.gov.cn

国家纳米技术产业化基地
NANOTECHNOLOGY
INDUSTRIALIZATION BASE
OF CHINA

China

- Estratégia
  - Agenda
    - AsiaNANO 2004 Asian Conference on Nanoscience & Nanotechnology
      - National Center for Nanoscience and Nanotechnology, China (NCNST)
      - 24-27/11/2004, Beijing
    - 3rd Asia Pacific Nanotechnology Annual Conference incorporando 2nd Shanghai International Cooperation Symposium
      - Shanghai Nanotechnology Promotion Center (SNPC)
      - 9-12/12/2004, Shanghai

China

- Outros Centros
  - Shanghai Nano-technology Promotion Center (SNPC)
    - www.snpc.org.cn
  - Tsinghua-Foxconn Nanotechnology Research Center
    - Parceria
      - Tsinghua University
      - Foxconn
      - US$ 37 Milhões

Coréia


NORTH KOREA
Demarcation Line
SEOUL
Inch'ŏn
Suwŏn
Wŏnju
Kangnŭng
Ullŭng-do
Liancourt Rocks
Pukp'yŏngdong
Taejŏn
Kunsan
Taegu
P'ohang
Chŏnju
Ulsan
Masan
Chinhae
Kwangju
Pusan
Mokp'o
Yosu
Yellow Sea
Sea of Japan
Korea Strait
Cheju-do
Halla-san
JAPAN
0 50 100 km
0 50 100 mi
126
128
38
36
34

Coréia

- Áreas Importantes
  - Nanotecnologia (NT)
  - Tecnologia da Informação (IT)
  - Biotecnologia (BT)
  - Tecnologia Ambiental (ET)
  - Tecnologia Espacial (ST)
  - Tecnologia de Conteúdo (CT)

Coréia

- Estado Atual
  - 579 Publicações (1991-2000)
    - Fonte: ISI Report (www.isinet.com)
  - > 100 Grandes Empresas e Empreendimentos
  - 542 Patentes (1997-2001)
    - Maioria em Nanotubos de Carbono
  - Programa Tera-Level Nanodevices (TND)
    - Abril 2000
    - Um dos Programas-Chaves para NT

Coréia

- Planejamento para NT (2001 – 2010)
  - Integrado
    - Ministry of Science and Technology (MOST)
    - Ministry of Education and Human Resources Development
    - Ministry of Commerce, Industry and Energy
    - Outros
  - Objetivos (2010)
    - Estar entre os 5 Países no topo em NT
    - 12.600 Experts

Coréia

- Planejamento para NT (Cont.)
  - Foco em Áreas com:
    - Maior Potencialidade de Aplicação Comercial
    - Maior Competitividade em Relação aos Países Avançados
    - Escolhas
      - Nanodispositivos
      - Nanomateriais
      - Nanoprocessamento
      - Nanobiologia
      - Tecnologias Básicas

Coréia

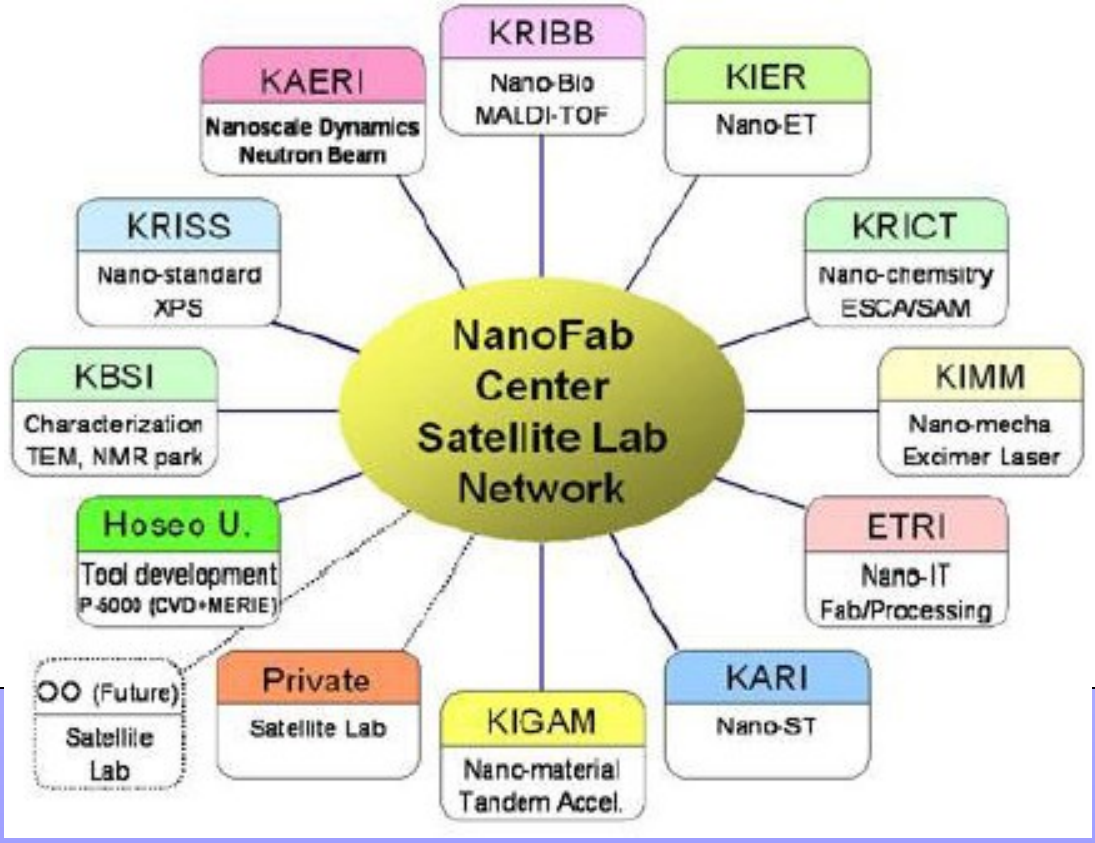
- Ações
  - Capacitação
  - Gestão
    - National S&T Council
      - National Comitee for NT Development
  - Instalações
    - National NanoFab Center (NNFC)
      - Korea Advanced Institute of Science and Technology (KAIST)
        - » Promover Formação de Experts em NT
        - » Oferta de Serviços e Equipamentos em NT
        - » “One Stop Service from Idea Generation to Manufacturing Engineering Samples”
    - Colaborações Internacionais

Coréia

- NNFC
  - Estrutura Compartilhada de Instalações e Equipamentos
    - ETRI - Electronics and Telecommunications Research Institute
    - Hoseo U - Hoseo University
    - KAERI - Korea Atomic Energy Research Institute
    - KARI - Korea Aerospace Research Institute
    - KBSI - Korea Basic Science Institute
    - KIER - Korea Institute of Energy Research
    - KIGAM - Korea Institute of Geoscience And Mineral resources
    - KIMM - Korea Institute of Machinery & Materials
    - KRIBB - Korea Research Institute of Bioscience & Biotechnology
    - KRICT - Korea Research Institute of Chemical Technology
    - KRISS - Korea Research Institute of Standards and Science

Coréia

- Esquema de Integração do NNFC



Coréia

- Academia (Pesquisa Básica)
  - Seoul National University (SNU)
  - KAIST
  - Hanyang University
- Institutos
  - Korea Institute of Machinery and Materials (KIMM)
  - Korea Research Institute of Standards and Science (KRISS)
  - Korea Electronics Technology Institute (KETI)

Coréia

- Pesquisa Industrial
  - SAIT (Samsung Advanced Institute of Technology)
  - LG Electronics Institute of Technology
- Nano Technology Research Association (NTRA)
  - Compartilhamento de Informações
  - Monitoramento dos Progressos na Área
  - P&D Cooperativo
  - nanokorea.net/eng/

Coréia

- Investimentos

(Milhões de US$)	1ª Fase ('01-'04)			2ª Fase ('05-'07)			3ª Fase ('08-'10)			Total
	Gov.	Priv.	Subtotal	Gov.	Priv.	Subtotal	Gov.	Priv.	Subtotal	
Pesquisa	194,2	42,1	236,3	222,5	131,7	354,2	222,5	197,5	420,0	**1.010,42**
Recursos Humanos	29,6	0,0	29,6	22,1	0,0	22,1	17,9	0,0	17,9	**69,58**
Instalações	61,3	26,5	87,8	27,3	10,5	37,8	22,3	9,7	31,9	**157,50**
Total	285,1	68,6	**353,7**	271,8	142,2	**414,0**	262,7	207,2	**469,8**	**1.237,50**

Coréia

- Agenda
  - NANO KOREA 2004
    - 2004 International Nanotech Symposium & Exhibition in Korea
    - 24-27/08/2004, Seoul
    - www.nanokorea.or.kr/2004e
    - Realização
      - Ministry of Science and Technology (MOST)
      - Ministry of Commerce, Industry and Energy (MOCIE)

Taiwan

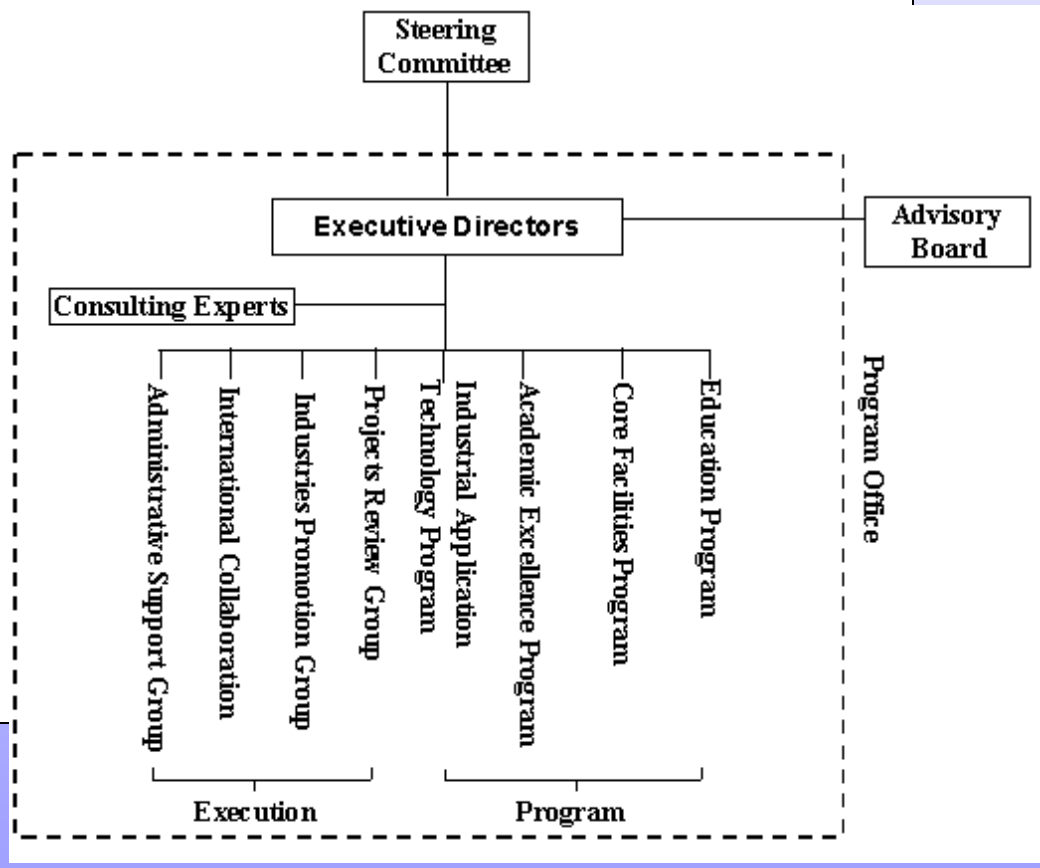

The islands of
Matsu and Quemoy
are not shown.
CHINA
Taiwan Strait
TAIPEI
Chi-lung
Su-ao
T'ai-chung
Chang-hua
Hua-lien
Pescadores
Ma-kung
T'ai-nan
T'ai-tung
Kao-hsiung
Philippine
Sea
0 30 60 km
0 30 60 mi
Luzon Strait

Taiwan

- National Science Council
  - www.nsc.gov.tw
  - National Science and Technology Program for Nanoscience and Nanotechnology
    - Excelência Acadêmica
    - Industrialização
    - Instalações Principais
    - Formação de Recursos Humanos

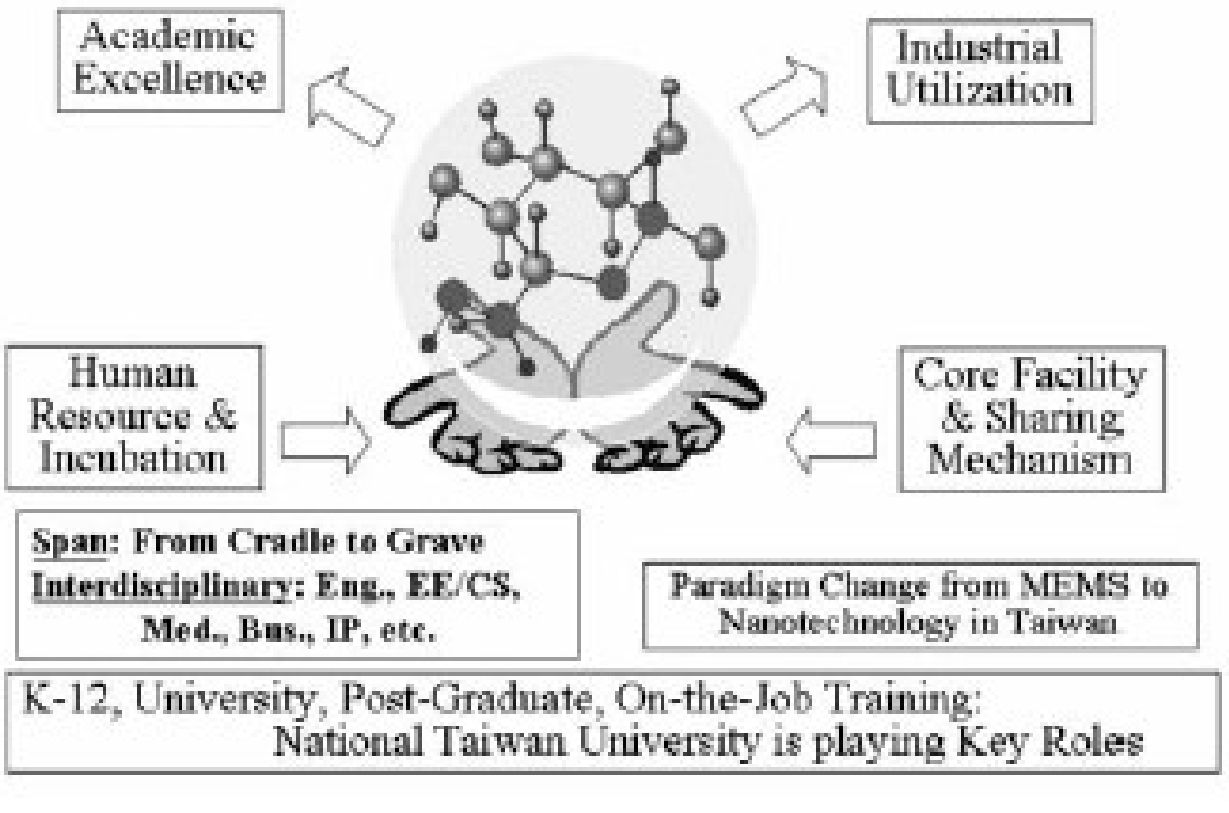
Taiwan

- 8 Grupos de Trabalho
  - 4 de Execução
  - 4 de Programas



Taiwan

- Esquema



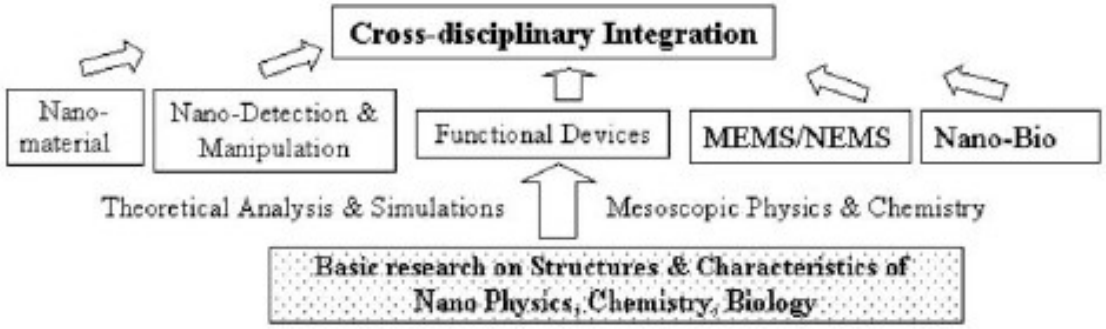
Taiwan

- Programa Acadêmico

Nanomaterials synthesis, simulation, & predictions	Nanoscale probing and manipulation	Special function nano-devices, wiring, interface, system design and manufacturing	NEMS/MEMS	Nano-biotechnology
•High surface area material •Nano particle, tube, fibers, ultra-thin film, & superlattice structure •Nano-structural materials & composites •Bulk of nanomaterials •Bio and non-bio material interface •Bio-molecules collaborative self-assembly •Self-assembly of bio-molecules	•Single/multiple-probe scanning techniques •Scanning near field probe and manipulation •High resolution (<10nm) microscopy •Theoretical bases of probing and manipulation	•Single Electron or few electronic devices •Spintronics •Quantum dots and wires •Molecular detection •Nanowire and waveguid •Bio & non-bio interfaces •Ultra-high density array ($>10^{12}$devices/cm^2)	•Micro-sensors: pressure, fluid volume, force, temperature, acceleration •Micro-actuators: valve, pump, motor, relay, PZTetc. •Micro-positioning system: PZT precision platform •Micro-lubrication system: air bearing, mag. bearing •Micro-assembly system: micro-robots, gripper, manipulator •Micro-tribology •Micro-lithography: nano-mask, near-field litho.	•Micro-bio molecular detection & manipulation system •Bio- and non-bio interface devices and materials •Drug delivery devices

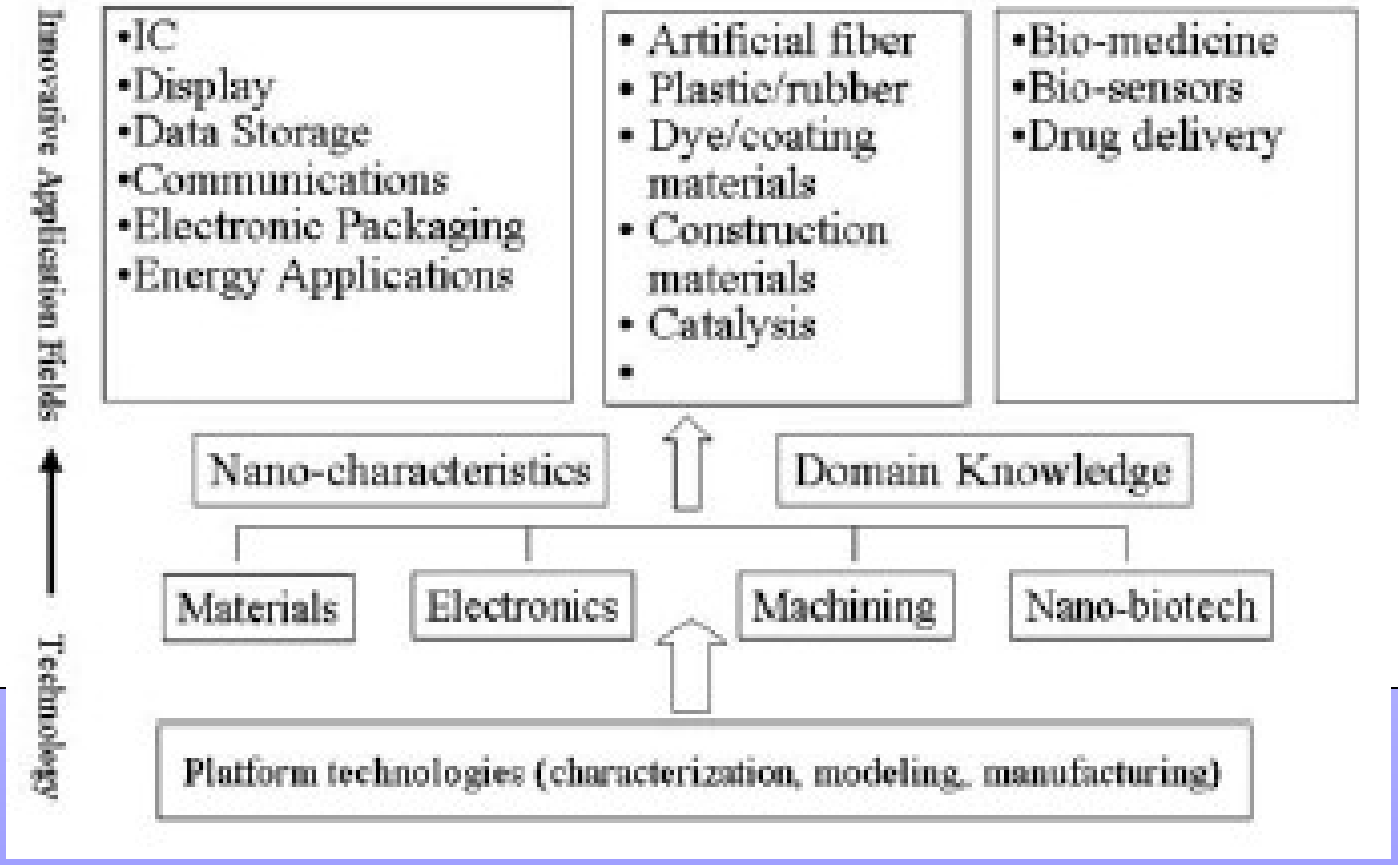
Research Topics ↑

Foundation ↓



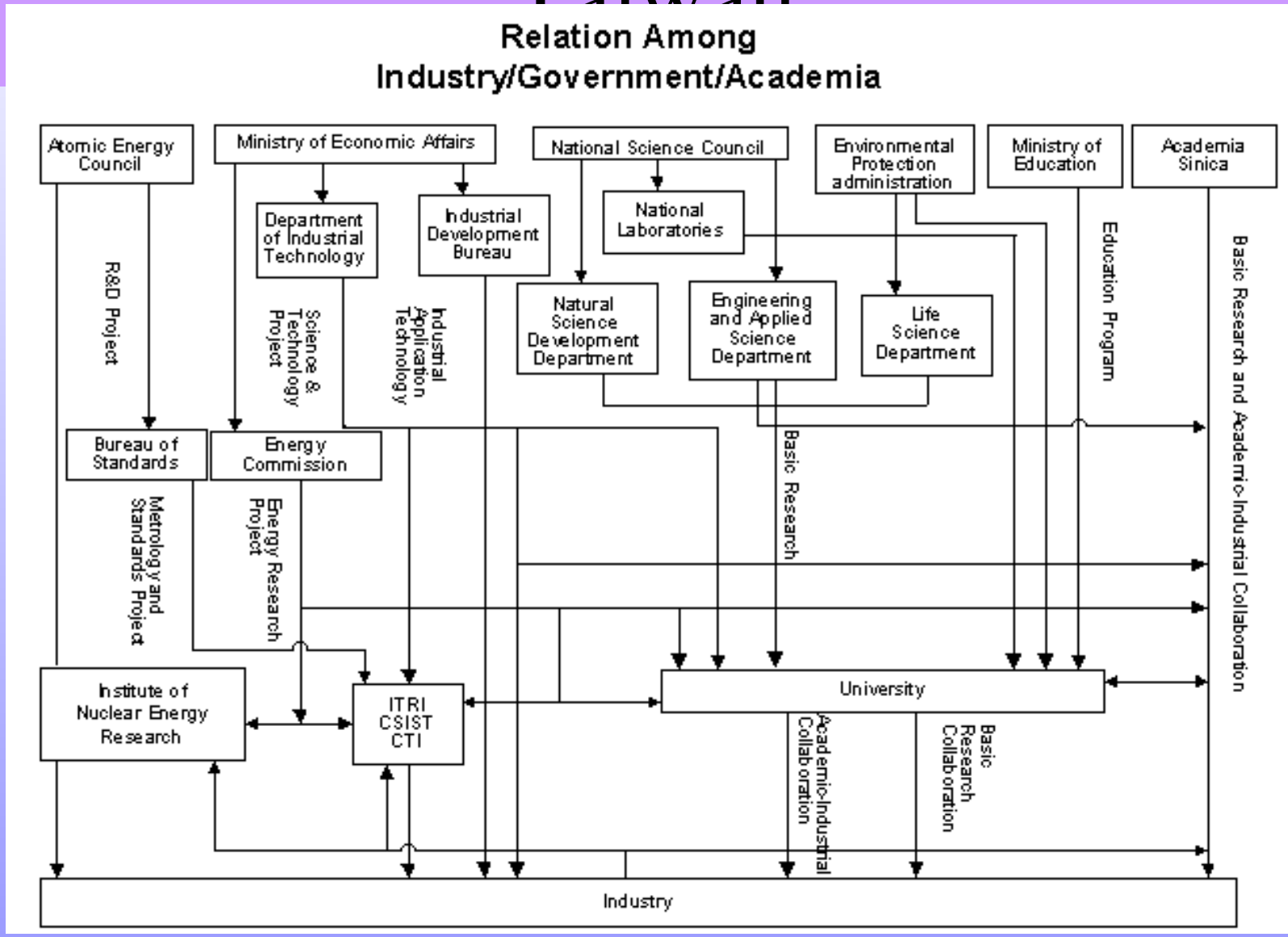
Taiwan

- Programa Industrial



N&N em países selecionados da Ásia e Oceania

Taiwan



Taiwan

- Recursos
  - US$ 630 Milhões (2003-2008)
    - Ministry of Economic Affairs (MOEA)
    - National Science Council (NSC)
    - Ministry of Education
    - Atomic Energy Council
    - Environmental Protection Department
    - Department of Health

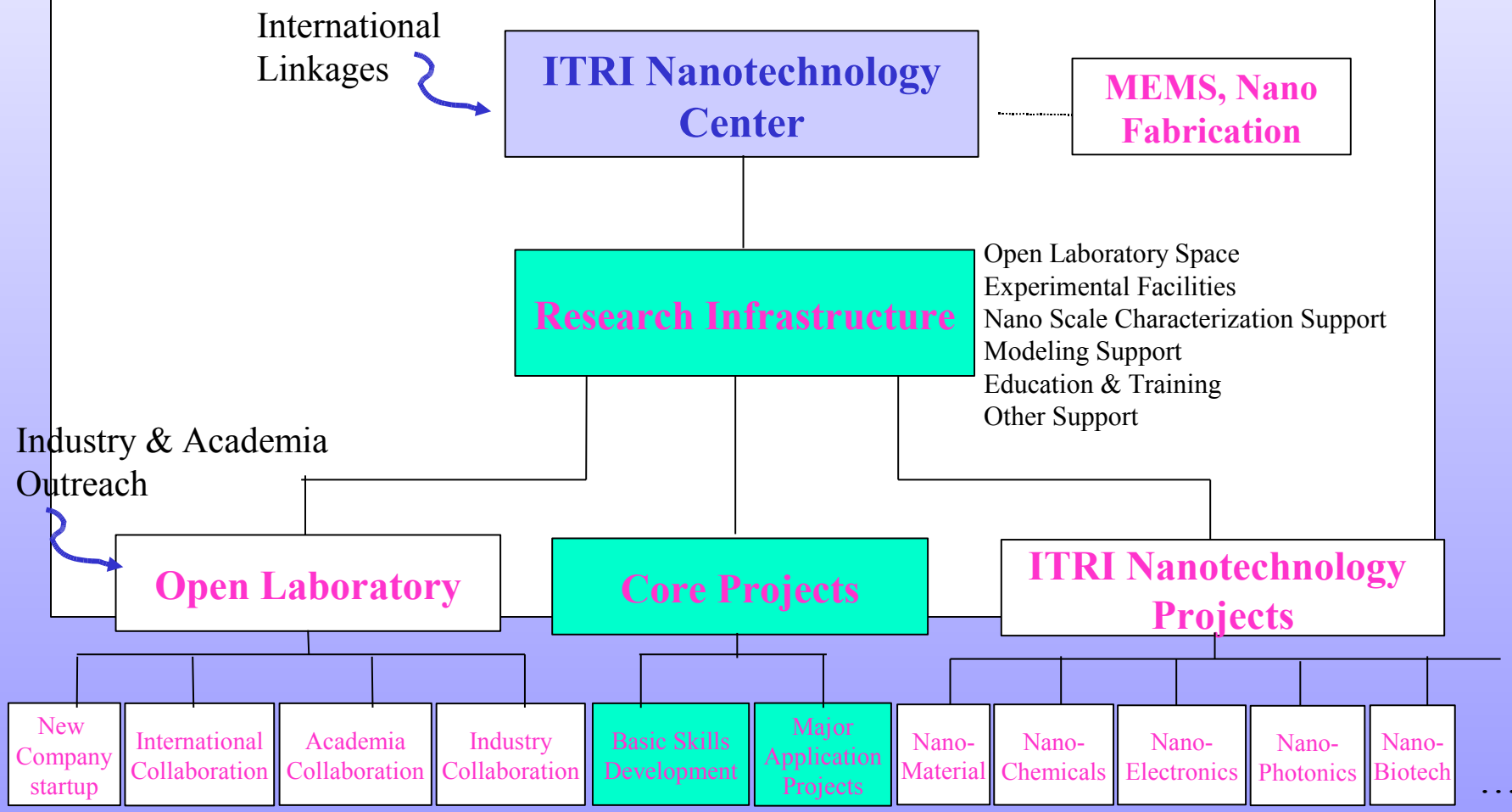
Taiwan

- Centros
  - ITRI Nanotechnology Research Center (NRC)
    - www.itri.org.tw
    - US$ 300 Milhões
    - Nanotechnology Networking
      - Cooperação Internacional

財團法人
工業技術研究院
Industrial Technology
Research Institute

Taiwan

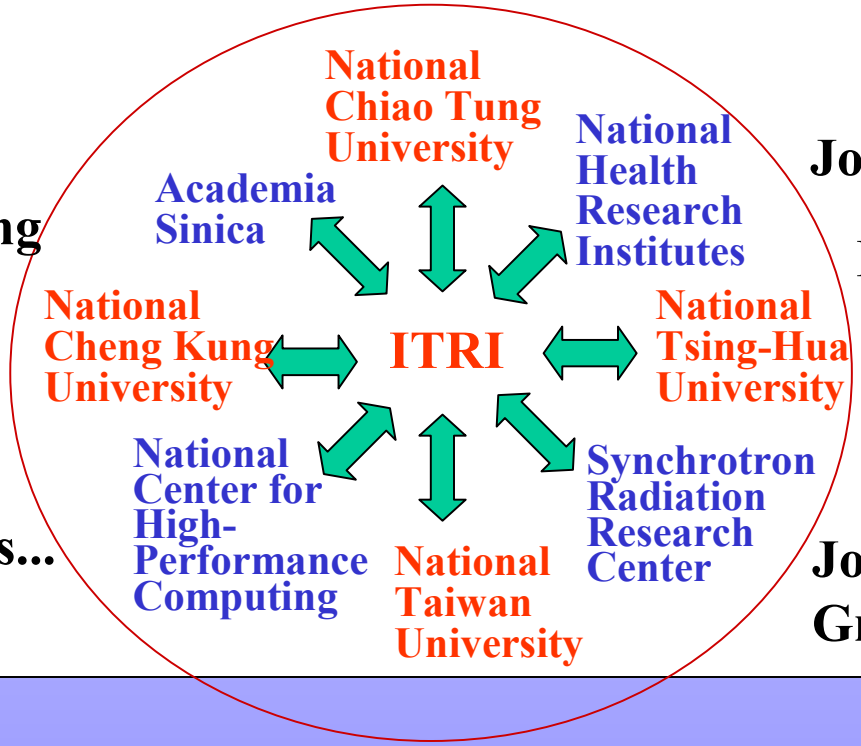
- Conceito Operacional do ITRI



Taiwan

- Cooperação Acadêmica do ITRI

Joint Research Center



Space, S&T
Facility Sharing

Joint Professionals

Exchange Professionals

Others...

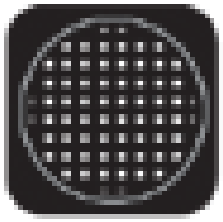
Joint R&D
Graduate Students Training

Taiwan

- Centro de Pesquisa Acadêmico
  - Academia Sínica
    - nano-taiwan.sinica.edu.tw
    - Ponto Focal do Programa
- Agenda
  - Taiwan Nano Tech 2004
    - 06-08/09/2004, Taipei
    - nano.tca.org.tw

Taiwan

- Áreas Prioritárias

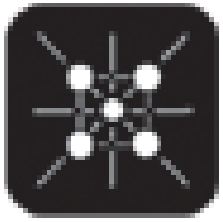


奈米微機電

Micro-electrome-chanical systems

微型燃料電池

Miniature fuel cells



新世代顯示器

New-generation displays

奈米雷射光源

Nanoscale laser light sources

高密度資訊儲存媒體

High-density data storage media

Comparativo

Item	Japão	China
Montante de Recursos	US$ 1,4 Bilhões (2000-2003)	US$ 60 Milhões (1990-2004)
Instituições Focais	NMTDD/NEDO	NCNN/CAS
Modelo	Laboratórios em Rede	Centro Nacional e Rede
Áreas de Concentração	Polímeros Nanoestruturados Nanotecnologia de Vidro Nanotecnologia de Metal Nanotecnologia de Partículas Nanotecnologia de Deposição Materiais Sintéticos Nano-Funcionais Metrologia de Materiais Nanotecnológicos Nanotecnologia de Vidro para Displays Nanotubos de Carbono para FEDs	Nanomateriais Nanodispositivos Detecção e Caracterização de Estruturas Nanométricas

Item	Coréia	Taiwan
Montante de Recursos	US$ 1,2 Bilhões (2001-2010)	US$ 630 Milhões (2003-2008)
Instituições Focais	NNFC/KAIST; NTRA	NRC/ITRI; Academia Sinica
Modelo	Centro Nacional em Rede	Centro Nacional e Rede
Áreas de Concentração	Nanodispositivos Nanomateriais Nanoprocessamento Nanobiologia Tecnologias Básicas	Sistemas Microeletromecânicos Células-combustível Miniaturas Displays de Nova Geração Fontes de Laser Nanométricas Mídia de Armazenamento de Alta Densidade

Produtos Comerciais

- LG
  - Nanoesferas de Carbono e de Sílica
    - Desodorizadores e Purificadores de Ar

Austrália


INDONESIA
EAST TIMOR
Arafura Sea
Timor Sea
PAPUA NEW GUINEA
Darwin
Gulf of Carpentaria
Great Barrier Reef
Coral Sea
INDIAN OCEAN
Cairns
Townsville
Mackay
Alice Springs
Lake Eyre
Brisbane
Perth
Fremantle
Newcastle
Adelaide
Sydney
CANBERRA★
Great Australian Bight
Melbourne
Mount Kosciuszko
INDIAN OCEAN
Tasman Sea
Launceston
Tasmania
Hobart
0 300 600 km
0 300 600 mi
Lord Howe Island and Macquarie Island not shown

Austrália

The following table shows the funding amount over the period of 2002–2007 (source from Australian Research Council)

–	2002	2003	2004	2005	2006	2007
Projects	2,451,602	10,513,872	9,779,102	7,601,780	2,543,664	718,262
Infrastructure& Equipment	1,912,000	3,384,342	–	–	–	–
Federation Fellowships & CSIRO postdocs	2,250,000	2,314,345	2,314,345	2,314,345	2,250,000	2,250,000
International Exchanges/ Collaborations	144,700	151,060	117,590	2,900	–	–
Total	$6,758,302	$16,363,619	$12,211,037	$9,919,025	$4,793,664	$2,968,262

Austrália

Australian Academy of Science

Nanotechnology Benchmarking Project

Austrália

The Australian Research Council (ARC) funded the Australian Nanotechnology Benchmarking Project (ANBP) in 2003 led by Dr Chris Warris of the Australian Academy of Sciences. The ANBP study showed

1. Australia produces around 1.4–1.5% of world's nano publications. Lower than for all science: 2.0–2.4% of world's science publications
2. Citation analysis indicates Australian nano papers published in relatively high impact journals & receive higher than average citation rate in those journals
3. Although Australia's nano publication output increasing, not keeping pace with rest of world in past 5–6 years
4. Nanotechnology not as big a sector of Australian science as elsewhere in world, indicating other countries placing greater emphasis on nano
5. Compared with all Australian science, Australian nano publications have higher international collaboration, but lower national collaboration
6. International collaboration increasing with Asia, slightly increasing with continental Europe, slightly decreasing with UK, steady with North America
7. Australia appears to be collaborating with world's leading nano research institutions
8. Australia's publication outputs are consistent across the major nanotechnology sub-fields and key topics, indicating a broad level of expertise in all areas of nanotechnology
9. Australia ranks 7th in world (excluding the USA) in US nano patents
10. Australia risks falling behind the rest of the world if a formal national nanotechnology strategy is not set up here

Austrália

Nanoscience research groups in Australia

Nanoparticles

Polymers and nanotechnology

Nanotubes

Quantum computing

Biomimetics

Molecular conduction

Molecular self-assembled biosensor

'Natural' biosensors

Molecular self-assembly – the 'bottom-up' approach to 3D structures

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Australian Nanotechnology Network

Australian Research Council Network

CSIRO C/o Nanotechnology Centre PO Box 184 North Ryde 1670

Home - Join - Groups - Participants - Links

CSIRO C/o Nanotechnology Centre PO Box 184 North Ryde 1670 - Collaborators

Links With Other Australian Organisations

University of Technology Sydney- Institute for Nanoscale Technology with CSIRO Nanotechnology Centre
Melbourne University with CSIRO CMIT &HSN
University of NSW with CSIRO CTIP
University of Qld with CSIRO CLI
NanoVic with CSIRO (CMIT)
NANO (Currently being established)
Uni of SA with CSIRO HSN and CLI, and CMIT
Curtin University with CSIRO Molecular Science (Currently being established)

ARC Centre for Nanofunctional Materials
ARC Centre for Nanostructured Electromaterials

Links With International Organisations

NASA with CSIRO CTIP
University of Texas at Austin, Texas Materials Institute with CSIRO CMIT

N&N em países selecionados da Ásia e Oceania

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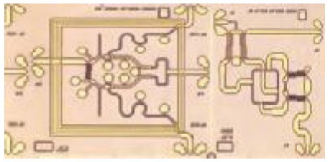
CSIRO Nano Science Network : *"Using Nature's Concepts for New Technologies"*

Home | Research & Contacts | Links | Publications | Network Members Area | web contact



NanoNetwork Projects

CTIP Biomimetic Engineering Group

CTIP Superconducting Nano Devices Group

CMIT Particle Processing Group

CSIRO Molecular Science

CSIRO Exploration & Mining

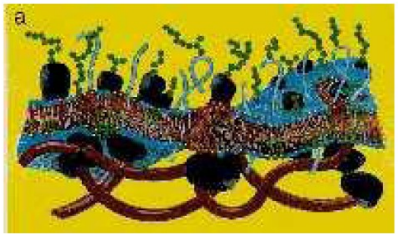
CSIRO Polymer Composites & Nanomaterials

The CSIRO NanoScience Network

Nanotechnology is the creation and use of materials, devices and systems that exploit the novel properties arising from the structure and function of matter in the nano-metre range.

Nanotechnology by its very nature has the potential to impact virtually all areas of technology and requires a multidisciplinary approach towards its development. CSIRO has within the one organization the necessary expertise and links in order to make a significant global impact in this area.
A multi-divisional nanoscience capability, combining different fields of biophysics, biology, chemistry, microelectronics, engineering, mathematics, manufacturing will be required to fully exploit the possibilities of nanotechnology. The NanoScience Network provides a focal point for CSIRO's nanotechnology activities.

Network management structure



What's New

NANO HOUSE™ The University of Technology, Sydney & CSIRO team up to create the energy efficient house of the future. Read more about the project, its technologies and organisation.

Meetings

NANO 2004, 7th Intl Conference on Nanostructured Materials,
June 20-24, Wiesbaden, Germany
4th IEEE Conference on Nanotechnology,
August 17-19, 2004,Audimax-TU Munich, Germany

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