



Research, Innovation and Technology Transformation in Nanjing University

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Brief introduction about NJU



1949-: Nanjing University



**1928-1948:
Central
University of
China**

**1888-1948:
Jinling
University**



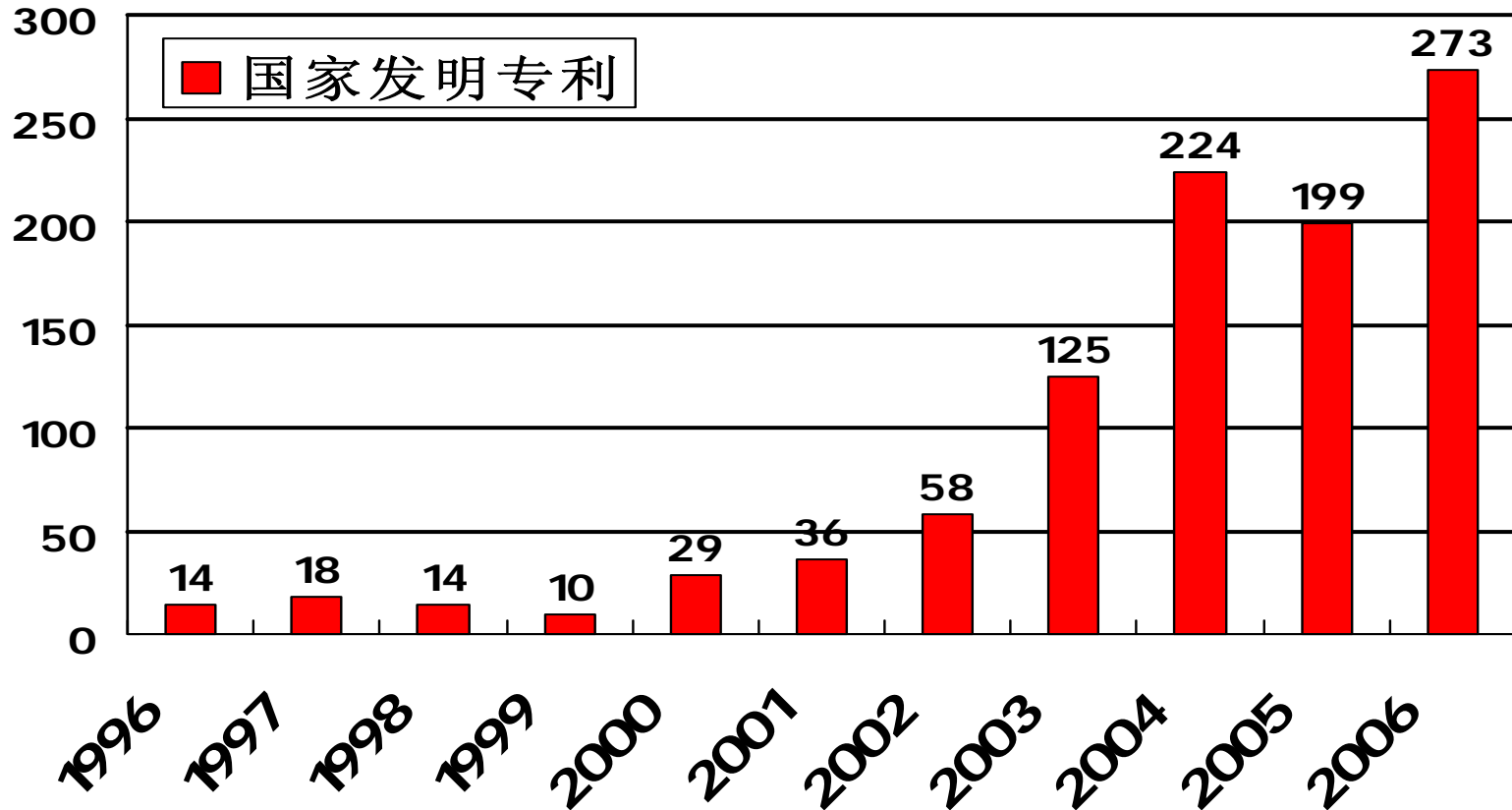
**1902-1928:
Sanjiang Normal
School**

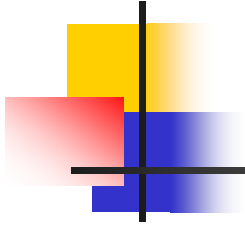


■ SCI Papers published by NJU

年份	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
SCI(E)	570(1)	682(1)	552(1)	710(1)	803(3)	937(3)	1020(4)	1170(4)	1140(6)	1491(6)
EI	216(4)	298(3)	203(6)	116(18)	187(17)	357(8)	337(14)	519(9)	466(15)	759(22)
Citation	940(1)	1196(1)	1461(1)	1781(1)	2056(1)	2454(1)	2817(2)	3584(3)	3480(3)	5865(3)

Patents applied by NJU





- Knowledge Business (Spinout companies)
- Technology Transformation
- Industry, Teaching and Research Joint Platforms
- Joint R&D with Key Enterprises

Knowledge Business -1

Nanjing Photovoltaic Co., Ltd, CEEG

- A high-tech company, with professors of physics in NJU, dealing with R&D, production, sales and technological service of solar cells. A case in point showing how professors making their scientific innovation into a knowledge business
- One of the 3 biggest photovoltaic producers, listed on the NASDAQ in 2007
- An estimated production of 600MW in 2008



Knowledge Business - 2

Jiangsu Nanda Software Co Ltd.

- **The first university enterprise and software company in Jiangsu listed in Hong Kong stock market (Apr. 2001)**
- **The only listed company in China that offers an overall network security solution**
- **Listed among China's top 100 software companies for 3 years in a roll**



Knowledge Business -3

Jiangsu NATA Opto-electronic Material Co., Ltd.

- A company set up in Suzhou Industrial Park with NJU scientists as its backbone, beginning with a registered capital of 25 million yuan, and 30% of its shares held by NJU.
- More than 20 categories of MO precursors new materials developed, supported by National 863 Program New Material MO Precursors R&D Center.
- Present market share of 70% within mainland China.



Knowledge Business - 4

Nanjing Fujitsu Nanda Software Technology Co., Ltd

- **Fujitsu's first joint venture in software business in China**
- **The only company in Jiangsu that passed CMM5 assessment**
- **A software export base of Jiangsu, ranking the 1st in software products' export ratio**
- **An accumulated output value of 17.71 million US dollars, and an accumulated profit of 27.29 million yuan till late 2005.**



Knowledge Business - 5

Jiangsu N&G Environmental Technology Co., Ltd.

- **A technology company set up in Nanjing with NJU scientists as the backbone and other investor in cooperation, beginning with a registered capital of 12 million yuan, and 14.56% of its shares held by scientific and research members**
- **60 application for patents of invention, 29 designated patents, and winning National 2nd Award for Science and Technology Progress**
- **Having developed more than 30 new technologies of waste water disposal and recycling, equipped with more than 30 model facilities in Nanjing Chemical Plant and 10 provinces and cities. Boasting an annual disposal capacity of more than 3 million tons of waste water and more than 70 thousand tons of recycled chemical resources, realizing profits of 150 million yuan and product value of over 30 million yuan in 2007.**



Tech Transformation - 1

New Catalytic Materials (Nano-Catalysis)

- Applied in: Nanjing Benzene Plant
- This new technology were applied to improve yield and selectivity: Selectivity increased by 2.4 times; Yield increased by 3.7 times
- Annual profit increased by over 10 million yuan
- Provincial high-tech Program in the 10th 5-year-plan

NanoPd/n-TiO₂



Tech Transformation - 2

Energy Chemistry-Additive for Coal Water Mixture (CWM)

- Applied in: **Nanjing Qixiashan Fertilizer Plant, Nanjing Chemical Plant, etc.**
- **High Efficiency CWM additive is a key factor in making CWM**
- **Set up CWM Additive Institute under National CWM Center as well as Jiangsu Provincial Center for Surface and Interface Project in 2001**
- **Produced high efficiency CWM Additive serial products**



Tech Transformation - 3

Solid Waste Disposal Technology



Patents applied in:
**Nanjing Tianjingwa Landfill
Gas Power Plant**
**Annual Capacity: 17.6 million
KWH**
**Annual Reduction of CO2
emission: 103 thousand tons**

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Tech Transformation - 4

New Separation Technology

- **Meilan CMS Project with an annual output of 100 thousand tons in Taizhou, Jiangsu**
 - **Key project of National Economy and Trade Committee**
 - **Province sponsored program of achievement transformation in 2005**
 - **2 years in operating and 1.1 billion yuan of value created**
- **Facilities producing 1500 tons of linalool per year in Wuzhou Pine Gum Co., Ltd. In Guangxi**



Industry, Teaching and Research Joint Platforms

The Four “True”s

- True fund from local government
- True achievements from NJU
- True hearts from both sides
- True win-win strategy



NJU-Gulou National Science Park

- Offering convenience and environment for scientists' independent or joint business
- Providing with training bases for innovative talents
- Making favorable policies for incubation and transformation of achievements in science and technology
- **12** innovation parks founded
- **A 40,000 m²** size incubation zone
- **More than 700** science and technology companies
- **over 12000** employees



NJU Technology Innovation Foundation

- A joint foundation 3-million-yuan investment from Nanjing Municipal Government
- Achievements in 9 sponsored programs have been transferred, and 5 been applied, 1 sponsored by 863 Plan from Ministry of Science and Technology, 1 sponsored by Jiangsu Special Fund for Achievement Transfer
- The program *Disposal and Comprehensive Utilization of Biomass Gas Pollution* has been applied in nearly 10 garbage landfills in Yangtze Delta, adding over 10 million output value for 2 cooperation companies in Nanjing



NJU Graduate School, Suzhou

One of the first off-campus city graduate student education institutions in China

- training applied innovative talents
- attracting latest innovation achievements
- supplying education and research resources simultaneously
- co-establishing NJU's Biomedical Engineering Technology Center

1.5 million yuan invested by

Local Government of

Dushuhu Higher Learning District's



The Cooperation Platform with Wuxi with “one body and two wings”

- **NJU-Wuxi Achievement Transformation Center**
25 million yuan invested by local government for a special foundation
- **NJU-Wuxi Academician Station**
- **NJU-Wuxi Environmental Technology Institute**
- **NJU-Wuxi Software Engineering Institute**
- **NJU-Wuxi Human Resource Institute**
- **NJU-Yixing Environmental Technology R&D Center**
10 million yuan invested from Yixing Government
- **NJU-Jiangyin IT Institute**
20 million yuan invested from Jiangyin Government



NJU-Changzhou High-tech Institute

- 10 million yuan invested from Changzhou to co-establish
- Open laboratories in
electromechanical control,
functional materials,
molecular design and synthesis
- Joint laboratories with enterprises in
fuel cell, imbedded video
processing, biomolecular
and nano-material separation,
new medicine



NJU-Chinese Medicine Town, Taizhou R&D Center

- **5 million yuan invested by Taizhou Government**
- **Chinese Medicine Town, Taizhou invested to build the R&D Building**



NJU-Yangzhou Opto-electronic Institute

44 million yuan invested by Yangzhou Government

- **R&D places and environment offered by Yangzhou Economic and Technology Development Zone**
- **Led by academicians and supported by numerous senior experts**
- **Building a platform for core and public technologies leading industrial developments**





Joint R&D with Key Enterprises

- Industrial development with **Gaochun Pottery & Porcelain Co., Ltd.** in flue gas de-nitrification technology
- Technology cooperation with **LG Panda Electrical Appliances Co., Ltd.** in washing-machine sterilization and noise reduction technology
- R&D with **Ford Automobile Engineering Research Co., Ltd., Nanjing** in automotive audio technology
- Research with **Nanjing Metro Co., Ltd.** in mechanism and control of the underground structure settlement in Hexi Area of Nanjing

NJU-Jinchuan Metallic Chemistry Laboratory

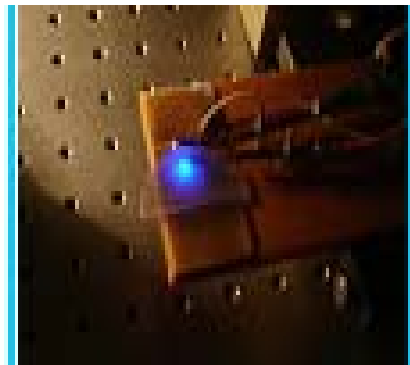
10 million yuan invested by Jinchuan Co. in two terms

- **NJU offers R&D places on the campus**
- **NJU's School of Chemistry and Chemical Engineering functions as the key base**
- **Led by academicians and supported by numerous senior experts for enterprise R&D programs**



Cooperative R&D with World Renowned Companies

- **Jiangsu-IBM NJU High Performance Computing Center with IBM, USA**
- **NJU Stem Cell Research Laboratory with National Stem Cell Co., USA**
- **NJU Laboratory for Advanced Materials with Motorola, USA**
- **NJU Catalytic Chemistry Laboratory with BASF, Germany**
- **Nanjing Fujitsu Nanda Software Technology Co., Ltd with Fujitsu, Japan**





- **FIVE MAJOR AREAS:**

- **New Materials**

- **Electronic Information**

- **Biomedical Technology**

- **Environmental Resources**

- **Fine Chemical Engineering**

- **NJU ENCOURAGES SCIENTISTS DEVOTED
TO local economy and development**



Thanks for your attention.

Dr. Yi Pan
Prof. & Vice-president
Nanjing University