



# Tradition and Internationalization: Peking University's Cross-century Development

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## *Outline*

- General Information
- Humanities & Social Sciences
- Natural & Engineering Sciences
- International Exchange
- Research on Environment and Energy





## *General Information– History*

- Founded in 1898 - “Imperial University of Peking”
- From 1912 – “Peking University”
- Disciplinary Relocation in 1952, comprehensive institution including the **humanities, social sciences and natural sciences**.
- In 2000, Beijing Medical University - Health Science Center
- Spirit of Peking University

The university’s **traditional values**: *patriotism, progress, democracy, and science*, **educational style**: *diligence, exactitude, truthfulness, and innovation*.

Former President Prof. Cai Yuanpei, the famous educator, advocated the principles of **academic freedom and openness to different ideas**, which create an **unique academic atmosphere**





## *General Information– Fast facts*

- ❁ Enrollment: 30,247, roughly half of undergraduates, half graduate students
- ❁ Faculties: 5
  - ❁ Faculty of Humanities,
  - ❁ Faculty of Social Sciences,
  - ❁ Faculty of Natural Sciences,
  - ❁ Faculty of Information and Engineering,
  - ❁ Health Science Center.
- ❁ Research Institutes & Centers: 224
- ❁ State Key Laboratories: 12
- ❁ Undergraduate/Master's/Ph.D. Programs: 101/244/201
- ❁ National Key Academic Disciplines: 81
- ❁ Post-doctoral Research Stations: 35
- ❁ Professors & Associate Professors: 5,027





## Schools: 13

- 🌸 School of Foreign Languages
- 🌸 School of Archaeology and Museology
- 🌸 School of International Studies
- 🌸 Law School
- 🌸 Guanghua School of Management
- 🌸 School of Economics
- 🌸 School of Government
- 🌸 Graduate School of Education
- 🌸 School of Journalism and Communication
- 🌸 College of Marxism
- 🌸 School of Continuous Education
- 🌸 School of Arts
- 🌸 International College for Chinese Language Studies

## Departments: 5

- 🌸 Department of Chinese Language & Literature
- 🌸 Department of History
- 🌸 Department of Philosophy
- 🌸 Department of Information Management
- 🌸 Department of Sociology







## **Schools/Colleges/Dept.: 10**

- ✿ School of Mathematical Sciences
- ✿ School of Physics
- ✿ College of Chemistry & Molecular Engineering
- ✿ College of Life Sciences
- ✿ School of Earth and Space Sciences
- ✿ **College of Environmental Sciences and Engineering**
- ✿ **College of Urban and Environment**
- ✿ School of Electronics Engineering & Computer Science
- ✿ School of Engineering
- ✿ Department of Psychology
- ✿ Health Science Center: **School of Public Health**

## *Natural & Engineering Sciences*

### **School of Engineering (June, 2005)**

#### **Specialties: 5**

- ✿ Bio-medical Engineering
- ✿ Advanced Materials & Nano-technology
- ✿ **Energy & Resources Engineering**
- ✿ Mechanics & Aerospace Engineering
- ✿ Industrial Engineering & Management

#### **Cross-disciplinary Research**

- ✿ Center for Nano-science and Technology
- ✿ Center for Nuclear Magnetic Resonance
- ✿ Center for Stem Cell Research
- ✿ Institute for Molecular Medicine Research
- ✿ **Bio-X Center (Environ. and Health)**
- ✿ The Academy for Advanced Interdisciplinary Studies





# Research Funding

RMB650M (about US\$80M) in 2005

*Natural & Engineering Sciences:*

*RMB420M (about US\$52M)*

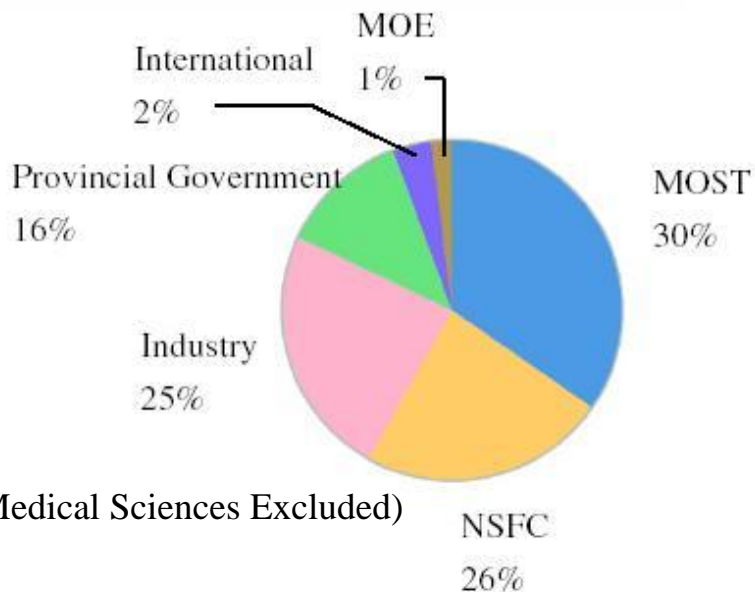
*Medical Sciences:*

*RMB150M (about US\$18M)*

MOST: Ministry of Science and Technology

NSFC: Natural Science Foundation of China

MOE: Ministry of Education



## Development Priorities

☯ *Information Technology*

☯ *Nano-science and Technology*

☯ *Bio-medical Science*

☯ *Environmental Resource Studies*

☯ *Advanced Material*





# Various Forms of Collaboration

- ❁ Regular Faculty/Student Exchange
- ❁ Joint Ph.D. Programs
- ❁ Double Master Degree Programs
- ❁ Branch Campus Programs
- ❁ Joint Undergraduate Programs
- ❁ Summer School Programs
- ❁ Multi-discipline Centers

## Fast Facts

- ☯ Partner Universities: About 240 from 50 Countries/Regions
- ☯ International Students: Over 5,000 from 96 Countries/Regions
- ☯ Foreign Experts: Around 600
- ☯ Over 30 State Heads since 1998







## Two research platforms (2nd phase of “985” program)

- Atmospheric Environment and Global Change (PI: Yuanhang Zhang)
- Environment and Health (PI: Tong Zhu)





## **Urban & Regional pollution & climate effects**

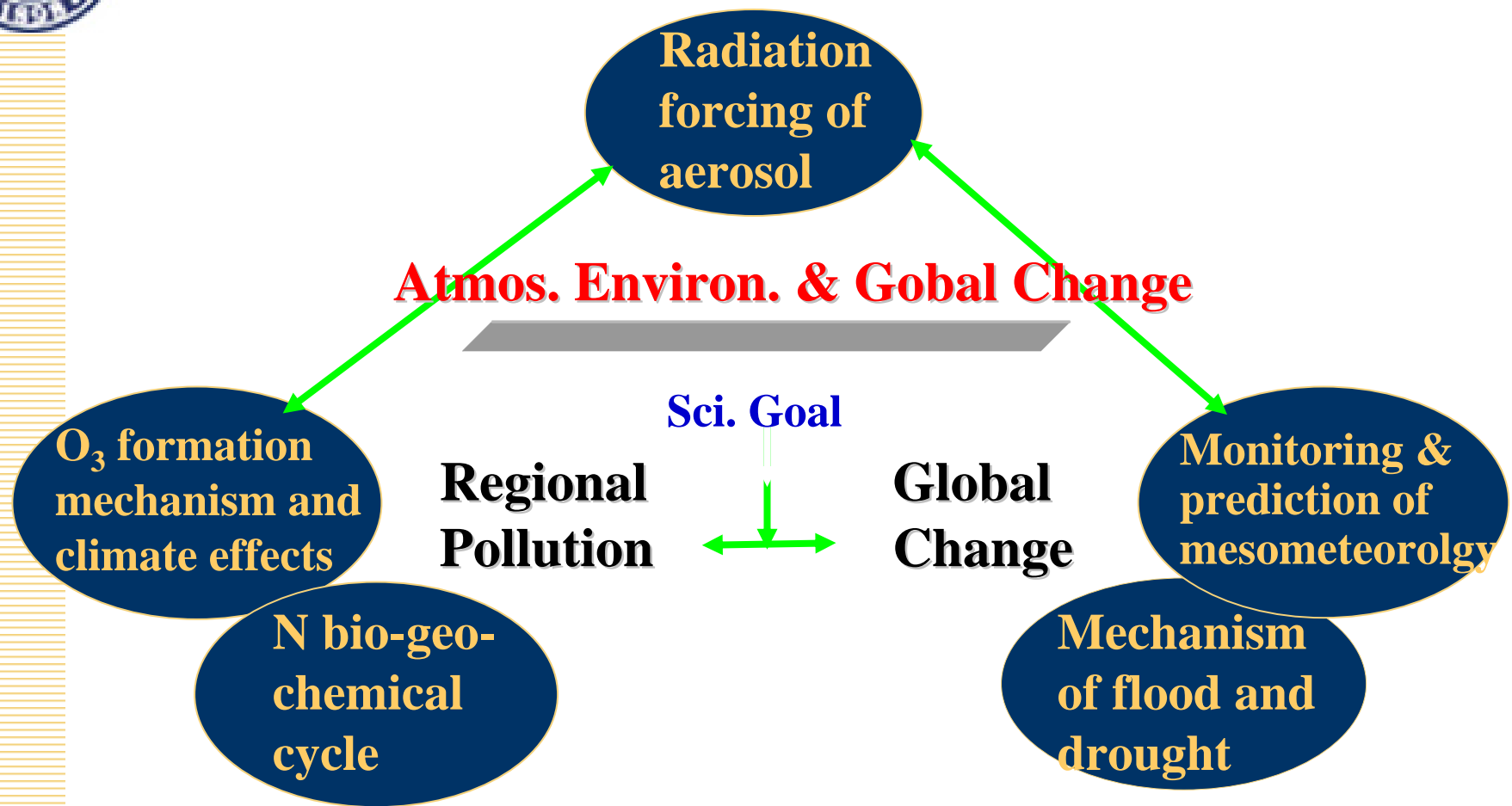
### **Ozone, aerosol and precursors**

- **Long Term Monitoring**
- **Intensive Field Campaigns**
- **Dynamic emission inventory and validation**
- **Model evaluation**
- **Linkages (between air pollution and climate changes, between urban-regional-global scale )**





# Platform of Atmospheric Environment and Global Change



**Goal: National platform for information and decision making of regional pollution and climate disasters**





# Platform of Atmos. Environ. and Global Change

## I. Observatory



**Bashang (in preparation)**



**PKU campus (in operation)**

## II. On-line techniques

**Gas:** ( $\text{NO}_x$ ,  $\text{O}_3$ ,  $\text{SO}_2$ ,  $\text{CO}$ ,  
 $\text{VOC}$ ,  $\text{H}_2\text{SO}_4$ ,  $\text{HCl}$ ,  $\text{HNO}_2$ ,  
 $\text{HNO}_3$ ,  $\text{NH}_3$ ,  $\text{OH}$ )  
TECO, Wet Denuder  
**CIMS, GC-MS (on-line)**

### Aerosol

**Physical** (size, mass)  
**TDMPS**, TSI, TEOM

**Chemical** (EC/OC,  
Water soluble organic  
and inorganic)  
SJAC, MOUDI (**nano-**)  
Anderson Sampler,  
IC, GC/MS, HPLC

**Optical** (scatt& Absorp.)  
Nephelometer,  
Athenometer,  
**Laser-Acoustic,**  
**Lidar**

**Meteorology,**  
**satellite**

## III. International partnership

### North America

- NOAA (Climate Monitoring and Diagnostic Lab CMDL and Aeronomy Lab Georgia Tech (GIT)
- University of California, San Diego

### Europe

- Institute for Tropospheric Research at Leipzig (IFT)
- Forschungszentrum Juelich, ICG II Troposphere (KFA)
- Max Planck institute at Mainz (MPI)
- European Commission Joint Research Center at Ispra, Italy (JRC)

### Asia

- University of Tokyo
- Research Center for Environmental Changes, Taiwan
- Hong Kong University of Science and Technology (HKUST)
- Hong Kong Polytech University (HKPU)





# *Major concerns of Environment and Health at PKU*

**Source**

**Exposure**

**Health effects of environmental pollutants**

**Dose-Effect relationship**

**Environmental and genetic causes for diseases**

**Social aspects: cost, poverty, Health and  
environment policy**







**Source**



**Concentration**



**Exposure**



**Dose**



**Effect**

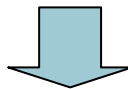


**Risk Assessment**



**Policy**

**Pollution Source,  
Chemical/Physical/  
biological processes,  
exposure path,  
biomarker**



**Epidemiology  
Toxicology  
Genomics  
Proteomics  
Metabolomics  
Bioinformatics**



**Cost  
Government Policy**

**State Key Joint Lab of  
Environmental Simulation and  
Pollution Control (PKU)**

**College of Chemistry and  
Molecular Engineering  
Accelerator MS**

**Biomed-X Center**

**Health Science Center:**

**School of Public Health  
School of Basic Medical Sciences  
School of Oncology  
*6 hospitals***

**College of Environ. Sci. & Engineering:**

**Environmental Economics  
Environ. Policy and Management**

**Institute of Population**



***Research platform of Environment and Health at PKU***



# Thank You!

