Which Scientific and Technological fields China is focusing on?

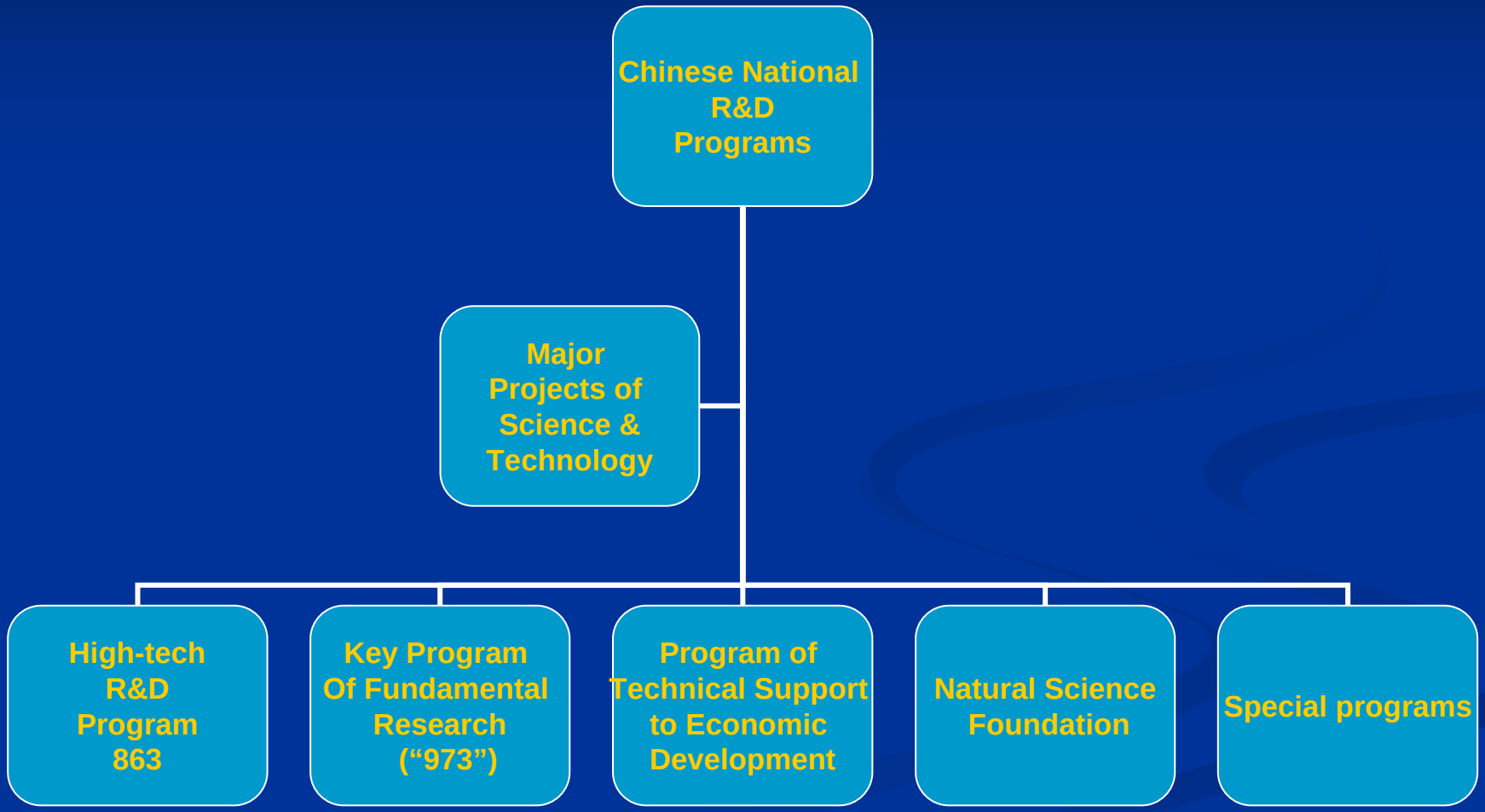
GONG Ke

- In January 2006, China initiated its 15 years "*Medium and Long Term Plan for development of Science and Technology*" aiming to become an "innovation oriented society" by 2020 and one of the world leading country in science and technology by 2050.

5 Strategic Priorities

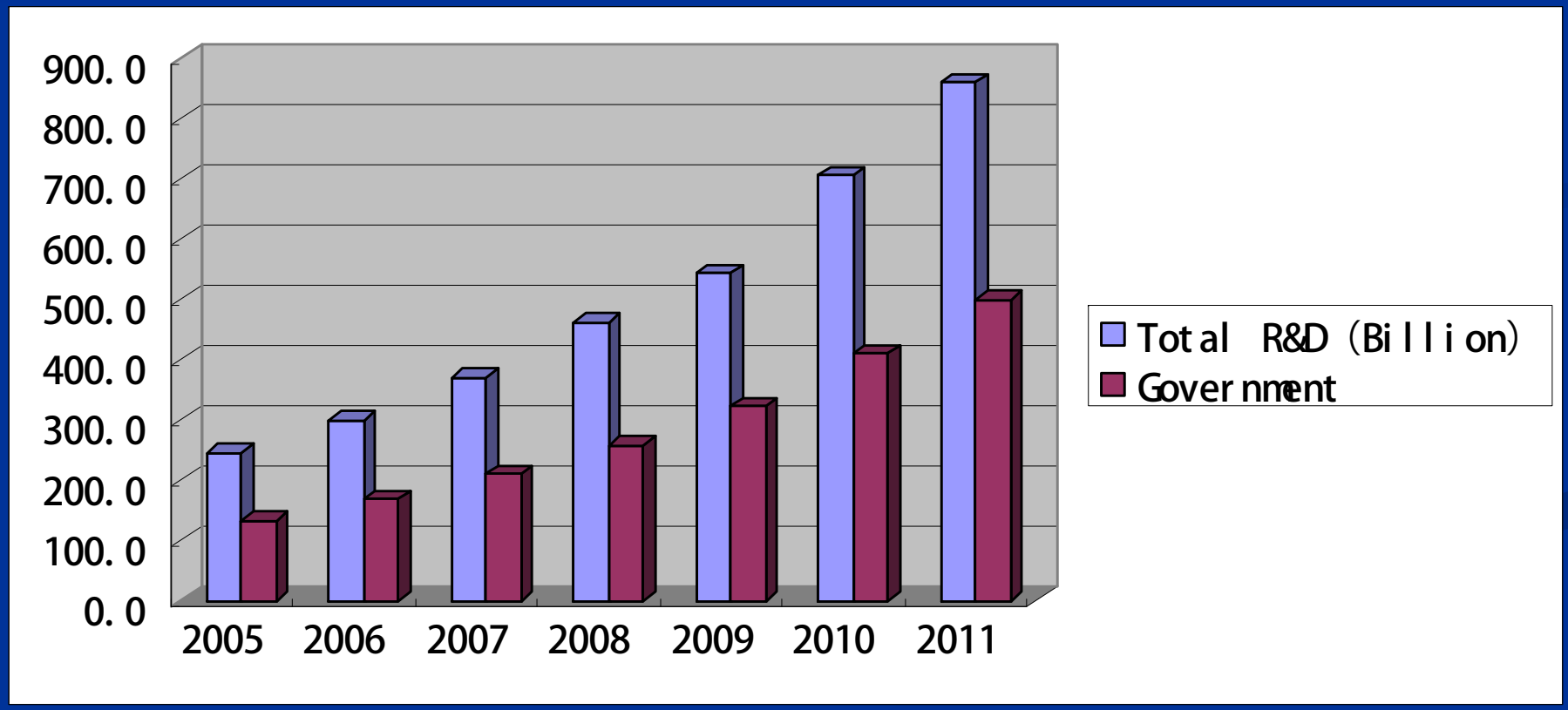
- In this plan, China proclaimed 5 Strategic priorities：
  1. *Energy, resources, and environmental protection related technologies*
  2. *Information technology, advanced materials and manufacturing techniques*
  3. *Biotechnology and life sciences*
  4. *Aerospace and marine technologies.*
  5. *Basic research and frontier technology development, particularly interdisciplinary research*

National R&D Programs



R&D Investment

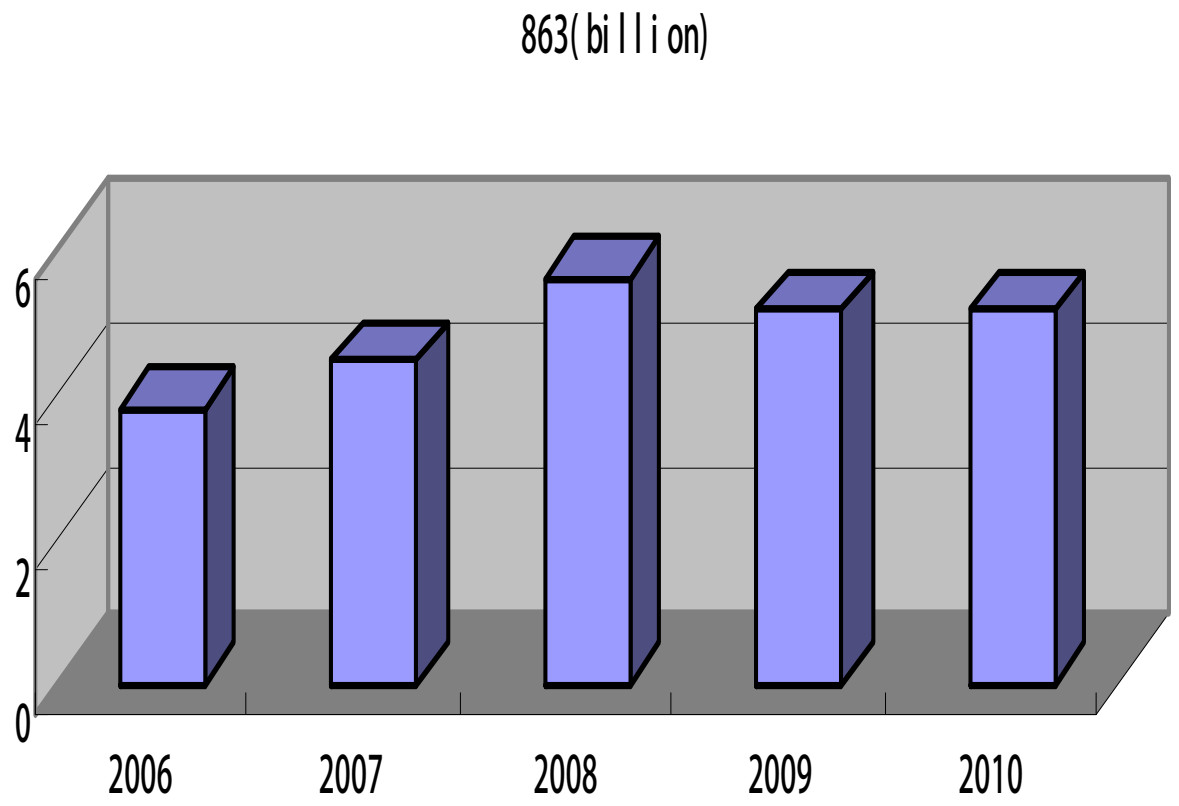
- Supported by various national R&D programs and increasing investment, China has made significant progresses in these areas since then.



“863” Program

- Information Technology
- Biology and Pharmaceutical Technology
- New Material Technology
- Advanced Manufacturing Technology
- Advanced Energy Technology
- Resource and Environmental Technology
- Marine Technology
- Modern Agricultural Technology
- Modern Transportation Technology
- Earth Observation and Navigation Technology

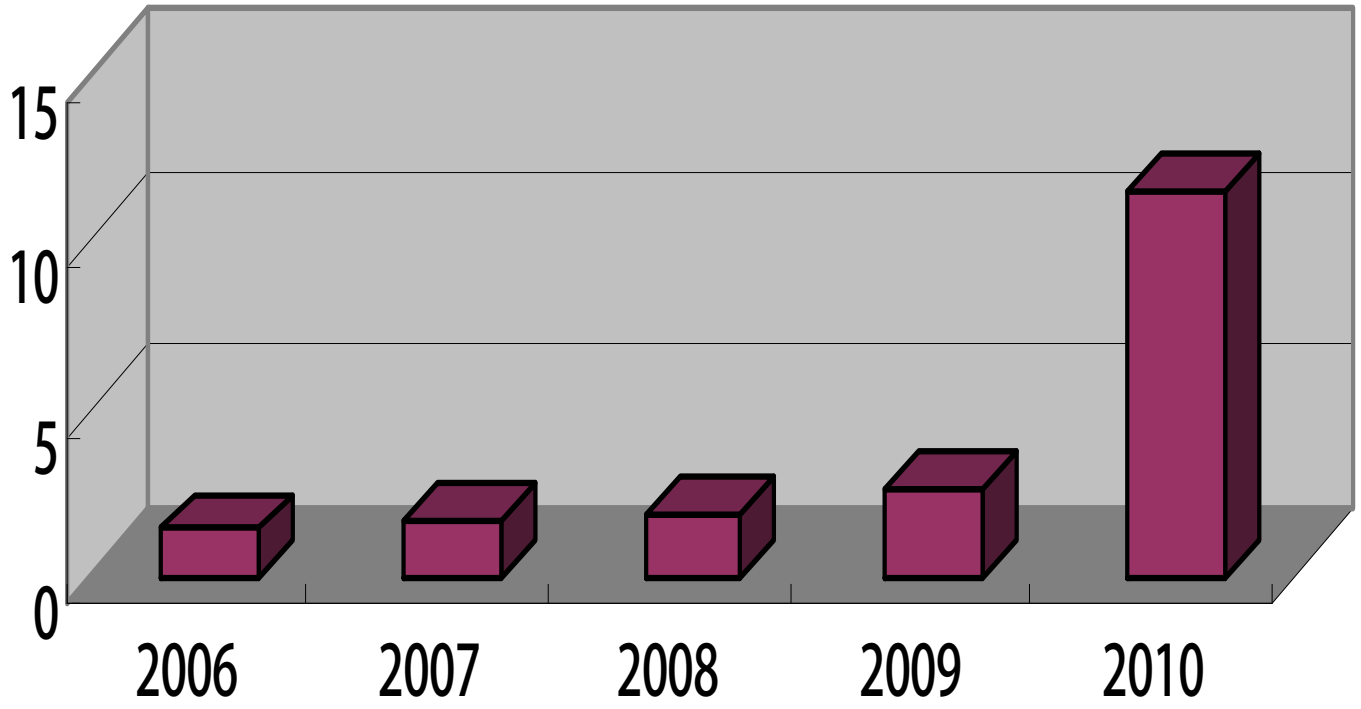
High-Tech Research and Development Program （“863”）



Key Fundamental Research Program ("973")

- Agricultural Science
- Energy Science
- Information Science
- Resources and Environmental Science
- Health Science
- Material Science
- Manufacturing and Engineering Science
- Integrated interdisciplinary science
- Major scientific frontiers

973(including Major Scientific Research Projects)



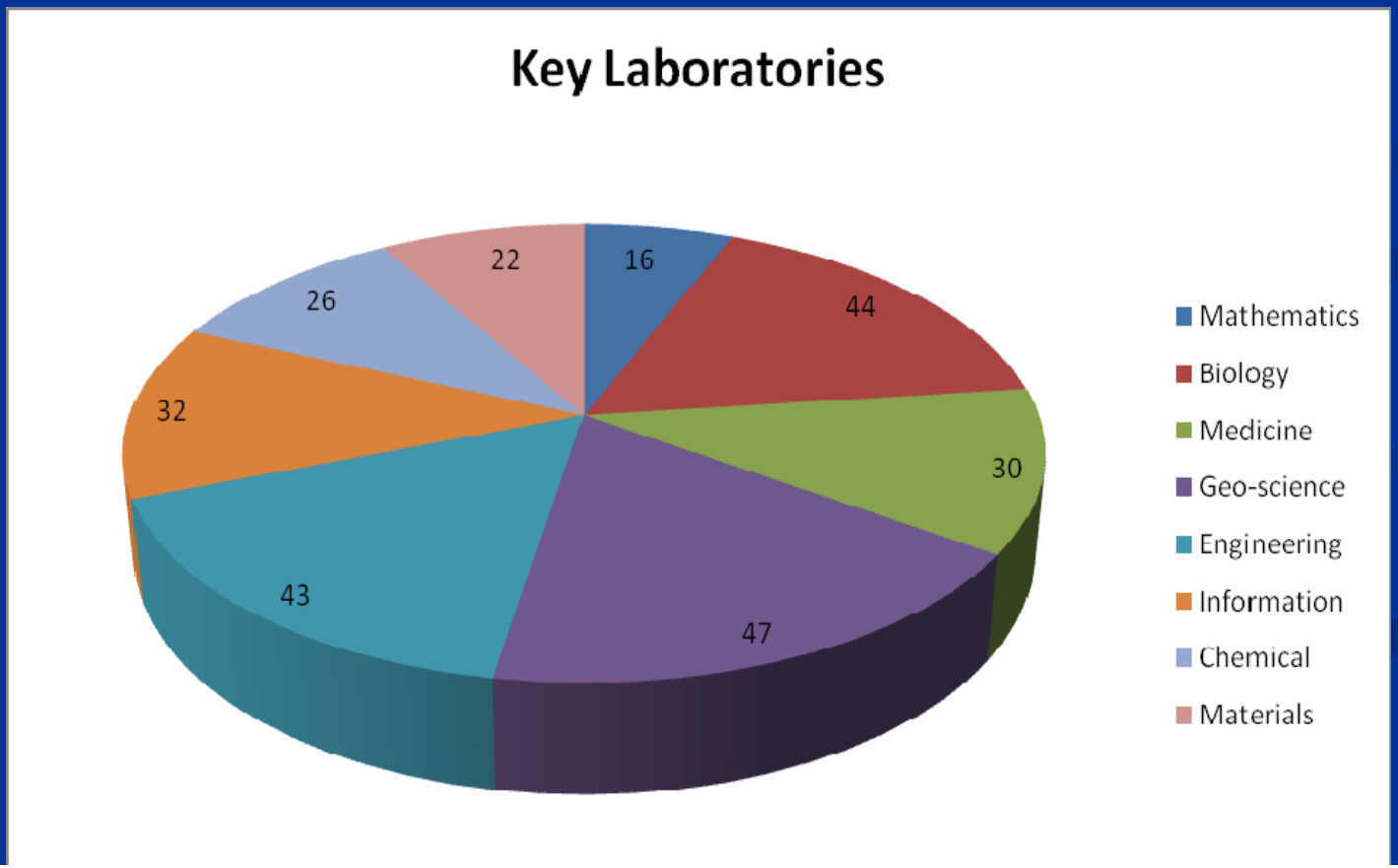
Major Scientific Research Projects

- Protein Research
- Quantum Control Research
- Nanotechnology Research
- Development and Reproduction Research
- Stem Cell Research
- Global Change Research

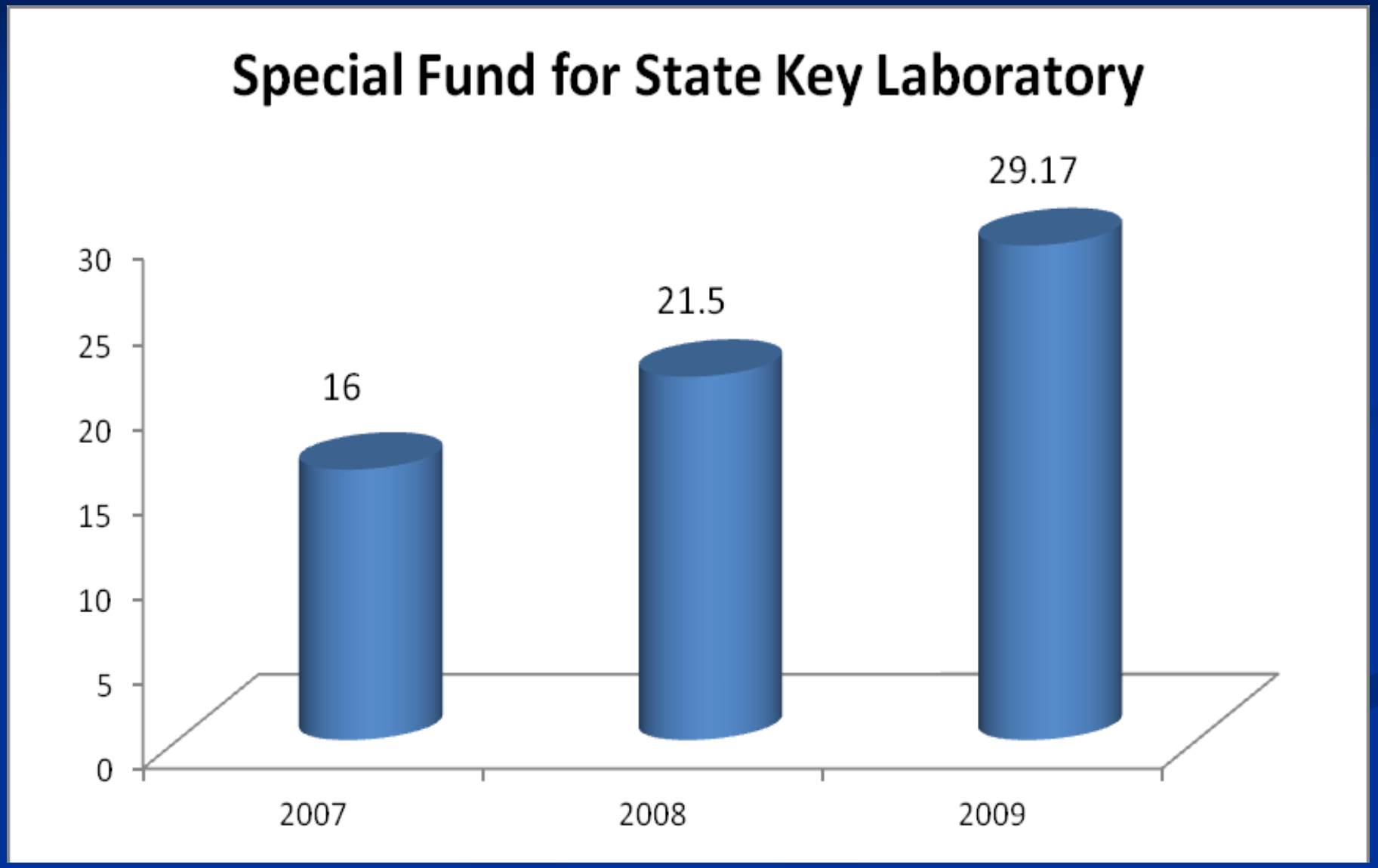
Distribution of Chinese Key Labs

- China now has 260 State Key Laboratories, distributed in 8 fields:
  - Mathematics
  - Biology
  - Medicine
  - Geo-science
  - Engineering
  - Information
  - Chemical and Materials
- 51% SKL are in the research universities

Field	Mathematics	Biology	Medicine	Geo-science	Engineering	Information	Chemical	Chemical
Number	16	44	30	47	43	32	26	22
Percentage	7	17	12	18	17	12	9	8

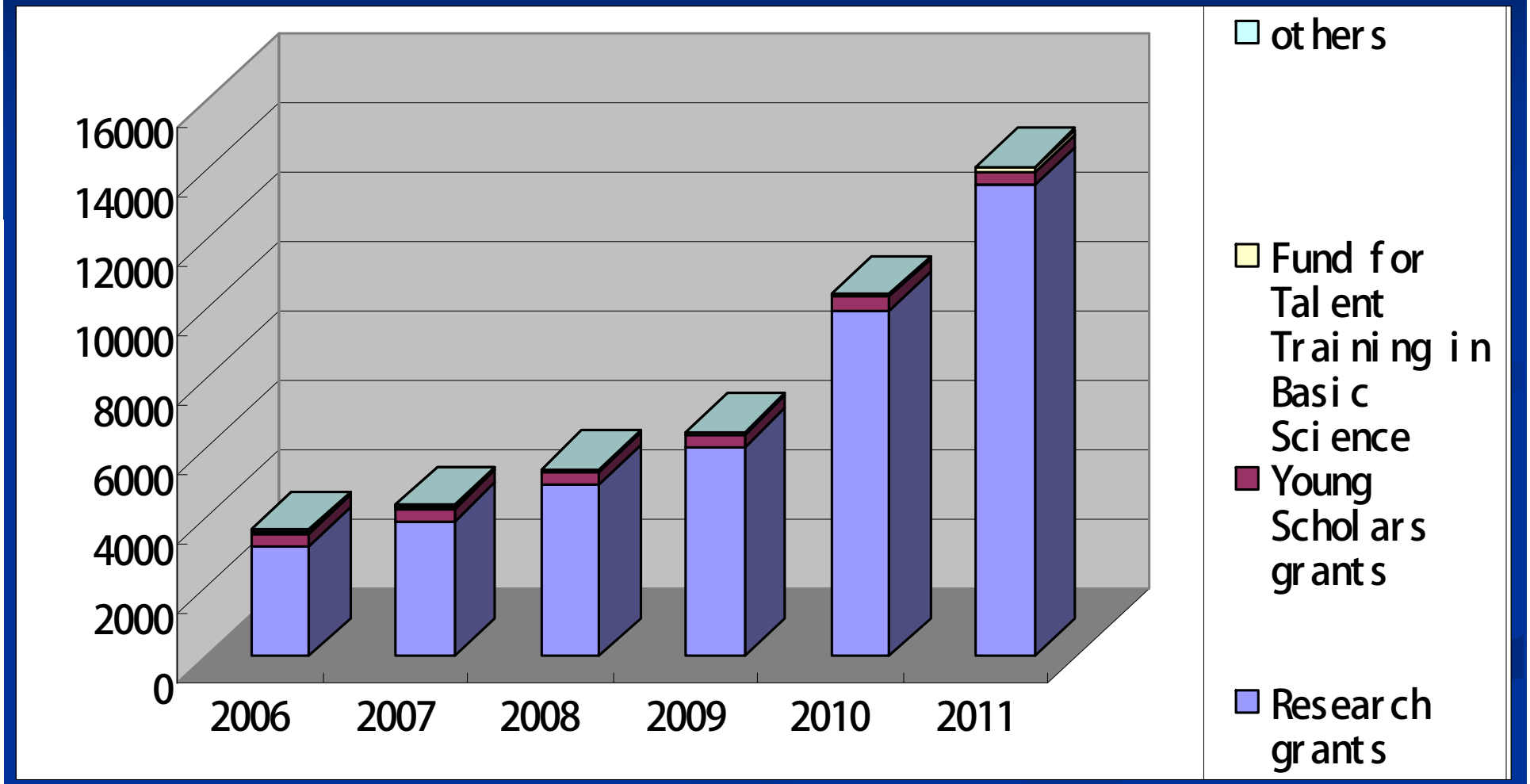


100 Million


Special Fund for State Key Laboratory
30
25
20
15
10
5
0
16
21.5
29.17
2007
2008
2009

Natural Science Foundation

- Mathematical Science
- Chemical Science
- Life Science
- Earth Science
- Engineering and Materials Science
- Information Science
- Management Science
- Medical Science

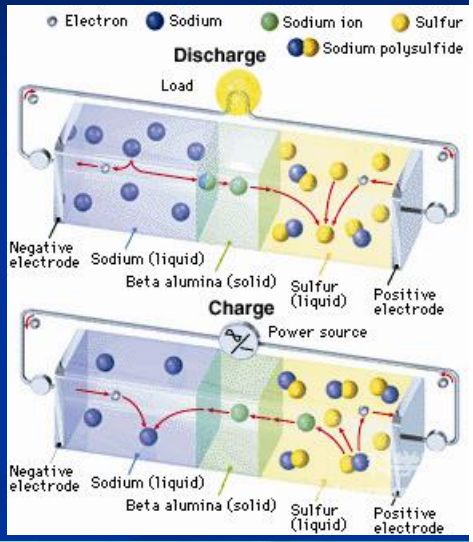

16000
14000
12000
10000
8000
6000
4000
2000
0
2006
2007
2008
2009
2010
2011
others
Fund for Talent Training in Basic Science
Young Scholars grants
Research grants
Million

Some notable progresses

Energy, resources, and environmental protection

The first superconducting substation

high-capacity sodium sulfur battery

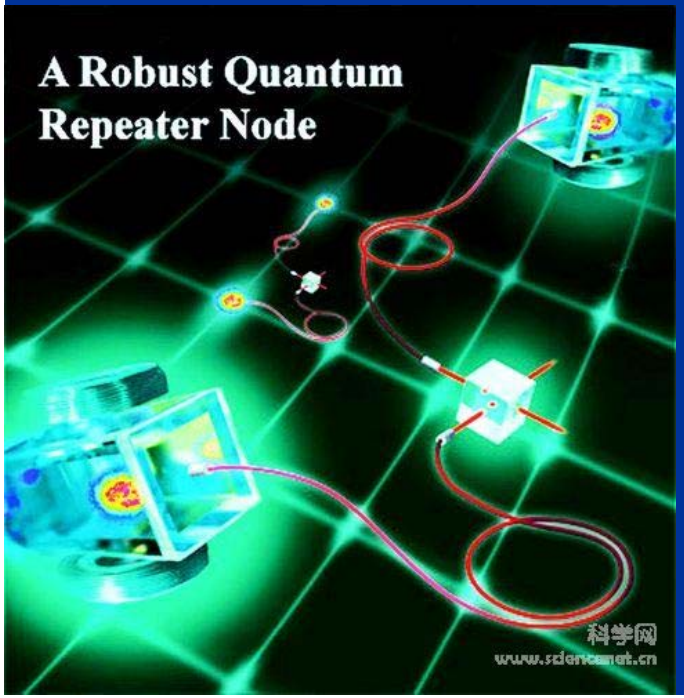


The first fast reactor achieved grid

super conducting Tokamak fusion device

Information technology, advanced materials and manufacturing

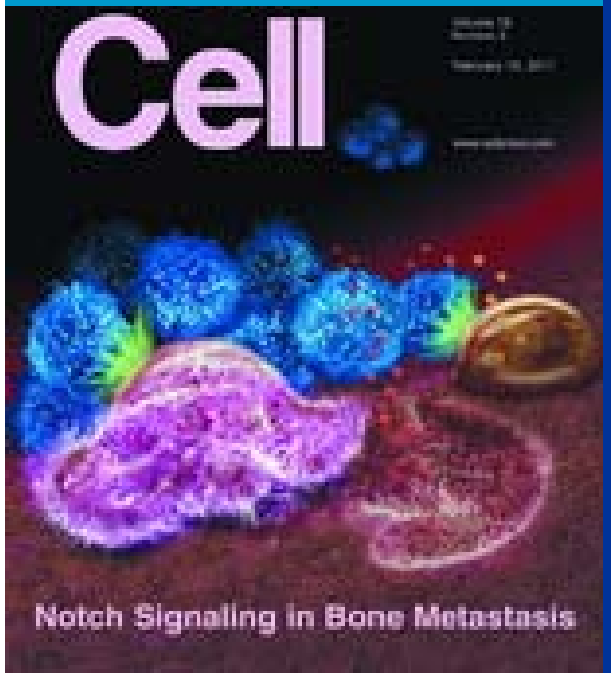
quantum repeater was completed

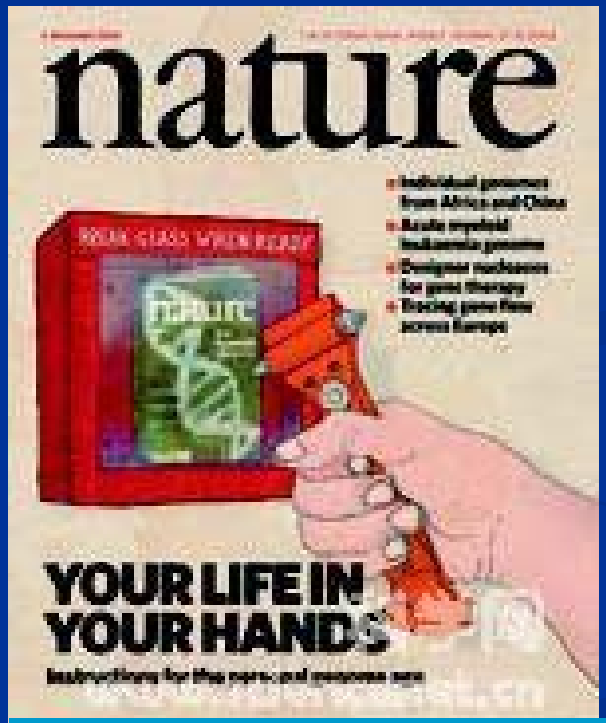


Dawning 5000A listed in the top 10 supercomputers

Biotechnology and life sciences

Discovery of new method of prognosis and treatment to human liver cancer



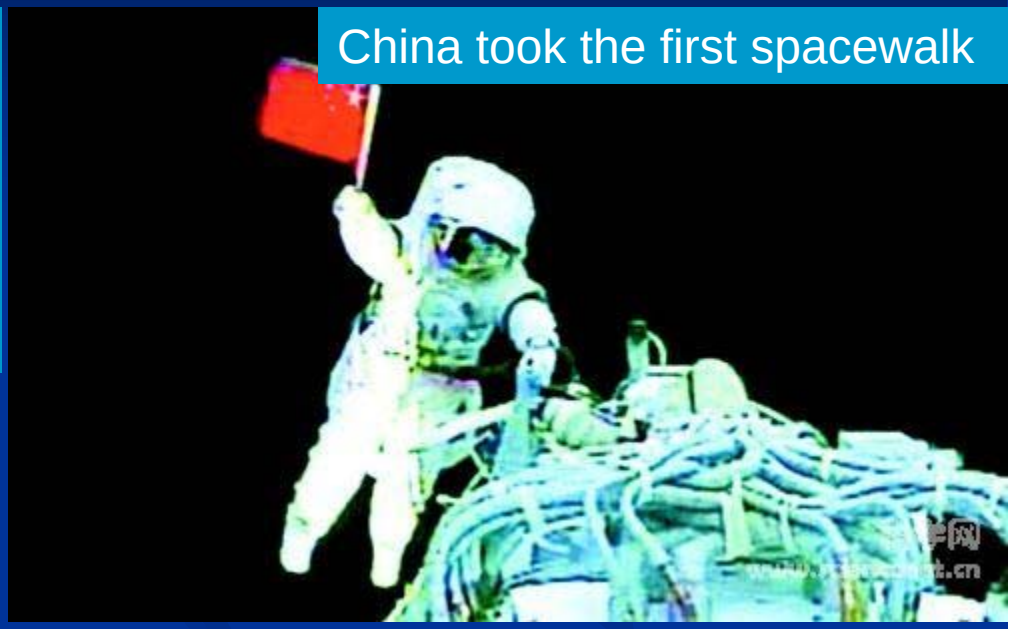


Chinese genome sequence

panda genome

Aerospace and marine

Deep-sea manned submersible exceeded 5000-meter-depth



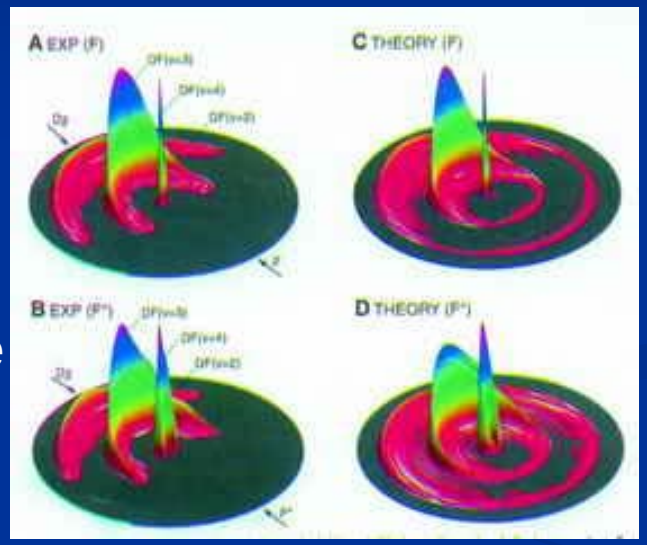
China took the first spacewalk

Chang’e-1

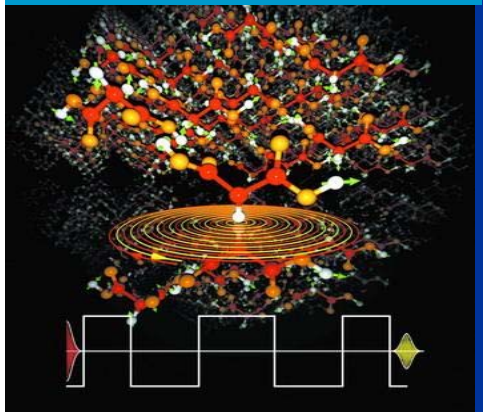
Temple No.1 and Shenzhou VIII achieved Rendezvous and docking (RVD)

Basic research

Six photon Schrodinger cat state

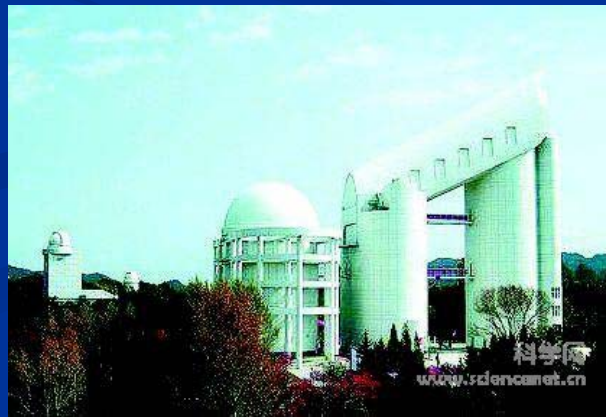


Quantum computing achieved breakthrough

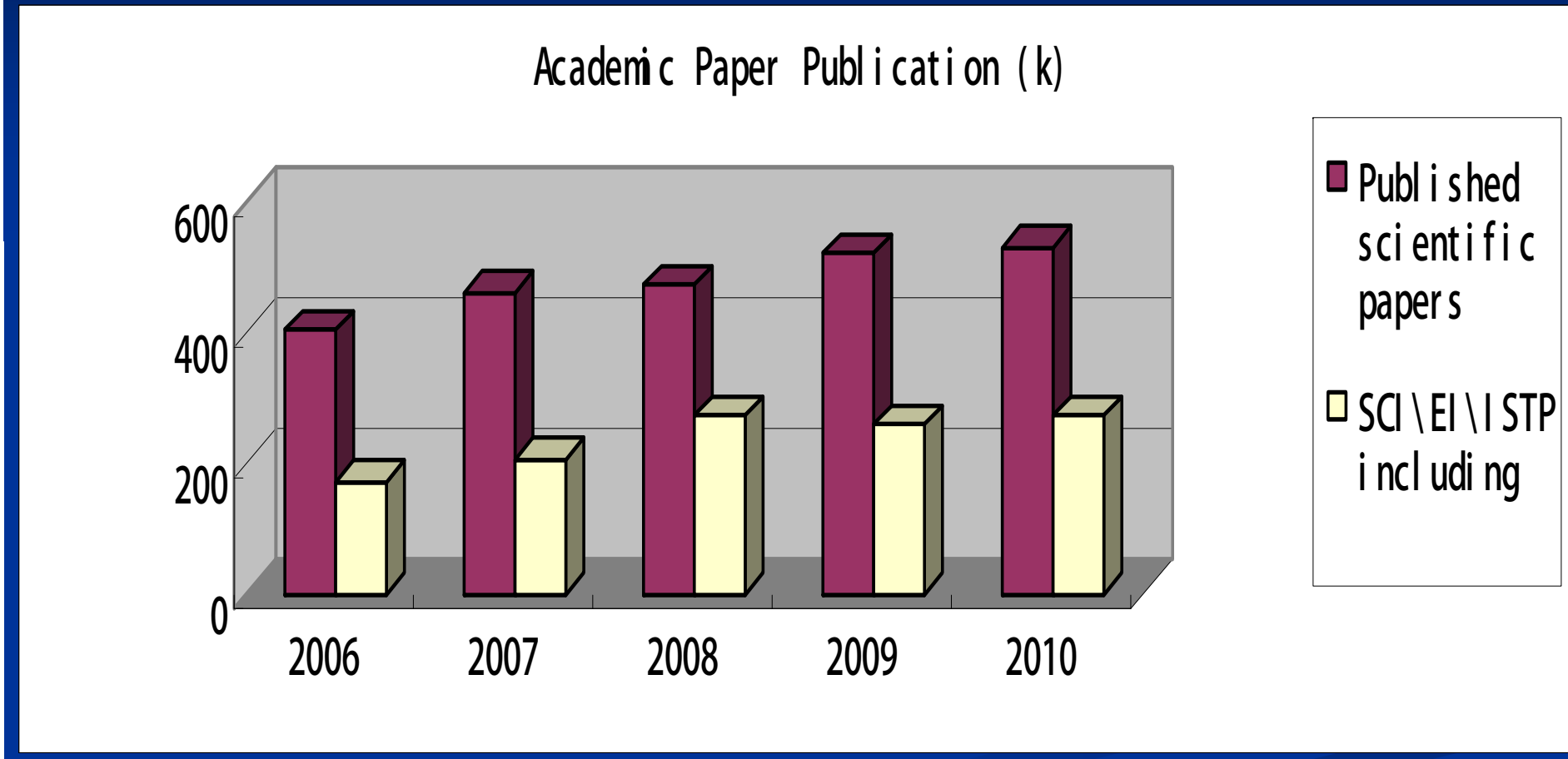


Born-Oppenheimer approximation was found completely failed in fluorine and deuterium reaction

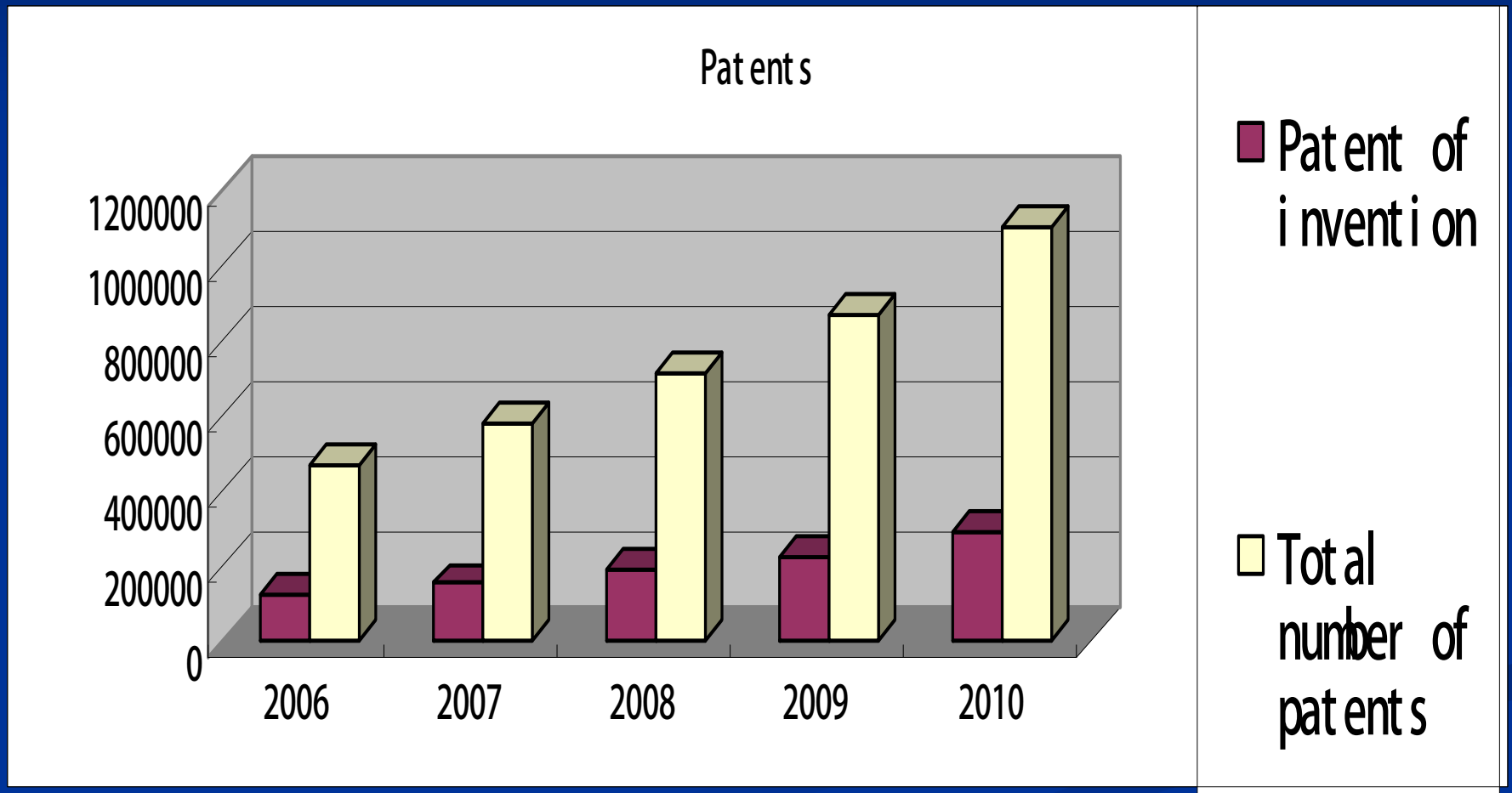
The telescope with the highest spectrum acquisition rate



Publication



Patents


Patents
1200000
1000000
800000
600000
400000
200000
0
2006
2007
2008
2009
2010
Patent of invention
Total number of patents

Conclusion Remarks

- Aiming to breakthrough the bottle-neck of China's sustainable development and carrying out the international duty of China, R&D priorities have been selected and emphasized by national programs from different aspects.

Thanks!