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Highlight:

8 universities or institutions from China were listed in the top 50 in the world according to the statistics of research papers on nano science. They are: USTC (2nd), Beijing University (7th), Tsinghua University (12th), Nanjing University (14th), Institute of Solid Physics, CAS (17th), Jilin University (18th), Institute of Physics, CAS (19th) and Institute of Metal Research, CAS (33rd).

Nowadays, life science, information and communication technology, and nano science are regarded in the world as the three new and most important technologies affecting human life in the future, specially nano science and technology. It has become the most active field for research and study and will greatly promote the development of technology in other fields as well. Achievements in nano science and technology are mostly in the form of scientific papers, owing to its multidisciplinary and cutting-edge status. Analysis on SCI, or the Scientific Citation Index of America, from 1996 to 2000 on the number and trend of research papers on nano science and technology may reflect the position of China on nano science in today's world.

1.Papers on Nano Science in the World: A Trend of Accelerating Development

About 19,000 papers have the key word of nano in their titles from 1996 to 2000 in SCI. The world wide average annual rate of increase of the number of papers is 24.8% with China having a 43.9% increase. Korea boasts the highest increase of 84.6%.

2.Number of Papers on Nano Science: USA over 25% and China Ranked 3rd

The distribution of papers covers 73 countries or regions. The first five countries are: USA, Japan, China, Germany and France. The total number of papers from the USA reached 5,187 (27.3% of the world) and China totaled 1,707 (9.0% of the world). The other five countries in the top ten are Russia, Great Britain, Italy, Spain and Korea, most of which are developed countries except China.

3.Cooperation on Nano Science Research: Strengthening and Promoting

Analysis on the publication of papers on nano science proved that international cooperation and exchange predicts the trend of the development of science and technology. According to the first author, in the past five years from 1996-2000, most developed countries experienced a rapid increase of the ratio of papers published. Differences in this rate of increase may still be found in different countries: USA, Japan and China had comparatively low rates in cooperative study (about 10%) with a possible explanation due to their relative strength in this field; European

countries increased about 20% to 30%, and some smaller countries even reached 50%. In that five years, 193 papers were first authored by Chinese scholars with the cooperation of scholars from foreign countries or regions. Also, Chinese scholars cooperated on 745 additional papers that were published by other foreign authors. The main partners are from the Hong Kong Special Administrative Region (HKSAR), USA, Japan, Singapore, Holland and Germany.

(Note: Number of papers from HKSAR and the Taiwan Province of China were not included in China's total)

4. Papers from USTC: 2nd Position in the World

The distribution of papers on nano science and technology covered 2,771 institutions in 73 countries or regions, among which higher education institutions accounted for 44.5%, scientific research institutions accounted for 35.7%, and enterprises for 16.0%.

The top 50 institutions ranked on the number of papers consisted of 40 universities, 8 research institutions, and 2 enterprises. All of these organizations are world-renowned and non-profit.

Altogether 8 institutions from China entered the top 50 of the world. They are: USTC (2nd), Beijing University (7th), Tsinghua University (12th), Nanjing University (14th), Institute of Solid Physics, CAS (17th), Jilin University (18th), Institute of Physics, CAS (19th) and Institute of Metal Research, CAS (33rd).

The above analysis and data showed that nano science is being carried out in many countries and regions of the world. China has entered into the advanced level with the achievements in the field of nano science and technology, though the gap between developed and other countries still exists in comprehensive scientific research. When measured by the number of papers, China can boast of being in 3rd place in this field---almost at the same level with the developed countries.

(Adapted from the Official Website of the Ministry of Science and Technology of China)

Top 50 Universities or Institutions on Papers of Nano Science

Rank	Type	University/Institution	Country
1	H	University of California at BERKELEY	USA
2	H	University of Science and Technology of China (USTC)	China
3	H	OSAKA University	Japan
4	H	TOHOKU University	Japan
5	H	GEORGIA Institute of Technology	USA
6	H	MIT	USA
7	H	BEIJING University	China
8	I	Centre National De La Recherche Scientifique (CNRS)	France
9	H	University of Tokyo	Japan
10	H	University of ILLINOIS	USA
11	H	University of PARIS-06	France
12	H	Tsinghua University	China
13	H	USN	USA
14	H	Nanjing University	China

15	H	Pennsylvania State University	USA
16	H	NORTHWESTERN University	USA
17	I	Institute of Solid State Physics, CAS	China
18	H	Jilin University	China
19	I	Institute of Physics, CAS	China
20	I	CSIC	Spain
21	H	University of CAMBRIDGE	UK
22	C	IBM Corporation	USA
23	H	ECOLE-POLYTECH-FED-LAUSANNE	Switzerland
24	H	HARVARD University	USA
25	H	National University of Singapore	Singapore
26	H	CORNELL University	USA
27	H	University of OXFORD	UK
28	H	University of MINNESOTA	USA
29	H	University of PARIS-11	France
30	H	KYOTO University	Japan
31	H	TOKYO Institute of Technology	Japan
32	H	University of California at LOS-ANGELES	USA
33	I	Institute of Metal Research, CAS	China
34	H	University of SAARLAND	Germany
35	H	DELFT University of Technology	Holland
36	H	North Carolina State University	USA
37	I	INDIAN Institute of Sciences	India
38	I	OAK-RIDGE National Lab	USA
39	H	SEOUL National University	Korea
40	H	University of TSUKUBA	Japan
41	H	University of TEXAS	USA
42	C	NIPPON-TELEGRAPH-&-TEL-PUBL-CORP	Japan
43	H	University of California at SANTA-BARBARA	USA
44	I	ARGONNE-NATL-LAB	USA
45	H	University of MICHIGAN	USA
46	H	WASHINGTON University	USA
47	H	BAR-ILAN-UNIVERSITY	Israel
48	H	CALTECH	USA
49	H	MOSCOW-MV-LOMONOSOV-STATE-UNIVERSITY	Russia
50	H	University of WISCONSIN	USA