Chinese Scientific Journals: An Analysis of the Need at Cornell

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CHINESE SCIENTIFIC JOURNALS: AN ANALYSIS OF THE NEED AT CORNELL

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1.0 BACKGROUND

1.1 Colleges and Schools in Sciences at Cornell

"There are few universities anywhere in the world with the research scope of Cornell University. That research spans a vast array of subjects, and ranges from the basic and theoretical work to applied research." (http://www.cornell.edu/academics/scholarship.cfm)

The science subjects at Cornell include Agriculture, Anthropology, Astronomy, Biology and Life Sciences, Chemistry, Computer Science, Earth and Atmospheric Sciences, Engineering, Mathematics, Medicine, Psychology, Physics, Veterinary Science.

In order to know the Sciences development at Cornell, the number of SCI papers whose authors are from Cornell is used as an indicator. Choosing the citation database "SCI-Expanded" in Web of Science, search using the keywords "Cornell" in search box "Address", "2008-2009" in search box "Years Published", the search results show that in the years 2008 and 2009 the highest ranking subjects of the articles published by the authors from Cornell were Biochemistry & Molecular Biology, Plant Sciences, Astronomy & Astrophysics, Veterinary Sciences, Neurosciences, Genetics & Heredity, Chemistry, Ecology, Food Science & Technology, Material Science, Cell Biology, Oncology, Applied Physics, Microbiology, Surgery, Immunology, etc.. (See the details in Fig.1 which is the screenshot from Web of Science)

Field: Subject Area	Record Count	% of 9151	Bar Chart
BIOCHEMISTRY & MOLECULAR BIOLOGY	666	7.2779 %	
PLANT SCIENCES	398	4.3493 %	
ASTRONOMY & ASTROPHYSICS	364	3.9777 %	
VETERINARY SCIENCES	351	3.8356 %	
NEUROSCIENCES	327	3.5734 %	
MULTIDISCIPLINARY SCIENCES	317	3.4641 %	
GENETICS & HEREDITY	287	3.1363 %	
CHEMISTRY, MULTIDISCIPLINARY	283	3.0926 %	
ECOLOGY	282	3.0816 %	
FOOD SCIENCE & TECHNOLOGY	274	2.9942 %	
MATERIALS SCIENCE, MULTIDISCIPLINARY	267	2.9177 %	
CELL BIOLOGY	264	2.8849 %	
ONCOLOGY	259	2.8303 %	
BIOTECHNOLOGY & APPLIED MICROBIOLOGY	258	2.8194 %	
PHYSICS, APPLIED	237	2.5899 %	
MICROBIOLOGY	226	2.4697 %	
SURGERY	222	2.4260 %	
IMMUNOLOGY	213	2.3276 %	
PATHOLOGY	197	2.1528 %	
CHEMISTRY, PHYSICAL	195	2.1309 %	
HEMATOLOGY	176	1.9233 %	
ENVIRONMENTAL SCIENCES	173	1.8905 %	
HORTICULTURE	161	1.7594 %	
PHYSICS, CONDENSED MATTER	159	1.7375 %	
UROLOGY & NEPHROLOGY	159	1.7375 %	

Fig.1 Subject areas of the papers with the authors from Cornell when searching in Web of Science, 2008-2009

1.2 Recent Developments in Science in China

In the article titled “The Characteristics and the Trends in the Development of the Chinese Natural Science Field”, Molecular Biology, Chemistry, Physics, Material Science, Medicine, Engineering Technology, Astronomy & Astrophysics and Computer Science were described as the research fields which were making rapid progress.(http://www.sic.cas.cn/xwzx/kydt/200704/t20070404_2101781.html)

To analyze the development of the sciences in China, the number of SCI papers funded by Chinese organizations is used as an indicator. The assumption is that leading science in China would be published in journals covered by SCI. Choosing the citation database “SCI-Expanded” in Web of Science, using the keywords “China” in search box “Funding Agency”, “2008-2009” in search box “Year Published” , the search results show that in the years 2008 and 2009 the subjects of the articles published by Chinese authors rank from Materials Science, Physical Chemistry, Physics, Chemistry, Biochemistry & Molecular Biology, Electrical & Electronic Engineering, Optics, Condensed Matter Physics, Environmental Sciences, Applied Mathematics, Nanoscience & Nanotechnology, Metallurgy & Metallurgical Engineering, Analytical Chemistry, Polymer Science, Chemical Engineering, Biotechnology & Applied Microbiology, Organic Chemistry, Pharmacology & Pharmacy, Mathematics, Plant Sciences, Crystallography, etc.. (See the details in Fig.2)

Field: Subject Area	Record Count	% of 91121	Bar Chart
MATERIALS SCIENCE, MULTIDISCIPLINARY	9796	10.7505 %	
CHEMISTRY, PHYSICAL	7716	8.4679 %	
PHYSICS, MULTIDISCIPLINARY	6124	6.7207 %	
PHYSICS, APPLIED	5974	6.5561 %	
CHEMISTRY, MULTIDISCIPLINARY	5276	5.7901 %	
BIOCHEMISTRY & MOLECULAR BIOLOGY	4298	4.7168 %	
ENGINEERING, ELECTRICAL & ELECTRONIC	3880	4.2581 %	
OPTICS	3463	3.8004 %	
PHYSICS, CONDENSED MATTER	3417	3.7500 %	
ENVIRONMENTAL SCIENCES	3367	3.6951 %	
MATHEMATICS, APPLIED	3186	3.4964 %	
NANOSCIENCE & NANOTECHNOLOGY	3152	3.4591 %	
METALLURGY & METALLURGICAL ENGINEERING	3072	3.3713 %	
CHEMISTRY, ANALYTICAL	2804	3.0772 %	
POLYMER SCIENCE	2582	2.8336 %	
ENGINEERING, CHEMICAL	2513	2.7579 %	
BIOTECHNOLOGY & APPLIED MICROBIOLOGY	2454	2.6931 %	
CHEMISTRY, ORGANIC	2364	2.5944 %	
PHARMACOLOGY & PHARMACY	2218	2.4341 %	
MATHEMATICS	2150	2.3595 %	
CHEMISTRY, INORGANIC & NUCLEAR	2135	2.3430 %	
PLANT SCIENCES	1990	2.1839 %	
CRYSTALLOGRAPHY	1968	2.1598 %	
PHYSICS, ATOMIC, MOLECULAR & CHEMICAL	1805	1.9809 %	
ELECTROCHEMISTRY	1782	1.9556 %	

Fig.2 Subject areas of the papers with Chinese funding, 2008-2009

1.3 Current Availability of Chinese scientific journals at Cornell

- Print Chinese scientific Journals at Cornell

There are 77 Chinese scientific journals in either Chinese or English language included in CU Library Catalog:

- 31 print subscriptions have been recently cancelled, of which 11 can be accessed from some e-collections, such as SpringerLink, Elsevier ScienceDirect;
- 11 have print and electronic copies. (*See the details in the file:* ***China_serials_QRST2008_item_PO(1)-0225***)
  (And, there are 11 journals from Taiwan and HongKong in the 77 journals above. Note that these 11 journals are not collected in the main Chinese Journal Collections, such as CNKI,VIP and Wanfang which are introduced in a later section.)

- Access to Chinese scientific e-journals at Cornell

There are three possible ways for the users to access Chinese scientific e-journals at Cornell.

Some Chinese scientific journals in English language can be accessed from electronic collections, such as SpringerLink, Elsevier ScienceDirect, Wiley & Blackwell, which are subscribed by Cornell University Library (CUL). For example, in the Core Chinese scientific journals in < Guide to Core Journals of China> [1]and the source journals in <Chinese S&T Journal Citation Report>, there are 33 journals in English language. Among these 33 journals, 15 journals can be downloaded from Springerlink, ScienceDirect, etc., but in most of these electronic collections only the papers published after 2006 are online. The backfiles can not be accessed. (See the details in the file: ***2008-CAJs Rank+Core-0527***)

Cornell University library subscribes to several social science packages from CNKI which is a Chinese e-journal collection. Because some articles are collected in both the social science packages and the scientific packages in CNKI, users at Cornell can download these articles from CNKI website. The number of these articles is unclear, but the usage of downloading these articles at Cornell is analyzed in the later section.

And, some Chinese scientific journals are opened online, but the number is limited. For example, in 27 main journals in Mathematics which is based on the Chinese core journals and the source journals in <Chinese S&T Journal Citation Report> there are 8 journals which fulltext can be read; in 35 main journals in Physics there are 9 journals which are open access. And, most of these open access journals only provide the contents published in some years, not their full contents. (See the details in the file: ***2008-CAJs Rank+Core-0527***)

[1] < Guide to Core Journals of China> and <Chinese S&T Journal Citation Report> are two popular Chinese journal evaluation tools.

2.0 ANALYSIS OF THE NEED FOR CHINESE SCIENTIFIC JOURNALS AT CORNELL

In order to know about the need for Chinese scientific journals at Cornell, Chinese/Cornell researchers' cooperation in the sciences was first analyzed based on the number and the subject area of papers with co-authors from Cornell and from China. The number and the subject of the articles which had an author from Cornell and were indexed by Chinese collections was also analyzed, which may indicate that the researchers at Cornell are familiar with some Chinese scientific journals and have a need for them. And then, the need for Chinese scientific journals was surveyed in two different communities at Cornell: one is in the scientific community at Cornell, and the other is the Chinese visiting scholars. These surveys attempted to assess the need of the users directly. Finally, the usage of Chinese scientific papers in CNKI, one Chinese e-journal collection at Cornell, was analyzed.

2.1 Analysis on Chinese/Cornell co-authorship

- The number of the papers which had authors from Cornell and from China and were indexed by Science Citation Index in last ten years (2000-2009)

Field: Publication Year	Record Count	% of 652	Bar Chart
2009	116	17.7914 %	
2008	118	18.0982 %	
2007	92	14.1104 %	
2006	77	11.8098 %	
2005	65	9.9693 %	
2004	57	8.7423 %	
2003	52	7.9755 %	
2002	30	4.6012 %	
2001	28	4.2945 %	
2000	15	2.3006 %	

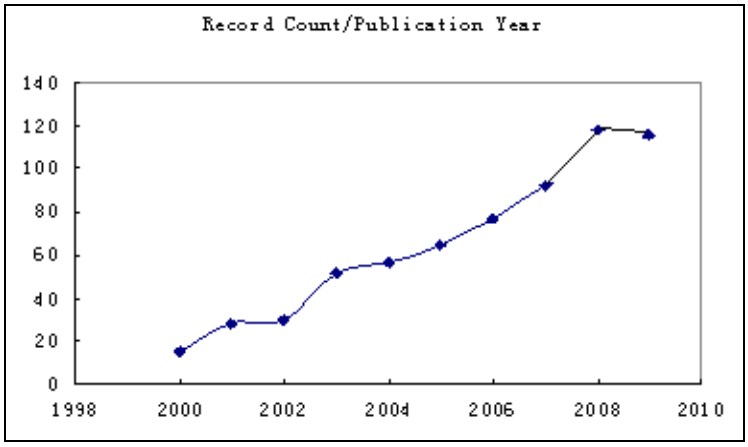

Fig.3 The number of the papers with co-authors from Cornell and China from 2000-2009

Choosing the citation database "SCI-Expanded" in Web of Science, using the keywords "Cornell" and "China" in the search box "Address", "2000-2009" in search box "Years Published", the number of the papers which had authors from Cornell and from China in last ten years were obtained in the search result as shown above. The trend in these

numbers is increasing year by year, which indicates that in recent years the cooperation between science researchers at Cornell University and in China is increasing (Fig.3).

- The subject areas of the papers which had authors from Cornell and authors from China and were indexed by Science Citation Index in last ten years (2000-2009) and in recent years (2008-2009) are listed in Fig.4 and Fig.5.

Field: Subject Area	Record Count	% of 652	Bar Chart
BIOCHEMISTRY & MOLECULAR BIOLOGY	81	12.4233 %	
PLANT SCIENCES	59	9.0491 %	
BIOTECHNOLOGY & APPLIED MICROBIOLOGY	36	5.5215 %	
GENETICS & HEREDITY	29	4.4479 %	
MULTIDISCIPLINARY SCIENCES	28	4.2945 %	
HEMATOLOGY	25	3.8344 %	
ONCOLOGY	25	3.8344 %	
ENVIRONMENTAL SCIENCES	23	3.5276 %	
ENTOMOLOGY	22	3.3742 %	
PHYSICS, APPLIED	22	3.3742 %	
ENGINEERING, ELECTRICAL & ELECTRONIC	21	3.2209 %	
BIOPHYSICS	20	3.0675 %	
BIOCHEMICAL RESEARCH METHODS	18	2.7607 %	
WATER RESOURCES	18	2.7607 %	
HORTICULTURE	17	2.6074 %	
CELL BIOLOGY	16	2.4540 %	
RADIOLOGY, NUCLEAR MEDICINE & MEDICAL IMAGING	16	2.4540 %	
AGRONOMY	15	2.3006 %	
ASTRONOMY & ASTROPHYSICS	15	2.3006 %	
PATHOLOGY	15	2.3006 %	
GASTROENTEROLOGY & HEPATOLOGY	14	2.1472 %	
NEUROSCIENCES	14	2.1472 %	
CHEMISTRY, MULTIDISCIPLINARY	13	1.9939 %	
CRYSTALLOGRAPHY	13	1.9939 %	
FOOD SCIENCE & TECHNOLOGY	13	1.9939 %	

Fig.4 Subjects of the co-authored papers published 2000-2009

Field: Subject Area	Record Count	% of 245	Bar Chart
PLANT SCIENCES	24	9.7959 %	
BIOCHEMISTRY & MOLECULAR BIOLOGY	21	8.5714 %	
ENVIRONMENTAL SCIENCES	15	6.1224 %	
HEMATOLOGY	15	6.1224 %	
ONCOLOGY	13	5.3061 %	
ENGINEERING, ELECTRICAL & ELECTRONIC	12	4.8980 %	
GENETICS & HEREDITY	11	4.4898 %	
PHYSICS, APPLIED	10	4.0816 %	
CHEMISTRY, MULTIDISCIPLINARY	9	3.6735 %	
FOOD SCIENCE & TECHNOLOGY	9	3.6735 %	
MULTIDISCIPLINARY SCIENCES	9	3.6735 %	
PATHOLOGY	9	3.6735 %	
RADIOLOGY, NUCLEAR MEDICINE & MEDICAL IMAGING	9	3.6735 %	
BIOTECHNOLOGY & APPLIED MICROBIOLOGY	8	3.2653 %	
GEOSCIENCES, MULTIDISCIPLINARY	8	3.2653 %	
METEOROLOGY & ATMOSPHERIC SCIENCES	8	3.2653 %	
SOIL SCIENCE	8	3.2653 %	
NUTRITION & DIETETICS	7	2.8571 %	
ASTRONOMY & ASTROPHYSICS	6	2.4490 %	
MEDICINE, RESEARCH & EXPERIMENTAL	6	2.4490 %	
ECONOMICS	5	2.0408 %	
MATHEMATICS, INTERDISCIPLINARY APPLICATIONS	5	2.0408 %	
STATISTICS & PROBABILITY	5	2.0408 %	
WATER RESOURCES	5	2.0408 %	
AGRONOMY	4	1.6327 %	

Fig.5 Subject of the co-authored papers published 2008-2009

Based on the search result above, the subject areas of these papers were also analyzed in Web of Science (**Fig.4** and **Fig.5**). In 2000-2009 the subject areas listed at the top include Biology (Biochemistry, Molecular Biology, Plant Sciences, Biotechnology, etc..), Medicine (Hematology, Oncology, etc..),Environmental Sciences, Physics, Engineering, etc.. And, in the recent two years (2008-2009) the rank of subject areas has some changes: Environmental Sciences, Medicine, Engineering, Chemistry and Food Science move up in the ranking. These results indicate that the research cooperation between China and Cornell University extends to more and more subject areas.

2.2 Analysis of the scientific papers with authors from Cornell and published in Chinese scientific journals

- The number of papers

There are some large Chinese academic journal collections, such as CNKI, which can be used to obtain these data. Searching in CNKI , entering the term " Cornell" or "康奈尔" in the field "institution" and choosing the science packages, the number of papers in each year from 2000 to 2009 was obtained and was shown in **Fig.6**. The trend in this figure indicates that in recent years more papers with an author from Cornell were published in Chinese scientific journals.

Because CNKI can't provide further analysis of the search result, another search was made in a Chinese citation database whose name is CSCD (Chinese Science Citation Database). The analysis of the results of the author's rank based on the number of papers and on the subject areas of the papers can be provided in CSCD. When searching, the same terms were

used in CSCD but fewer papers were obtained in each year (**Fig.7**). A likely explanation is that there are more than 5,000 scientific journals in CNKI while only about 1,000 scientific journals in CSCD. Note that the subject areas in CSCD include some social sciences, but CSCD doesn't support limiting a search only to the sciences. So, the search results from CSCD include some papers in the social sciences, but we didn't list them in **Table 1** and **Table 2**.

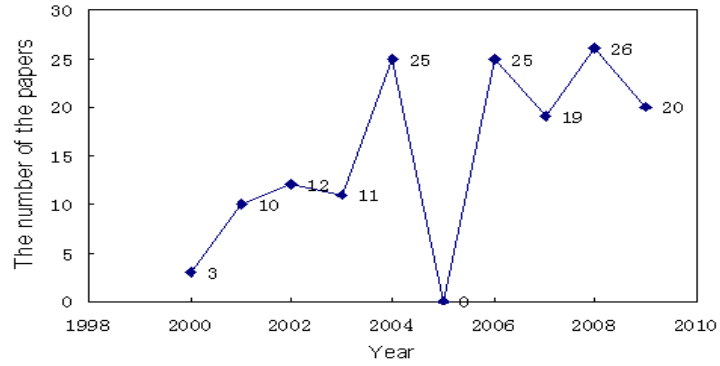

Fig.6 The number of papers with a Cornell author in 2000-2009

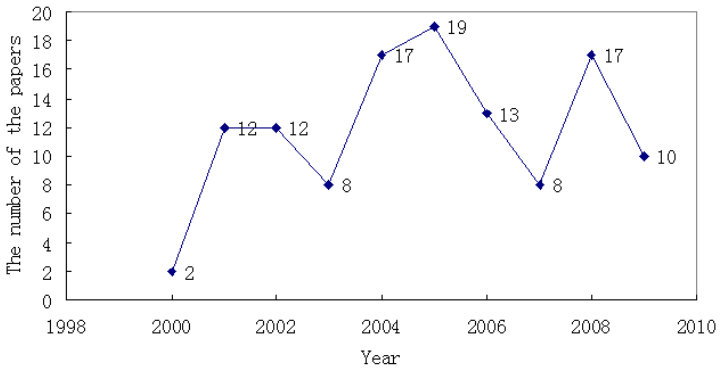

Fig.7 The number of papers with a Cornell author in 2000-2009 when Searching in CNKI (about 5200 scientific journals) when Searching in CSCD (about 1000 STM journals)

http://china.eastview.com/kns50/Navigator.aspx?ID=CJFD
http://sciencechina.ac.cn/forbid.jsp

- The top 20 authors

The data on the next page (Table 1) were cited from the search results of CSCD. The data showed that in 2000-2009 some researchers at Cornell listed in the top 20 authors who published more papers in Chinese academic journals. For example, Hairui Liu whose research is in the field of Food Science at Cornell University, as one of the authors, published 12 papers in Chinese academic journals in the last ten years; and, Xiaodong Jiang whose research is in the field of Engineering published 9 papers in Chinese academic journals in the last ten years. The subject areas of Cornell authors in the top 20 listed in Table 1 include Food Science, Engineering, Applied Mathematics, and Plant Science.

- The Subject areas of the papers

The data in **Table 2** were cited from the search results of CSCD. The data showed that Biology, Clinical Medicine/Special Medicine, Electrical Technology, Basic Medicine, Preventive Medicine/Hygiene, Environmental Science & Safety Science, Geology, Plant Protection, Physical Geography, and Pharmacology were the top ten subject areas of the papers published by the co-authors from Cornell in the last ten years, which indicates that Cornell researchers in these fields tended to cooperate with Chinese scientists.

Table 1 The top 20 Cornell authors published in Chinese journals based on the number of papers in 2000-2009

	Number of Papers	Department
Hairui Liu, Cornell University, USA	12	Department of Food Science
Bingqing Chen, Haerbin Medical University, China	11	
Xiaodong Jiang, Cornell University, USA	9	College of Engineering
Jinquan Zhao, Tsinghua University, China	9	
Jiaren Liu, Haerbin Medical University, China	9	
Boming Zhang, Tsinghua University,China	9	
YIngben Xue, Haerbin Medical University, China	8	
Yumei Zheng, Haerbin Medical University, China	6	
Yanmei Yang, Haerbin Medical University, China	6	
Yongmiao Hong,Cornell University,USA	6	Department of Economics
Duofu Chen, Guangzhou Institute of Geochemistry, CAS	5	
Xuanling Wang, Haerbin Medical University, China	4	
Philip S.Li, Cornell University, USA	3	Center for Male Reproductive Medicine and Microsurgery, Cornell Institute for Reproductive Medicine, Depart ment of Urology, The New York Presbyterian Hospital, Weill Medical College of Cornell University
Maria Harrison, Cornell University, USA	3	Boyce Thompson Institute for Plant Research
Jingsong Yang, Shanghai Jiao Tong University, China	3	
Siwei Chen, Graduate University of Chinese Academy of Sciences	3	
Xianmin He, Second Military Medical University, China	3	
Dong Feng, Guangzhou Institute of Geochemistry, CAS	3	
Junshi Chen, Chinese Center for Disease Control and Prevention	3	
Jia He, Second Military Medical University,China	3	

Table 2 The top subject areas of the Cornell authored papers in Chinese journals in 2000-2009

Subject Area	Number of papers
Biology	28
Clinical Medicine / Special Medicine	19
Electrical Technology	7
Basic Medicine	7
Preventive Medicine, Hygiene	5
Plant Protection	4
Environmental Science & Safety Science	3
Geology	3
Physical Geography	2
Pharmacology	2
Agronomy, Crop	2
Wireless Electronics, Telegraphy	1
Automation Technology, Computer Technology	1
Mechanism, Instrument Industry	1
Architecture	1
Physics	1
Chemistry	1
Mathematics	1
Geography	1
Oceanography	1
Chinese Traditional Medicine	1
Horticulture	1
Agronomy, Crop	1
Aquatic Product、Fishery	1
Farming, Veterinary, Hunting, Silkworm, Bee	1
Forestry	1
Oil, Natural Gas Industry	1

2.3 Survey of the need for Chinese science journals at Cornell

Two surveys of the need for Chinese scientific journals were conducted in two different groups at Cornell. One was in the form of a paper survey which was of Chinese visiting fellows, and the other, which was conducted online, was of the Cornell science community in general, including faculty, staff, undergraduate and graduate students at Cornell.

There were 5-6 questions in these surveys, 4 of which were in common. Some additional information was also requested, such as the subject/field of the participants, and suggestions of Chinese scientific journals needed at Cornell.

20 questionnaires were returned from the visiting fellows in one week (March 15-19, 2010), and 32 were returned from the Cornell science community in ten days (May 24-June1, 2010).

The survey results are shown on the following page (Fig.8 and Fig.9).