

Overview of academic paper published by Academia Sinica **(2007/01/01-2016/12/31)**

When academic and research performance are evaluated, indicators including the number of papers published and the number of times a paper has been cited are often used. In this article, data from the Essential Science Indicator (ESI) and Web of Science database (WOS) are retrieved to review the number of papers published, average paper published per researcher and the cumulative average number of paper citations, in order to evaluate the performance of academic paper published by Academia Sinica. By doing this, the research performance of Academia Sinica is understood and the development of the various research fields in Academia Sinica could be encouraged and facilitated.

I. Performance of Academia Sinica in 22 ESI Fields

According to the ESI statistics (period covered: Jan. 2007-Dec. 2016), Academia Sinica was ranked top 1% of research institutions in 18 out of 22 fields (Table 1) including Physics, Chemistry, Space Science, Clinical Medicine, Molecular Biology & Genetics, Biology & Biochemistry, Geosciences, Material Science, Plant & Animal Science, Neuroscience & Behavior, Microbiology, Pharmacology & Toxicology, Environment & Ecology, Immunology, Engineering, Computer Science, Agricultural Sciences, and Social Sciences, General.

1. Physics	10. Neuroscience & Behavior
2. Chemistry	11. Microbiology
3. Space Science	12. Pharmacology & Toxicology
4. Clinical Medicine	13. Environment & Ecology
5. Molecular Biology & Genetics	14. Immunology
6. Biology & Biochemistry	15. Engineering
7. Geosciences	16. Computer Science
8. Material Science	17. Agricultural Sciences
9. Plant & Animal Science	18. Social Sciences, General

Table 1. 18 Research Fields which Numbers of Citation of Academic Papers Published by Academia Sinica Reached Top 1%

(Source: ESI; Period: 2007- 2016; Data Retrieval: Feb. 2017)

Papers published by Academia Sinica in the fields of Space Science, Clinical Medicine, Molecular Biology and Genetics and Material Science show a strong influence as the average numbers of citations per paper are 25.44, 21.37, 20.68 and 18.95 respectively (Table 2).

Field	No. of Papers	Citations	Citations per Paper
Space Science	1,381	35,128	25.44
Clinical Medicine	1,561	33,363	21.37
Molecular Biology & Genetics	1,424	29,442	20.68
Material Science	901	17,073	18.95
Immunology	257	4,777	18.59
Microbiology	311	5,399	17.36
Physics	3,839	62,686	16.33
Chemistry	3,051	48,485	15.89
Neuroscience & Behavior	416	6,093	14.65
Biology & Biochemistry	1,625	23,796	14.64
Geosciences	1,250	17,439	13.95
Pharmacology & Toxicology	380	4,880	12.84
Environment & Ecology	384	4,872	12.69
Plant & Animal Science	1,308	16,176	12.37
Agricultural Sciences	217	2,547	11.74
Engineering	566	3,714	6.56
Computer Science	679	3,404	5.01
Social Sciences, General	434	1,948	4.49

Table 2. Total Number of Citation and Average Number of Citation per Paper Published by Academia Sinica in 18 Fields that Reached Top 1% (Source: ESI; Period: 2007- 2016; Data Retrieval: Feb. 2017)

II. Growth of Average Number of Paper Published per Research Personnel

According to WOS statistical analysis, both quality and quantity of papers published by Academia Sinica per year have risen. In 2016, there are 2,304 papers listed in WOS database. Since 2007, the average number of papers published per researcher also showed a steady increase. The average number of paper per researcher listed in SCI, SSCI and A&HCI (excluding conference abstracts, or other similar type of article) was 2.77 in 2016.

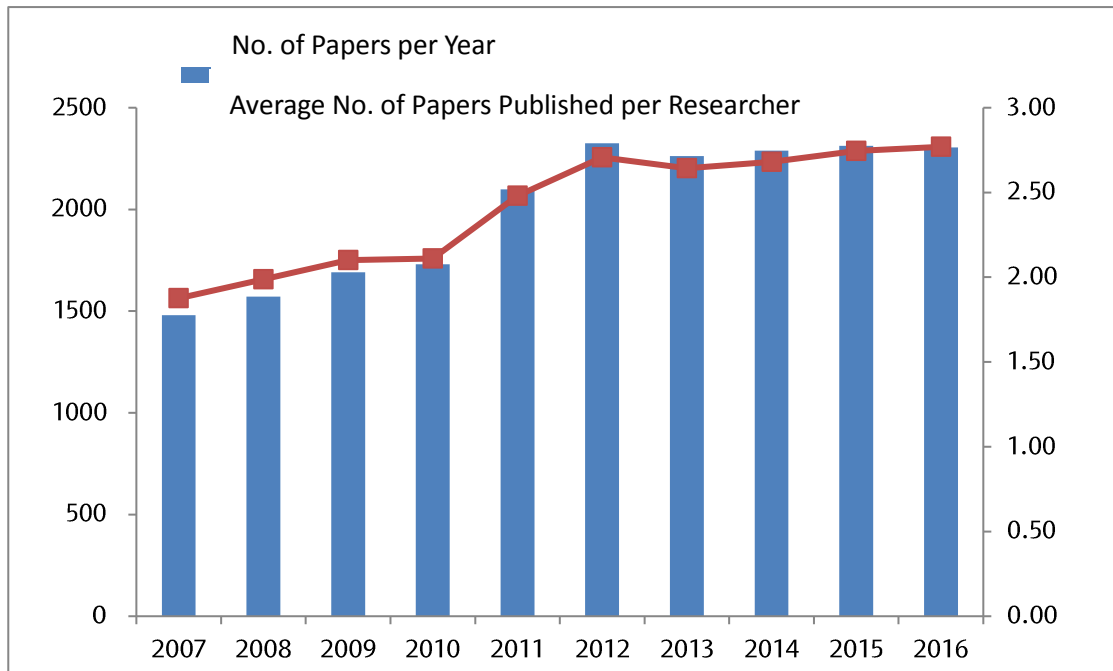


Figure 1. The Average Number of Papers Published per Researcher of Academia Sinica per Year
(Source: WOS; Period: 2007- 2016; Data Retrieval: Feb. 2017)

III. Papers Published by Academia Sinica is Academically Leading

According to the ESI and WOS database, the number of paper citations in top 1% and 10% range in various research fields experienced a noticeable growth (Figure 2). The paper citations of leading research institutions in Asia were listed in Table 3.

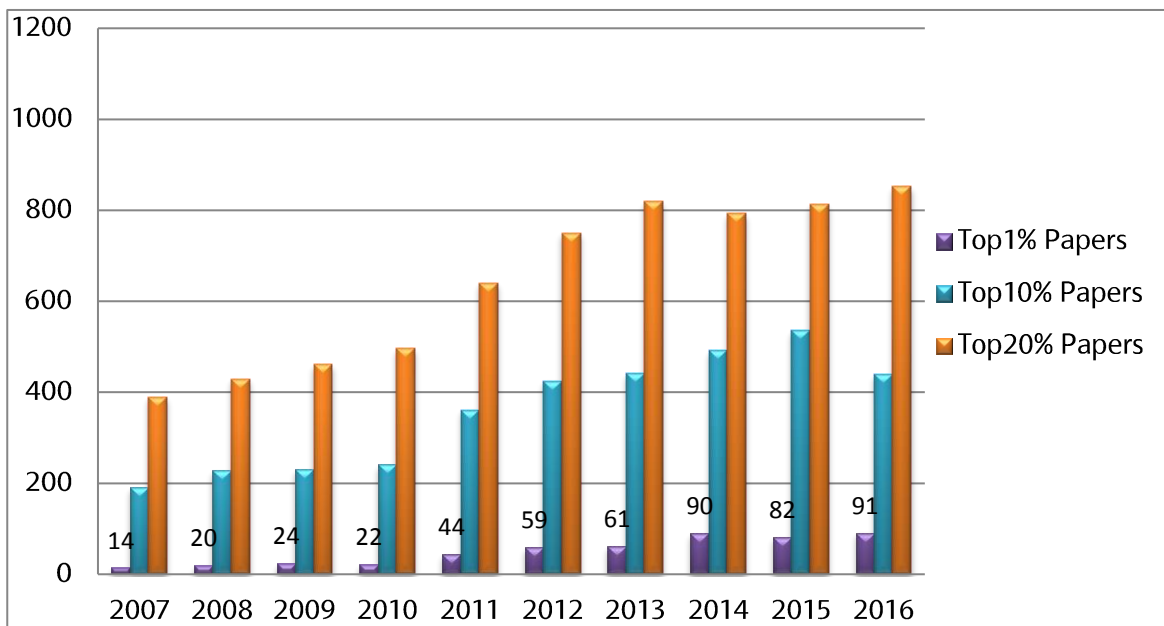


Figure 2. Number of Papers Published by Academia Sinica in Top 1%, 10% and 20% Range
(Source: ESI & WOS, period cover : 2007-2016, accessed Feb. 2017)

Universities/ Institutes	Papers	Average Citations	Fields Cited of Top 1%
RIKEN	25,761	21.64	13
The University of Tokyo	82,820	17.02	21
National University of Singapore	53,426	16.77	19
Kyoto University	60,695	15.54	20
Academia Sinica	21,041	15.48	18
Tohoku University	47,702	13.34	15
Peking University	57,078	13.13	21
Chinese Academy of Sciences	285,494	12.99	22
Fudan University	43,157	12.84	17
National Taiwan University	48,614	12.54	19
Seoul National University	64,181	12.49	20
Hokkaido University	32,202	12.3	15
Tsinghua University	57,682	11.76	16

Table 3. Papers Published and Cited of Leading Asian Research Institutions

(Source: WOS, period covered: 2007-2016, accessed Feb. 2017)