



# 當學術研究遇見 Web of Science

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資深區域經理 – 台灣/香港/澳門

Gary Liang

[gary.liang@thomsonreuters.com](mailto:gary.liang@thomsonreuters.com)

Oct 22, 2008



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# Outline

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- 引文資料庫的應用與實例說明
  - Web of Science 活用技巧
  - H-index 介紹
- 如何使用引文資料庫做學術評鑑
  - 不同角度呈現不同評鑑結果
  - 以元智大學為例
- 結論



# Outline

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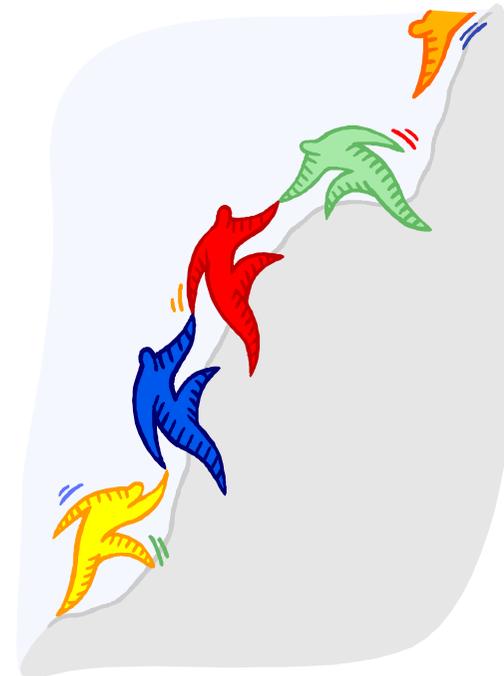
- 引文資料庫的應用與實例說明
  - Web of Science 活用技巧
  - H-index 介紹
- 如何使用引文資料庫做學術評鑑
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- 結論



## 科學 - 是群體的努力與活動

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- Advances in science are the result of group effort
  - No scientific research stands alone itself
- Direct collaborations
  - Co-authorship
  - Visiting researcher, residency
  - National / multinational projects
- Indirect collaborations
  - Citation (invisible school)



## 引用文獻－建立研究概念的脈絡



### Garfield, E.

“Citation indexes for science: A new dimension in documentation through association of ideas.”

*Science*, 122 (3159), p.108-111, July 1955.

***Science*, Vol:122, No:3159, p.108-111, July 15, 1955**

### **Citation Indexes for Science:**

***A New Dimension in Documentation through Association of Ideas***

**Eugene Garfield, Ph.D.**

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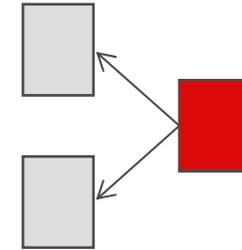
"The uncritical citation of disputed data by a writer, whether it be deliberate or not, is a serious matter. Of course, knowingly propagandizing unsubstantiated claims is particularly abhorrent, but just as many naive students may be swayed by unfounded assertions presented by a writer who is unaware of the criticisms. Buried in scholarly journals, critical notes are increasingly likely to be overlooked with the passage of time, while the studies to which they pertain, having been reported more widely, are apt to be rediscovered." [\(1\)](#)



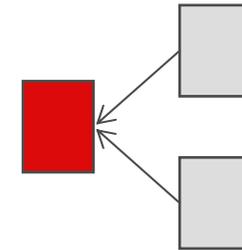
## 透過使用 CITATION INDEX:

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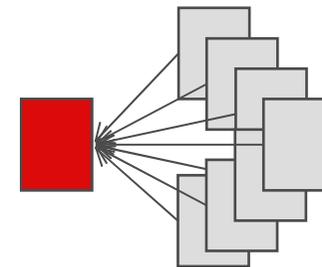
Trace citations back to the past to find relevant literature.



Trace citations forward to find how an article was used by others.



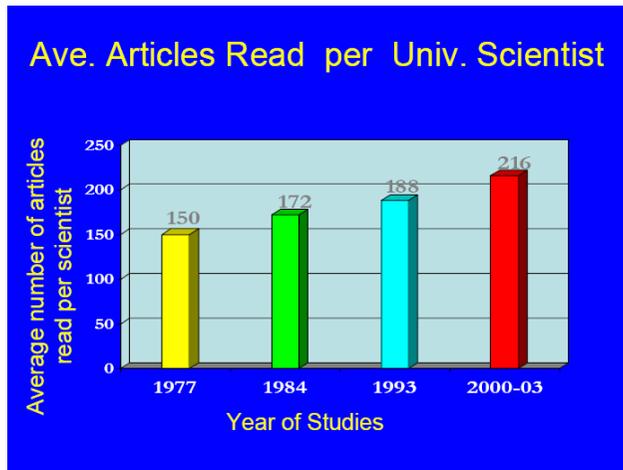
Observe concentration of citations to know which article had an impact on later research.





Basic Problem: Data Rich, Knowledge Poor!

# 為什麼要“Smart Discovery”？



## Reading Varies by Subject Discipline and Workplace

- Univ. medical • ~322 articles/year
- Practicing Pediatricians • ~180 articles/year
- Univ. Scientists • ~216 articles/year
- All Scientists • ~130 articles/year
- Soc Sci/Psych • ~191 articles/year
- Engineers • ~111 articles/year

- Dr. Tenopir 在“科學家實際需要什麼 (*What scientists really need*)”的研究
- 大體而言，現今的科學家要閱讀更多
- 平均每位科學家每年必須閱讀200篇文章
- 全球50,000種期刊之中的200種 → 0.4%。大致而言，這表示每位科學家只能閱讀每年出版品中的0.4% (假設每種期刊一篇文章)

**“... Scientists need to read more in not much more time...”**



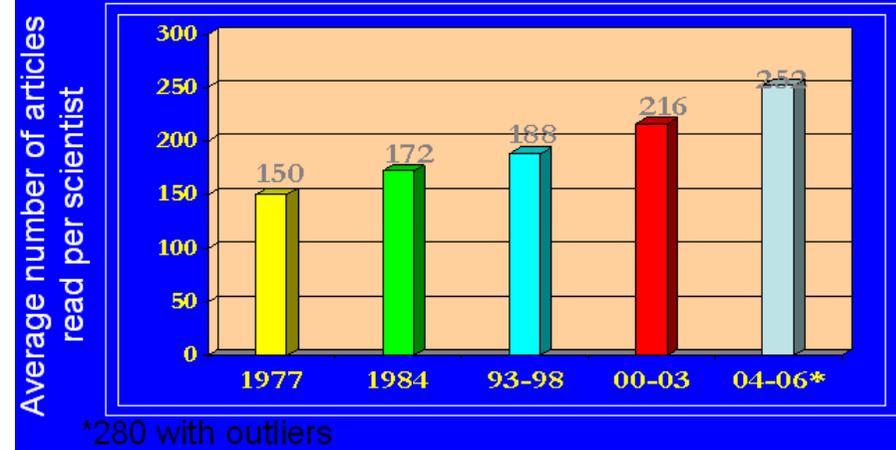
Tenopir & King... (1977~ present)

- **Subject experts read more in not much more time**

Average Time Spent and Number of Articles Read Per Year Person



Average Articles Read per year per University Faculty Member



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- 傳統搜尋方式的可信賴度
  - 根據關鍵字(Keyword)
  - 根據主題類型(subject category)
- 利用引證資訊增進檢索的效益
  - 引用參考資訊可視為作者創意來源的一種呈現
  - 直接引導至相關文獻
- 引證資訊的”衝擊”(impact)
  - 將被引用次數集中統計
  - 提供客觀評估研究影響力的參考指標
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Use of cellulose-based wastes for adsorption of dyes from aqueo

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**Author(s):** Annadurai G, Juang RS, Lee DJ

**Source:** JOURNAL OF HAZARDOUS MATERIALS **Volume:** 92 **Issue:** 3 **Pages:** 263-274

**Times Cited:** 153 **References:** 22 [Citation Map](#) *beta*

**Abstract:** Low-cost banana and orange peels were prepared as adsorbents for the adsorption varied. The adsorption capacities for both peels decreased in the order methyl orange (MO) > n violet (MV) > amido black 10B (AB). The isotherm data could be well described by the Freundlich. An alkaline pH was favorable for the adsorption of dyes. Based on the adsorption capacity, it was Kinetic parameters of adsorption such as the Lagergren rate constant and the intraparticle diffusion process intraparticle diffusion of dyes within the particle was identified to be rate limiting. Both removal of dyes from aqueous solutions. (C) 2002 Elsevier Science B.V. All rights reserved.

**Document Type:** Article

**Language:** English

**Author Keywords:** adsorption; dyes; banana and orange peels; isotherms; kinetics

**KeyWords Plus:** IMPREGNATED FLY-ASH; TEXTILE EFFLUENTS; COLOR REMOVAL; EQUILIBRIUM

**Reprint Address:** Juang, RS (reprint author), Yuan Ze Univ, Dept Chem Engr, Chungli 320, Taiwan

**Addresses:**

1. Yuan Ze Univ, Dept Chem Engr, Chungli 320, Taiwan

2. Natl Taiwan Univ, Dept Chem Engr, Taipei 106, Taiwan

AMSTERDAM, NETHERLANDS

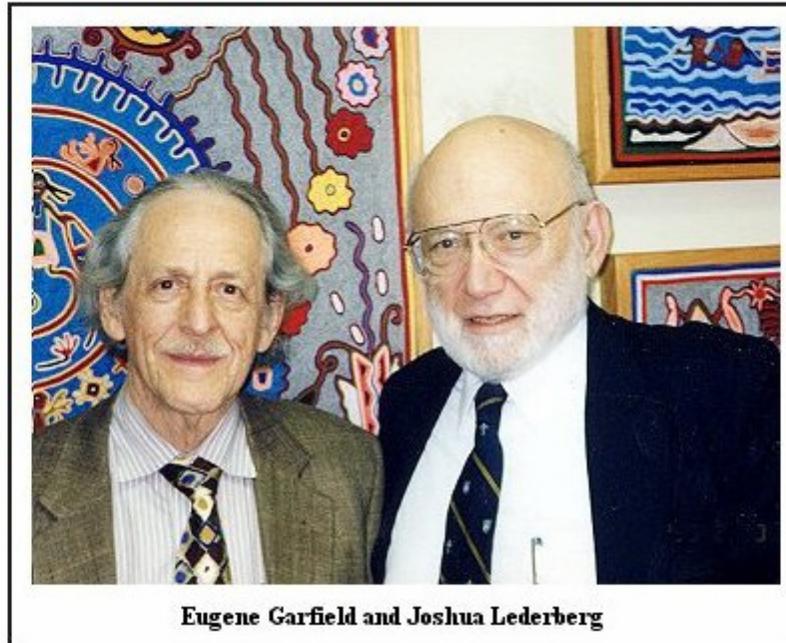
Civil; Environmental Sciences

資料的一致性與完整性確保了  
分析結果的可信度



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## Correspondence between Eugene Garfield and Joshua Lederberg from 1959-1965:



1959

<a href="#">May 9, 1959</a>	Lederberg to Garfield
<a href="#">May 21, 1959</a>	Garfield to Lederberg
<a href="#">June 18, 1959</a>	Lederberg to Garfield





## Joshua Lederberg

The Nobel Prize in Physiology or Medicine 1958

# 諾貝爾生理或醫學獎得主

## Biography



**Joshua Lederberg** was born in Montclair, N.J. on May 23, 1925. He was brought up in the Washington Heights District of Upper Manhattan, New York City, where he received his education in Public School 46, Junior High School 164 and Stuyvesant High School. From 1941 to 1944 he studied at Columbia College, where he obtained his B.A. with honours in Zoology (premedical course), and from 1944 to 1946 at the College of Physicians and Surgeons of Columbia University Medical School. Here he carried out part-time research with Professor F.J. Ryan in the Department of Zoology. Subsequently he went to the Department of Microbiology and Botany at Yale University, New Haven, Conn., as Research Fellow of the Jane Coffin Childs Fund for Medical Research and, during 1946-1947, as a graduate student with Professor [E.L. Tatum](#). He was awarded his Ph.D. degree in 1948.

In 1947, he was appointed Assistant Professor of Genetics at the University of Wisconsin, where he was promoted to Associate Professor in 1950 and Professor in 1954. He organized the Department of Medical Genetics in 1957, of which he was Chairman during 1957-1958.

Stanford University Medical School entrusted to him the organization of its Department of Genetics and appointed him Professor and Executive Head in 1959. Since 1962, he has been Director of the Kennedy Laboratories for Molecular Medicine.

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-  Tell a Friend

### The 1958 Prize in:

Medicine

 Prev. year  Next year 

### The Nobel Prize in Physiology or Medicine 1958

[Presentation Speech](#)

#### George Beadle

- [Biography](#)
- [Nobel Lecture](#)
- [Other Resources](#)

#### Edward Tatum

- [Biography](#)
- [Nobel Lecture](#)
- [Banquet Speech](#)
- [Other Resources](#)

#### Joshua Lederberg

- [Biography](#)**
- [Nobel Lecture](#)



MEMO FROM:

TO: Eugene Garfield

J. LEDERBERG

Genetics Department

Stanford University

Stanford, California

5/9/59

Since you first published your scheme for a "citation index" in *Science* about 4 years ago, I have been thinking very sincerely about it, and must admit I am completely sold. In the nature of my work I have to spend a fair amount of effort in reading the literature of collateral fields and it is infuriating how often I have been stumped in trying to update a topic, where your scheme would have been just the solution! I am sure your critics have simply not grasped the idea, and especially the point that the author must have to cooperate by his own choice of citations and then he does the critical work.

Have you tried to set this out in an adequate experiment? Would you look for support from the NSF? Of course you have to count on opposition from the established outfits, which have already succeeded in blocking any progressive centralization of the Augean tasks.

Sincerely,

Joshua Lederberg

MEMO FROM

J. LEDERBERG

GENETICS DEPARTMENT

STANFORD UNIVERSITY

STANFORD, CALIFORNIA

TO:

Eugene Garfield

TK

RC

RO

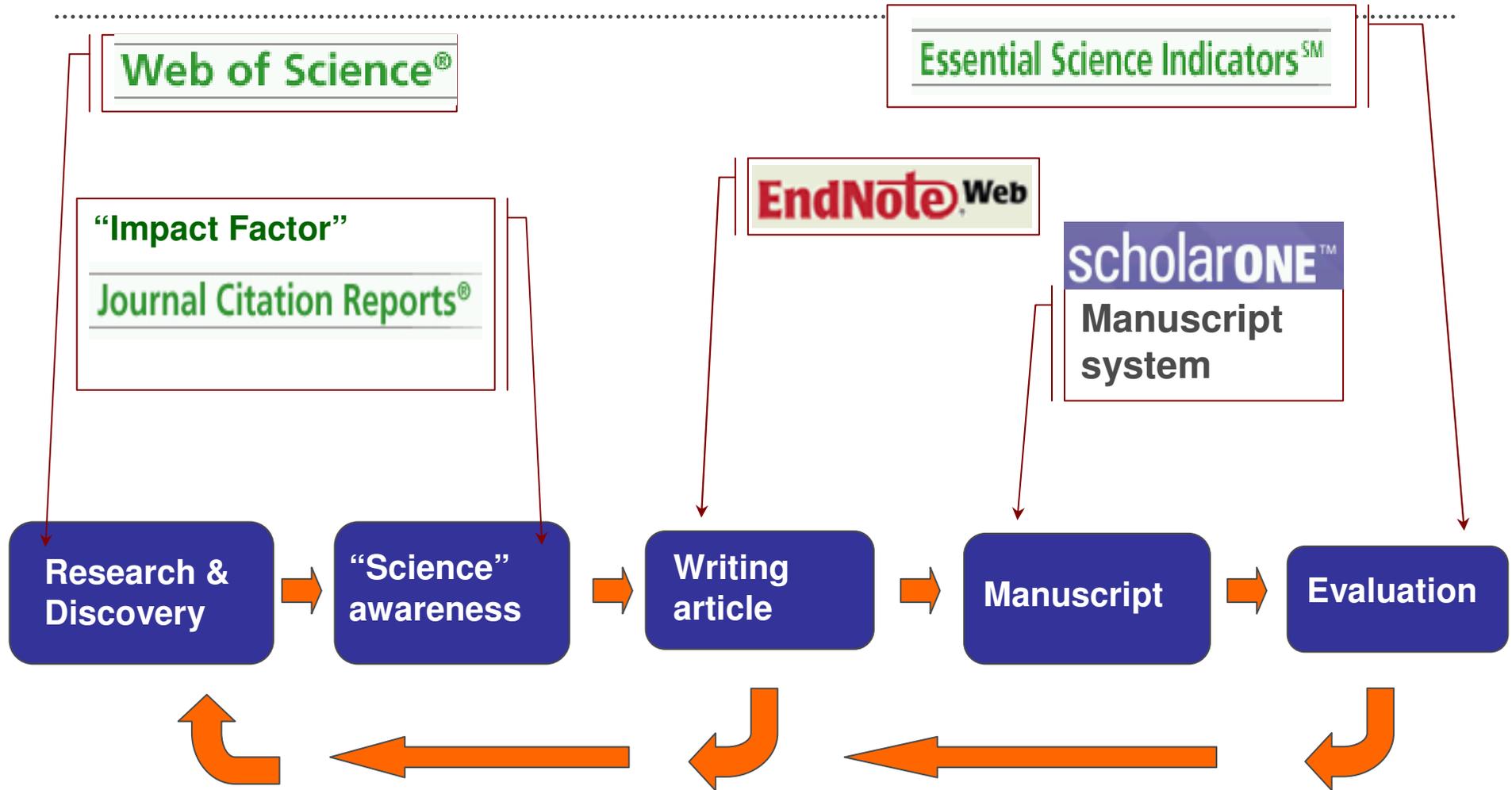
5/9/59.

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# 完整的學術資源, 更符合學術研究流程



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# Web of Science 活用技巧



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## A. 如何檢索個人文章發表情況

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- 以莊瑞鑫教授為例 (Juang, RS )

檢索小幫手:

在WoS中, 如以作者姓名檢索, 可以使用“**Author Finder**”功能搭配機構地址/名稱來檢索.

Results found : 此次檢索找到莊教授發表**215**篇文獻

Sum of the Times Cited : 莊教授215篇文獻被引用**3174**次; 移除自我引用後, 總共被引用**1985**次

Average Citations per Item : 莊教授每篇文章平均被引用**14.76**次

h-index : **31**; 表示莊教授有**31** 篇文章, 至少被引用 **31**次以上

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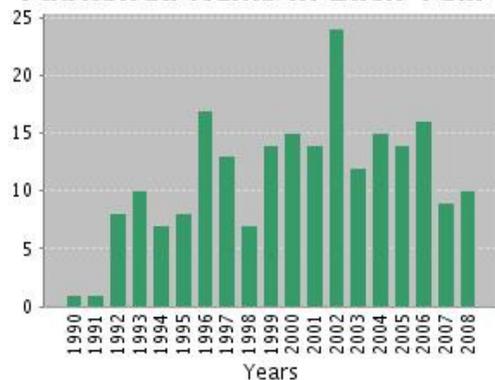
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### Citation Report

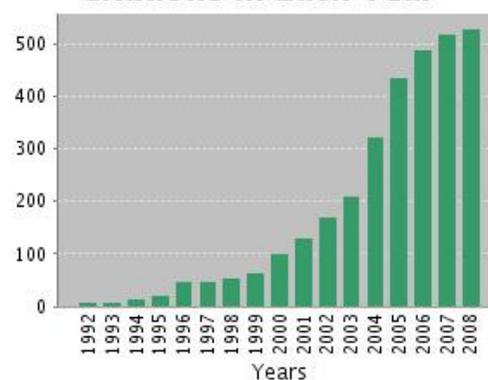
Address=("YUAN ZE UNIV" OR "YUAN ZE INST TECHNOL")  
Timespan=All Years. Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH.  
Refined by: Authors=( JUANG, RS )

This report reflects citations to source items indexed within Web of Science. Perform a Cited Reference Search to include citations to items not indexed within Web of Science.

Published Items in Each Year



Citations in Each Year



Results found: 215

Sum of the Times Cited [?]: 3,174

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Average Citations per Item [?]: 14.76

h-index [?]: 31



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獲選進入 **ESI** 高度被引用文章 (世界前 1%文章):

**Title: USE OF CELLULOSE-BASED WASTES FOR ADSORPTION OF DYES FROM  
AQUEOUS SOLUTIONS**

**Authors:ANNADURAI G; JUANG RS; LEE DJ**

**Source:J HAZARD MATER 92 (3): 263-274 JUN 10 2002**



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HIGHLY CITED PAPERS FOR (YUAN ZE UNIV)

Sorted by: Citations

1 - 8 (of 8) Page 1 of 1

1 **Citations: 146** 

**Title:** USE OF CELLULOSE-BASED WASTES FOR ADSORPTION OF DYES FROM AQUEOUS SOLUTIONS

**Authors:** ANNADURAI G; [JUANG RS](#); [LEE DJ](#)

**Source:** [J HAZARD MATER](#) 92 (3): 263-274 JUN 10 2002

**Addresses:** [Yuan Ze Univ](#), Dept Chem Engn, Chungli 320, [Taiwan](#).  
[Natl Taiwan Univ](#), Dept Chem Engn, Taipei 106, [Taiwan](#).

**Field:** [ENGINEERING](#)

Engineering		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	All Years
	0.01 %	552	389	341	423	272	215	167	101	70	23	14	270
	0.10 %	168	159	146	129	108	88	67	49	29	13	4	102
	1.00 %	58	55	53	48	42	35	29	20	12	6	2	37
	10.00 %	16	16	16	15	13	11	10	7	4	2	1	10
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	50.00 %	3	3	3	3	3	2	2	2	1	0	0	2

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Use of cellulose-based wastes for adsorption of dyes from aqueous solutions

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Save to EndNote<sup>®</sup>, RefMan, ProCite [more options](#)

Author(s): Annadurai G, Juang RS, Lee DJ

Source: JOURNAL OF HAZARDOUS MATERIALS Volume: 92 Issue: 3 Pages: 263-274 Published: JUN 10 2002

Times Cited: 153 **References: 22** [Citation Map](#) *beta*

**Abstract:** Low-cost banana and orange peels were prepared as adsorbents for the adsorption of dyes from aqueous solutions. Dye concentration and pH were varied. The adsorption capacities for both peels decreased in the order methyl orange (MO) > methylene blue (MB) > Rhodamine B (RB) > Congo red (CR) > methyl violet (MV) > amido black 10B (AB). The isotherm data could be well described by the Freundlich and Langmuir equations in the concentration range of 10-120 mg/l. An alkaline pH was favorable for the adsorption of dyes. Based on the adsorption capacity, it was shown that banana peel was more effective than orange peel. Kinetic parameters of adsorption such as the Lagergren rate constant and the intraparticle diffusion rate constant were determined. For the present adsorption process intraparticle diffusion of dyes was the rate controlling step. The adsorption removal of dyes from aqueous solution

Document Type: Article

Language: English

Author Keywords: adsorption; dyes; banana and orange peels

KeyWords Plus: IMPREGNATED FLY-ASH; TEXTILE EFFLUENT

Reprint Address: Juang, RS (reprint author), Yuan

<input checked="" type="checkbox"/>	7.	KHARE SK <a href="#">REMOVAL OF VICTORIA BLUE FROM AQUEOUS-SOLUTION BY FLY-ASH</a> JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY 38 : 95 1987
<input checked="" type="checkbox"/>	8.	MCKAY G <a href="#">ADSORPTION OF DYESTUFFS FROM AQUEOUS-SOLUTIONS WITH ACTIVATED CARBON .1. EQUILIBRIUM AND BATCH CONTACT-TIME STUDIES</a> JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY 32 : 759 1982
<input checked="" type="checkbox"/>	9.	MCKAY G <a href="#">EQUILIBRIUM STUDIES FOR THE ADSORPTION OF DYESTUFFS FROM AQUEOUS-SOLUTIONS BY LOW-COST MATERIALS</a> WATER AIR AND SOIL POLLUTION 29 : 273 1986
<input checked="" type="checkbox"/>	10.	NAMASIVAYAM C <a href="#">Removal of dyes from aqueous solutions by cellulosic waste orange peel</a> BIORESOURCE TECHNOLOGY 57 : 37 1996
<input checked="" type="checkbox"/>	11.	NAMASIVAYAM C <a href="#">REMOVAL OF CD(II) FROM WASTE-WATER BY ADSORPTION ON WASTE FE(III)/CR(III) HYDROXIDE</a> WATER RESEARCH 29 : 1737 1995
<input checked="" type="checkbox"/>	12.	NASSAR MM <a href="#">COMPARATIVE COST OF COLOR REMOVAL FROM TEXTILE EFFLUENTS USING NATURAL ADSORBENTS</a> JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY 50 : 257 1991
<input checked="" type="checkbox"/>	13.	NIGAM P <a href="#">Microbial process for the decolorization of textile effluent containing azo, diazo and reactive dyes</a> PROCESS BIOCHEMISTRY 31 : 435 1996
<input checked="" type="checkbox"/>	14.	POOTS VJP <a href="#">REMOVAL OF BASIC DYE FROM EFFLUENT USING WOOD AS AN ADSORBENT</a> JOURNAL WATER POLLUTION CONTROL FEDERATION 50 : 92 1978



# 透過 Citation Map 的功能, 以視覺化呈現參考文獻的學科領域, 年代等資料

Use of cellulose-based wastes for adsorption of dyes from aqueous solutions

1900 1925 1950 1975 2000 2008

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Record details for the nodes are displayed below (double-click a node to show its details). Click a checkbox below to locate that node above.

<input type="checkbox"/>	Primary Author	Journal Name	Article title
<input checked="" type="checkbox"/>	Demirbas, E	2008-BIORESOURCE TECHNOLOGY	Adsorption kinetics of a basic dye from aqueous solutions onto apricot stone activated carbon
<input type="checkbox"/>	Tekin, N	2006-MICROPOROUS AND MESOPOROUS MATERIALS	Surface properties of poly(vinylimidazole)-adsorbed expanded perlite
<input type="checkbox"/>	Senthilkumaar, S	2005-JOURNAL OF COLLOID AND INTERFACE SCIENCE	Adsorption of methylene blue onto jute fiber carbon: kinetics and equilibrium studies
<input type="checkbox"/>	Daneshvar, N	2008-JOURNAL OF ELECTROANALYTICAL CHEMISTRY	Electro-Fenton treatment of dye solution containing Orange II: Influence of operational parameters

Displaying 1 - 10 of 1122    << 1 2 3 4 5 >>    Display 10 Records per page

Use of cellulose-based wastes for adsorption of dyes from aqueous solutions

Number / Title: 125175324 / Use of cellulose-based wastes for adsorption of dyes from aqueous solutions

Journal Title: JOURNAL OF HAZARDOUS MATERIALS

Publication Year: 2002

Author: Annadurai, G

Group Author:

Source: J HAZARD MATER

fwdd

ADSORPTION OF POLYETHYLENE-GLYCOL FROM AQUEOUS-SOLUTION ON MONTMORILLONITE CLAYS

Authors: ZHAO, X; URANO, K; OGASAWARA, S

Journal title: COLLOID AND POLYMER SCIENCE

Volume: 267

Page: 899-906

Publish year: 1989

Document type: Article

Subject category: POLYMER SCIENCE

Language: English

Country: JAPAN

Institution: YOKOHAMA NATL UNIV

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## Use of cellulose-based wastes for adsorption of dyes from aqueous solutions

[Full Text](#)[Print](#)[E-mail](#)[Add to Marked List](#)[Save to EndNote<sup>®</sup> Web](#)[Save to EndNote<sup>®</sup>, RefMan, ProCite](#)[more options](#)**Author(s):** Annadurai G, Juang RS, Lee DJ**Source:** JOURNAL OF HAZARDOUS MATERIALS **Volume:** 92 **Issue:** 3 **Pages:** 263-274 **Published:** JUN 10 2002**Times Cited:** 153 **References:** 22 [Citation Map](#) *beta*

**Abstract:** Low-cost banana and orange peels were prepared as adsorbents for the adsorption of dyes from aqueous solutions. Dye concentration and pH were varied. The adsorption capacities for both peels decreased in the order methyl orange (MO) > methylene blue (MB) > Rhodamine B (RB) > Congo red (CR) > methyl violet (MV) > amido black 10B (AB). The isotherm data could be well described by the Freundlich and Langmuir equations in the concentration range of 10-120 mg/l. An alkaline pH was favorable for the adsorption of dyes. Based on the adsorption capacity, it was shown that banana peel was more effective than orange peel. Kinetic parameters of adsorption such as the Langergren rate constant and the intraparticle diffusion rate constant were determined. For the present adsorption process intraparticle diffusion of dyes within the particle was identified to be rate limiting. Both peel wastes were shown to be promising materials for adsorption removal of dyes from aqueous solutions. (C) 2002 Elsevier Science B.V. All rights reserved.

**Document Type:** Article**Language:** English**Author Keywords:** adsorption; dyes; banana and orange peels; isotherms; kinetics**KeyWords Plus:** IMPREGNATED FLY-ASH; TEXTILE EFFLUENTS; COLOR REMOVAL; EQUILIBRIUM; SORPTION; DYESTUFFS; ORANGE; WATER; CLAYS; PEEL**Reprint Address:** Juang, RS (reprint author), Yuan Ze Univ, Dept Chem Engrn, Chungli 320, Taiwan

# 發掘可能擴展的研究領域 – by Subject Category

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## Citing Articles

Title: [Use of cellulose-based wastes for adsorption of dyes from aqueous solutions](#)

Author(s): Annadurai, G

Source: **JOURNAL OF HAZARDOUS MATERIALS** Volume: 92 Issue: 3 Pages: 263-274 Published: JUN 10 2002

The above article has been cited by the articles listed below.

Note: The Times Cited count is calculated across all *Web of Science* editions. [More information.](#)

Results: **153**

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| <input type="checkbox"/> ENGINEERING, CHEMICAL (46)                | <input checked="" type="checkbox"/> WATER RESOURCES (8)       | <input type="checkbox"/> ENGINEERING, GEOLOGICAL (1)                       |
| <input type="checkbox"/> ENGINEERING, ENVIRONMENTAL (43)           | <input type="checkbox"/> BIOCHEMISTRY & MOLECULAR BIOLOGY (3) | <input type="checkbox"/> ENGINEERING, INDUSTRIAL (1)                       |
| <input type="checkbox"/> ENGINEERING, CIVIL (36)                   | <input type="checkbox"/> CHEMISTRY, MULTIDISCIPLINARY (3)     | <input type="checkbox"/> FOOD SCIENCE & TECHNOLOGY (1)                     |
| <input type="checkbox"/> CHEMISTRY, PHYSICAL (27)                  | <input type="checkbox"/> ENVIRONMENTAL STUDIES (3)            | <input type="checkbox"/> MATERIALS SCIENCE, MULTIDISCIPLINARY (1)          |
| <input type="checkbox"/> CHEMISTRY, APPLIED (24)                   | <input type="checkbox"/> GEOSCIENCES, MULTIDISCIPLINARY (2)   | <input type="checkbox"/> METEOROLOGY & ATMOSPHERIC SCIENCES (1)            |
| <input type="checkbox"/> BIOTECHNOLOGY & APPLIED MICROBIOLOGY (18) | <input type="checkbox"/> MULTIDISCIPLINARY SCIENCES (2)       | <input type="checkbox"/> NANOSCIENCE & NANOTECHNOLOGY (1)                  |
| <input type="checkbox"/> AGRICULTURAL ENGINEERING (12)             | <input checked="" type="checkbox"/> ACOUSTICS (1)             | <input checked="" type="checkbox"/> NUTRITION & DIETETICS (1)              |
| <input type="checkbox"/> ENERGY & FUELS (12)                       | <input type="checkbox"/> CHEMISTRY, ANALYTICAL (1)            | <input type="checkbox"/> RADIOLOGY, NUCLEAR MEDICINE & MEDICAL IMAGING (1) |
| <input type="checkbox"/> MATERIALS SCIENCE, TEXTILES (10)          |   |  |

Sort these by: **Record Count**

# 尋找出可能跨國合作對象 - by Country

## Citing Articles

Title: [Use of cellulose-based wastes for adsorption of dyes from aqueous solutions](#)

Author(s): Annadurai, G

Source: **JOURNAL OF HAZARDOUS MATERIALS** Volume: 92 Issue: 3 Pages: 263-274 Published: JUN 10 2002

The above article has been cited by the articles listed below.

Note: The Times Cited count is calculated across all *Web of Science* editions. [More information](#).

Results: **153**

Sort by: Latest Date

### Refine Results

Search within results for

#### Subject Areas

- ENVIRONMENTAL SCIENCES (58)
- ENGINEERING, CHEMICAL (46)
- ENGINEERING, ENVIRONMENTAL (43)
- ENGINEERING, CIVIL (36)
- CHEMISTRY, PHYSICAL (27)

[more options / values...](#)

#### Document Types

- ARTICLE (144)
- PROCEEDINGS PAPER (5)

### Countries/Territories

Sort these by: Record Count

The first 100 Countries/Territories (by record count) are shown. For advanced refine options, use [Analyze results](#).

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> INDIA (36)           | <input type="checkbox"/> BELGIUM (3)   | <input type="checkbox"/> SPAIN (2)         |
| <input type="checkbox"/> TURKEY (36)          | <input type="checkbox"/> BRAZIL (3)    | <input type="checkbox"/> USA (2)           |
| <input type="checkbox"/> PEOPLES R CHINA (15) | <input type="checkbox"/> GERMANY (3)   | <input type="checkbox"/> ALGERIA (1)       |
| <input type="checkbox"/> TAIWAN (15)          | <input type="checkbox"/> GREECE (3)    | <input type="checkbox"/> SAUDI ARABIA (1)  |
| <input type="checkbox"/> EGYPT (6)            | <input type="checkbox"/> ROMANIA (3)   | <input type="checkbox"/> ITALY (1)         |
| <input type="checkbox"/> IRAN (6)             | <input type="checkbox"/> AUSTRALIA (2) | <input type="checkbox"/> NORTH IRELAND (1) |
| <input type="checkbox"/> MALAYSIA (6)         | <input type="checkbox"/> CAMEROON (2)  | <input type="checkbox"/> SAUDI ARABIA (1)  |
| <input type="checkbox"/> FRANCE (5)           | <input type="checkbox"/> MEXICO (2)    | <input type="checkbox"/> SERBIA (1)        |
| <input type="checkbox"/> TUNISIA (5)          | <input type="checkbox"/> QATAR (2)     | <input type="checkbox"/> SWEDEN (1)        |
| <input type="checkbox"/> JORDAN (4)           |  |  |

Sort these by: Record Count



# 以“Related Records”的觀念尋找潛在的研究方向

**Related Records** Title: [Use of cellulose-based wastes for adsorption of dyes from aqueous solutions](#)  
Author(s): Annadurai, G  
Source: JOURNAL OF HAZARDOUS MATERIALS Volume: 92 Issue: 3 Pages: 263-274 Published: JUN 10 2002  
Cited References: 22 Selected References: 22

The records listed below are related to the above record based on common references.

Results: **1435** Page 1 of 144 Go Sort by: Relevance

Print E-mail Add to Marked List Save to EndNote Web Save to EndNote, RefMan, ProCite more options Analyze Results

**Refine Results**  
Search within results for [ ] Search

**Subject Areas** Refine

- ENGINEERING, CHEMICAL (468)
- ENVIRONMENTAL SCIENCES (463)
- ENGINEERING, ENVIRONMENTAL (312)
- BIOTECHNOLOGY & APPLIED MICROBIOLOGY (218)
- CHEMISTRY, PHYSICAL (196)

[more options / values...](#)

**Document Types** Refine

- ARTICLE (1,299)
- REVIEW (65)
- PROCEEDINGS PAPER (63)
- NOTE (3)
- LETTER (2)

[more options / values...](#)

1. Title: [Use of activated carbons prepared from sawdust and rice-husk for adsorption of acid dyes: a case study of Acid Yellow 36](#)  
Author(s): Malik PK  
Source: **DYES AND PIGMENTS** Volume: 56 Issue: 3 Pages: 239-249 Published: **MAR 2003**  
Times Cited: **109**  
[Full Text](#)

2. Title: [The ability of activated clay for the adsorption of dyes from aqueous solutions](#)  
Author(s): Juang RS, Wu FC, Tseng RL  
Source: **ENVIRONMENTAL TECHNOLOGY** Volume: 18 Issue: 5 Pages: 525-531 Published: **MAY 1997**  
Times Cited: **63**  
[Full Text](#)

3. Title: [Adsorption of Rhodamine 6G from aqueous solutions on activated carbon](#)  
Author(s): Annadurai G, Juang RS, Lee DJ  
Source: **JOURNAL OF ENVIRONMENTAL SCIENCE AND HEALTH PART A-TOXIC/HAZARDOUS SUBSTANCES & ENVIRONMENTAL ENGINEERING** Volume: 36 Issue: 5 Pages: 715-725 Published: 2001  
Times Cited: **6**  
[Full Text](#)

Cited Refs	Shared Refs
33	15
24	9
25	7

## Subject Areas

Refine

Exclude

Cancel

Sort these by: Record Count

The first 100 Subject Areas (by record count) are shown. For advanced refine options, use [Analyze results](#).

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> ENGINEERING, CHEMICAL (468)                | <input type="checkbox"/> NANOSCIENCE & NANOTECHNOLOGY (8)                     | <input type="checkbox"/> PEDIATRICS (2)                                    |
| <input type="checkbox"/> ENVIRONMENTAL SCIENCES (463)               | <input type="checkbox"/> PHYSICS, APPLIED (8)                                 | <input type="checkbox"/> PHARMACOLOGY & PHARMACY (2)                       |
| <input type="checkbox"/> ENGINEERING, ENVIRONMENTAL (312)           | <input type="checkbox"/> MICROBIOLOGY (6)                                     | <input type="checkbox"/> RADIOLOGY, NUCLEAR MEDICINE & MEDICAL IMAGING (2) |
| <input type="checkbox"/> BIOTECHNOLOGY & APPLIED MICROBIOLOGY (218) | <input type="checkbox"/> AGRICULTURE, MULTIDISCIPLINARY (5)                   | <input type="checkbox"/> SURGERY (2)                                       |
| <input type="checkbox"/> CHEMISTRY, PHYSICAL (196)                  | <input type="checkbox"/> MATERIALS SCIENCE, PAPER & WOOD (5)                  | <input type="checkbox"/> UROLOGY & NEPHROLOGY (2)                          |
| <input type="checkbox"/> CHEMISTRY, MULTIDISCIPLINARY (181)         | <input type="checkbox"/> METALLURGY & METALLURGICAL ENGINEERING (5)           | <input type="checkbox"/> ACOUSTICS (1)                                     |
| <input type="checkbox"/> ENGINEERING, CIVIL (181)                   | <input type="checkbox"/> PHYSICS, ATOMIC, MOLECULAR & CHEMICAL (5)            | <input type="checkbox"/> BIOCHEMICAL RESEARCH METHODS (1)                  |
| <input type="checkbox"/> CHEMISTRY, APPLIED (142)                   | <input type="checkbox"/> PUBLIC, ENVIRONMENTAL & OCCUPATIONAL HEALTH (5)      | <input type="checkbox"/> BIOPHYSICS (1)                                    |
| <input type="checkbox"/> WATER RESOURCES (134)                      | <input type="checkbox"/> TOXICOLOGY (5)                                       | <input type="checkbox"/> CELL BIOLOGY (1)                                  |
| <input type="checkbox"/> ENERGY & FUELS (85)                        | <input type="checkbox"/> COMPUTER SCIENCE, INTERDISCIPLINARY APPLICATIONS (4) | <input type="checkbox"/> COMPUTER SCIENCE, INFORMATION SYSTEMS (1)         |
| <input type="checkbox"/> AGRICULTURAL ENGINEERING (77)              | <input type="checkbox"/> ECOLOGY (4)  | <input type="checkbox"/> ENGINEERING, MULTIDISCIPLINARY (1)                |
| <input type="checkbox"/> POLYMER SCIENCE (58)                       | <input type="checkbox"/> ENGINEERING, BIOMEDICAL (4)                          | <input type="checkbox"/> ENGINEERING, PETROLEUM (1)                        |
| <input type="checkbox"/> MATERIALS SCIENCE, TEXTILES (50)           | <input type="checkbox"/> PHYSICS, CONDENSED MATTER (4)                        | <input type="checkbox"/> ENTOMOLOGY (1)                                    |
| <input type="checkbox"/> BIOCHEMISTRY & MOLECULAR BIOLOGY (41)      | <input type="checkbox"/> SOIL SCIENCE (4)                                     | <input type="checkbox"/> INFECTIOUS DISEASES (1)                           |
| <input type="checkbox"/> MATERIALS SCIENCE, MULTIDISCIPLINARY (33)  | <input type="checkbox"/> GEOSCIENCES, MULTIDISCIPLINARY (3)                   | <input type="checkbox"/> INFORMATION SCIENCE & LIBRARY SCIENCE (1)         |
| <input type="checkbox"/> CHEMISTRY, ANALYTICAL (28)                 | <input type="checkbox"/> MARINE & FRESHWATER BIOLOGY (3)                      | <input type="checkbox"/> INSTRUMENTS & INSTRUMENTATION (1)                 |
| <input type="checkbox"/> NUCLEAR SCIENCE & TECHNOLOGY (21)          | <input type="checkbox"/> AGRONOMY (2)   | <input type="checkbox"/> MATERIALS SCIENCE, CERAMICS (1)                   |
| <input type="checkbox"/> LIMNOLOGY (20)                             | <input type="checkbox"/> CHEMISTRY, ORGANIC (2)                               | <input type="checkbox"/> MATERIALS SCIENCE, COMPOSITES (1)                 |
| <input type="checkbox"/> CHEMISTRY, INORGANIC & NUCLEAR (19)        | <input type="checkbox"/> MATERIALS SCIENCE, BIOMATERIALS (2)                  | <input type="checkbox"/> MECHANICS (1)                                     |
| <input type="checkbox"/> MINERALOGY (17)                            | <input type="checkbox"/> MATERIALS SCIENCE, COATINGS & FILMS (2)              | <input type="checkbox"/> MEDICAL LABORATORY TECHNOLOGY (1)                 |
| <input type="checkbox"/> METEOROLOGY & ATMOSPHERIC SCIENCES (15)    | <input type="checkbox"/> MATHEMATICAL & COMPUTATIONAL BIOLOGY (2)             | <input type="checkbox"/> MEDICINE, RESEARCH & EXPERIMENTAL (1)             |
| <input type="checkbox"/> FOOD SCIENCE & TECHNOLOGY (13)             | <input type="checkbox"/> MEDICAL INFORMATICS (2)                              | <input type="checkbox"/> PHYSICS, NUCLEAR (1)                              |
| <input type="checkbox"/> ENGINEERING, INDUSTRIAL (12)               | <input type="checkbox"/> MEDICINE, GENERAL & INTERNAL (2)                     | <input type="checkbox"/> PLANT SCIENCES (1)                                |
| <input type="checkbox"/> MULTIDISCIPLINARY SCIENCES (11)            | <input type="checkbox"/> MINING & MINERAL PROCESSING (2)                      | <input type="checkbox"/> REMOTE SENSING (1)                                |
| <input type="checkbox"/> ENVIRONMENTAL STUDIES (10)                 | <input type="checkbox"/> NUTRITION & DIETETICS (2)                            | <input type="checkbox"/> THERMODYNAMICS (1)                                |



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# 進入 JCR 查詢期刊的 Impact Factor (IF 值)

ISI Web of Knowledge<sup>SM</sup>

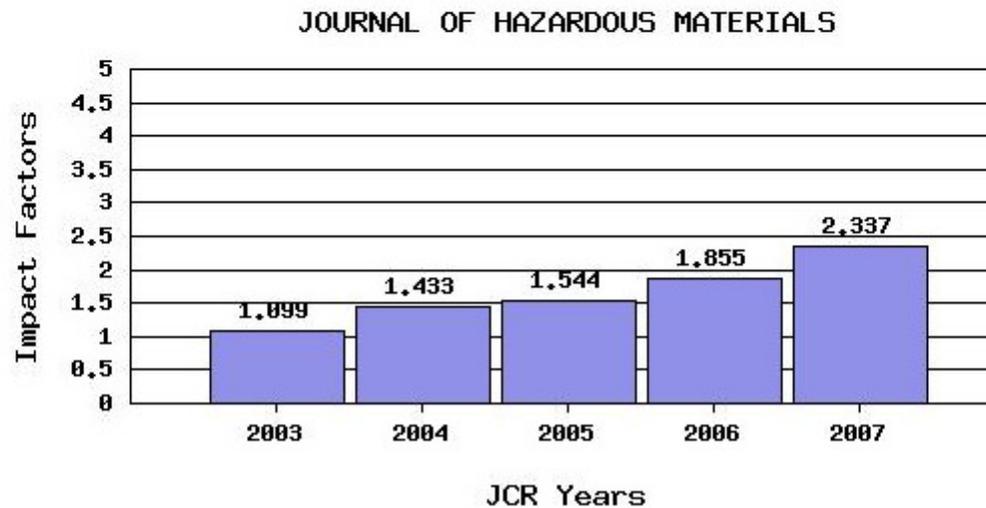
Journal Citation Reports<sup>®</sup>



2007 JCR Science Edition

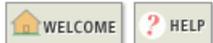
## Impact Factor Trend Graph: JOURNAL OF HAZARDOUS MATERIALS

Click on the "Return to Journal" button to view the full journal information.



# 從JCR確認本期刊在該學科領域中的排名, 並了解未來投稿目標

## Journal Citation Reports®



2007 JCR Science

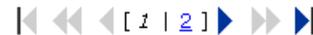
### Journal Summary List

[Journal Title](#)

Journals from: **subject categories ENGINEERING, ENVIRONMENTAL** [VIEW CATEGORY SUMMARY LIST](#)

Sorted by:  [SORT AGAIN](#)

Journals 1 - 20 (of 37)



Pag

[MARK ALL](#) [UPDATE MARKED LIST](#)

Ranking is based on your journal and sort selections.

Mark	Rank	Abbreviated Journal Title <i>(linked to journal information)</i>	ISSN	Total Cites	Impact Factor	Immediacy Index	Articles	Cited Half-life
<input type="checkbox"/>	1	<a href="#">APPL CATAL B-ENVIRON</a>	0926-3373	10376	4.651	0.666	356	4.9
<input type="checkbox"/>	2	<a href="#">ENVIRON SCI TECHNOL</a>	0013-936X	51326	4.363	0.615	1202	6.2
<input type="checkbox"/>	3	<a href="#">WATER RES</a>	0043-1354	23992	3.427	0.353	485	6.9
<input type="checkbox"/>	4	<a href="#">INDOOR AIR</a>	0905-6947	1272	2.887	0.524	42	4.7
<input type="checkbox"/>	5	<a href="#">J HAZARD MATER</a>	0304-3894	6521	2.337	0.277	1039	3.6
<input type="checkbox"/>	6	<a href="#">ECOL ENG</a>	0925-8574	1786	2.175	0.384	112	5.8
<input type="checkbox"/>	7	<a href="#">ENVIRON MODELL SOFTW</a>	1364-8152	1748	2.099	0.976	165	3.4
<input type="checkbox"/>	8	<a href="#">INT J LIFE CYCLE ASS</a>	0948-3349	772	1.607	0.712	66	4.6
<input type="checkbox"/>	9	<a href="#">J AIR WASTE MANAGE</a>	1047-3289	3197	1.523	0.200	135	7.3

## B. 如何運用主題檢索

發展國際一流大學及頂尖研究中心計畫 | ENGLISH

元智大學 燃料電池中心  
Yuan Ze Fuel Cell Center

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關鍵字： GO

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■ 2008-08-01: 2008燃料電池國際研討會—廠商展覽資訊

...: [相關辦法及表格]

[2008燃料電池國際研討會廠商展覽資訊] 日期: 2008年9月25日、26日地點: 元普..

■ 2008-07-30: 2008燃料電池國際研討會

...: [活動頁面] [研討會海報]

Welcome to the 2008 International Fuel Cell Symposium! The symposium has been held annually since 200...

■ 2008-07-23: 隋邦傑教授開授短期課程

...: [終身教育部] [課程資料]

Course title: Transport Phenomena in PEM

關於我們 About Us MORE

西元2000年, 由前校長暨元智大學遠東能源講座教授一詹世弘 博士帶領下, 並由經濟部能源委員會 (即現今之能源局) 能源科技研究發展計畫五年研發經...

近期活動 Active Message MORE

9704燃料電池人才培育研習課程 (產業應用分析)

活動期間: 2008-04-29起 ~ 2008-05-08止

活動地點: 依各課程公告地點

目前狀態: 成果發表

# 尋找目前最具影響力的相關文獻

## 範例: Fuel cell (1997年至今)

以 Time Cited 排序

Web of Science® – now with Conference Proceedings

**Results** Topic=(fuel cell)  
Timespan=1997-2008. Databases=SCI-EXPANDED, SSCI, A&HCI.

Results: **15890** Page 1 of 1589

Sort by: Times Cited

Print E-mail Add to Marked List Save to EndNote® Web Save to EndNote®, RefMan, ProCite more options Analyze Results Citation Report feature not available. [?]

### Refine Results

Search within results for

**Subject Areas**

- ELECTROCHEMISTRY (6,262)
- ENERGY & FUELS (4,731)
- CHEMISTRY, PHYSICAL (2,848)
- MATERIALS SCIENCE, MULTIDISCIPLINARY (1,606)
- ENGINEERING, CHEMICAL (1,590)

**Document Types**

- ARTICLE (11,806)
- PROCEEDINGS PAPER (2,812)
- REVIEW (505)
- NEWS ITEM (351)
- MEETING ABSTRACT (207)

**Authors**

**Source Titles**

**Publication Years**

**Conference Titles**

- Title: [Storage of hydrogen in single-walled carbon nanotubes](#)  
Author(s): Dillon AC, Jones KM, Bekkedahl TA, et al.  
Source: **NATURE** Volume: **386** Issue: **6623** Pages: **377-379** Published: **MAR 27 1997**  
Times Cited: **1,659**  
[Full Text](#)
- Title: [Carbon nanotubule membranes for electrochemical energy storage and production](#)  
Author(s): Che GL, Lakshmi BB, Fisher ER, et al.  
Source: **NATURE** Volume: **393** Issue: **6683** Pages: **346-349** Published: **MAY 28 1998**  
Times Cited: **768**  
[Full Text](#)
- Title: [Materials for fuel-cell technologies](#)  
Author(s): Steele BCH, Heinzel A  
Source: **NATURE** Volume: **414** Issue: **6861** Pages: **345-352** Published: **NOV 15 2001**  
Times Cited: **691**  
[Full Text](#)
- Title: [The AMP-activated/SNF1 protein kinase subfamily: Metabolic sensors of the eukaryotic cell?](#)  
Author(s): Hardie DG, Carling D, Carlson M  
Source: **ANNUAL REVIEW OF BIOCHEMISTRY** Volume: **67** Pages: **821-855** Published: **1998**  
Times Cited: **640**  
[Full Text](#)
- Title: [Ordered nanoporous arrays of carbon supporting high dispersions of platinum nanoparticles](#)  
Author(s): Joo SH, Choi SJ, Oh I, et al.  
Source: **NATURE** Volume: **412** Issue: **6843** Pages: **169-172** Published: **JUL 12 2001**  
Times Cited: **612**  
[Full Text](#)

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# “Analyze Results” - 分析發表文獻機構

[<<< Back to results list](#)

## Analyze Results

15,890 records. Topic=(fuel cell)

Rank the records by this field:	Analyze:	Set display options:	Sort by:
Institution Name ▲ Language Publication Year Source Title ▼	Up to <input type="text" value="100000"/> records.	Show the top <input type="text" value="50"/> results. Minimum record count (threshold): <input type="text" value="2"/>	<input checked="" type="radio"/> Record count <input type="radio"/> Selected field

Analyze

Use the checkboxes below to view the records. You can choose to view those selected records, or you can exclude them ( and view the others).

**Note:** The number of records displayed may be greater than the listed Record Count if the original set contained more records than the number of records analyzed.

<input type="checkbox"/> View Records <input checked="" type="checkbox"/> Exclude Records	Field: Institution Name	Record Count	% of 15890	Bar Chart	Save Analysis Data to File
<input type="checkbox"/>	CHINESE ACAD SCI	522	3.2851 %	■	
<input type="checkbox"/>	PENN STATE UNIV	231	1.4537 %		
<input type="checkbox"/>	NATL INST ADV IND SCI & TECHNOLOG	205	1.2901 %		
<input type="checkbox"/>	KOREA INST SCI & TECHNOLOG	169	1.0636 %		
<input type="checkbox"/>	KFA JULICH GMBH	165	1.0384 %		
<input type="checkbox"/>	HARBIN INST TECHNOLOG	141	0.8874 %		
<input type="checkbox"/>	NATL RES COUNCIL CANADA	138	0.8685 %		
<input type="checkbox"/>	TOKYO INST TECHNOLOG	138	0.8685 %		
<input type="checkbox"/>	TSING HUA UNIV	136	0.8559 %		
<input type="checkbox"/>	CSIC	135	0.8496 %		



## “Analyze Results” - 分析各國對相關主題之研究

<input type="checkbox"/> View Records	Field: Country/Territory	Record Count	% of 15890	Bar Chart	<input type="checkbox"/> Exclude Records	Save Analysis Data to File
<input type="checkbox"/>	USA	4156	26.1548 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	JAPAN	1997	12.5677 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	PEOPLES R CHINA	1930	12.1460 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	GERMANY	1168	7.3505 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SOUTH KOREA	1079	6.7904 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	CANADA	881	5.5444 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	ENGLAND	652	4.1032 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	FRANCE	600	3.7760 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	ITALY	571	3.5935 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	TAIWAN	499	3.1403 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	INDIA	391	2.4607 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SPAIN	326	2.0516 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SWEDEN	283	1.7810 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SWITZERLAND	244	1.5356 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	BRAZIL	236	1.4852 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	NETHERLANDS	217	1.3656 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	RUSSIA	193	1.2146 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	SINGAPORE	193	1.2146 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	AUSTRALIA	167	1.0510 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	DENMARK	164	1.0321 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	GREECE	136	0.8559 %		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	POLAND	114	0.7174 %		<input type="checkbox"/>	<input type="checkbox"/>

# “Analyze Results” - 分析Fuel Cell相關文獻所分布的研究主題

<input type="button" value="View Records"/> <input type="button" value="Exclude Records"/>		Field: Subject Area	Record Count	% of 15890	Bar Chart	<input type="button" value="Save Analysis Data to File"/>
<input type="checkbox"/>		ELECTROCHEMISTRY	6262	39.4084 %		
<input type="checkbox"/>		ENERGY & FUELS	4731	29.7734 %		
<input type="checkbox"/>		CHEMISTRY, PHYSICAL	2848	17.9232 %		
<input type="checkbox"/>		MATERIALS SCIENCE, MULTIDISCIPLINARY	1606	10.1070 %		
<input type="checkbox"/>		ENGINEERING, CHEMICAL	1590	10.0063 %		
<input type="checkbox"/>		MATERIALS SCIENCE, COATINGS & FILMS	999	6.2870 %		
<input type="checkbox"/>		ENVIRONMENTAL SCIENCES	959	6.0352 %		
<input type="checkbox"/>		CHEMISTRY, MULTIDISCIPLINARY	858	5.3996 %		
<input type="checkbox"/>		PHYSICS, CONDENSED MATTER	837	5.2675 %		
<input type="checkbox"/>		POLYMER SCIENCE	693	4.3612 %		
<input type="checkbox"/>		PHYSICS, ATOMIC, MOLECULAR & CHEMICAL	692	4.3549 %		
<input type="checkbox"/>		ENGINEERING, MECHANICAL	419	2.6369 %		
<input type="checkbox"/>		MATERIALS SCIENCE, CERAMICS	401	2.5236 %		
<input type="checkbox"/>		THERMODYNAMICS	380	2.3914 %		
<input type="checkbox"/>		ENGINEERING, ELECTRICAL & ELECTRONIC	378	2.3789 %		
<input type="checkbox"/>		PHYSICS, APPLIED	367	2.3096 %		
<input type="checkbox"/>		CHEMISTRY, APPLIED	335	2.1082 %		
<input type="checkbox"/>		NUCLEAR SCIENCE & TECHNOLOGY	311	1.9572 %		
<input type="checkbox"/>		BIOTECHNOLOGY & APPLIED MICROBIOLOGY	299	1.8817 %		
<input type="checkbox"/>		METALLURGY & METALLURGICAL ENGINEERING	295	1.8565 %		
<input type="checkbox"/>		CHEMISTRY, ANALYTICAL	286	1.7999 %		

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# h-index 介紹



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# h-index: 由 Dr. Jorge E. Hirsch 於 2005 年所提出的指標

US PNAS PNAS

## An index to quantify an individual's scientific research output

J. E. Hirsch\*

Department of Physics, University of California at San Diego, La Jolla, CA 92093-0319

Communicated by Manuel Cardona, Max Planck Institute for Solid State Research, Stuttgart, Germany, September 1, 2005 (received for review August 15, 2005)

I propose the index  $h$ , defined as the number of papers with citation number  $\geq h$ , as a useful index to characterize the scientific output of a researcher.

citations | impact | unbiased

For the few scientists who earn a Nobel prize, the impact and relevance of their research is unquestionable. Among the rest of us, how does one quantify the cumulative impact and relevance of an individual's scientific research output? In a world of limited resources, such quantification (even if potentially distasteful) is often needed for evaluation and comparison purposes (e.g., for university faculty recruitment and advancement, award of grants, etc.).

The publication record of an individual and the citation record

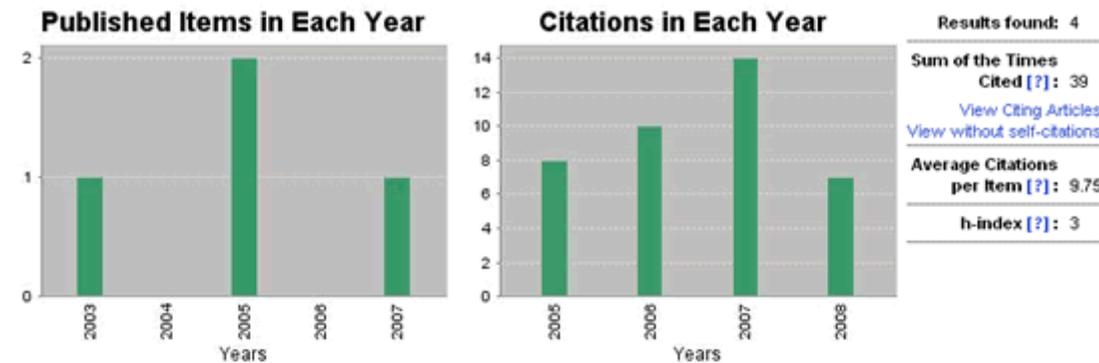
- (i) Total number of papers ( $N_p$ ). Advantage: measures productivity. Disadvantage: does not measure importance or impact of papers.
- (ii) Total number of citations ( $N_{c,tot}$ ). Advantage: measures total impact. Disadvantage: hard to find and may be inflated by a small number of "big hits," which may not be representative of the individual if he or she is a coauthor with many others on those papers. In such cases, the relation in Eq. 1 will imply a very atypical value of  $a$ ,  $>5$ . Another disadvantage is that  $N_{c,tot}$  gives undue weight to highly cited review articles versus original research contributions.
- (iii) Citations per paper (i.e., ratio of  $N_{c,tot}$  to  $N_p$ ). Advantage: allows comparison of scientists of different ages. Disadvantage: hard to find, rewards low productivity, and penalizes high productivity.

(iv) Number of "significant papers" defined as the number of



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*The h-index was developed by J.E. Hirsch and published in Proceedings of the National Academy of Sciences of the United States of America 102 (46): 16569-16572 November 15 2005.*



Results found: 4

Sum of the Times Cited [?]: 39

[View Citing Articles](#)

[View without self-citations](#)

Average Citations per Item [?]: 9.75

h-index [?]: 3

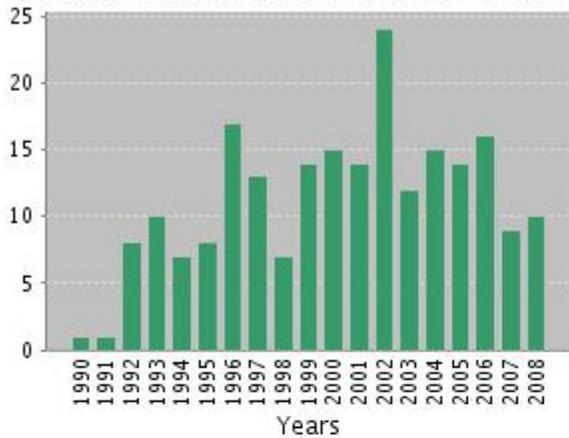
Results: 4 Page 1 of 1 Go Sort by: Times Cited

	2004	2005	2006	2007	2008	Total	Average Citations per Year
<input type="checkbox"/> 1. Title: <a href="#">Automated water analyser computer supported system (AWACSS) Part I: Project objectives, basic technology, immunoassay development, software design and networking</a> Author(s): Tschmelak J, Proll G, Riedt J, et al. Source: <b>BIOSENSORS &amp; BIOELECTRONICS</b> Volume: 20 Issue: 8 Pages: 1499-1508 Published: FEB 15 2005	0	4	5	6	3	18	4.50
<input type="checkbox"/> 2. Title: <a href="#">Automated water analyser computer supported system (AWACSS) Part II: Intelligent, remote-controlled, cost-effective, on-line, water-monitoring measurement system</a> Author(s): Tschmelak J, Proll G, Riedt J, et al. Source: <b>BIOSENSORS &amp; BIOELECTRONICS</b> Volume: 20 Issue: 8 Pages: 1509-1519 Published: FEB 15 2005	0	3	3	7	2	15	3.75
<input type="checkbox"/> 3. Title: <a href="#">Monitoring freshwater sediments</a> Author(s): Alcock S, Barcelo D, Hansen PD Source: <b>BIOSENSORS &amp; BIOELECTRONICS</b> Volume: 18 Issue: 8 Pages: 1077-1083 Published: AUG 1 2003	0	1	2	1	0	4	0.67
<input type="checkbox"/> 4. Title: <a href="#">Bioreporters: gfp versus lux revisited and single-cell response</a> Author(s): Kohlmeier S, Mancuso M, Tecon R, et al. Source: <b>BIOSENSORS &amp; BIOELECTRONICS</b> Volume: 22 Issue: 8 Pages: 1578-1585 Published: MAR 15 2007	0	0	0	0	2	2	1.00

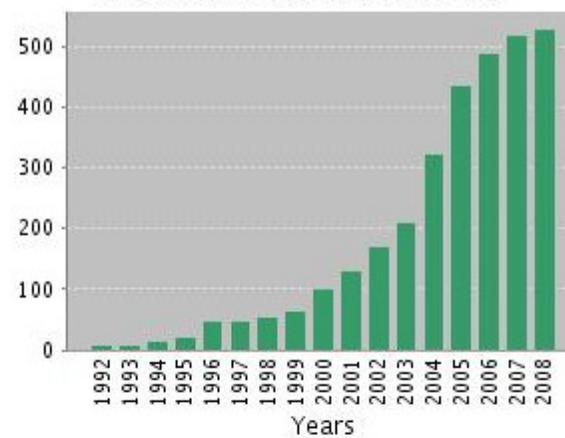
將作者歷年來所有著作依照被引用次數高至低的順序排序，當文章數小於或等於被引用次數時，即為該作者的h-index值

**h-index : 31; 表示莊教授有31 篇文章至少被引用 31次以上**

**Published Items in Each Year**



**Citations in Each Year**



Results found: 215

Sum of the Times Cited [?]: 3,174

[View Citing Articles](#)

[View without self-citations](#)

Average Citations per Item [?]: 14.76

**h-index [?]: 31**

Results: 215

Page 4 of 22 Go

Sort by: Times Cited

	2004	2005	2006	2007	2008	Total	Average Citations per Year
<input type="checkbox"/> Use the checkboxes to remove individual items from this Citation Report or restrict to items processed between 1900-1914 and 2008 Go	324	435	490	518	527	3,174	176.33
<input checked="" type="checkbox"/> 31. Title: METAL SORPTION WITH EXTRACTANT-IMPREGNATED MACROPOROUS RESINS .2. CHEMICAL-REACTION AND PARTICLE DIFFUSION KINETICS Author(s): JUANG RS, LIN HC Source: JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY Volume: 62 Issue: 2 Pages: 141-147 Published: FEB 1995	4	0	3	3	6	31	2.21
<input type="checkbox"/> 32. Title: Use of chemically modified chitosan beads for sorption and enzyme immobilization Author(s): Juang RS, Wu FC, Tseng RL Source: ADVANCES IN ENVIRONMENTAL RESEARCH Volume: 6 Issue: 2 Pages: 171-177 Published: MAR 2002	3	10	5	6	6	30	4.29



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## h-index 的廣泛應用

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- 作者本身的表現 (individual level)
  - h-index 的初始運用範圍
- 機構的整體表現 (institution level)
  - 例如: 高等教育評鑑基金會在「世界大學科研論文質量評比計畫」中, 首度應用h-index 於校級評量
- 國家整體表現 (country level)

# Outline

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- 引文資料庫的應用與實例說明
  - Web of Science 活用技巧
  - H-index 介紹
- 如何使用引文資料庫做學術評鑑
  - 不同角度呈現不同評鑑結果
  - 以元智大學為例
- 結論



## 量化分析 vs. 同儕評論

---

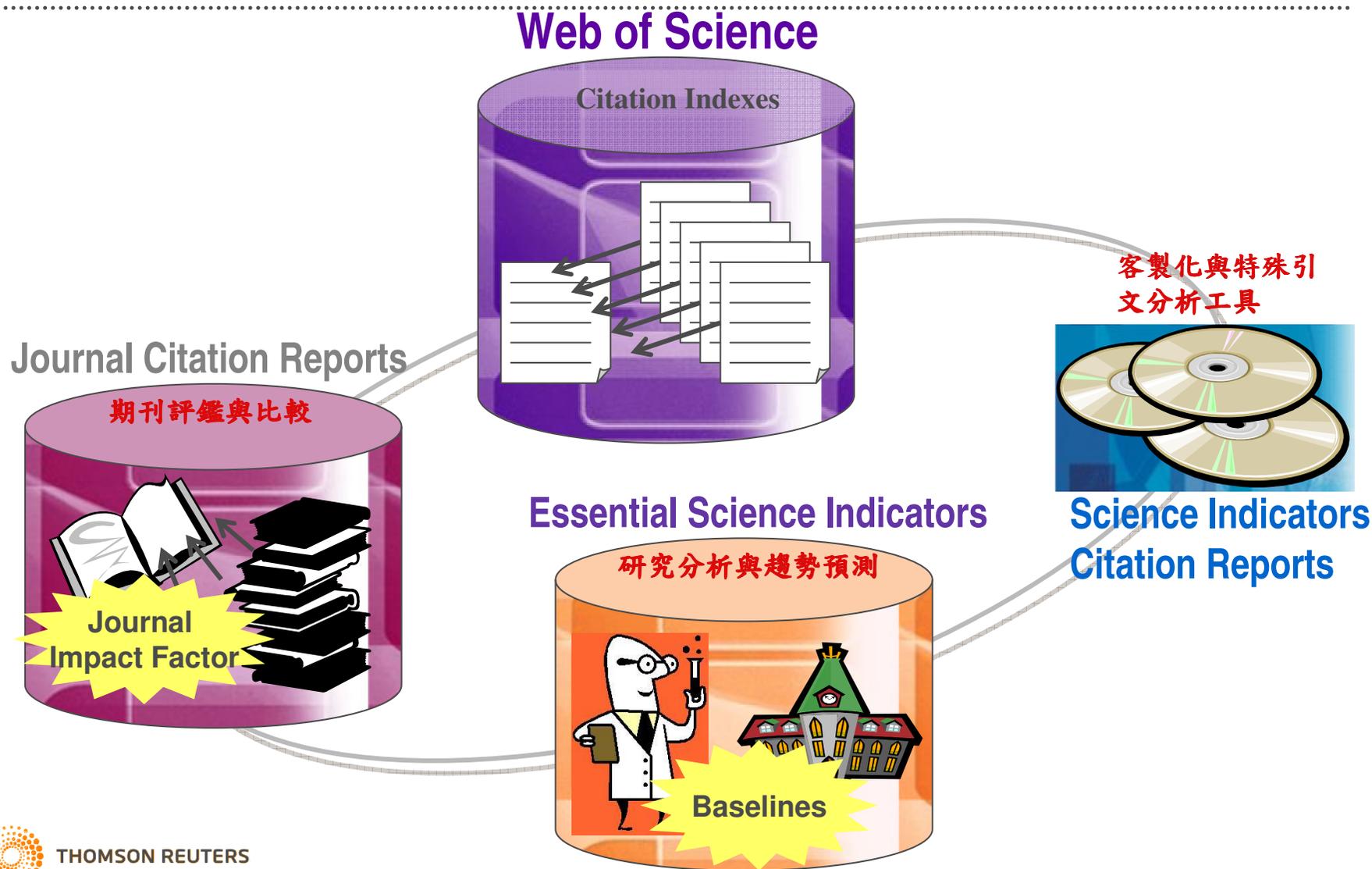
- Peer review: experts reviewing the work of their colleagues for decisions about publication, funding, promotion, etc.
- Problems of peer review: Science today is vast, fractionated; bias of reviewers
- Peer review is still foundation of evaluation, and Thomson Reuters has never advocated quantitative analysis supercede or replace peer review -- meant to be COMPLEMENTARY.



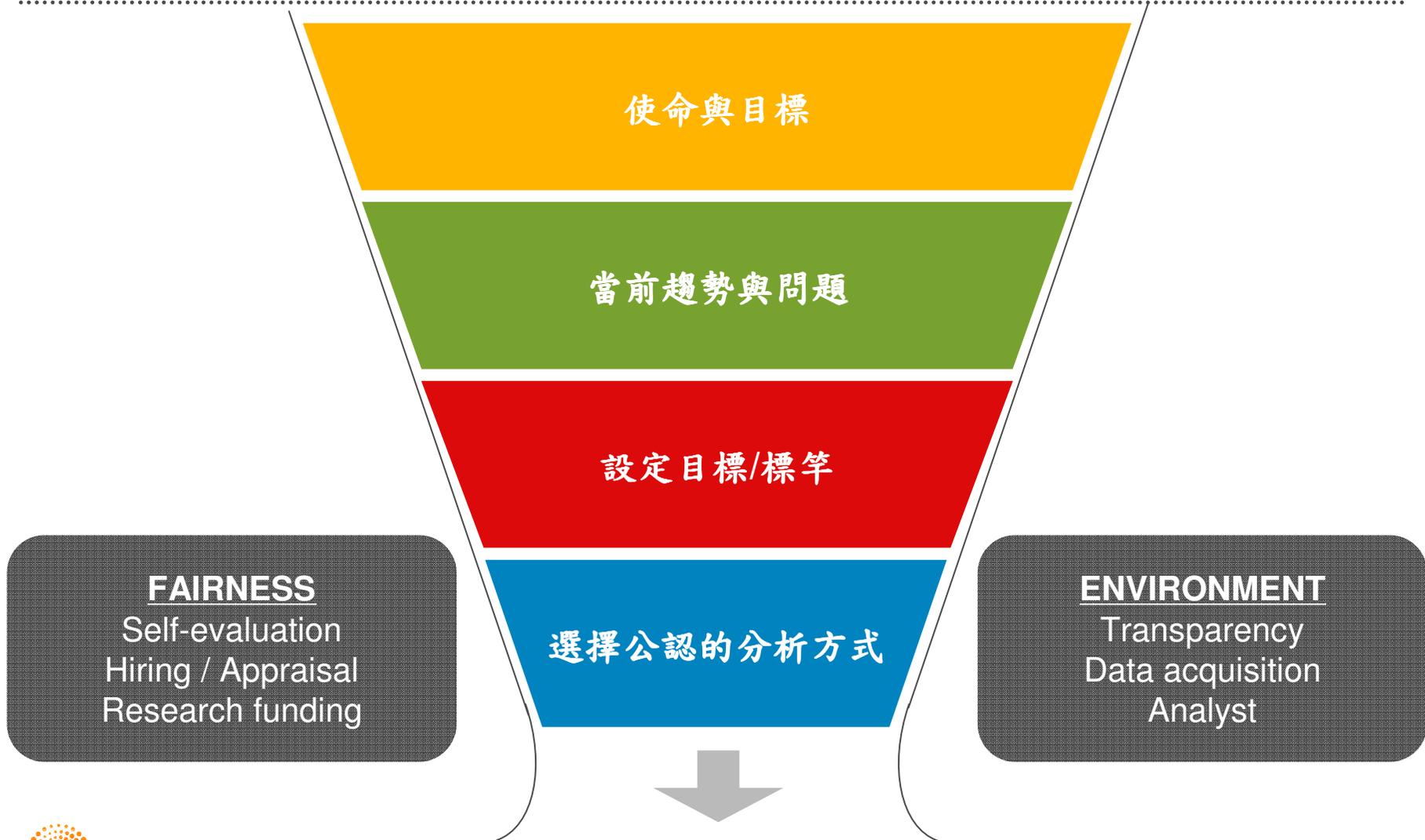
對於學術評鑑，量化分析與同儕評論實為互補的機制



# 從評鑑出發 - 書目計量分析法常用的工具

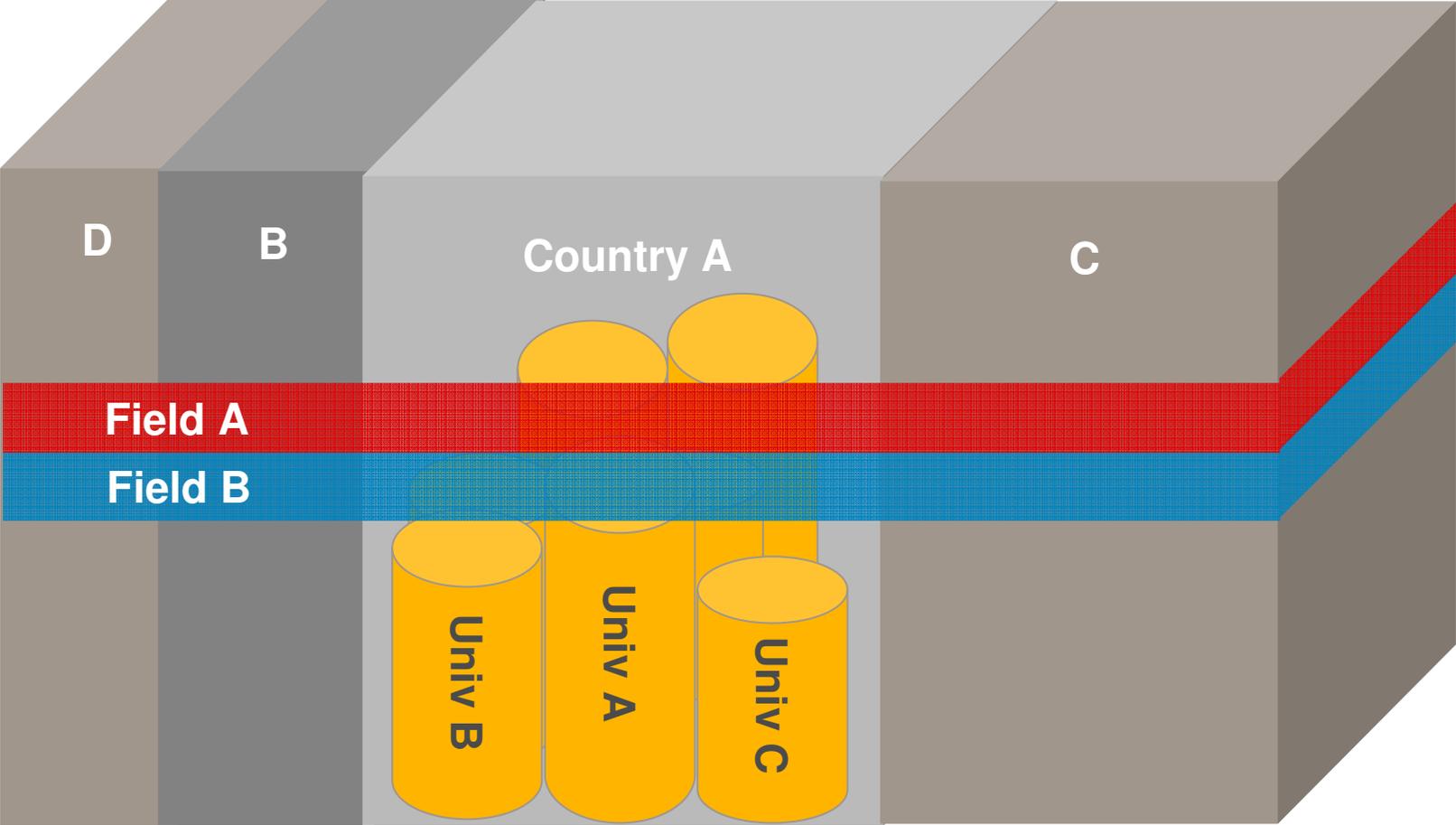


# STRATEGIC RESEARCH MANAGEMENT



# DATA SELECTION

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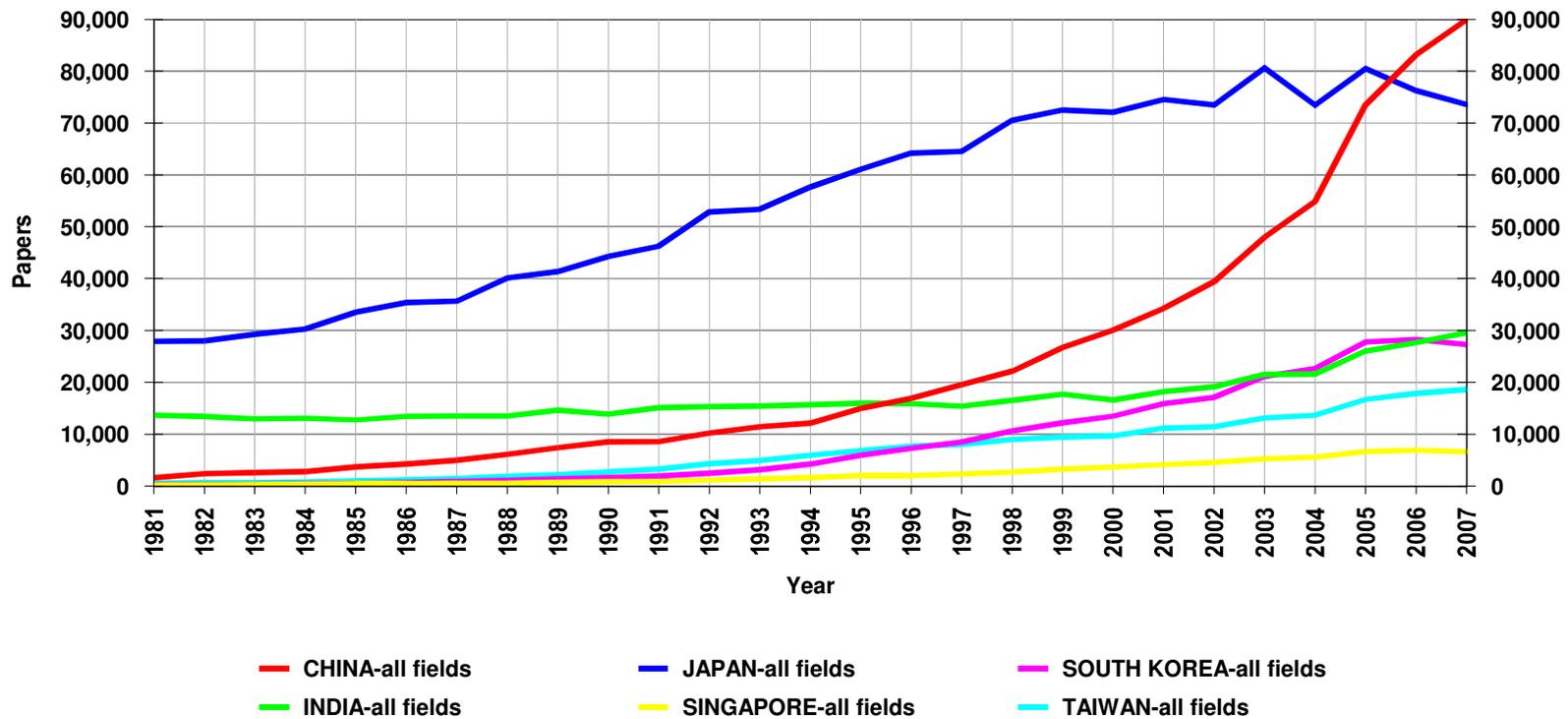


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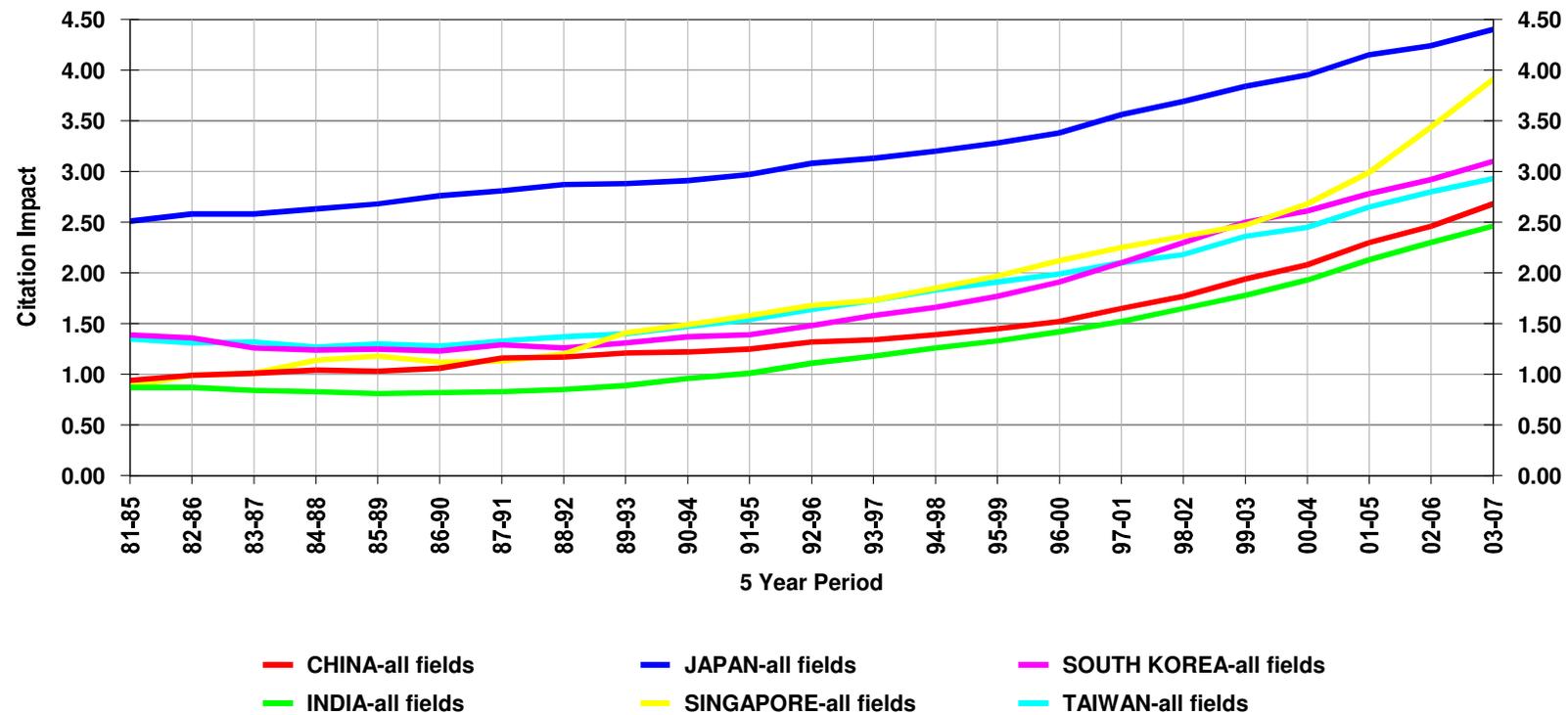
# 不同角度呈現不同評鑑結果



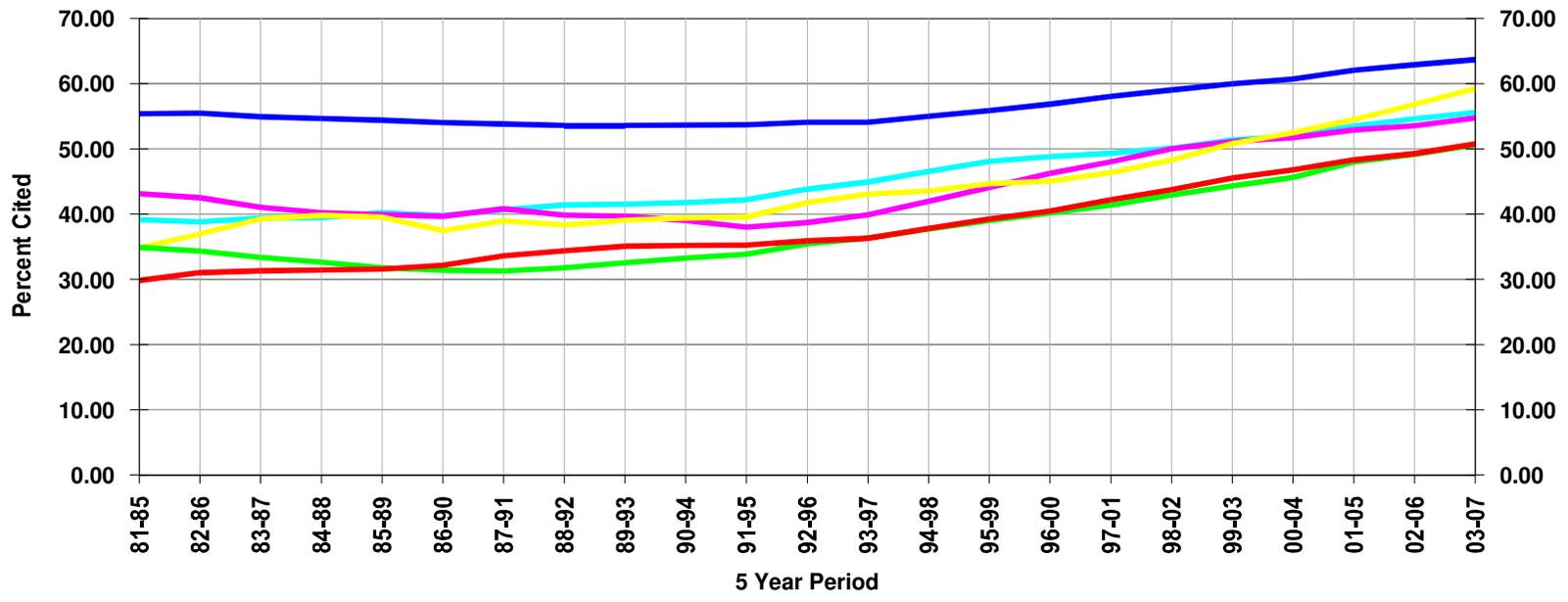
# NUMBER OF PAPERS



# CITATION IMPACT (AVERAGE CITATIONS)



# PERCENT CITED



- CHINA-all fields
- JAPAN-all fields
- SOUTH KOREA-all fields
- INDIA-all fields
- SINGAPORE-all fields
- TAIWAN-all fields

# Time-series data

Top 20 institutions in materials science over the last 10 years + 6 months

Rank	Institution	Country	Citations
1	Max Planck Society	Germany	27,841
2	Tohoku University	Japan	25,185
4	Chinese Academy of Sciences	China	19,021
3	MIT	USA	19,003
5	University of California, Santa Barbara	USA	17,091
6	Pennsylvania State University	USA	15,767
7	University of Cambridge	UK	14,828
8	Kyoto University	Japan	14,548
9	Osaka University	Japan	14,024
10	Russian Academy of Science	Russia	13,647
11	University of California, Berkeley	USA	13,379
12	CSIC	Spain	12,918
13	CNRS	France	12,769
14	University of Tokyo	Japan	12,127
15	NIMS	Japan	12,043
17	NIST	USA	11,726
16	Tokyo Institute of Technology	Japan	11,719
18	University of Illinois	USA	11,526
19	Oak Ridge National Laboratory	USA	11,101
20	University of Texas	USA	11,085

Top 20 institutions in materials science over the last 4 years + 6 months

Rank	Institution	Country	Citations
1	Chinese Academy of Sciences	China	10,418
2	Max Planck Society	Germany	9,534
3	Tohoku University	Japan	8,274
4	NIMS	Japan	5,499
5	MIT	USA	4,935
6	CSIC	Spain	4,770
7	Osaka University	Japan	4,650
8	University of Tokyo	Japan	4,535
9	University of Cambridge	UK	4,358
10	University of California, Berkeley	USA	4,251
11	Tsing Hua University	China	4,147
12	CNRS	France	3,929
13	Kyoto University	Japan	3,894
14	Pennsylvania State University	USA	3,862
15	Seoul National University	Korea	3,884
16	Tokyo Institute of Technology	Japan	3,665
17	Russian Academy of Science	Russia	3,535
18	University of Washington	USA	3,507
19	University of California, Santa Barbara	USA	3,401
20	National University of Singapore	Singapore	3,379

Courtesy of National Institute of Materials Science, Japan

Essential Science Indicators, January 1995 – June 2005

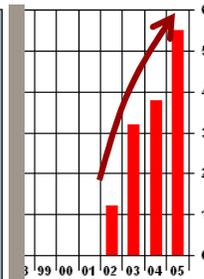
# Time-series data

Article:  
 Ohzuku, T CHEM LETT, vol.; pg:744-745, 2001.  
 Layered lithium insertion material of LiNi1/2Mn1/2O2: A possible alternative to LiCoO2 for advanced lithium-ion batteries

year	count
2002	12
2003	32
2004	38
2005	55

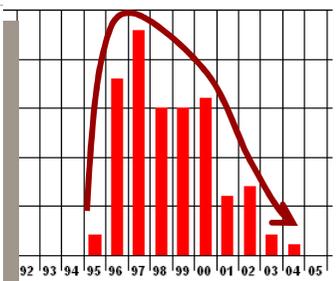
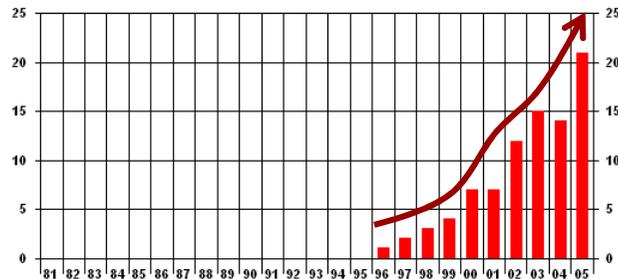
Article:  
 IMAHORI, H CHEM LETT, vol.; pg:265-266, 1995.  
 SYNTHESIS AND PHOTOPHYSICAL PROPERTY OF PORPHYRIN-LINKED FULLERENE

year	count
1995	2
1996	18
1997	23
1998	15
1999	15
2000	16
2001	6
2002	7
2003	2
2004	1



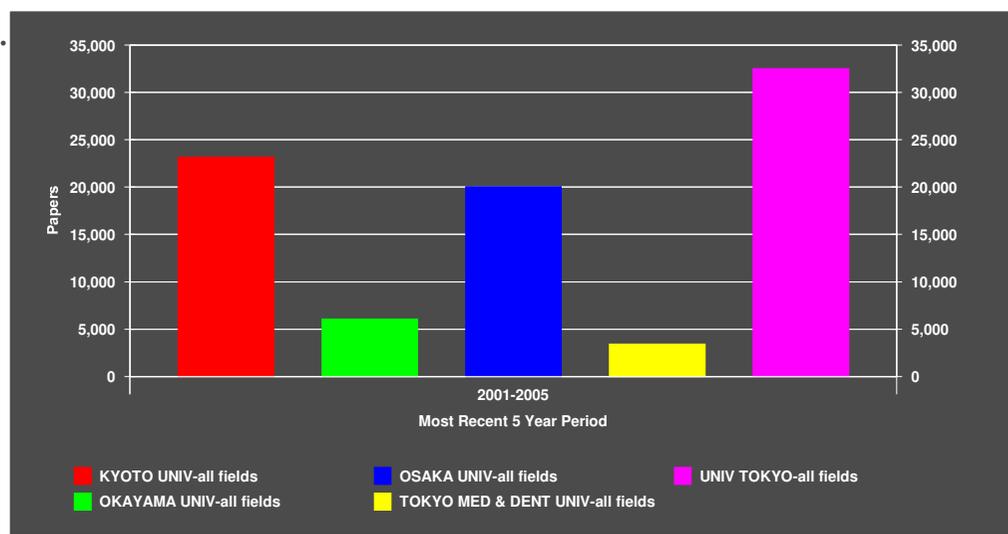
Article:  
 Deki, S CHEM LETT, vol.; pg:433-434, 1996.  
 Titanium(IV) oxide thin films prepared from aqueous solution

year	count
1996	1
1997	2
1998	3
1999	4
2000	7
2001	7
2002	12
2003	15
2004	14
2005	21



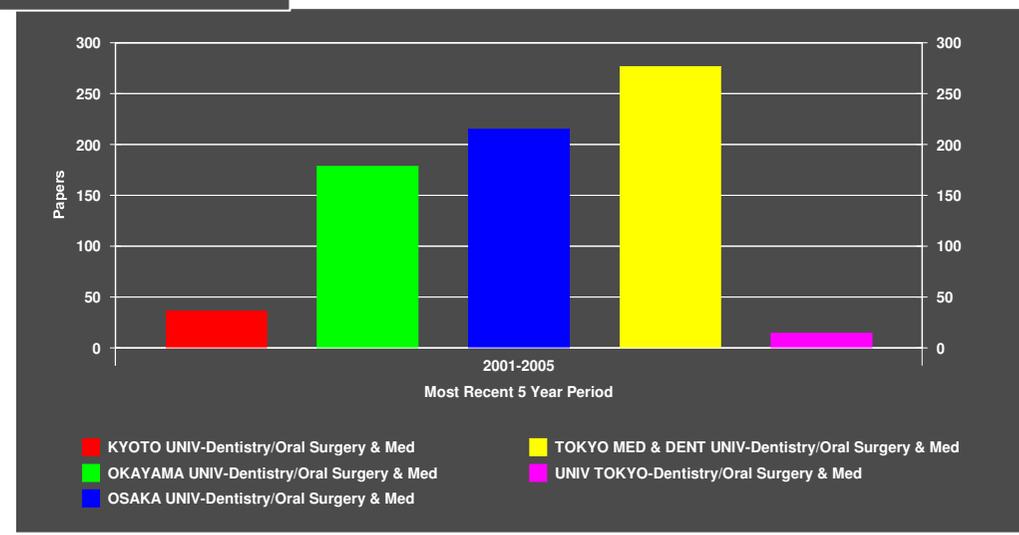
Which research(ers) should be funded?

# Field-sensitive data



All Fields	
1	UNIV TOKYO
2	KYOTO UNIV
3	OSAKA UNIV

Dentistry, Oral Surgery & Med	
1	TOKYO MED & DENT UNIV
2	OSAKA UNIV
3	OKAYAMA UNIV



## Field-sensitive data

Top 100 institutional ranking based on total publication numbers for years 2003-2005 <b>Civil Engineering</b>					
Rank	Organization	2003	2004	2005	Sum
1	Hong Kong Polytech Univ	90	79	96	265
2	Texas A&M Univ	87	77	91	255
3	Indian Inst Technol	75	75	102	252
4	Univ Texas	82	66	71	219
5	Univ Illinois	61	67	86	214
6	Natl Univ Singapore	63	80	64	207
7	Univ Calif Berkeley	52	85	70	207
8	Nanyang Technol Univ	48	63	63	174
9	Purdue Univ	51	48	55	154
10	Delft Univ Technol	42	42	59	143

Courtesy of Prof. Teng Ching Kung, Hong Kong Polytech Univ

Web of Science, analyzed on May 15, 2006

1. 從學校整體的表現不易察覺其中表現優異的學科領域
2. 強調優勢的學科領域以獲取最大之研究資源及成果

## 理大土木工程論文 3年數量冠全球

【明報專訊】理工大學過去3年，於國際學術期刊發表的土木工程學論文總量，成為全球之冠。理大土木結構工程學系系主任李毓湘表示，本港其他有土木工程科的院校，包括香港大學、科技大學及城市大學，均列全球35名內，但不願透露詳細排名。

李毓湘說，根據編撰科學引文索引的湯普森科技資訊集團（Thomson Scientific）調查，2003至05年間，該系論文總量位列土木工程論文的全球第一，共發表265篇，其次是發表了255篇的美國德州農工大學及252篇的印度理工學院。而該系於2003及04年發表的論文，在05年內被其他人引述達105次，位居全球亞軍，只低於論文被引用了110次的美國伊利諾大學。

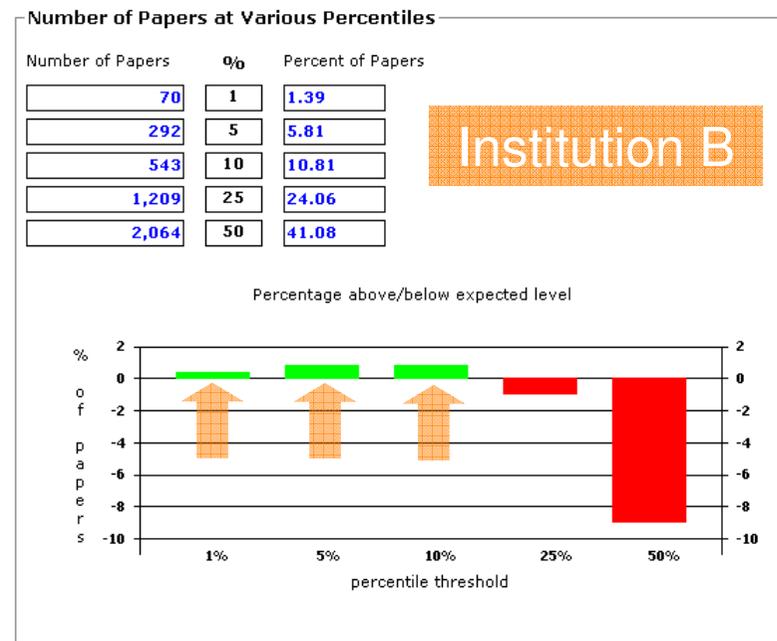
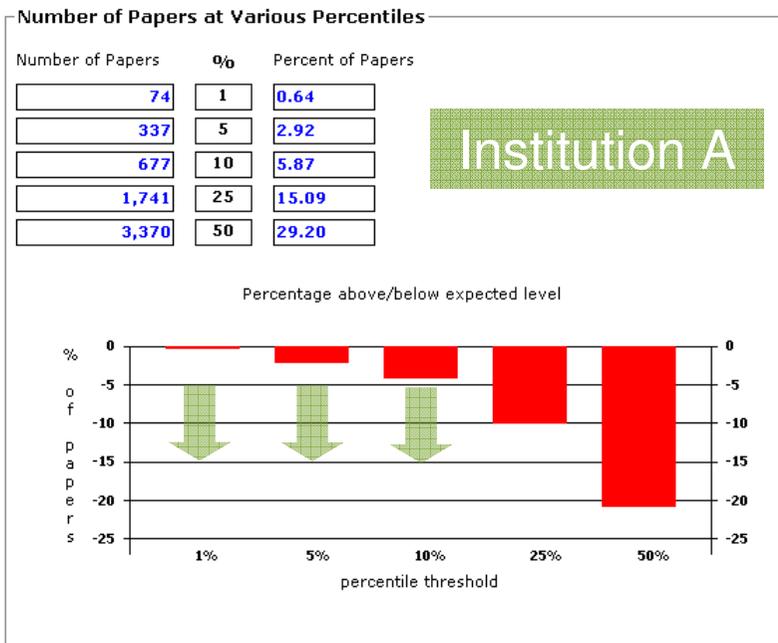
2006/07年，理大在教資會「土木工程、測量及建造工程」範疇，申請得逾1700萬元研究補助金，資助37項研究，成為連續6年獲得最多研究資助的土木工程學系。



# EXPECTED CITATION RATES

Cites	Expected	ratio	field	%	Author	Journal	Vol	Page	YR	Type	Title
62	18.29	3.39	EAR	4.447	Terasawa, T	GEOPHYS RES LETT	24	935-938	1997		Solar
58	210.87	0.28	EAR	8.751	YOSHIDA, N	NATURE	342	895-897	1989		NITRI
57	17.73	3.21	EAR	6.453	TANAKA, H	GEOPHYS J INT	120	97-102	1995		SOME
46	46	1.00	EAR	5.325	Komiya, T	J GEOL	107	515-554	1999	R	Plate
44	18.27	2.41	EAR	2.736	Hirose, K	EARTH PLANET SC LETT	184	567-573	2001		In situ
41	49.78	0.82	EAR	15.045	KITA, I	J GEOPHYS RES	87	789-795	1982		H-2 G
39	158.13	0.25	EAR	16.569	YOSHIDA, N	NATURE	307	442-444	1984		N-15,
38	20.41	1.86	EAR	13.26	NAGAI, T	GEOPHYS RES LETT	21	2991-2994	1994		INITI,
37	9.1	4.07	EAR	2.265	Christensen, UR	PHYS EARTH PLANET IN	128	25-34	2001		A nun
37	24.27	1.52	EAR	8.115	Tsunogai, U	J GEOPHYS RES-ATMOS	104	033-16039	1999		Carbc
36	47.56	0.76	EAR	18.335	SASAKI, S	EARTH PLANET SC LETT	89	323-334	1988		ORIGI
34	11.55	2.94	EAR	18.403	KONO, M	J GEODYN	2	193-209	1985		PALEO
30	22.58	1.33	EAR	22.329	HEKI, K	TECTONOPHYSICS	108	267-281	1984		PALEO
30	10.37	2.89	EAR	8.72	Kawakatsu, H	J VOLCANOL GEOTH RES	101	129-154	2000		Aso9
29	1.89	15.34	EAR	19.371	KOBAYASHI, K	ADV SPACE RES	16	21-26	1995		FORM
28	6.48	4.32	EAR	20.092	KONO, M	J GEOPHYS RES	104	033-16039	1999		MAPP
27	24.52	1.10	EAR	23.107	HEKI, K	J GEOPHYS RES	104	033-16039	1999		PALEO
27	3.92	6.89	EAR	7.965	Ueno, M	J GEOPHYS RES	104	033-16039	1999		Carbc
26	121.25	0.21	EAR	24.766	HEKI, K	J GEOPHYS RES	104	033-16039	1999		ROTA
25	28.68	0.87	EAR	18.895	Shibata, T	J GEOPHYS RES	104	033-16039	1999		Solub
22	12.71	1.73	EAR	18.53	Sato, T	J GEOPHYS RES	104	033-16039	1999		Groun
21	4.37	4.81	EAR	N/A	Honkoku, M	J GEOPHYS RES	104	033-16039	1999	L	Prelin
20	17.87	1.12	EAR	27.794	Hirata, T	J GEOPHYS RES	104	033-16039	1999		Two t

**ECR (Expected Citation Rates)** is the average citation count of items that are published in the same journal, in the same year, and as the same document type.



11,541

Total papers

5,024

42,657

Total citations

24,250

50.92%

Percent cited

60.29%

0.64%

Top 1% paper

1.39%

機構 B 優於機構 A

QUANTITY vs. QUALITY



## 從不同面向探討研發的效率與影響力

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- Science today is:
  - Global
  - Formidable
  - Diverse
  - In-depth
- MORE with LESS time and resource
- BIGGER numbers are NOT necessarily better
- How to measure
  - Research QUANTITY
  - Research QUALITY
- From acceleration to innovation



# Thomson Reuters成功預測



2008年10月1日Thomson Reuters旗下科技集團利用Web of Science資料庫進行定量分析，公佈2008年經典引文桂冠獎(Citation laureate)名單，而這些最具影響力的研究人員也被Thomson Reuters預測為同年度或未來的諾貝爾獎得主。

隨著2008年10月8日諾貝爾化學獎名單揭曉，Thomson Reuters預測的美國華裔科學家錢永健獲得此一殊榮。而10月6日公佈的諾貝爾醫學獎得主Luc Montagnier也是1989年Thomson Reuters經典引文桂冠獎得主。13日所宣布的諾貝爾經濟獎得主Paul Krugman則是2006年的Thomson Reuters經典引文桂冠獎得主。

去年共有五位經典引文桂冠獎得主榮獲諾貝爾獎。自2002年以來，已有12位被提名為Thomson Reuters經典引文獎的研究人員摘取諾貝爾獎桂冠。

有關Thomson Reuters諾貝爾獎得主預測相關資訊，請參考以下網頁：

Thomson Reuters諾貝爾獎預測官方網頁(英文)：<http://scientific.thomsonreuters.com/nobel/>

2008年成功預測諾貝爾獎資訊(英文)：<http://scientific.thomsonreuters.com/nobel/success-08/>

歷年諾貝爾獎得主成功預測名單(英文)：<http://scientific.thomsonreuters.com/nobel/success-tab/>

2008年Thomson Reuters預測諾貝爾獎得主中文網頁：

[http://www.isiuser.com/e-paper\\_1008.asp](http://www.isiuser.com/e-paper_1008.asp)



## Thomson Reuters 科技集團預測諾貝爾獎得主

• 2008-10-03 新華美通

### 21名引文桂冠獲得者因對科學進步作出的貢獻而獲得認可

---

費城和倫敦10月3日電 /新華美通/ -- Thomson Reuters 旗下科技集團今天公佈了2008 Thomson Reuters Citation Laureates (經典引文桂冠獎) 名單，這些研究人員有望角逐諾貝爾獎。此次公佈也是對將於10月公佈的本年度諾貝爾獎 (Nobel Prize) 得主的預測。

每年來自 Thomson Reuters 研究解決方案 ISI Web of Knowledge 的資料都會被用於進行定量分析，確定諾貝爾生理學或醫學獎、物理學獎、化學獎和經濟學獎門類中最具影響力的研究人員。鑒於他們的作品被廣泛引用，這些具有高度影響力的研究者被提名為 Thomson Reuters Citation Laureates 並被預測為當年或者是將來的諾貝爾獎獲得者。

去年，五位 Citation Laureate 榮獲諾貝爾獎。自2002年以來，已有12位被提名為 Thomson Reuters Citation Laureate 的研究人員摘取了諾貝爾獎桂冠。

Thomson Reuters 研究服務部門表示：「文獻引用和同行的認可之間存在著緊密的聯繫。像諾貝爾獎這樣的專業獎項反應了同行的認可度。我們評選 Citation Laureate 的方法是評估引用的次數和高影響力論文的篇數，同時確定可能獲諾貝爾委員會 (Nobel Committee) 高度認可的發現或主題。」

Thomson Reuters 科技集團是每年使用定量數據進行諾貝爾獎得主預測的唯一機構。

Thomson Reuters Citation Laureates 選取各領域研究人員的前0.1%，評選依據是過去20年他們所發佈論文的引用情況。



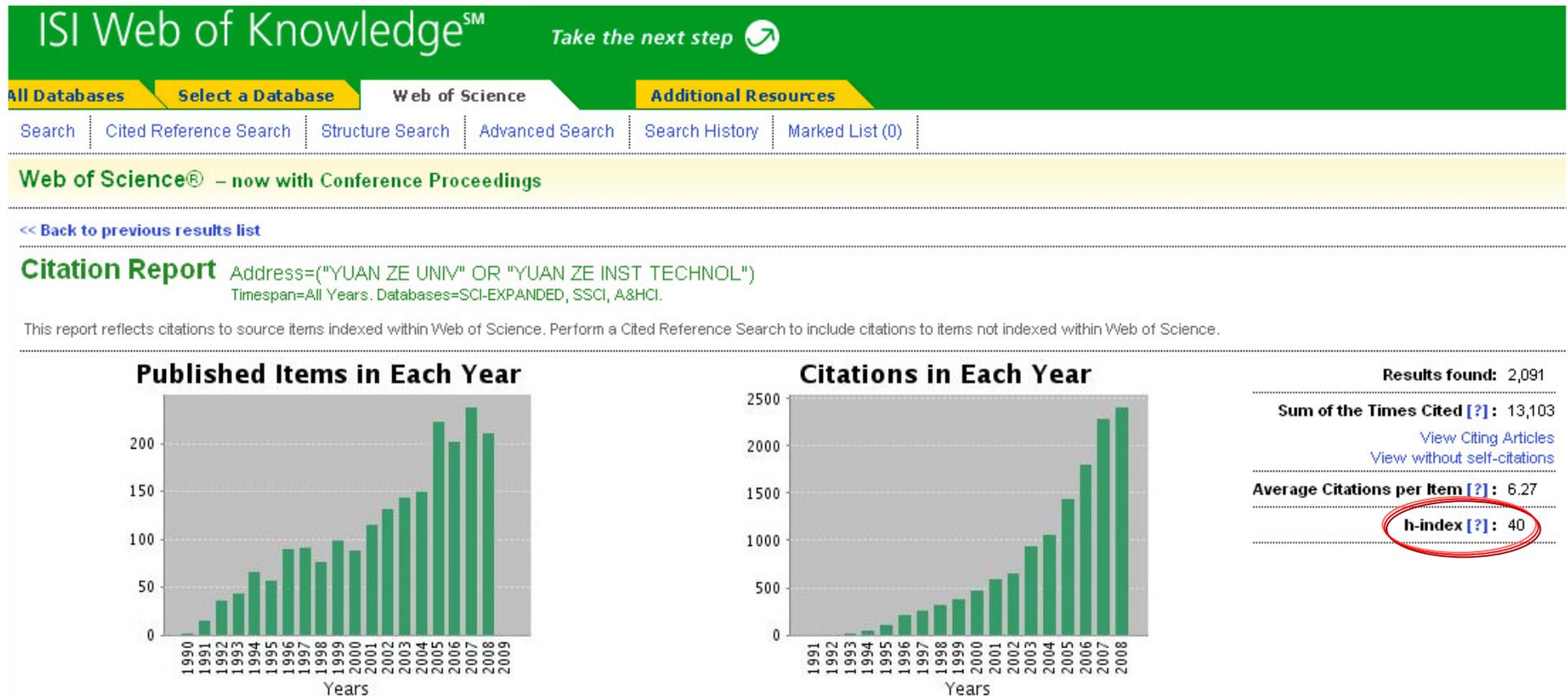
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# 以元智大學為例



THOMSON REUTERS

# 從學校整體表現來計算h-index



## h-index 比較

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整體比較:

	元智大學	A 大學
文章數	2,091	3,120
被引用次數	13,103	19,559
h-index	40	44



# 從 Essential Science Indicators (ESI) 看元智大學表現

ISI Web of Knowledge<sup>SM</sup>  
 Essential Science Indicators<sup>SM</sup>

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 RETURN TO MENU
 IN-CITES

---

**FIELD RANKINGS FOR YUAN ZE UNIV**

Display items with at least:  Citation(s)
   
 Sorted by:

1 - 1 (of 1) Page 1 of 1

	View	Field	Papers	Citations	Citations Per Paper
1		<a href="#">ENGINEERING</a>	626	2,545	4.07
		<a href="#">ALL FIELDS*</a>	1,515	6,176	4.08

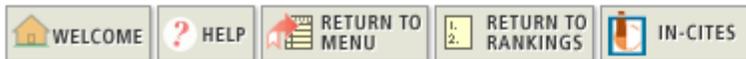
1 - 1 (of 1) Page 1 of 1

*\* Includes data for all papers from ranked and unranked fields.*

元智大學 “Engineering” 領域進入世界前1%排名

# 元智大學累計五年資料的表現 - Engineering

## Essential Science Indicators<sup>SM</sup>



### MOST CITED INSTITUTIONS IN ENGINEERING

**Institution: YUAN ZE UNIV**

Citation Data (In 5-year Intervals):

[Back to graph view](#)

5-year Intervals:	1998-2002	1999-2003	2000-2004	2001-2005	2002-2006	2003-2007	2004-2008
# of Papers	205	258	291	331	346	373	386
Times Cited	165	277	369	478	637	646	792
Citations per Paper	0.80	1.07	1.26	1.44	1.84	1.73	2.05

# 以“Citations”排名，元智大學名第376名

INSTITUTION RANKINGS IN ENGINEERING

Display items with at least:  Citation(s)

Sorted by: Citations

361 - 380 (of 1013) Page 19 of 51

	View	Institution	Papers	Citations	Citations Per Paper
361		<a href="#">HARVARD SMITHSONIAN CTR ASTROPHYS</a>	100	2,639	26.39
362		<a href="#">DLR</a>	503	2,621	5.21
363		<a href="#">GEN ATOM CO</a>	559	2,606	4.66
364		<a href="#">NATL CHUNGHSING UNIV</a>	903	2,604	2.88
365		<a href="#">KOREA INST SCI &amp; TECHNOL</a>	545	2,597	4.77
366		<a href="#">ST PETERSBURG STATE UNIV</a>	945	2,596	2.75
367		<a href="#">DALIAN UNIV TECHNOL</a>	1,233	2,595	2.10
368		<a href="#">ECOLE MINES PARIS</a>	487	2,593	5.32
369		<a href="#">UNIV VIENNA</a>	454	2,583	5.69
370		<a href="#">UNIV VALENCIA</a>	546	2,580	4.73
371		<a href="#">UNIV BARI</a>	428	2,573	6.01
372		<a href="#">KYUNGPOOK NATL UNIV</a>	901	2,564	2.85
373		<a href="#">UNIV BREMEN</a>	583	2,563	4.40
374		<a href="#">UNIV BRESCIA</a>	524	2,547	4.86
375		<a href="#">UNIV QUEBEC</a>	761	2,546	3.35
376		<a href="#">YUAN ZE UNIV</a>	626	2,545	4.07
377		<a href="#">UNIV TOULOUSE 3</a>	592	2,539	4.29
378		<a href="#">UNIV HANNOVER</a>	567	2,524	4.45
379		<a href="#">INFINEON TECHNOL AG</a>	527	2,521	4.78
380		<a href="#">KEIO UNIV</a>	911	2,504	2.75

361 - 380 (of 1013) Page 19 of 51

# 以 “Citation per paper”, 元智大學排名第621名

ISI Web of Knowledge<sup>SM</sup>  
Essential Science Indicators<sup>SM</sup>

WELCOME HELP RETURN TO MENU IN-CITES

### INSTITUTION RANKINGS IN ENGINEERING

Display items with at least:  Citation(s)

Sorted by: Citations per Paper

621 - 640 (of 1013) Page 32 of 51

	View	Institution	Papers	Citations	Citations Per Paper
621		<a href="#">YUAN ZE UNIV</a>	626	2,545	4.07
622		<a href="#">KYOTO UNIV</a>	3,329	13,524	4.06
623		<a href="#">INST MICROELECTR</a>	355	1,440	4.06
624		<a href="#">UNIV BRADFORD</a>	487	1,975	4.06
625		<a href="#">CINVESTAV IPN</a>	283	1,146	4.05
626		<a href="#">ERCIVES UNIV</a>	436	1,765	4.05
627		<a href="#">UNIV MANITOBA</a>	867	3,509	4.05
628		<a href="#">PHYS TECH BUNDESANSTALT</a>	715	2,893	4.05
629		<a href="#">UNIV E ANGLIA</a>	288	1,165	4.05
630		<a href="#">SCI APPLICAT INT CORP</a>	271	1,096	4.04
631		<a href="#">UNIV PISA</a>	1,491	6,027	4.04
632		<a href="#">XIAMEN UNIV</a>	284	1,147	4.04
633		<a href="#">UNIV WESTERN ONTARIO</a>	1,262	5,096	4.04
634		<a href="#">NEW JERSEY INST TECHNOL</a>	853	3,440	4.03
635		<a href="#">RUDJER BOSKOVIC INST</a>	269	1,083	4.03
636		<a href="#">NEC CORP LTD</a>	1,066	4,291	4.03
637		<a href="#">ARISTOTELIAN UNIV SALONIKA</a>	1,421	5,706	4.02

# 從 Essential Science Indicators (ESI) 的 Highly Cited Paper (進入世界前1%文章) 看元智大學表現

ISI Web of Knowledge<sup>SM</sup>  
Essential Science Indicators<sup>SM</sup>

WELCOME HELP RETURN TO MENU IN-CITES

### HIGHLY CITED PAPERS FOR (YUAN ZE UNIV)

Sorted by: Citations [SORT AGAIN]

1 - 8 (of 8) Page 1 of 1

1	Citations: 146	USE OF CELLULOSE-BASED WASTES FOR ADSORPTION OF DYES FROM AQUEOUS SOLUTIONS	RESEARCH FRONT WEB OF SCIENCE
<b>Title:</b> USE OF CELLULOSE-BASED WASTES FOR ADSORPTION OF DYES FROM AQUEOUS SOLUTIONS			
<b>Authors:</b> ANNADURAI G; <a href="#">JUANG RS</a> ; <a href="#">LEE DJ</a>			
<b>Source:</b> <a href="#">J HAZARD MATER</a> 92 (3): 263-274 JUN 10 2002			
<b>Addresses:</b> <a href="#">Yuan Ze Univ</a> , Dept Chem Engr, Chungli 320, <a href="#">Taiwan</a> <a href="#">Nat'l Taiwan Univ</a> , Dept Chem Engr, Taipei 106, <a href="#">Taiwan</a>			
<b>Field:</b> <a href="#">ENGINEERING</a>			
2	Citations: 120	KINETIC MODELING OF LIQUID-PHASE ADSORPTION OF REACTIVE DYES AND METAL IONS ON CHITOSAN	WEB OF SCIENCE
<b>Title:</b> KINETIC MODELING OF LIQUID-PHASE ADSORPTION OF REACTIVE DYES AND METAL IONS ON CHITOSAN			
<b>Authors:</b> <a href="#">WU FC</a> ; TSENG RL; <a href="#">JUANG RS</a>			
<b>Source:</b> <a href="#">WATER RES</a> 35 (3): 613-618 MAR 2001			
<b>Addresses:</b> Lien Ho Inst Technol, Dept Chem Engr, Miao Li 360, <a href="#">Taiwan</a> <a href="#">Yuan Ze Univ</a> , Dept Chem Engr, Chungli 320, <a href="#">Taiwan</a> Lien Ho Inst Technol, Dept Safety Hlth & Environm Engr, Miao Li, <a href="#">Taiwan</a>			
<b>Field:</b> <a href="#">ENVIRONMENT/ECOLOGY</a>			
3	Citations: 93		RESEARCH FRONT WEB OF SCIENCE

## 元智大學在ESI高被引用文章 (前1%)

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	元智大學
1%文章總數	8篇
ENGINEERING	6篇
ENVIRONMENT/ECOLOGY	1篇
PHYSICS	1篇

	A 大學
1%文章總數	6篇
MATERIAL SCIENCE	3篇
ENGINEERING	2篇
PHARMACOLOGY & TOXICOLOGY	1篇



## 元智大學文章發表趨勢 (年代 vs. Top 5 領域)

	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	ENGINEERING, CHEMICAL (17)	ENGINEERING, ELECTRICAL & ELECTRONIC (28)	ENGINEERING, ELECTRICAL & ELECTRONIC (30)	ENGINEERING, ELECTRICAL & ELECTRONIC (40)	ENGINEERING, ELECTRICAL & ELECTRONIC (31)	ENGINEERING, ELECTRICAL & ELECTRONIC (49)	ENGINEERING, ELECTRICAL & ELECTRONIC (44)	ENGINEERING, ELECTRICAL & ELECTRONIC (45)	ENGINEERING, ELECTRICAL & ELECTRONIC (52)
2	ENGINEERING, ELECTRICAL & ELECTRONIC (13)	ENGINEERING, MULTIDISCIPLINARY (14)	ENGINEERING, CHEMICAL (23)	COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE (24)	COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE (15)	OPTICS (43)	OPTICS (27)	OPTICS (27)	ENGINEERING, CHEMICAL (26)
3	POLYMER SCIENCE (12)	AUTOMATION & CONTROL SYSTEMS (12)	ENGINEERING, ENVIRONMENTAL (12)	ENGINEERING, CHEMICAL (16)	ENGINEERING, MANUFACTURING (15)	PHYSICS, APPLIED (26)	ENGINEERING, CHEMICAL (21)	CHEMISTRY, PHYSICAL (24)	COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE (25)
4	ENVIRONMENTAL SCIENCES (10)	OPTICS (12)	AUTOMATION & CONTROL SYSTEMS (11)	OPTICS (16)	OPERATIONS RESEARCH & MANAGEMENT SCIENCE (15)	COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE (23)	PHYSICS, APPLIED (21)	AUTOMATION & CONTROL SYSTEMS (18)	OPTICS (24)
5	ENGINEERING, ENVIRONMENTAL (8)	COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE (11)	ENGINEERING, MANUFACTURING (11)	ENGINEERING, MANUFACTURING (13)	AUTOMATION & CONTROL SYSTEMS (13)	COMPUTER SCIENCE, THEORY & METHODS (19)	COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE (19)	MATERIALS SCIENCE, MULTIDISCIPLINARY (17)	PHYSICS, APPLIED (21)

- 2000 年來三大研究主軸: Engineering, Electrical & Electronic; Optics; Engineering, Chemical
- 其他特色研發: Computer Science, Artificial Intelligence; Automation & Control System



# Outline

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- 引文資料庫的應用與實例說明
  - Web of Science 活用技巧
  - H-index 介紹
- 如何使用引文資料庫做學術評鑑
  - 不同角度呈現不同評鑑結果
  - 以元智大學為例
- 結論



## 結論

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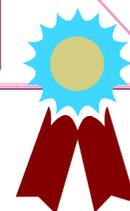
- 當學術研究遇見 Web of Science...
  - 發現誰引用您的研究和您的作品在全球研究社群的影響
  - 發現在重要理論或內容中有發展性的研究
  - 同儕和競爭對手發展的現況
  - 跟隨今日最熱門想法和概念的方向和路徑
  - 確認一個理論是否被證實、改變或改進
  - 發現基本概念如何被應用
  - 透過幾年的文獻研究追蹤主題
  - 證實參考文獻的準確性
  - 找出透過主題檢索遺漏的相關文章
  - 投稿到適當的期刊, 提升能見度及影響力

發現經典

追求卓越



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# Citation 資料庫收錄內容選擇標準

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收錄的資料必須.....

- **Be Selective**

- 是經由篩選過的內容

- **Quality not Quantity**

- 強調收錄文獻的質量，而非數量

- **Excellent not Exceed**

- 經由專家優選的核心內容，而非過量的資訊



# Citation 資料庫的重要性

---

## 研究和評量的工具

### 做為研究使用

- 學術研究的核心資源
  - 兼具核心期刊的價值與多樣內容
- 優秀的研究工具
  - 廣度 - 擴展研究視野及跨領域合作方向
  - 深度 - 追溯經典發現 (回溯至1900年)
  - 精選 - 來自高影響指數期刊的最佳研究作品



# Citation 資料庫的重要性

---

## 研究和評量的工具

### 做為評量工具

- 學術評量的標準
  - 超過50 年的粹煉: 嚴格的選刊標準與出版中立性
  - Web of Science: 全球超過 2500 個單位使用, 平均使用年限超過 30 年
  - 全球公認的評量指標之一





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# Journal rankings in clinical medicine 1998-2008, based on citations per paper

16 October 2008

Data provided by Thomson Reuters from its Essential Science Indicators, 1 January 1998-30 June 2008

Journal	Papers	Citations	Citations per paper
1 Science	601	157,492	262.05
2 Nature	733	184,784	252.09
3 New England Journal of Medicine	192	24,425	127.21
4 CA-A Cancer Journal for Clinicians	1,731	206,824	119.48
5 Nature Medicine	3,635	334,992	92.16
6 Journal of the American Medical Association	3,635	334,992	92.16
7 Journal of Experimental Medicine	3,498	247,578	70.78
8 Nature Reviews Cancer	417	29,493	70.73
9 Proceedings of the National Academy of Sciences of the USA	4,369	307,878	70.47
10 Journal of Clinical Investigation	4,053	262,687	64.81

The data above were extracted from Thomson Reuters' Essential Science Indicators database. This database, currently covering the period January 1998 through June 2008, surveys only journal articles (original research reports and review articles) indexed by Thomson Reuters. Articles are assigned to a category based on the journals in which they were published and Thomson Reuters' journal-to-



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公告主題	2008臺灣WOS期刊論文統計結果公布 <a href="#">NEW</a>	修正日期	
發佈日期	2008/08/29	點閱率	1900
重要性			
下載檔案	【新聞稿】2008臺灣WOS期刊論文統計結果公布.pdf		

網址：<http://wos.heeact.edu.tw>

財團法人高等教育評鑑中心基金會29日公布「2008臺灣WOS期刊論文統計」結果，從國內大專院校於2003年至2007年共五年間，發表於WOS (Web of Science) 所收錄的SCI、SSCI資料庫中，共20個自然科學與工程學門的期刊論文，根據五項質量指標加以統計，最後列出各學門、各指標前15名學校擇優公布，希望藉此反映高等教育學術研究績效。

在全世界大學風起雲湧推動全球化之際，國內大學亦須迎向競爭，評鑑中心因而自2007年起，執行全國大專院校近五年20個自然科學與工程學門WOS期刊論文統計計畫，據以反映國內大學於相關學門的整體研究能量，首批結果（2002-2006年）已於2007年5月與9月公布。

評鑑中心表示，2008年持續進行2003-2007年共五年的20個自然科學與工程學門期刊論文統計，所有期刊論文皆檢索自WOS下的SCI與SSCI索引資料庫。統計分析指標共計五項，分別為「論文數」、「論文被引次數」、「論文平均被引次數」、「期刊影響係數值（IF值）總積分」與「期刊影響係數值平均積分」，並列出表現在各學門、各指標前15名的學校。

評鑑中心強調，2007與2008 WOS期刊論文統計僅統計理、工、醫、生、農等自然科學與工程類學門，未包含人文社會科學類學門，且各個學門與各項指標排名結果互為獨立，並未進行加總排名。

與2007年結果相較，評鑑中心發現，2008年國內進榜大學無論在「論文數」、「論文被引次數」、「論文平均被引次數」與代表學術影響力的「期刊影響係數值總積分」等指標上，表現都明顯較2007年突出，且20個學門大致都呈現相同的情況，可見國內大學在期刊論文的質與量方面，近一年來都有顯著進步。從2008年的結果亦可看出，部公私立大學與科技大學亦有不錯的表現，表現甚至超越部公私立大學。

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# Thank You!



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