

# 绿色化学研究领域分析报告

2011年4月20日

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## 一、Web of Science 数据来源、检索年限及检索策略

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Web of Science（全球获取学术信息的重要数据库）中的

1、Science Citation Index Expanded（SCIE，科学引文索引）

检索年限：2001-2010

2、Conference Proceedings Citation Index- Science（CPCI-S，会议论文集引文索引）

检索年限：2001-2010

3、主题=("green chem\*" or "Clean Chem\*" or "Environ\* Friend\* Chem\*" or "Environ\* Benign Chem\*")

## 二、基于 Web of Science 数据库的趋势分析

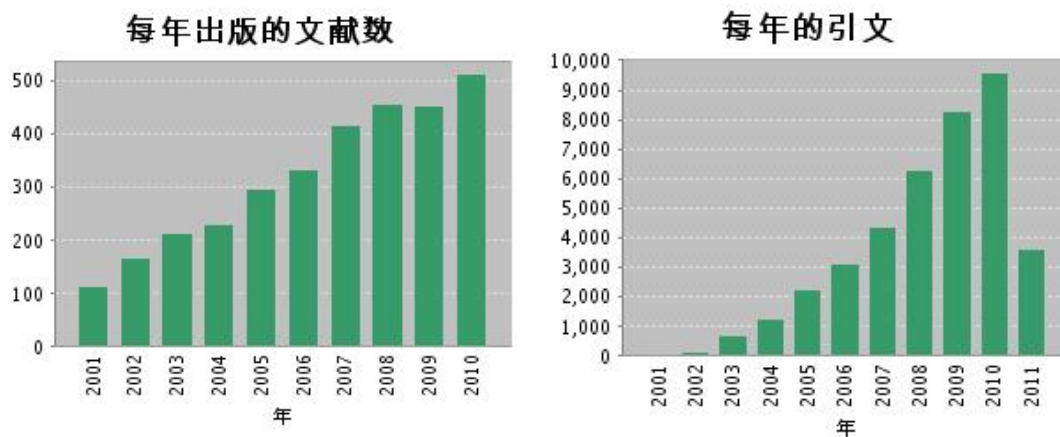
### 1、论文产出与增长趋势

共发表论文 3202 篇，其中中国发表论文在该领域中共发表论文 392 篇，可以清晰的看到国际和中国发表论文的发展趋势。

科技论文产出数量

Publication Year	International Record Count	China Record Count
2001	112	10
2002	169	6
2003	215	22
2004	231	25
2005	299	31
2006	333	39
2007	417	48
2008	457	61
2009	455	63
2010	513	87

### 2、论文产出引文报告



分析项目	分析数值	单位
论文总数	3,202	篇
总被引频次	39,692	次
篇均引用次数	12.40	次

### 3、学科分布概况

10 个学科如下:

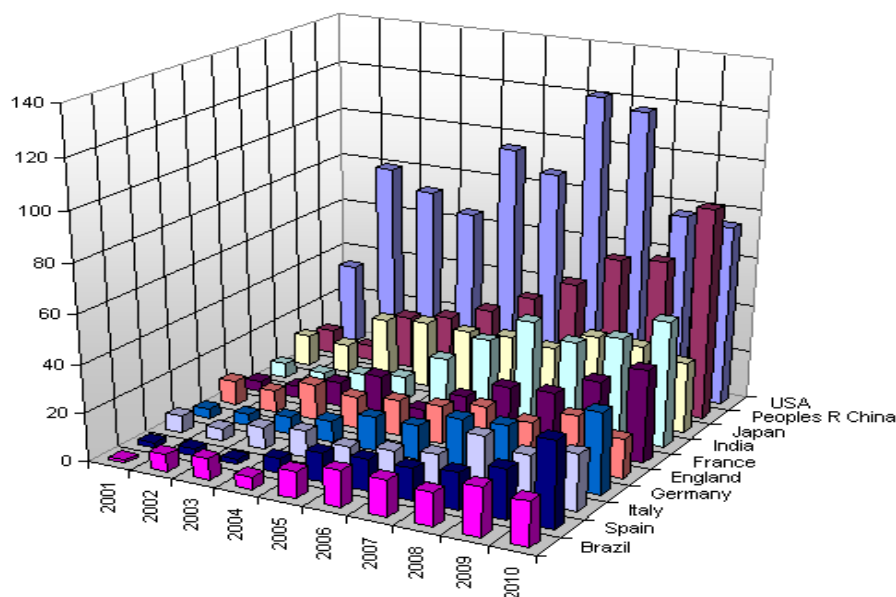
<b>Subject Area</b>	<b>Record Count</b>
CHEMISTRY, MULTIDISCIPLINARY	1296
CHEMISTRY, ORGANIC	721
CHEMISTRY, PHYSICAL	330
ENGINEERING, CHEMICAL	275
CHEMISTRY, APPLIED	223
ENVIRONMENTAL SCIENCES	132
MATERIALS SCIENCE, MULTIDISCIPLINARY	130
POLYMER SCIENCE	109
BIOTECHNOLOGY & APPLIED MICROBIOLOGY	103
CHEMISTRY, INORGANIC & NUCLEAR	90

### 4、科研实力分析

前 10 个主要合作的国家和地区如下:

<b>Country/Territory</b>	<b>Record Count</b>
USA	843
PEOPLES R CHINA	392
INDIA	258
JAPAN	256
FRANCE	166
ENGLAND	154
GERMANY	142
ITALY	127
SPAIN	122
BRAZIL	115

**Number of Records by Country and Year**



主要科研国家与地区及其年代变化趋势

前 10 个主要合作的国际机构如下:

<b>Institution Name</b>	<b>Record Count</b>
CHINESE ACAD SCI	67
UNIV MASSACHUSETTS	50
AMER CHEM SOC	39
UNIV TOKYO	39
ISFAHAN UNIV TECHNOL	38
UNIV YORK	38
NATL INST ADV IND SCI & TECHNOL	30
UNIV SAO PAULO	29
US EPA	29
NANKAI UNIV	27

### *Organization Trends in Last 3 Years*

Last 3 Years is:2010 – 2008

#### Top Organizations in Last 3 Years

Isfahan Univ Technol [34]  
 Chinese Acad Sci [34]  
 Univ Tokyo [21]  
 Univ York [17]  
 Natl Inst Adv Ind Sci & Technol

#### TOP Organizations First Published in Last 3 Years

Huazhong Univ Sci & Technol [6]  
 Tech Univ Berlin [6]  
 Univ Cordoba [6]  
 Univ Europeenne Bretagne [6]  
 Tsinghua Univ [5]

#### Organizations No Longer Published in Last 3 Years

Univ Alabama [12]  
 UCL Royal Inst Great Britain [9]  
 Univ Texas [9]  
 White House Off Sci & Technol Policy [9]  
 Bridgewater State Coll

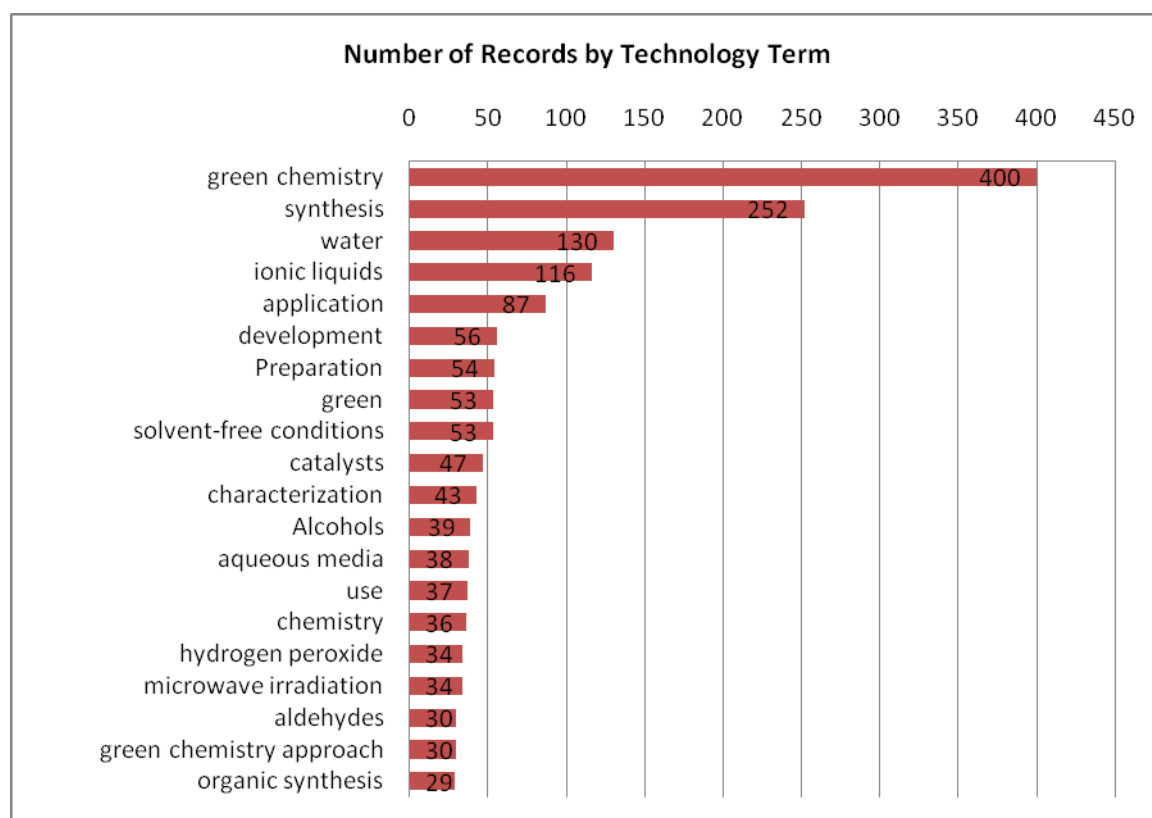
- [15] E China Univ Sci & Technol
- [14] Univ Sao Paulo [14]  
Tokyo Inst Technol [13]  
US EPA [13]
- Nankai Univ [12]
- CNR [12]  
Persian Gulf Univ [12]  
Yale Univ [11]  
Indian Inst Chem Technol [10]  
Univ Calif Santa Barbara [10]  
Monash Univ [10]  
Polish Acad Sci [10]  
Indian Inst Technol [9]  
E China Normal Univ [9]  
Univ Fed Pelotas [9]  
Univ Paris 11 [9]  
Univ Politecn Valencia [9]  
Rhein Westfal TH Aachen [8]  
Tech Univ Denmark [8]  
McGill Univ [8]  
Univ Rajasthan [8]  
Indian Assoc Cultivat Sci [7]  
Islamic Azad Univ [7]
- Univ Athens [7]
- Japan Sci & Technol Agcy [7]  
Univ Fed Santa Maria [7]
- Univ Fed Sao Carlos [7]  
Univ Jena [7]  
Univ Nacl Autonoma Mexico [7]  
Univ Perugia [7]  
Zhejiang Univ [7]  
Peking Univ [7]
- Univ Lyon [5]  
Bu Ali Sina Univ [5]  
ARS [4]  
Shanghai Jiao Tong Univ [4]
- Shaoxing Univ [4]
- Cardiff Univ [4]  
Stockholm Univ [4]  
Jilin Univ [4]  
Univ Camerino [4]  
Univ Haute Alsace [4]  
Chiang Mai Univ [4]  
Univ Isfahan [4]  
Univ Rostock eV [4]  
Gifu Pharmaceut Univ [4]  
Xiamen Univ [4]  
Aix Marseille Univ [4]  
Hefei Univ Technol [4]  
Ruhr Univ Bochum [3]  
S China Normal Univ [3]  
Shaanxi Normal Univ [3]  
Dalian Maritime Univ [3]  
INRA [3]  
Univ Strasbourg [3]
- Auburn Univ [3]
- Univ Alcalá De Henares [3]  
JAIST [3]  
Univ Autonoma Aguascalientes [3]
- Univ Catholique Louvain [3]  
Univ Ghent [3]  
Univ Nacl La Plata [3]  
Univ Nevada [3]  
Univ Potsdam [3]  
Univ Saskatchewan [3]  
Univ Seville [3]  
MN Natl Inst Technol [3]  
Univ Sofia [3]  
Univ Sydney [3]  
Univ Trieste [3]  
Nanyang Technol Univ [3]  
Wuhan Univ Technol [3]  
Payame Noor Univ [3]  
PNU [3]  
Henan Univ [3]  
Pondicherry Univ [3]
- [9] Univ Brasilia [8]  
Univ Chicago [7]  
Stevens Inst Technol [6]  
Univ Amsterdam [6]  
Univ Western Australia [6]
- [6] Swiss Fed Inst Technol
- [5] Tulane Univ [5]  
Univ Alicante [5]  
Cent Leather Res Inst [5]  
Los Alamos Natl Lab [5]  
Univ Newcastle [5]  
Florida State Univ [5]  
Indian Oil Corp Ltd [4]  
St Olaf Coll [4]  
Tsing Hua Univ [4]  
Celal Bayar Univ [4]  
Union Univ [4]  
Univ Genoa [4]  
Kogakuin Univ [4]  
Kwansei Gakuin Univ [4]  
Chiba Univ [4]  
Univ Stuttgart [4]  
Univ Witwatersrand [4]  
Washington & Lee Univ [4]
- [4] Novartis Inst Biomed Res
- [4] Brookhaven Natl Lab [4]
- Cornell Univ [4]

前十位中国机构如下：

Institution Name	Record Count
Chinese Acad Sci	67
Nankai Univ	27
Univ Sci & Technol China	21
E China Univ Sci & Technol	20
Xuzhou Normal Univ	20
E China Normal Univ	16
Peking Univ	14
Zhejiang Univ Technol	12
Henan Normal Univ	11
S China Univ Technol	10

## 5、技术术语分析

通过对研究 3202 篇科技论文中的技术术语进行分析，可以对研究领域出现的高频词分布有一个大致的了解。



## *Technology Trends in Last 3 Years*



Last 3 Years is: 2010 – 2008

<u>TOP Terms First Used in Last 3 Years</u>	<u>TOP Terms No Longer Published in Last 3 Years</u>	<u>Unexpectedly high/low terms</u>
Mild Conditions [6]	extraction [9]	green chemistry [-1]
active polyamides [6]	green chemical processes [7]	Green Synthesis [.988]
optical properties [5]	education [6]	gold nanoparticles [.988]
metal Organic Frameworks [4]	Green Chemical Technology [6]	glycerol [.985]
Different Diisocyanates [4]	tool [6]	extraction [-.982]
quinoxaline derivatives [4]	method [5]	chemistry [-.979]
recent Applications [4]	engineering subdivision [5]	STUDY [.962]
safe [4]	overview [5]	application [-.958]
Heterocycles [4]	Presidential Green Chemistry Challenge Awards [5]	green chemical processes [-.956]
Supported Ruthenium Hydroxide Catalysts [4]	green chemistry considerations [5]	active polyamides [.946]
synthetic application [4]	silica [5]	Mild Conditions [.946]
Terminology [4]	SYBR Green chemistry [5]	education [-.931]
Key Intermediate [4]	zeolite catalyst [5]	Green Chemical Technology [-.931]
Dialkyl Carbonates [3]	joe Breen [5]	tool [-.931]
metal nanoparticles [3]	cyclopentenone [4]	Efficient Catalyst [.93]
mixtures [3]	natural waters [4]	Room Temperature [.93]
alpha,beta-unsaturated carbonyl compounds [3]	Bridgewater State College [4]	Thiols [.93]
Efficient Heterogeneous Catalyst [3]	carbonyls [4]	Reduction [-.928]
Nitroalkanes [3]	Preface [4]	optical properties [.925]
electrochemical synthesis [3]	friendly chemicals [4]	enzymes [-.909]
ammonia [3]	real-time quantitative PCR [4]	Determination [.904]
organosoluble polyamides [3]	2005 [4]	Green Media [.904]
Carbon-Based Solid Acid [3]	Science [4]	
case [3]	chemists [4]	
Pharmaceuticals [3]	green chemistry strategy [4]	
feedstocks [3]	clean chemistry [4]	
platinum electrode [3]	supercritical conditions [4]	
Polysaccharides [3]	Benzaldehydes [4]	
characterisation [3]		
quinolines [3]		
recyclable solvent [3]		
aqueous two-phase systems [3]		
Green Alternative [3]		
green chemical route [3]		
Schiff Base [3]		
chemoenzymatic		

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Synthesis [3]  
 2009 [3]  
 Aromatic Polyamides [3]  
 Aryl Halides [3]  
 Active Aromatic  
 Polyamides [3]  
 green production [3]  
 Halogenation [3]  
 Substrates [3]  
 sustainability Metrics [3]  
 bacteria [3]  
 improved synthesis [3]  
 VALIDATION [3]

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## 6、作者概况

国际前十位作者：

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Author	Record Count
Mallakpour, Shadpour	35
Hasaninejad, Alireza	13
Zare, Abdolkarim	12
Chakraborti, Asit K	9
Brush, E J	8
Liang, Xuezheng	6
Ganguly, S N	6
Manhas, M S	6
Mendes da Silva, Luis Henrique	6
Hespanhol da Silva, Maria do Carmo	6
Bose, A K	6
Albini, Angelo	6
Doll, Kenneth M	6
Singh, R K P	6

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中国发文前十位的作者分析结果显示如下：

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Author	Record Count
Shi, D Q	13
Zhuang, Q Y	11
He, Liang-Nian	11
Wang, X S	9
Liu, L	7
Guo, Q X	7
Tu, S J	7
Liang, Xuezheng	6
Han, Buxing	6
Hu, H W	6

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化学所的 篇论文目录:

1.

标题: Special Issue: Green Chemistry-A Route to the Goal of Sustainability Preface

作者: BuXing, Han; Yuan, He Ming

来源出版物: Sci. China-Chem

被引频次: 0

2.

标题: Catalytic Organic Reactions in CO<sub>2</sub>/H<sub>2</sub>O Medium

作者: Cheng Yan; Fan Honglei; Han Buxing; Wang Qian; Wu Suxiang

来源出版物: Prog. Chem

被引频次: 0

3.

标题: Effect of CO<sub>2</sub> on conversion of inulin to 5-hydroxymethylfurfural and propylene oxide to 1,2-propanediol in water

作者: Cheng, Yan; Fan, Honglei; Han, Buxing; Wang, Qian; Wu, Suxiang; Xie, Ye; Zhang, Zhaofu

来源出版物: Green Chem

被引频次: 2

4.

标题: Enhancing the selectivity of the hydrogenation of naphthalene to tetralin by high temperature water

作者: Cheng, Yan; Fan, Honglei; Gao, Liang; Guo, Jin; Han, Buxing; Wang, Qian; Wu, Suxiang; Zong, Baoning

来源出版物: Green Chem

被引频次: 3

5.

标题: Highly enantioselective hydrogenation of quinolines under solvent-free or highly concentrated conditions

作者: Fan, Qing-Hua; He, Yan-Mei; Wang, Tian-Li; Wang, Zhi-Jian; Zhou, Hai-Feng

来源出版物: Green Chem

被引频次: 16

6.

标题: Cross-linked polymer coated Pd nanocatalysts on SiO<sub>2</sub> support: very selective and stable catalysts for hydrogenation in supercritical CO<sub>2</sub>

作者: Han, Buxing; He, Jinling; Hu, Baoji; Jiang, Tao; Wu, Tianbin; Zhou, Xiaosi

来源出版物: Green Chem

被引频次: 4

7.

标题: Effect of Phase Behavior on the Ethenolysis of Ethyl Oleate in Compressed CO<sub>2</sub>

作者: Han, Buxing; Hou, Minqiang; Liu, Gang; Song, Jiyuan; Yang, Guanying; Zhang, Jianling

来源出版物: J. Phys. Chem. B

被引频次: 2

8.

标题: Functional ionic liquid from biorenewable materials: synthesis and application as a catalyst in direct aldol reactions

作者: Han, Buxing; Hu, Suqin; Jiang, Tao; Li, Wenjing; Song, Jinliang; Xie, Ye; Zhang, Zhaofu; Zhu, Anlian

来源出版物: Tetrahedron Lett

被引频次: 18

9.

标题: Recent advances in rare earth-metal triflate catalyzed organic synthesis in green media

作者: Cheng, J P; Luo, S Z; Mi, X L; Talukdar, A; Wang, P G; Zhang, G H; Zhu, L H

来源出版物: Mini-Rev. Org. Chem

被引频次: 15

10.

标题: Some new trends and recent progress towards environmentally benign synthesis

作者: Cheng, J P; Luo, S Z; Peng, Y Y; Wang, P G; Zhang, B L

来源出版物: Curr. Org. Synth

被引频次: 12

11.

标题: Desulfurization of flue gas: SO<sub>2</sub> absorption by an ionic liquid

作者: Gao, H X; Han, B X; Huang, J; Jiang, T; Liu, Z M; Wu, W Z

来源出版物: Angew. Chem.-Int. Edit

被引频次: 107

12.

标题: Hydrogenolysis of glycerol catalyzed by Ru-Cu bimetallic catalysts supported on clay with the aid of ionic liquids

作者: Han, Buxing; Jiang, Tao; Liang, Shuguang; Liu, Huizhen; Zhou, Yinxi

来源出版物: Green Chem

被引频次: 5

### 三、基于 Web of Science 数据库的文献调研

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#### 1、高被引综述

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据 Web of Science 数据库统计结果显示: 研究领域的综述论文共有 283 篇, 以下列出了前 10 位的高被引综述。

1.

标题: Origins, current status, and future challenges of green chemistry

作者: Anastas PT, Kirchhoff MM

来源出版物: ACCOUNTS OF CHEMICAL RESEARCH 卷: 35 期: 9 页: 686-694 出版年: SEP 2002

被引频次: 453

2.

标题: Microwave-accelerated homogeneous catalysis in organic chemistry

作者: Larhed M, Moberg C, Hallberg A

来源出版物: ACCOUNTS OF CHEMICAL RESEARCH 卷: 35 期: 9 页: 717-727 出版年: SEP 2002

被引频次: 444

3.

标题: A short history of ionic liquids - from molten salts to neoteric solvents

作者: Wilkes JS

来源出版物: GREEN CHEMISTRY 卷: 4 期: 2 页: 73-80 出版年: APR 2002

被引频次: 422

4.

标题: Green, catalytic oxidations of alcohols

作者: Sheldon RA, Arends IWCE, Ten Brink GJ, et al.

来源出版物: ACCOUNTS OF CHEMICAL RESEARCH 卷: 35 期: 9 页: 774-781 出版年: SEP 2002

被引频次: 334

5.

标题: Supercritical and near-critical CO<sub>2</sub> in green chemical synthesis and processing

作者: Beckman EJ

来源出版物: JOURNAL OF SUPERCRITICAL FLUIDS 卷: 28 期: 2-3 页: 121-191 出版年: MAR 2004

被引频次: 321

6.

标题: Microwave assisted synthesis - a critical technology overview

作者: Nuchter M, Ondruschka B, Bonrath W, et al.

来源出版物: GREEN CHEMISTRY 卷: 6 期: 2 页: 128-141 出版年: 2004

被引频次: 256

7.

标题: Hydroxyapatite-supported palladium nanoclusters: A highly active heterogeneous catalyst for selective oxidation of alcohols by use of molecular oxygen

作者: Mori K, Hara T, Mizugaki T, et al.

来源出版物: JOURNAL OF THE AMERICAN CHEMICAL SOCIETY 卷: 126 期: 34 页: 10657-10666 出版年: SEP 1 2004

被引频次: 241

8.

标题: Tandem reactions, cascade sequences, and biomimetic strategies in total synthesis

作者: Nicolaou KC, Montagnon T, Snyder SA

来源出版物: CHEMICAL COMMUNICATIONS 期: 5 页: 551-564 出版年: 2003

被引频次: 240

9.

标题: Solid acids for green chemistry

作者: Clark JH

来源出版物: ACCOUNTS OF CHEMICAL RESEARCH 卷: 35 期: 9 页: 791-797 出版年: SEP 2002

被引频次: 219

10.

标题: The chemistry of dimethyl carbonate

作者: Tundo P, Selva M

来源出版物: ACCOUNTS OF CHEMICAL RESEARCH 卷: 35 期: 9 页: 706-716 出版年: SEP 2002

被引频次: 199

## 2、高被引论文

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Web of Science 数据库有关研究方向的研究论文有 2142 篇，研究领域中被引用次数最高的前 10 篇论文为：

1.

标题: Preparation and characterization of new room temperature ionic liquids

作者: Branco LC, Rosa JN, Ramos JJM, et al.

来源出版物: CHEMISTRY-A EUROPEAN JOURNAL 卷: 8 期: 16 页: 3671-3677 出版年: AUG 16 2002

被引频次: 255

2.

标题: Sustainable bio-composites from renewable resources: Opportunities and challenges in the green materials world

作者: Mohanty AK, Misra M, Drzal LT

来源出版物: JOURNAL OF POLYMERS AND THE ENVIRONMENT 卷: 10 期: 1-2 页: 19-26 出版年: APR 2002

被引频次: 236

3.

标题: Computer simulation of a "green chemistry" room-temperature ionic solvent

作者: Margulis CJ, Stern HA, Berne BJ

来源出版物: JOURNAL OF PHYSICAL CHEMISTRY B 卷: 106 期: 46 页: 12017-12021 出版年: NOV 21 2002

被引频次: 195

4.

标题: Efficient photocatalytic decomposition of organic contaminants over  $\text{CaBi}_2\text{O}_4$  under visible-light irradiation

作者: Tang JW, Zou ZG, Ye JH

来源出版物: ANGEWANDTE CHEMIE-INTERNATIONAL EDITION 卷: 43 期: 34 页: 4463-4466 出版年: 2004

被引频次: 192

5.

标题: Green chemistry: Science and politics of change

作者: Poliakoff M, Fitzpatrick JM, Farren TR, et al.

来源出版物: SCIENCE 卷: 297 期: 5582 页: 807-810 出版年: AUG 2 2002

被引频次: 191

6.

标题: Bioreduction of  $\text{AuCl}_4^-$  ions by the fungus, *Verticillium* sp. and surface trapping of the gold nanoparticles formed

作者: Mukherjee P, Ahmad A, Mandal D, et al.

来源出版物: ANGEWANDTE CHEMIE-INTERNATIONAL EDITION 卷: 40 期: 19 页: 3585-+ 出版年: 2001

被引频次: 176

7.

标题: Recent advances in applications of room-temperature ionic liquid/supercritical  $\text{CO}_2$  systems

作者: Dzyuba SV, Bartsch RA

来源出版物: ANGEWANDTE CHEMIE-INTERNATIONAL EDITION 卷: 42 期: 2 页: 148-150  
出版年: 2003  
被引频次: 163

8.

标题: Structure-reactivity correlations in MgAl hydrotalcite catalysts for biodiesel synthesis  
作者: Cantrell DG, Gillie LJ, Lee AF, et al.  
来源出版物: APPLIED CATALYSIS A-GENERAL 卷: 287 期: 2 页: 183-190 出版年: JUN 22 2005  
被引频次: 156

9.

标题: Oxidation of sulfides to sulfoxides and sulfones with 30% hydrogen peroxide under organic solvent- and halogen-free conditions  
作者: Sato K, Hyodo M, Aoki M, et al.  
来源出版物: TETRAHEDRON 卷: 57 期: 13 页: 2469-2476 出版年: MAR 26 2001  
被引频次: 147

10.

标题: Temperature-dependent microscopic solvent properties of 'dry' and 'wet' 1-butyl-3-methylimidazolium hexafluorophosphate: correlation with ET(30) and Kamlet-Taft polarity scales  
作者: Baker SN, Baker GA, Bright FV  
来源出版物: GREEN CHEMISTRY 卷: 4 期: 2 页: 165-169 出版年: APR 2002  
被引频次: 142

### 3、会议论文

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研究领域上发表会议论文数量前 10 个的会议为:

会议名称	论文数
2ND INTERNATIONAL SYMPOSIUM ON GREEN AND SUSTAINABLE CHEMISTRY	19
IUPAC CHEMRAWN 14TH CONFERENCE ON GREEN CHEMISTRY: TOWARD ENVIRONMENTALLY BENIGN PROCESSES AND PRODUCTS	11
1ST INTERNATIONAL IUPAC CONFERENCE ON GREEN-SUSTAINABLE CHEMISTRY	9
11TH EUROPEAN CONFERENCE ON ANALYTICAL CHEMISTRY (EUROANALYSIS 11)	5
CONFERENCE OF THE NATO ADVANCED STUDY INSTITUTE ON NEW ORGANIC CHEMISTRY REACTIONS AND METHODOLOGIES FOR GREEN PRODUCTION	5
GREEN SOLVENTS FOR SYNTHESIS MEETING	5
SYMPOSIUM ON CLEAN SOLVENTS HELD AT THE NATIONAL MEETING OF THE AMERICAN-CHEMICAL-SOCIETY	4
SYMPOSIUM ON IONIC LIQUIDS AS GREEN SOLVENTS HELD AT THE 224TH AMERICAN-CHEMICAL-SOCIETY NATIONAL MEETING	4
2ND CONFERENCE ON FATS AND OILS AS RENEWABLE RESOURCES FOR THE CHEMICAL INDUSTRY	3
4TH ANNUAL GREEN CHEMISTRY AND ENGINEERING CONFERENCE	3

其中高被引用次数前 10 位的会议论文为:

1.

标题: Green solvents for sustainable organic synthesis: state of the art

作者: Sheldon RA

会议信息: Green Solvents for Synthesis Meeting, OCT 03-06, 2004 Bruchsal, GERMANY

来源出版物: GREEN CHEMISTRY 卷: 7 期: 5 页: 267-278 出版年: 2005

被引频次: 284

2.

标题: Pyridinium N-phenoxide betaine dyes and their application to the determination of solvent polarities part 29 - Polarity of ionic liquids determined empirically by means of solvatochromic pyridinium N-phenolate betaine dyes

作者: Reichardt C

会议信息: Green Solvents for Synthesis Meeting, OCT 03-06, 2004 Bruchsal, GERMANY

来源出版物: GREEN CHEMISTRY 卷: 7 期: 5 页: 339-351 出版年: 2005

被引频次: 232

3.

标题: Room-temperature ionic liquids: new solvents for f-element separations and associated solution chemistry

作者: Visser AE, Rogers RD

会议信息: 23rd Rare Earth Research Conference, JUL 13-18, 2002 UNIV CALIF DAVIS, DAVIS, CALIFORNIA

来源出版物: JOURNAL OF SOLID STATE CHEMISTRY 卷: 171 期: 1-2 页: 109-113 出版年: FEB 15 2003

被引频次: 126

4.

标题: Chemical reactions in supercritical carbon dioxide: from laboratory to commercial plant

作者: Licence P, Ke J, Sokolova M, et al.

会议信息: Green Solvents for Catalysis Meeting, OCT 13-16, 2002 BRUCHSAL, GERMANY

来源出版物: GREEN CHEMISTRY 卷: 5 期: 2 页: 99-104 出版年: 2003

被引频次: 93

5.

标题: Immersion lithography at 157 nm

作者: Switkes M, Rothschild M

会议信息: 45th International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication, MAY 29-JUN 01, 2001 WASHINGTON, D.C.

来源出版物: JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B 卷: 19 期: 6 页: 2353-2356 出版年: NOV-DEC 2001

被引频次: 89

6.

标题: Progress in evaluation of risk potential of ionic liquids-basis for an eco-design of sustainable products

作者: Jastorff B, Molter K, Behrend P, et al.

会议信息: Green Solvents for Synthesis Meeting, OCT 03-06, 2004 Bruchsal, GERMANY

来源出版物: GREEN CHEMISTRY 卷: 7 期: 5 页: 362-372 出版年: 2005

被引频次: 86



7.

标题: Recoverable catalysts. Ultimate goals, criteria of evaluation, and the green chemistry interface

作者: Gladysz JA

会议信息: IUPAC CHEMRAWN 14th Conference on Green Chemistry: Toward Environmentally Benign Processes and Products, JUN 09-13, 2001 BOULDER, COLORADO

来源出版物: PURE AND APPLIED CHEMISTRY 卷: 73 期: 8 页: 1319-1324 出版年: AUG 2001

被引频次: 85

8.

标题: Analysis of phenoxy herbicides in bovine milk by means of liquid-liquid-liquid microextraction with a hollow-fiber membrane

作者: Zhu LY, Ee KH, Zhao LM, et al.

会议信息: ExTech 2001 Conference, SEP 17-19, 2001 BARCELONA, SPAIN

来源出版物: JOURNAL OF CHROMATOGRAPHY A 卷: 963 期: 1-2 页: 335-343 出版年: JUL 19 2002

被引频次: 64

9.

标题: Xenobiotics in the environment: present and future strategies to obviate the problem of biological persistence

作者: Rieger PG, Meier HM, Gerle M, et al.

会议信息: Biotechnology 2000 Meeting, SEP, 2000 BERLIN, GERMANY

来源出版物: JOURNAL OF BIOTECHNOLOGY 卷: 94 期: 1 页: 101-123 出版年: MAR 14 2002

被引频次: 62

10.

标题: Solvent-free microwave organic synthesis as an efficient procedure for green chemistry

作者: Loupy A

会议信息: International Symposium on Green Chemistry, MAY 19-22, 2003 Poitiers, FRANCE

来源出版物: COMPTES RENDUS CHIMIE 卷: 7 期: 2 页: 103-112 出版年: FEB 2004

被引频次: 57

#### 4、期刊分布

发表论文数量排在前 10 位的期刊为:

期刊名称	论文数
ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY	260
GREEN CHEMISTRY	193
TETRAHEDRON LETTERS	100
CHEMISTRY-A EUROPEAN JOURNAL	84
ANGEWANDTE CHEMIE-INTERNATIONAL EDITION	79
ADVANCED SYNTHESIS & CATALYSIS	78
SYNLETT	77
CHEMICAL & ENGINEERING NEWS	57
PURE AND APPLIED CHEMISTRY	51

## 5、基金资助

排在前 10 位的基金资助机构为：

基金资助机构	论文数
NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA	54
NATIONAL SCIENCE FOUNDATION	19
CNPQ	18
CAPES	17
NATIONAL ELITE FOUNDATION NEF	14
CNRS	13
JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE JSPS	11
RESEARCH AFFAIRS DIVISION ISFAHAN UNIVERSITY OF TECHNOLOGY IUT ISFAHAN	11
CENTER OF EXCELLENCY IN SENSORS AND GREEN CHEMISTRY RESEARCH IUT	10
FAPESP	10

由国家自然科学基金资助的发表研究论文前 10 位的机构为：

基金资助的机构	论文数
CHINESE ACAD SCI	10
E CHINA UNIV SCI & TECHNOL	5
HUAZHONG UNIV SCI & TECHNOL	5
NANKAI UNIV	5
NW NORMAL UNIV	4
FUDAN UNIV	2
HENAN NORMAL UNIV	2
JILIN UNIV	2
NANJING UNIV AERONAUT & ASTRONAUT	2
S CHINA UNIV TECHNOL	2

## 四、化学所及国内外机构比较分析（趋势分析及文献调研中涉及的分析项）

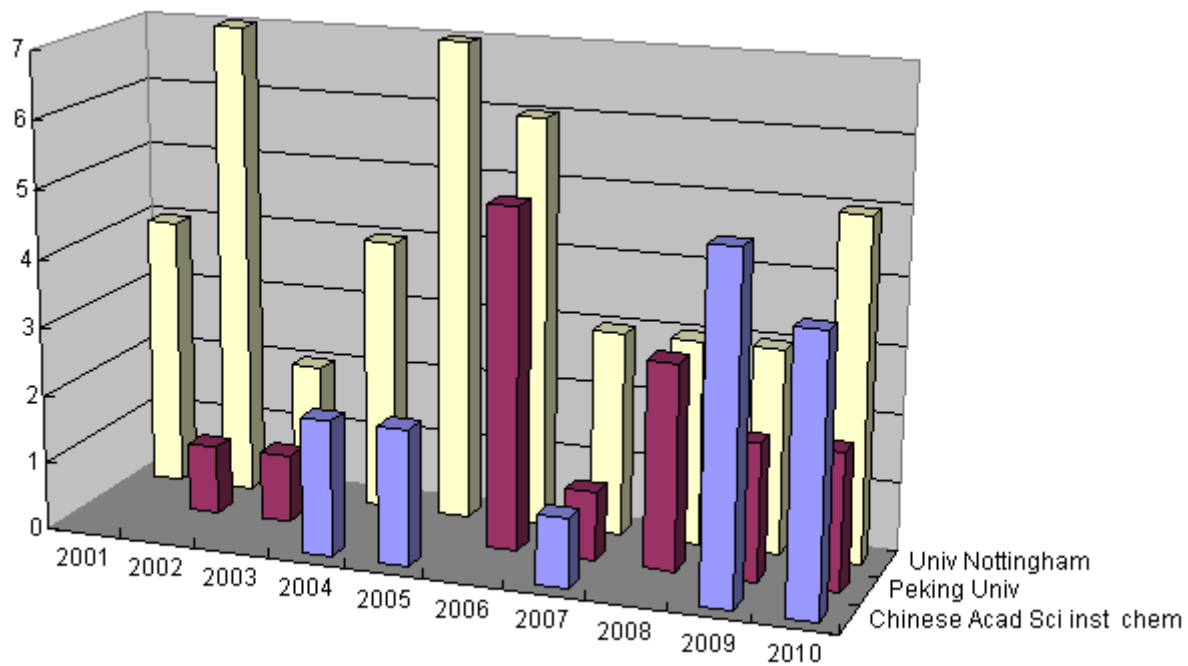
### 1、总体概况对比

对比机构：中科院化学所(Chinese Acad Sci, Inst Chem)、北京大学 (Peking Univ)以及诺丁汉大学(Univ Nottingham)

论文量	对比机构	主要合作机构	主要合作国家	近三年发文比	主要技术术语
24	Univ Nottingham	Univ Addis Ababa [3]; Wuhan Univ [2]; Russian Acad Sci [2]; Thomas Swan & Co Ltd [2]; Tohoku Univ [2]; US EPA [2]	England [24]; USA [5]; Ethiopia [3]; Russia [3]	25% of 24	green Chemistry [10]; Ethiopia [3]; biomass [2]; commercial plant [2]; supercritical carbon dioxide [2]
14	Peking Univ	None	Peoples R China [14]	50% of 14	water [3]; green Chemistry [2]; synthesis [2]; ionic Liquid [2]
12	Chinese Acad Sci	Nankai Univ [2]	Peoples R China [12]	67% of 12	hydrogenation [2]; ionic Liquid [2]; effect [2]

### 2、论文产出与增长趋势对比

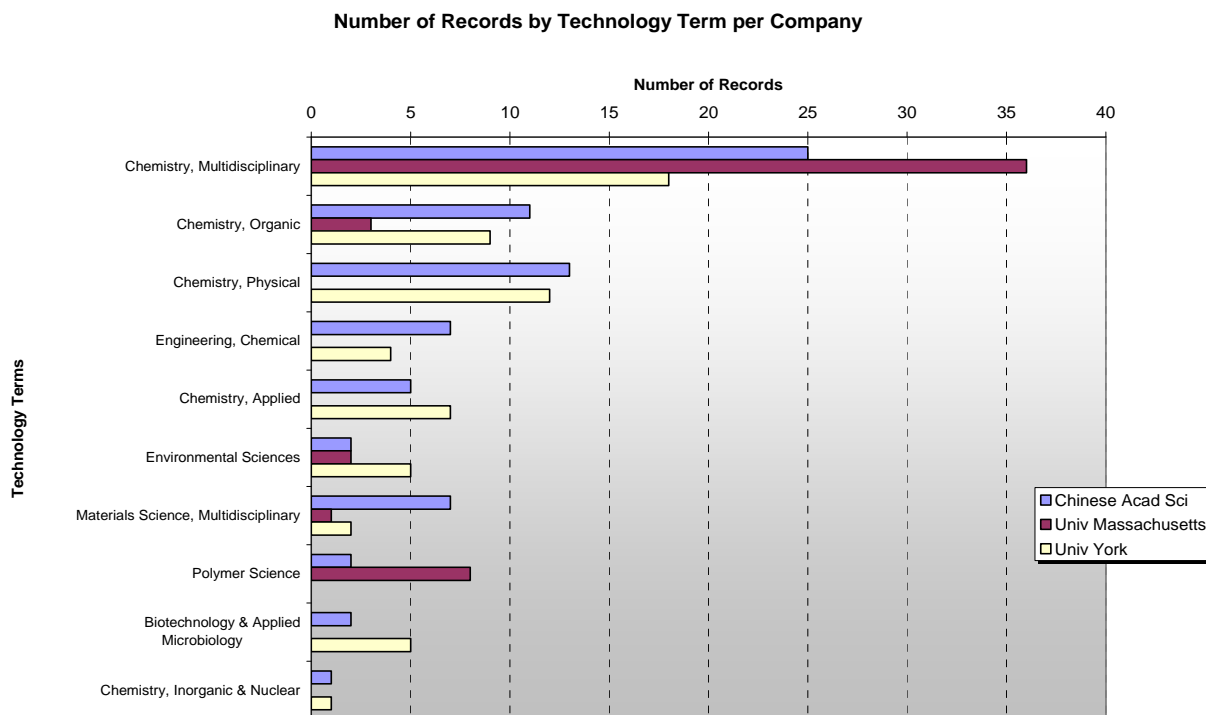
三个机构发表论文共 52 篇，其中中科院化学所 12、北京大学 14 篇、诺丁汉大学 26 篇，下图可以清晰的看到国际和中国发表论文的发展趋势。



对比机构发表论文年代变化趋势

### 3、学科分布对比

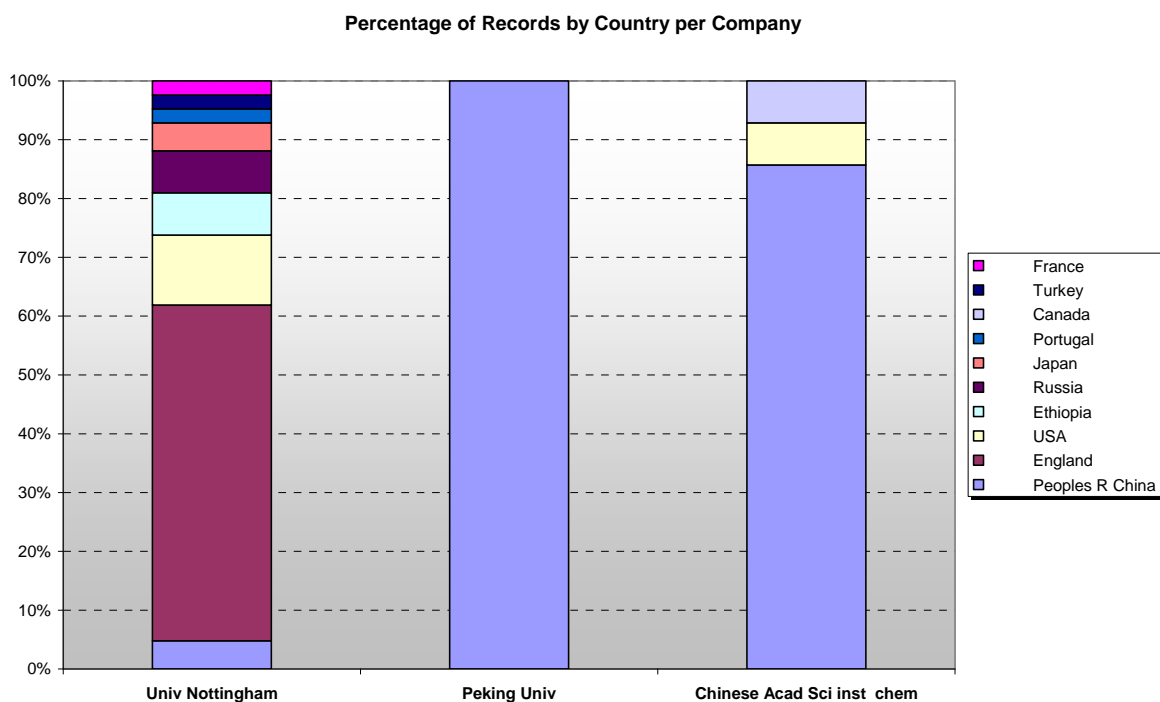
学科领域分布对比如下：



#### 4、合作国家对比分析

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合作的国家和地区对比分析如下：

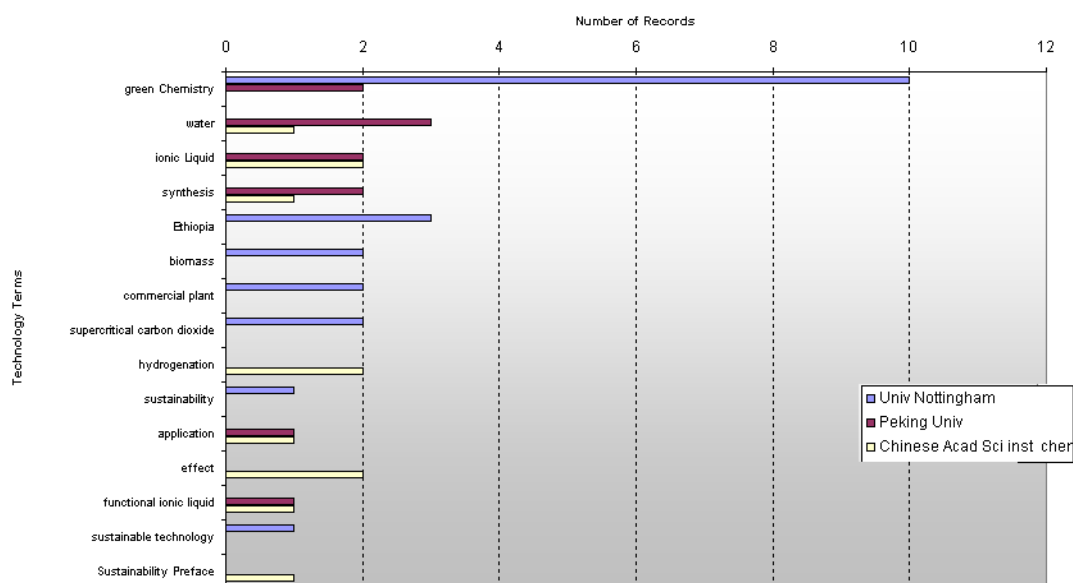


#### 5、技术术语对比分析

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通过对研究三个机构 52 篇科技论文中的技术术语进行分析，可以对研究领域出现的高频词分布有一个大致的了解。

Number of Records by Technology Term per Company



### Technology Terms Unique To One Company

Univ Nottingham	Peking Univ	Chinese Acad Sci inst chem
Ethiopia [3]	star-shaped PbS nanocrystals [1]	hydrogenation [2]
biomass [2]	soluble copper nanocluster catalyst [1]	effect [2]
commercial plant [2]	S-Alkylisothiuronium Salts [1]	Sustainability Preface [1]
supercritical carbon dioxide [2]	Pyridines via [1]	supercritical CO2 [1]
sustainability [1]	primary amine hydrochloride [1]	stable catalysts [1]
sustainable technology [1]	organic synthetic reactions [1]	special Issue [1]
conventional methodology [1]	one-pot synthesis [1]	solvent-free [1]
supercritical water [1]	One-Pot [1]	SO2 absorption [1]
supercritical mixtures [1]	odorless S-alkylisothiuronium salts [1]	SiO2 support [1]
supercritical fluids [1]	novel Mannich reaction [1]	selectivity [1]
greener chemical reactions [1]	new advances [1]	Ru-Cu bimetallic catalysts [1]
starch [1]	N-alkyoxycarbonylpyrrole [1]	recent progress [1]
Solid-State Electroreduction [1]	mixed cationic/anionic surfactants [1]	recent advances [1]
solid TiO2 [1]	methyl formate via heterogeneous carbonylation [1]	rare earth-metal triflate [1]
selective oxidations [1]	methanol [1]	quinolines [1]
Science [1]	Malononitrile [1]	propylene oxide [1]
Recyclable NH4HCO3 [1]	Making Nanoparticle Catalysis [1]	Phase Behavior [1]
Raman spectroscopy [1]	m(OTf)(3) [1]	organic synthesis [1]

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PRODUCTIVELY [1]	low-temperature synthesis [1]	new trends [1]
process [1]	liquid-phase synthesis [1]	naphthalene [1]
principles [1]	Lewis acidic ionic liquids [1]	desulfurization [1]
politics [1]	ionic liquid media [1]	conversion [1]
phase transitions [1]	Greener [1]	hydrogenolysis [1]
perovskitization [1]	green solvents [1]	high temperature water [1]
Overlooked Barrier [1]	functionalized crown-ether ionic liquids [1]	concentrated conditions [1]
origins [1]	Friedel-Crafts alkylation [1]	green media [1]
oil [1]	formaldehyde [1]	Green Chemistry-A Route [1]
next industrial revolution [1]	finkelstein reaction [1]	CO2/H2O Medium [1]
new materials focusing [1]	Aldehydes [1]	Goal [1]
near-critical water [1]	catalytic asymmetric reaction [1]	glycerol [1]
molten CaCl <sub>2</sub> [1]	Three-Component Cascade Reaction [1]	flue gas [1]
methylaromatic compounds [1]	aqueous solutions [1]	Ethyl Oleate [1]
metal-to-Oxide Molar Volume Ratio [1]	transition metal nanoparticle catalysis [1]	Ethenolysis [1]
lignin [1]	5-aryl-3-methylpyrazole[3,4-e][1,2,3,4]tetrazines [1]	enantioselective hydrogenation [1]
life-cycle approaches [1]	thiophene [1]	catalytic Organic Reactions [1]
laboratory [1]	5-amino-4-arylozo-3-methyl-1H-pyrazoles [1]	direct aldol reactions [1]
current status [1]	thiol equivalents [1]	cross-linked polymer coated Pd nanocatalysts [1]
introduction [1]	tomorrow's solution [1]	catalyst [1]
IMPROVEMENTS	Today's solvent [1]	Compressed CO <sub>2</sub> [1]
PRODUCTIVELY [1]	thia-Michael addition [1]	biorenewable materials [1]
immobilised	Syngas Catalytic Conversion [1]	CO <sub>2</sub> [1]
homogeneous catalyst [1]		benign synthesis [1]
hydropyrolysis [1]		clay [1]
catalysis [1]		aid [1]
handbook [1]		1,2-propanediol [1]
Green Engineering [1]		5-hydroxymethylfurfural [1]
green chemists [1]		tetralin [1]
green chemistry technologies [1]		inulin [1]
green chemicals [1]		
Green [1]		
future challenges [1]		
clean technology [1]		
foundational pillar [1]		
first Green Chemistry workshop [1]		
extraction [1]		
cellulose fibers [1]		
essential oils [1]		

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enabling tool [1]  
 continuous asymmetric  
 hydrogenation [1]  
 Bypass [1]  
 collaborations [1]  
 Aerobic oxidation [1]  
 cleaner extraction [1]  
 chemical reactions [1]  
 change [1]  
 challenges [1]  
 cellulose [1]  
 catalytic oxidation [1]  
 -assisted electrochemical  
 reduction [1]  
 acetonitrile [1]  
 bench scale [1]  
 Artemisia afra [1]  
 24 Principles [1]  
 technology [1]  
 hydrolysis [1]  
 Ethiopia [3]  
 biomass [2]  
 commercial plant [2]

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### *Technology Terms Shared By Only Two Companies*

Univ Nottingham & Peking Univ	Univ Nottingham & Chinese Acad Sci inst chem	Peking Univ & Chinese Acad Sci inst chem
green Chemistry [12]	无	water [4] ionic Liquid [4] synthesis [3] application [2]

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## 6、基金资助对比

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基金组织	诺丁汉大学	北京大学	中科院化学所
National Natural Science Foundation of China	1	2	5
National Key Basic Research Project of China			4
Chinese Academy of Sciences			4
EPSRC	2		
Russian Foundation for Basic Research	1		
Royal Society	1		

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Paul Instrument Fund	1	
Natural Science Foundation of Inner Mongolia, China		1
FCT (fundacao para a Ciencia e a Tecnologia)	1	
National Key Technology RD Program		1
National Key Fundamental R&D Program of China	1	
AstraZeneca	1	
National Hi-Tech R&D Program of China	1	
INVISTA Performance Technologies	1	
University of Nottingham	1	
TSB	1	
DICE Science and Innovation Award	1	

## 六、小结

以美国科学情报研究所（ISI）开发的基于 Web 的 Web of Science 网络数据库为数据源基础，对 2001-2010SCIE 和 2001-2010 的 CPCI-S 中收录的研究领域论文的情况进行了统计与分析。

目的在于为了解研究领域的概况，提供一定参考。

如有纰漏，请指正。