Elsevier Research Intelligence

重庆大学
利用SciVal 研究主题进行学科评价

陈炬（顾问）
2019

Empowering Knowledge

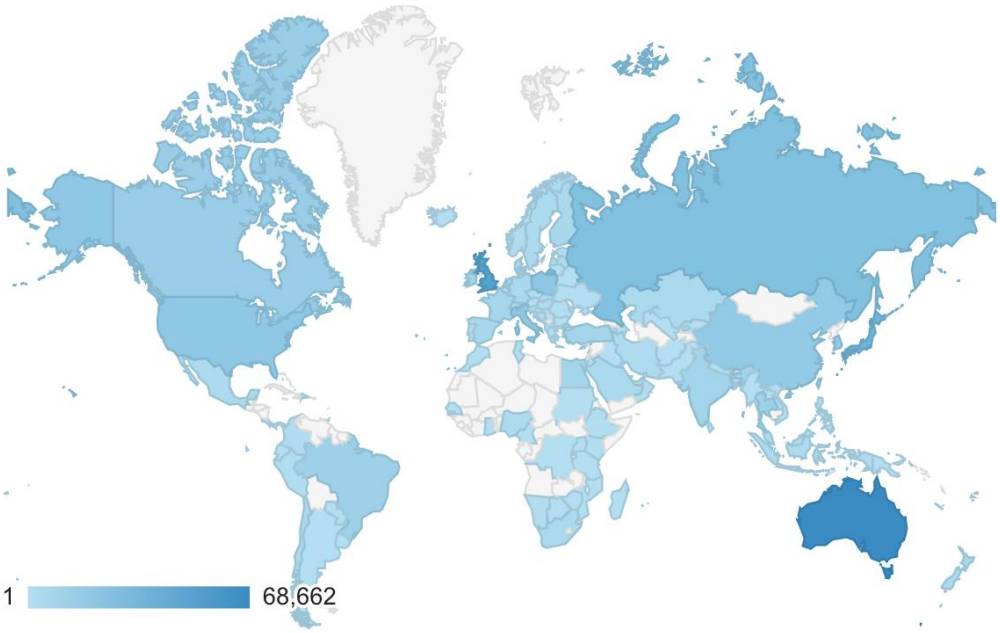
内容

1. SciVal 研究主题“Topics of Prominence” 简介
2. 利用研究主题“Topics of Prominence”进行学科评价
3. 案例- 重庆大学电气工程学科简析
4. 问答

SciVal产品团队

SciVal用户概览

- Measuring research performance of **>13,500 academic, corporate** and **governmental institutions**
- More than **1,250 customers,** across **80 countries,** since its **launch in 2014.** Predominantly academic institutions.
- Very strong presence in **UK, Australia, Japan, China and Russia**
- **Corporate customers** include: Unilever, Siemens, Boeing
- Several **funding organizations** and **national government bodies**

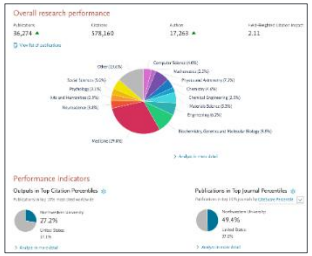


SciVal功能模块

SciVal offers quick, easy access to the research performance of 230 nations and over >13,500 research institutions worldwide, and groups of institutions

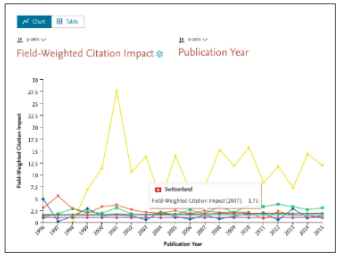
Visualize research performance

Ready-made-at a glance snapshots of any selected entity



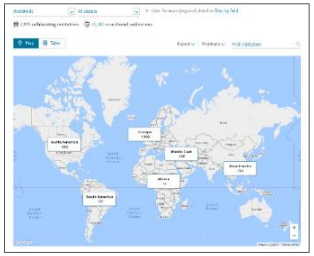
Benchmark your progress

Flexibility to create and compare any research groups



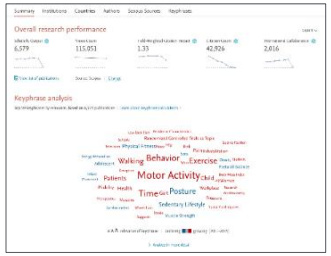
Develop collaborative partnerships

Identify and analyze existing and potential collaboration opportunities



Analyze research trends

Analyze research trends to discover the top performers and rising stars



Use evidence from over **280,000,000,000,000** data points in your decision-making

指标（ >30 sets ）

产出指标
- Scholarly Output
- Outputs in Top Percentiles
- Publications in Top Journal Percentiles

引文相关指标
- Citation Count
- Citations per Publication
- Cited Publications
- Number of Citing Countries
- *h*-indices (*h*, *g*, *m*)
- Field-Weighted Citation Impact
- Citing-Patent Count
- Patent-Cited Scholarly Output
- Patent-Citations Count
- Patent-Citations per Scholarly Output

合作指标
- Collaboration (geographical)
- Collaboration Impact (geographical)
- Academic-Corporate Collaboration
- Academic-Corporate Collaboration Impact

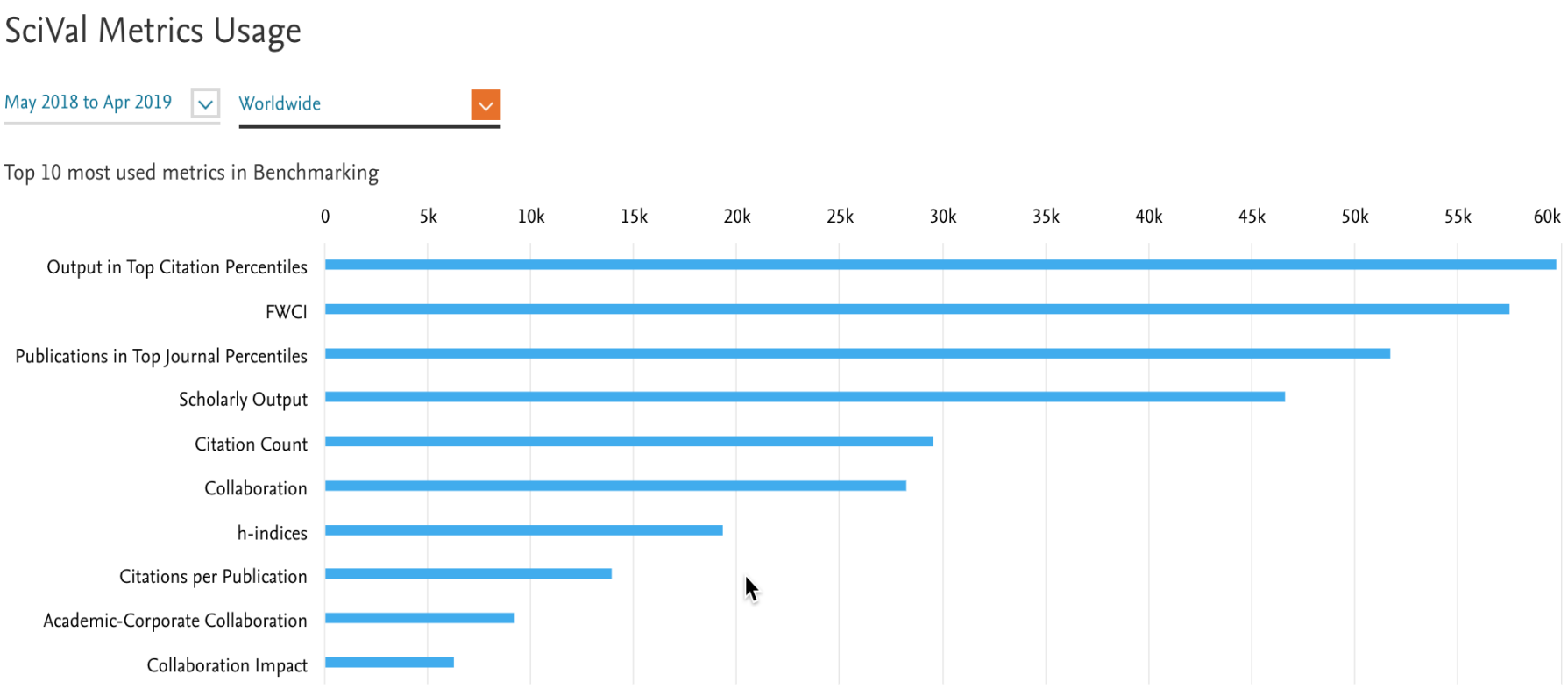
期刊指标
- Journal count
- Journal category count

浏览相关指标
- Views Count
- Views per Publication
- Field-Weighted Views Impact

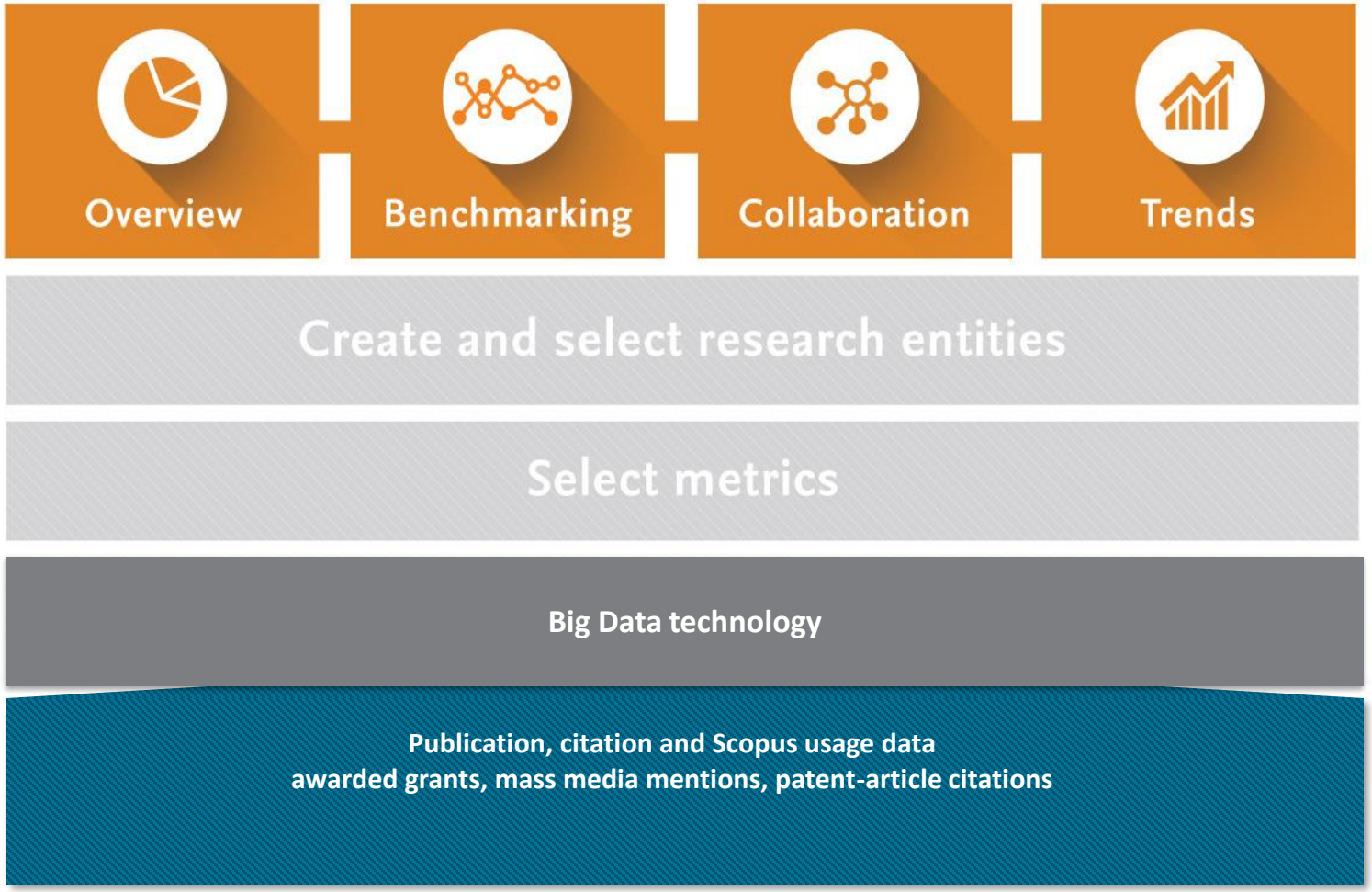
社会影响力
- Mass Media
- Media Exposure

Snowball Metric; www.snowballmetrics.com/metrics

全球常用指标(2018-2019)



SciVal架构


Overview
Benchmarking
Collaboration
Trends
Create and select research entities
Select metrics
Big Data technology
Publication, citation and Scopus usage data
awarded grants, mass media mentions, patent-article citations

THE / QS 排名

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THE WORLD UNIVERSITY RANKINGS

Teaching (the learning environment): 30%

- Reputation survey: 15%
- Staff-to-student ratio: 4.5%
- Doctorate-to-bachelor' s ratio: 2.25%
- Doctorates-awarded- to-academic-staff ratio: 6%
- Institutional income: 2.25%

Research (volume, income and reputation): 30%

- Reputation survey: 18%
- Research income: 6%
- Research productivity: 6%

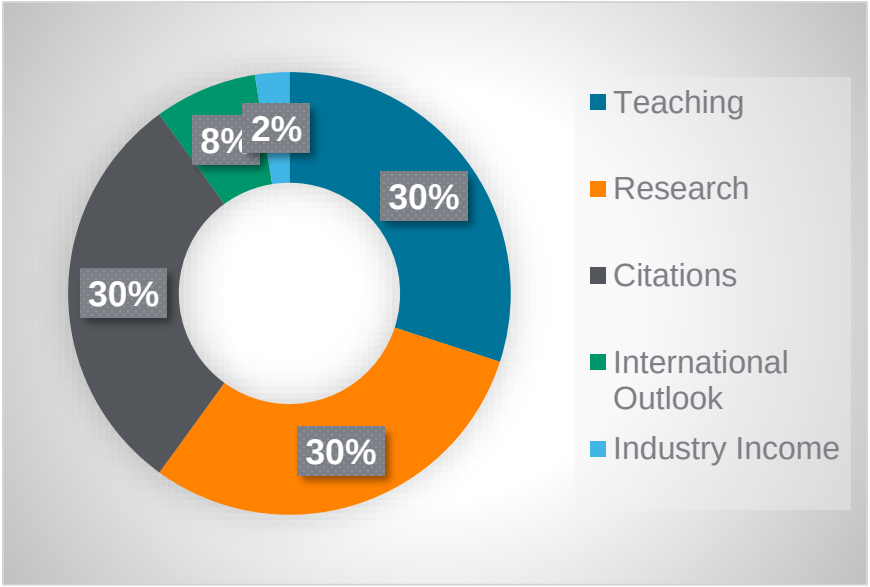
Citations (research influence): 30%

- Field-Weighted Citation Impact
- Kilo Papers fractionally counted

International outlook (staff, students, research): 7.5%

- International-to-domestic-student ratio: 2.5%
- International-to-domestic-staff ratio: 2.5%
- International collaboration: 2.5%

Industry income (knowledge transfer): 2.5%



Scopus is exclusive provider of publication and citation data for THE University Rankings.

QS WORLD UNIVERSITY RANKINGS Methodology

Academic Reputation (40%)
- Academic Survey 70,000 individuals

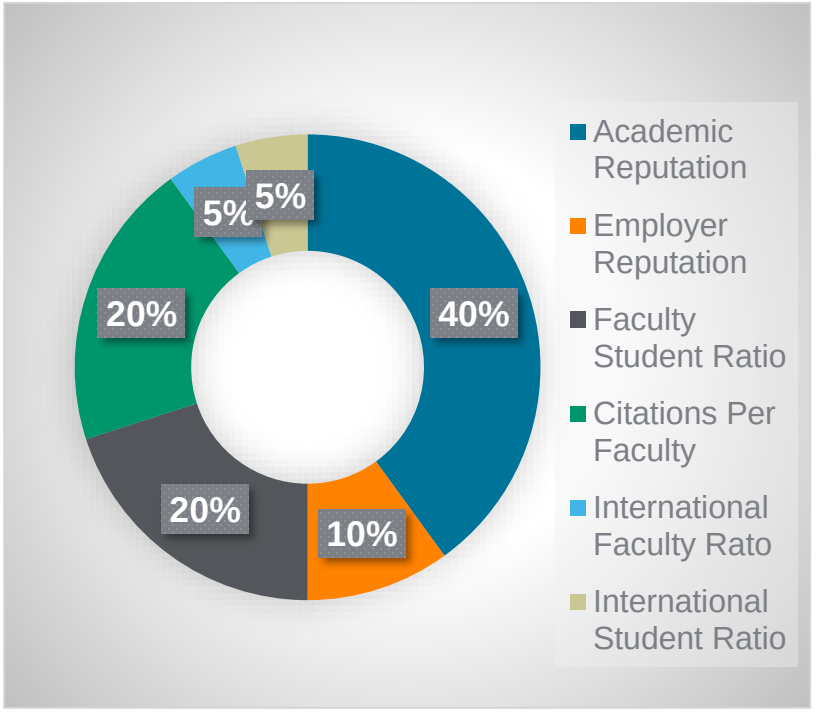
Employer Reputation (10%)
- 30,000 responses to QS Employer Survey

Faculty/Student Ratio (20%)
- Proxy for Teaching quality

Citations per faculty (20%)
- Field normalized
- Output normalized

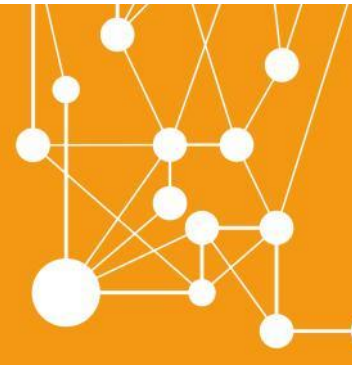
International Faculty Ratio (5%)

International Student Ratio (5%)



Scopus is exclusive provider of publication and citation data for QS University Rankings.

研究主题显著度



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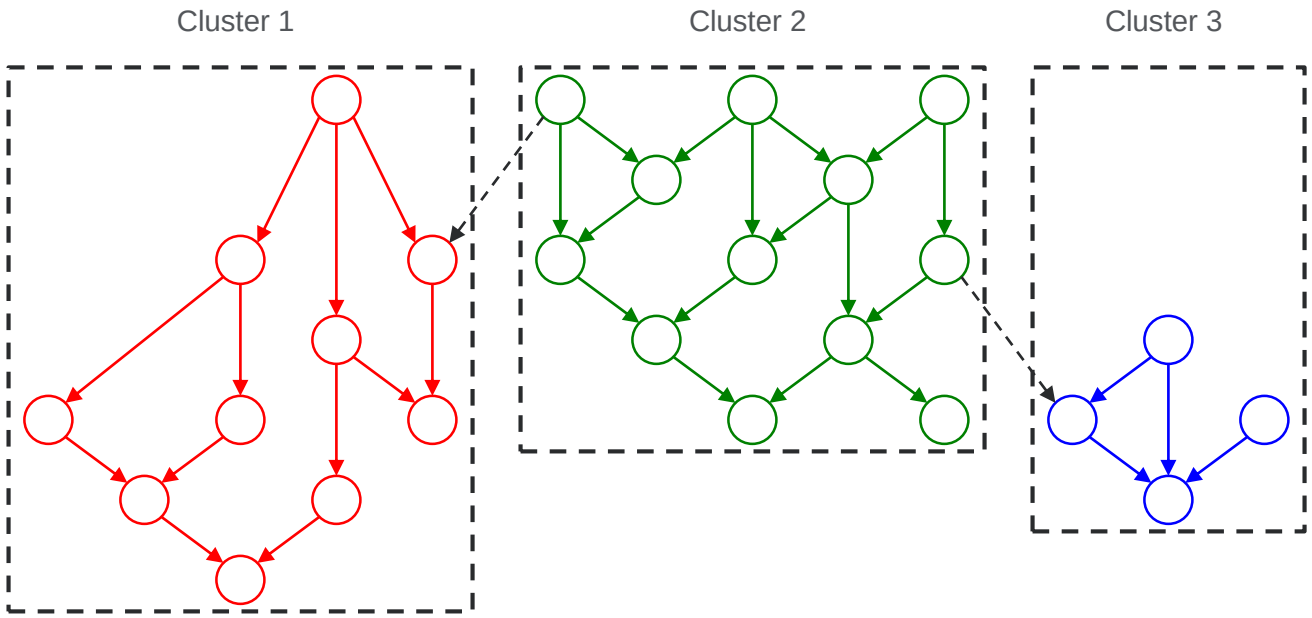
研究主题划分

- All Scopus publications are clustered into topics using direct citation analysis，where there is a weak citation link, there is a break and a new Topic is formed.
- ~35 million publications (1996-present) in ~100,000 topics



研究主题显著度算法

Topics are ranked by Prominence. Prominence combines 3 complementary metrics to indicate the momentum of the topic:

- **Citation Count** in year n to papers published in n and n-1
- Scopus **Views Count** in year n to papers published in n and n-1
- Average **CiteScore** for year n

In equation form, prominence is calculated for each topic j in year n as:

$$P_j = 0.495\ (C_j - mean(C_j))/stdev(C_j) + 0.391\ (V_j - mean(V_j))/stdev(V_j) + 0.114\ (CS_j - mean(CS_j))/stdev(CS_j),$$

where c_j is citation counts to articles in cluster j published in years n and n-1, v_j is the Scopus views counts to articles in cluster j published in years n and n-1, and cs_j is the average CiteScore for articles in cluster j published in year n. These raw values are log-transformed into the values used in the formula as $C_j = ln(c_j + 1)$, $V_j = ln(v_j + 1)$, and $CS_j = ln(cs_j + 1)$.

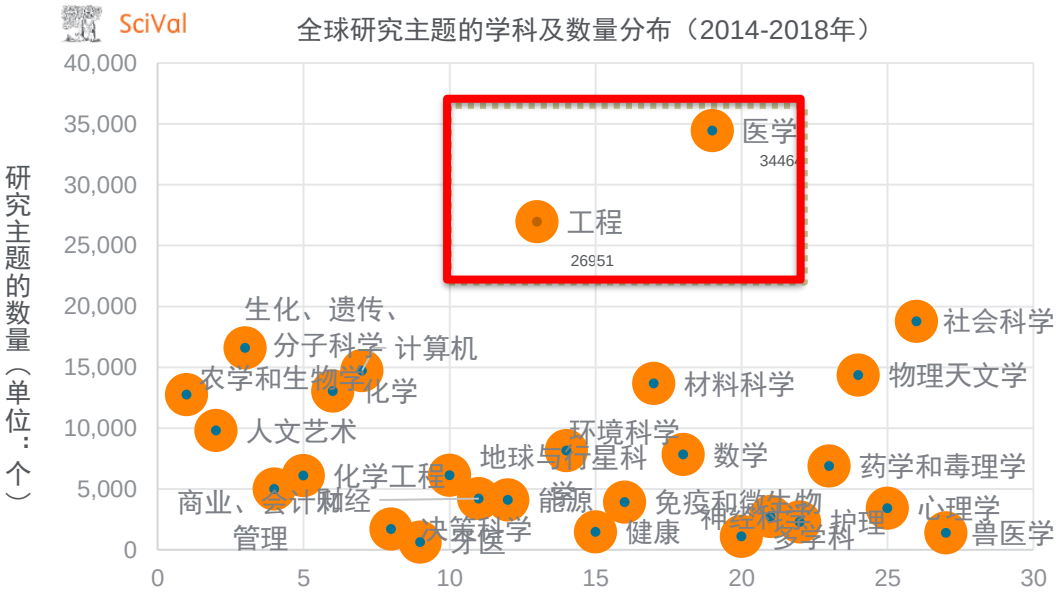
NOTE: 5 year window。

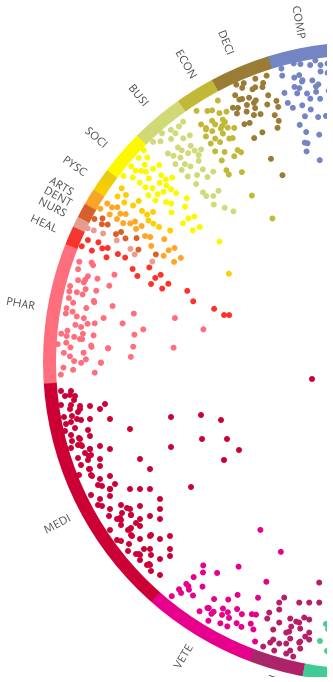
* 70,000,000 Scopus
* 95,801 研究主题
* 1,494 研究主题集合

全球研究主题的学科分布

10万个研究方向的学科分布	
27个SciVal一级学科	研究方向的数量
Medicine	34,464
Engineering	26,951
Social Sciences	18,793
Biochemistry, Genetics and Molecular Biology	16,610
Computer Science	14,739
Physics and Astronomy	14,358
Materials Science	13,686
Chemistry	13,041
Agricultural and Biological Sciences	12,765
Arts and Humanities	9,805
Environmental Science	8,173
Mathematics	7,847
Pharmacology, Toxicology and Pharmaceutics	6,910
Earth and Planetary Sciences	6,143
Chemical Engineering	6,107
Business, Management and Accounting	5,008
Economics, Econometrics and Finance	4,206
Energy	4,121
Immunology and Microbiology	3,921
Psychology	3,441
Neuroscience	2,734
Nursing	2,303
Decision Sciences	1,726
Health Professions	1,493
Veterinary	1,402
Multidisciplinary	1,111
Dentistry	641

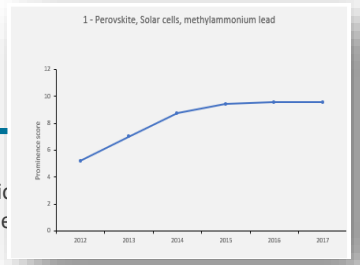
全球研究主题的学科分布

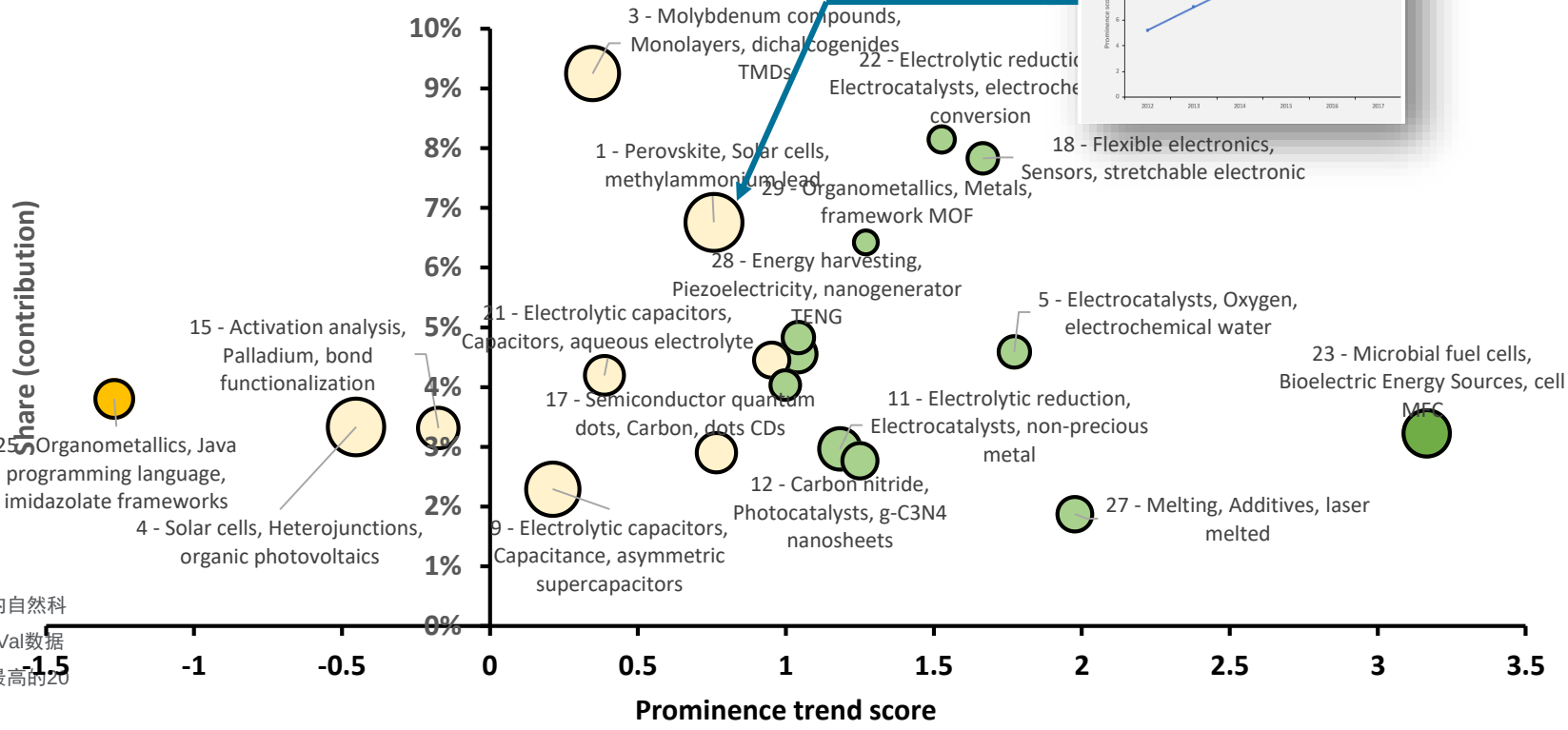




*Topics of Prominence模型：SciVal数据库把Scopus收录的1996年以后的5000万篇论文根据论文之间的相互引用关系归类成了96000个研究方向，并通过综合指标评价出了每个研究发现的热门和显著度，使用prominence来表征。

自然与工程领域聚焦了20个显著性主题 – US National Science Foundation（NSF）



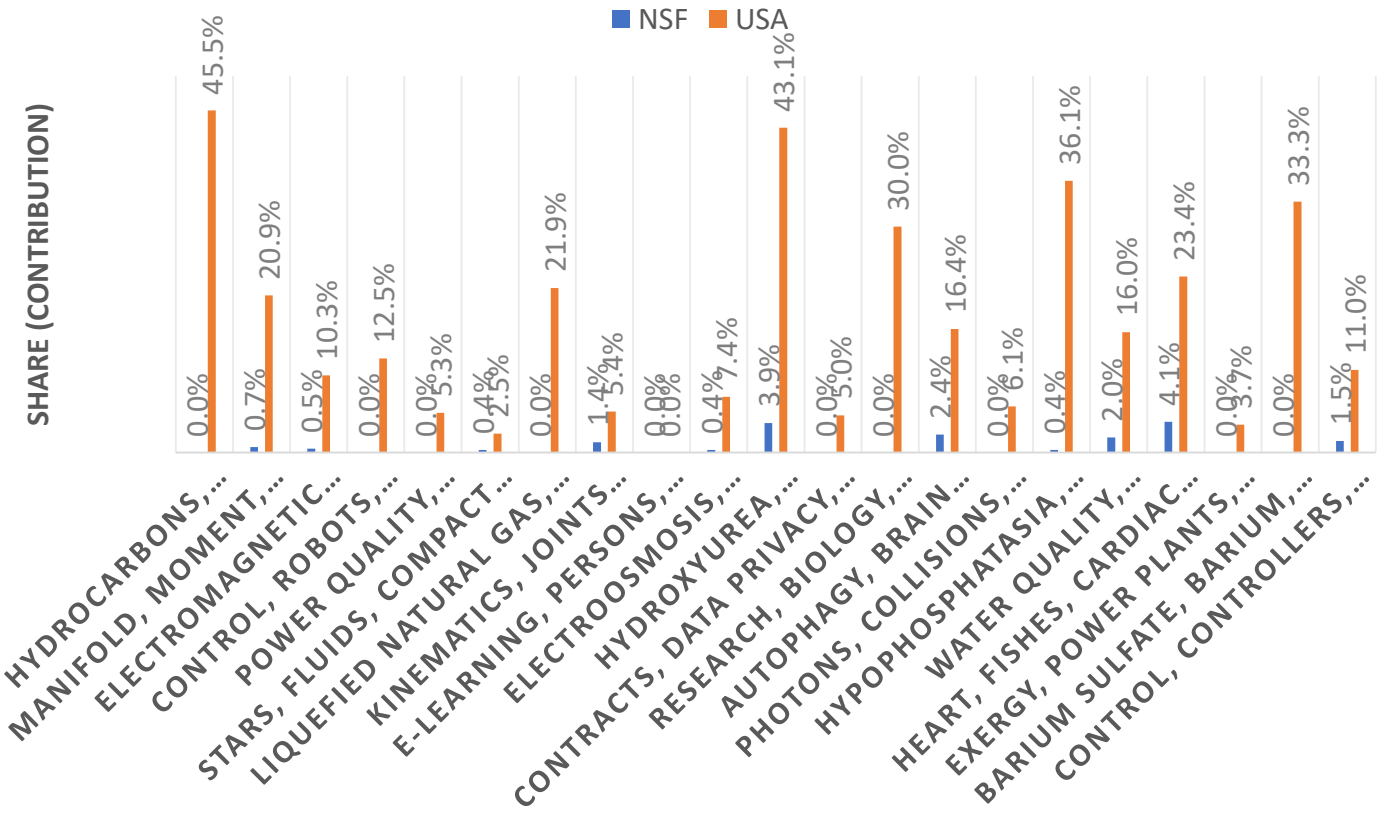


- 右图显示了全球范围内自然科学和工程领域按照SciVal数据库Topics模型显著度最高的20个研究方向。
- NSF正在积极支持所有的这20个研究方向
- **泡泡大小**：每个主题中的全球发文量；
- **泡泡颜色**：主题的显著性程度，绿色是快速增长，黄色是快速下降；
- **泡泡关键词旁边的数字**：热度排名

*使用SciVal数据库Topics模型对美国Star Metrics data (2008-2014年)基金数据源：NIH, NSF进行了分析发现，在总共364,000项基金资助项目, 共计2530亿美元中，有314,000项，共计2030亿美元可以在topics中找到数据支撑，覆盖率达75%。

未来研究热点预测

- 从图上可以看出，有一些“研究关注度”很高的研究热点还没有得到NSF的资助。
- NSF可能会在未来开始在这些研究方向上加大投入



对比42所双一流建设高校的研究热点分布

Topic Cluster	Topic Clus	Scholarly (	Prominenc	Beihang U	Beijing Ins	Beijing Nor	Central So	China Agr	Chongqing	alian Uni	East China	Fudan Uni	Harbin Inst	Huazhong
Algorithms; Computer Vision; Models	TC.0	33486	99.465	2009	1424	363	371	78	597	958	273	468	1753	1350
Secondary Batteries; Electric Batteries; Lithium Alloys	TC.30	25269	100	593	1025	82	1874	11	715	675	284	1049	1248	1031
Photocatalysis; Photocatalysts; Solar Cells	TC.8	19614	99.933	407	340	126	462	16	618	656	286	612	797	934
Graphene; Carbon Nanotubes; Nanotubes	TC.22	17797	99.866	555	424	197	449	17	385	501	180	625	834	736
Control; Controllers; Linear Matrix Inequalities	TC.9	15506	96.921	1792	991	11	342	18	261	456	27	58	2295	571
Cognitive Radio; MIMO Systems; Orthogonal Frequency Divi	TC.3	14156	97.523	526	487	32	138	7	269	351	49	181	794	522
Plasmons; Metamaterials; Surface Plasmon Resonance	TC.47	12945	99.531	261	233	91	248	18	210	235	142	463	661	584
MicroRNAs; Long Untranslated RNA; Neoplasms	TC.219	12307	99.398	8	5	11	1040	86	156	26	49	1114	52	675
Electric Potential; Electric Inverters; DC-DC Converters	TC.13	11951	98.461	190	268	5	312	45	763	91	7	40	1014	883
Electric Power Transmission Networks; Wind Power; Electric	TC.28	11331	99.13	66	110	19	100	199	522	155	11	17	288	773
Catalysts; Zeolites; Hydrogenation	TC.7	9888	99.732	82	82	43	146	23	199	766	312	433	124	148
Catalysis; Synthesis (Chemical); Catalysts	TC.4	9775	99.799	2	130	106	67	94	193	246	430	371	91	80
Organic Light Emitting Diodes (OLED); Solar Cells; Conjugat	TC.61	9068	99.598	132	133	180	198	20	61	146	68	276	190	243
Microstructure; Steel; Austenite	TC.20	8658	97.323	297	180	2	772	0	747	282	5	59	560	259
Wireless Sensor Networks; Sensor Nodes; Routing Protocol	TC.27	8558	96.519	300	300	45	412	20	196	353	61	55	368	343
Semantics; Models; Recommender Systems	TC.37	7670	96.319	381	323	129	76	26	91	276	194	217	580	122
Piles; Soils; Geotechnical Engineering	TC.64	7668	87.684	111	10	3	613	10	429	400	3	5	156	188
Microbial Fuel Cells; Anaerobic Digestion; Bioreactors	TC.65	7657	99.063	40	12	124	69	345	377	271	87	107	1288	88
Climate Models; Model; Rainfall	TC.5	7501	98.929	34	28	1412	40	278	17	186	96	124	57	197
Traffic Control; Transportation; Models	TC.107	7169	93.708	473	125	62	171	9	141	202	90	74	280	135
Ligands; Crystal Structure; Organometallics	TC.71	6923	99.331	22	150	78	122	4	34	293	206	170	117	206
Gasification; Pyrolysis; Coal	TC.87	6884	98.527	40	21	27	145	129	212	172	28	42	367	990
Antennas; Slot Antennas; Microwave Antennas	TC.55	6788	91.031	170	312	0	21	0	149	39	28	34	255	69
Magnesium Alloys; Alloys; Aluminum Alloys	TC.106	6762	91.834	225	47	11	1064	0	562	222	3	24	617	210
Ferroelectricity; Dielectric Properties; Ferroelectric Materials	TC.86	6726	96.118	84	133	30	145	2	127	48	170	83	414	341
Cloud Computing; Clouds; Distributed Computer Systems	TC.70	6678	93.173	355	104	26	137	12	141	153	65	107	189	653
Fiber Lasers; Fibers; Optical Fibers	TC.111	6523	88.353	490	109	1	40	11	153	159	68	94	385	623
Reinforced Concrete; Concretes; Steel	TC.137	6502	89.224	36	31	1	205	7	381	382	0	1	529	72
Synthetic Aperture Radar; Radar; Radar Imaging	TC.204	6453	81.794	444	716	23	144	7	89	38	25	92	439	33

案例分析
电子工程学科简析

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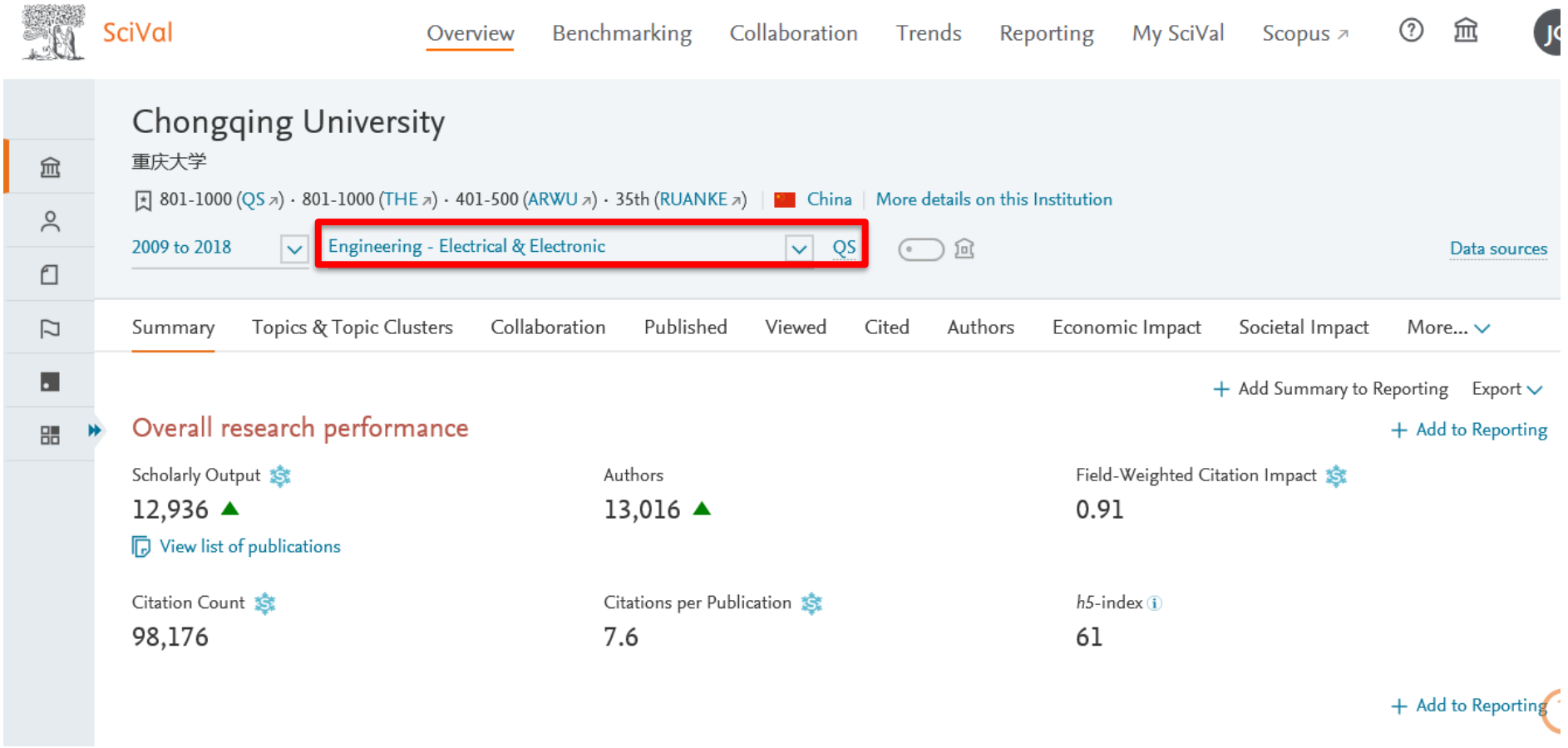
指标选择

主题级别	国家和机构级别	作者级别	论文级别
主题显著性指数	学术产出数量	学术产出数量	被引频次
学术产出数量	被引频次	被引频次	被浏览数量
被引频次	被浏览数量	篇均被引频次	期刊影响因子
被浏览数量	国际合作数量	H 指数	被新闻媒体报道的数量
国际/机构合作率	领域归一化的引用影响		
领域归一化的引用影响			
施引专利的数量			
被新闻媒体报道的数量			

学科界定

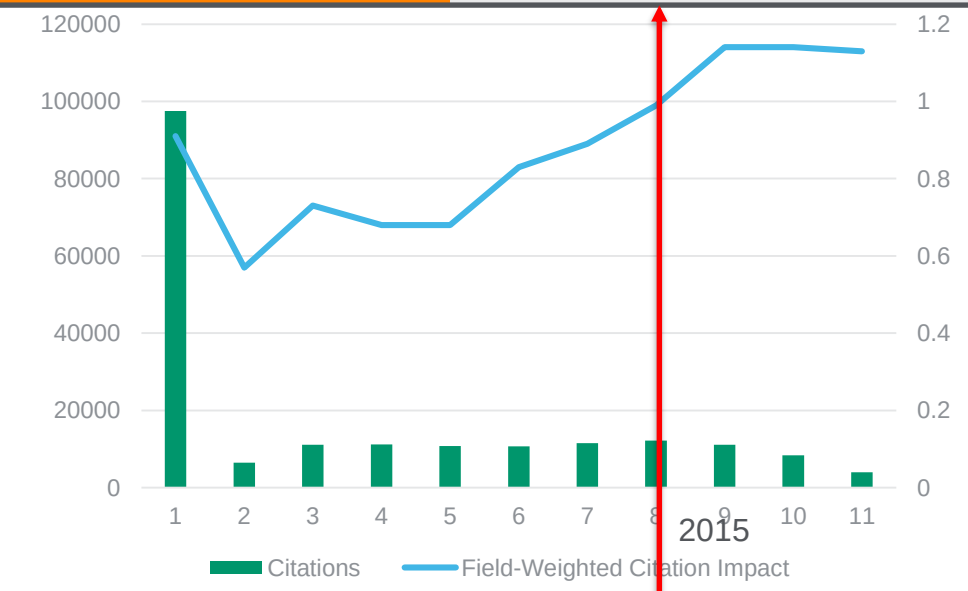
	Engineering
2200	General Engineering
2201	Engineering (miscellaneous)
2202	Aerospace Engineering
2203	Automotive Engineering
2204	Biomedical Engineering
2205	Civil and Structural Engineering
2206	Computational Mechanics
2207	Control and Systems Engineering
2208	Electrical and Electronic Engineering
2209	Industrial and Manufacturing Engineering
2210	Mechanical Engineering
2211	Mechanics of Materials
2212	Ocean Engineering
2213	Safety, Risk, Reliability and Quality
2214	Media Technology
2215	Building and Construction
2216	Architecture

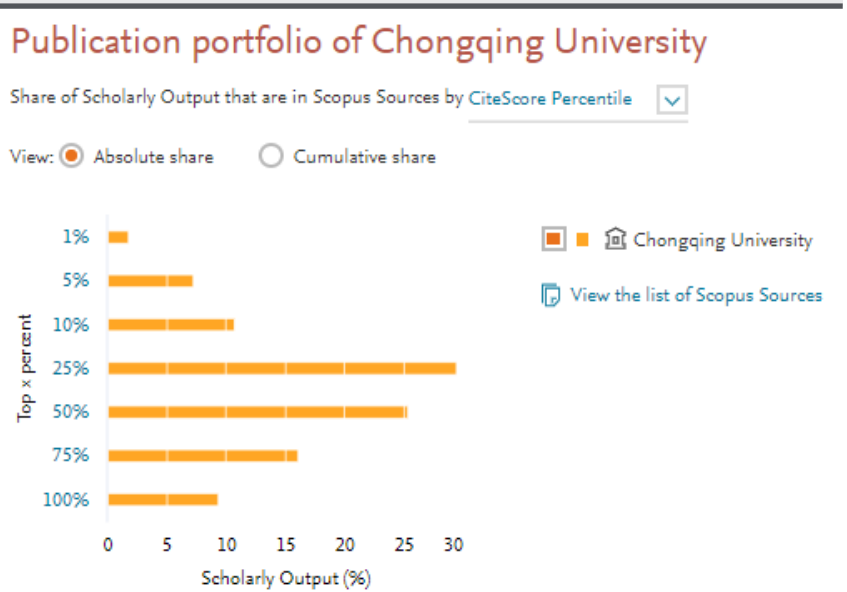
电气工程学科整体表现(2009-2018)



电气工程学科整体表现(2009-2018)
学术产出数量/FWCI

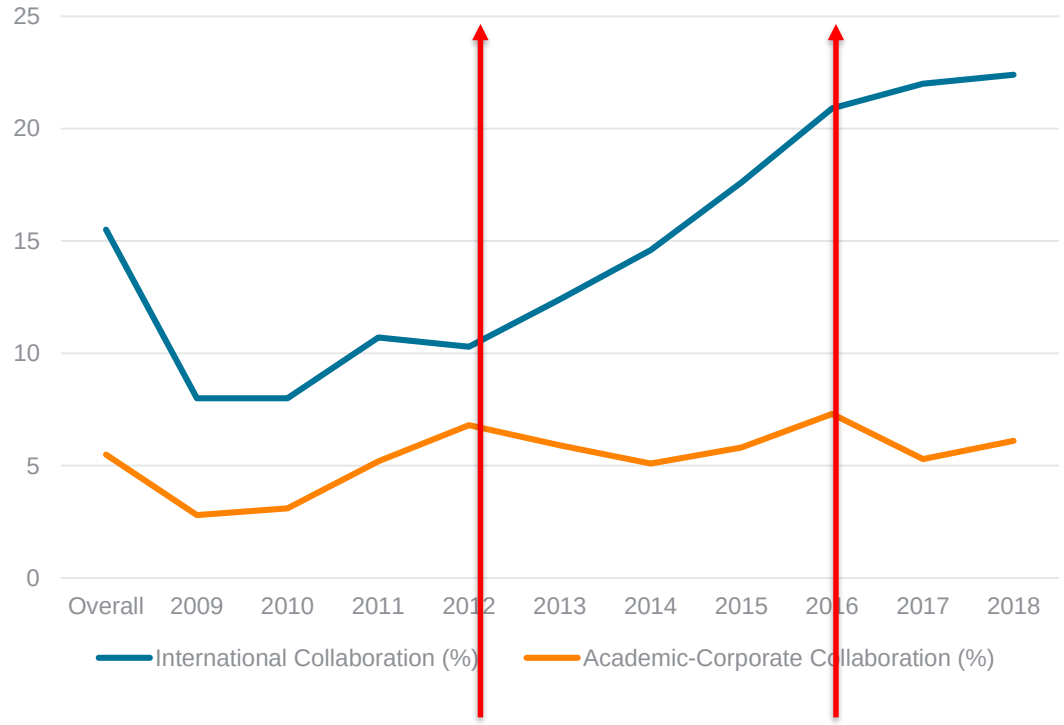
	Overall	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Scholarly Output	12938	900	1094	1247	1311	1229	1192	1226	1390	1537	1812
Citations	97544	6469	11132	11167	10800	10696	11555	12186	11156	8419	3964
Field-Weighted Citation Impact	0.91	0.57	0.73	0.68	0.68	0.83	0.89	0.99	1.14	1.14	1.13
Outputs in Top Citation Percentiles (top 10%)	11	3.1	5.5	5.1	5.8	7.4	10.3	14.2	16.8	18.1	16.1
Publications in Top Journal Percentiles (top 10% by CiteScore Percentile)	13.1	3.1	3.8	4.6	4.2	8.2	13.8	16.9	22	22.4	21.9
Citations per Publication	7.5	7.2	10.2	9	8.2	8.7	9.7	9.9	8	5.5	2.2
Authors	13020	1625	1895	2176	2264	2318	2106	2232	2346	2753	3287
Authors (growth %)	102.3										
h5-index	61										





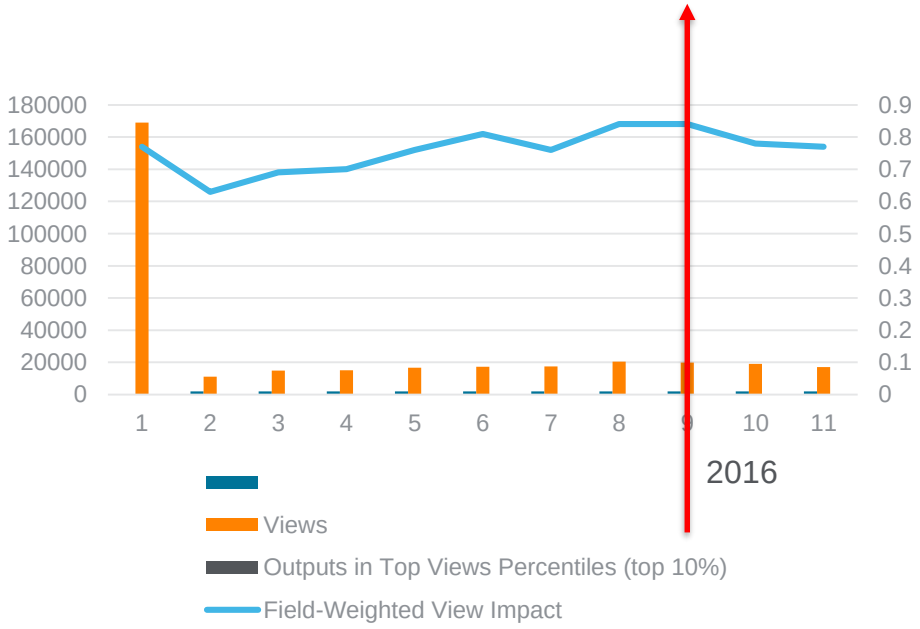
电气工程学科整体表现(2009-2018)
合作

	Overall	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
International Collaboration (%)	15.5	8	8	10.7	10.3	12.4	14.6	17.6	20.9	22	22.4
Academic-Corporate Collaboration (%)	5.5	2.8	3.1	5.2	6.8	5.9	5.1	5.8	7.3	5.3	6.1



电气工程学科整体表现(2009-2018)
浏览量

	Overall	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Views	168925	11206	14845	15076	16642	17286	17443	20380	19887	19080	17080
Outputs in Top Views Percentiles (top 10%)	7.4	3.4	4.1	3.8	3.5	4.6	8.7	10.4	9.8	9.8	11.6
Views per Publication	13.1	12.5	13.6	12.1	12.7	14.1	14.6	16.6	14.3	12.4	9.4
Field-Weighted View Impact	0.77	0.63	0.69	0.7	0.76	0.81	0.76	0.84	0.84	0.78	0.77



电气工程学科整体表现(2009-2018)
施引专利数量

	Overall	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Citing-Patents Count (patent office: All Patent Offices)	155	19	24	37	20	14	23	5	8	5	2
Patent-Cited Scholarly Output (patent office: All Patent Offices)	70	8	12	12	10	8	7	4	4	4	1
Patent-Citations Count (patent office: All Patent Offices)	159	19	24	39	20	14	23	5	8	5	2
Patent-Citations per Scholarly Output (patent office: All Patent Offices)	3.3	6.2	6.7	8.8	4.2	3.1	4.8	1.1	1.5	0.9	0.3

电气工程学科整体表现(2009-2018)
被新闻媒体报道数量

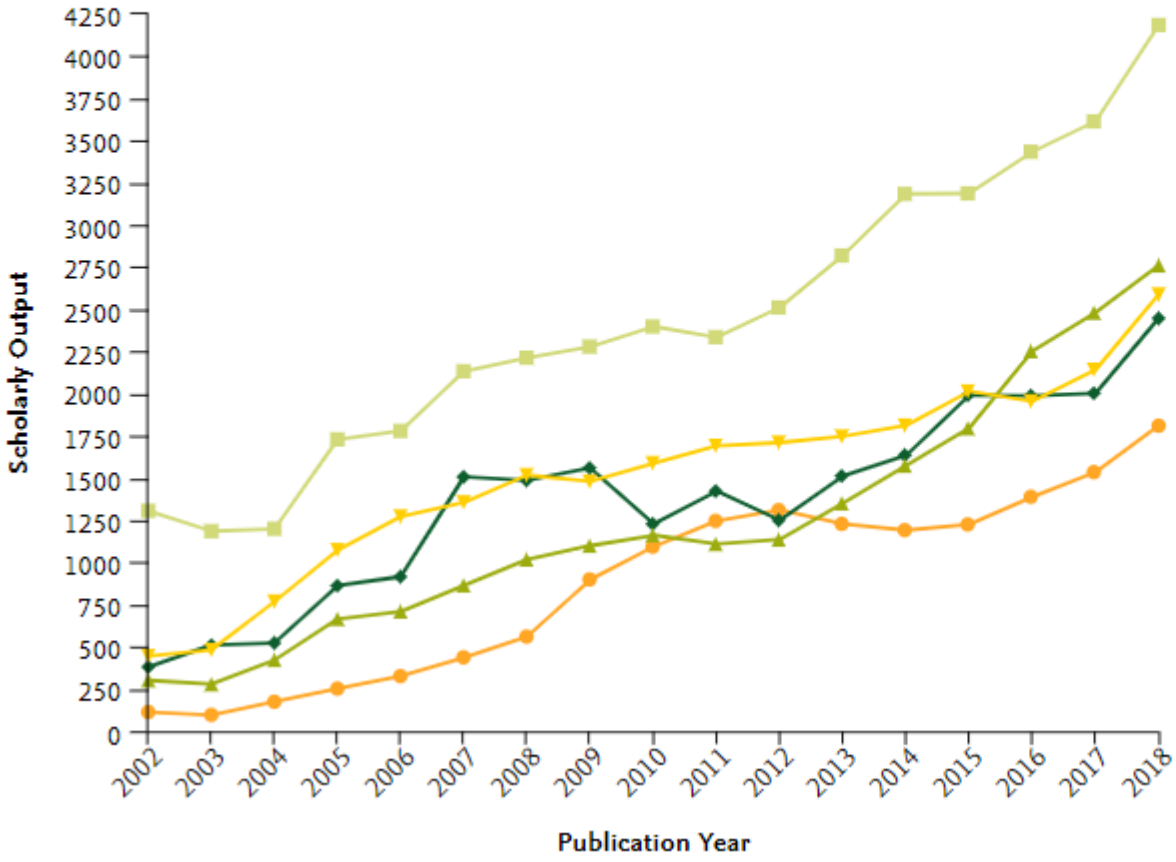
	Overall	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Mass Media (Print)	392	-	-	11	5	15	140	136	34	33	18
Media Exposure Internationally recognized (Print)	33	-	-	1	3	3	3	1	10	1	11
Media Exposure Regionally recognized (Print)	5	-	-	3.5	-	-	-	0.5	-	1	-
Media Exposure Nationally recognized (Print)	6.6	-	-	0.6	0.6	0.9	1.2	0.9	0.3	0.6	1.5
Media Exposure Locally recognized (Print)	65.4	-	-	0.2	-	1.8	26.6	26.2	4.6	5.6	0.4
Media Exposure Local interest (Print)											
Field-Weighted Mass Media (Print)	0.31	-	-	0	0	0.1	0.9	0.8	0.4	0.3	0.1

电气工程学科整体表现(2009-2018)
学术产出数量

y-axis Scholarly Output

x-axis Publication Year

Bubble size



Institutions and Groups

- Chongqing University
- Huazhong University of Science and Technology
- Tsinghua University
- Xi'an Jiaotong University
- Zhejiang University

View list of Scopus Sources for the selected Researchers and Groups

电气工程学科整体表现(2009-2018)
FWCI

y-axis x-axis Bubble size

Field-Weighted Citation Impact

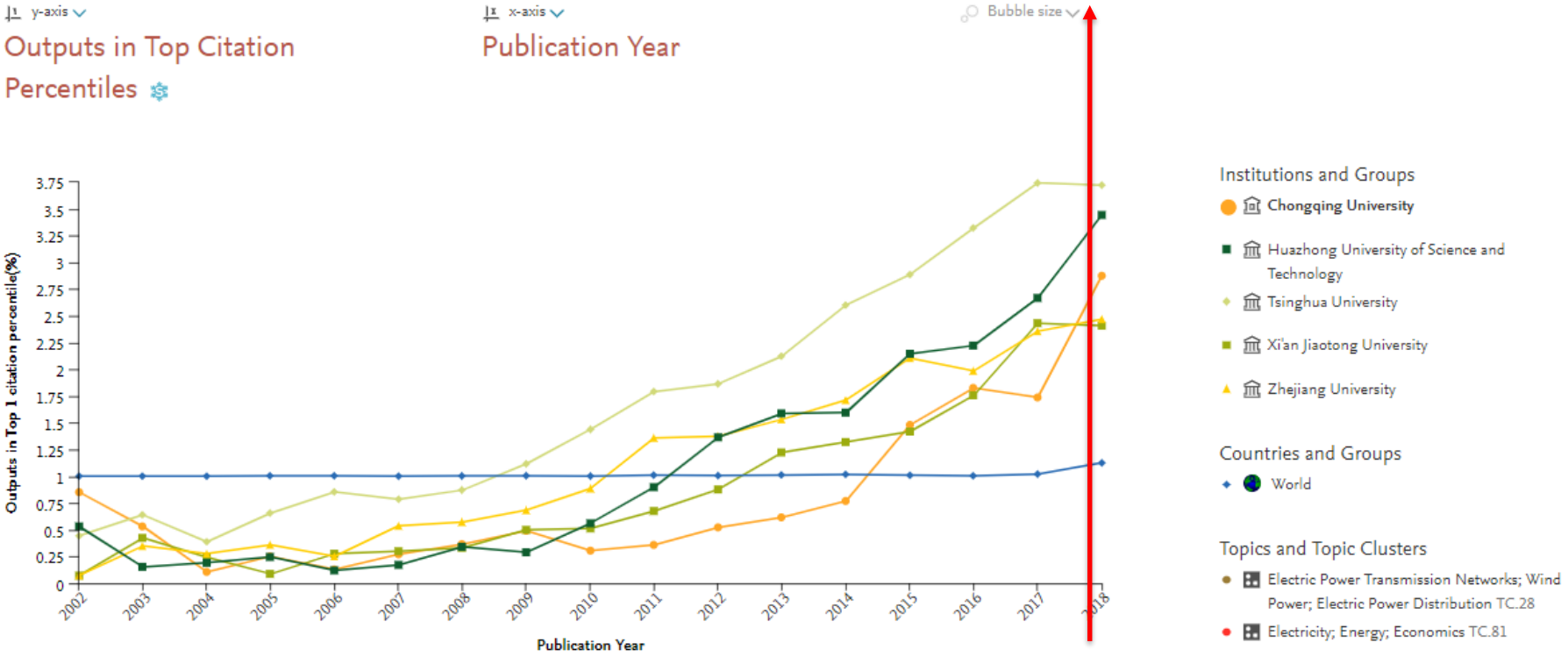
Publication Year

Institutions and Groups

- Chongqing University
- Huazhong University of Science and Technology
- Tsinghua University
- Xi'an Jiaotong University
- Zhejiang University

View list of Scopus Sources for the selected Researchers and Groups

电气工程学科整体表现(2009-2018)
高倍引



Metrics details

y-axis: **Outputs in Top 1 citation percentile (In top 1% of World, %)**
Types of publications included: all. Self-citations included: yes. Field-weighted: no

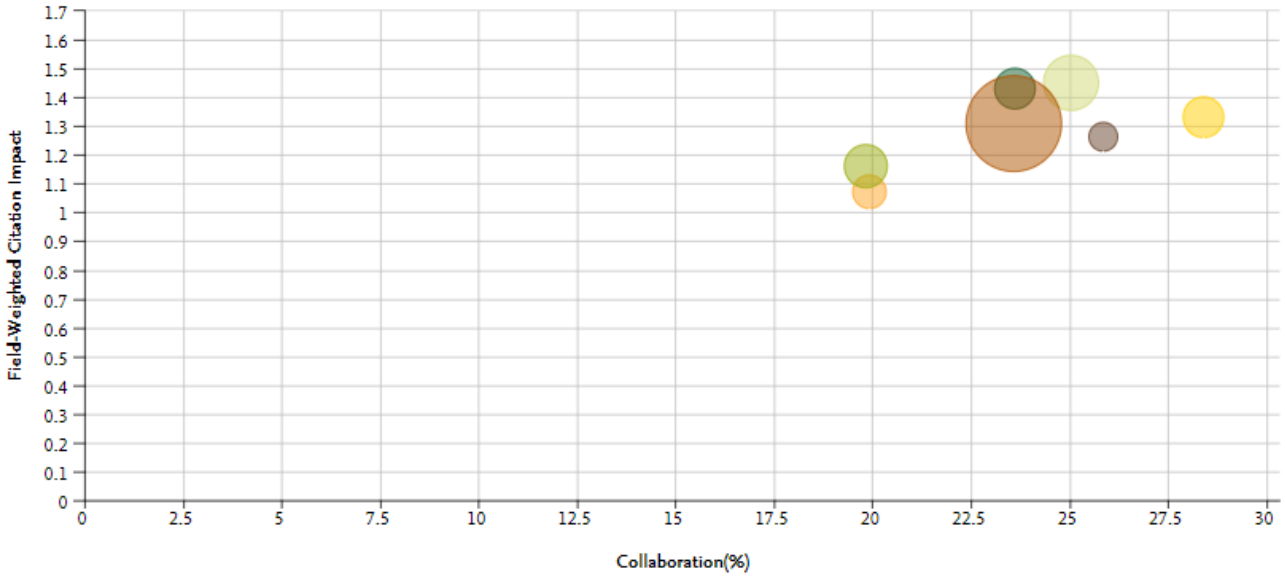
x-axis: **Publication Year**

电气工程学科整体表现(2014-2018)

y-axis
Field-Weighted Citation Impact

x-axis
Collaboration

Bubble size
Scholarly Output



Institutions and Groups
- Chongqing University
- Huazhong University of Science and Technology
- My Group of Institutions - new
- Northwestern Polytechnical University Xian
- Tsinghua University
- Xi'an Jiaotong University
- Zhejiang University

Researchers and Groups
- Cai, Weiguang
- Ma, Minda

学科主题的可持续性发展性

选取潜在科研方向的数字支撑

第一阶段（国际前沿）

利用Scopus文献数据库探索全球热点、前沿课题

第二阶段（国内需求）

基金委课题、科技部、卫生部等列出的重点方向

第三阶段（优势方向）

当前高校所具备的优势科研方向

方法、工具及数据资源

- 利用文本挖掘工具对某一领域内的文献进行挖掘及梳理
- 热点：挖掘高被引的文献集。
- 前沿：挖掘顶尖机构的文献集。
- 佐证：国际上基金的投放趋势（总量大、单项高的）；检索国际会议、组织议题
- 难点：非该领域的分析人员对领域把控不足。建议与院系共同参与。

- 检索国家基金委课题方向
- 检索并分析科技部、卫生部等重点攻克计划（带时间及目标明确的）
- 检索中国相关领域重点研究机构的主要研究方向（竞争情况）

- 利用SCIVAL分析交叉优势方向
- 该方向的归一化影响力
- 该团队的归一化影响力
- 相关学院的资源（协同）

专家评审

筛选具备一定科研能力的科技前沿主题

OUTSIDE

将239个与电气工程学相关的主题聚类

IN

在239个主题聚类中，找出我校所参与的主题，共计228个

PRIORITIZING

228个课题按照参与程度，与课题的前沿性进行划分，形成4X4的矩阵

显著性指数	覆盖主体数量
前1%	8
前2%-10%	26
前11%-50%	94
51%-100%	100

筛选具备一定科研能力的科技前沿主题 – 示例

OUTSIDE

将13,686个与材料科学相关的主题，根据主要主要涉及领域缩减过滤到3,779个

IN

在3,779个主题中，找出我校所参与的主题，共计407个（排除1或2篇的）

PRIORITIZING

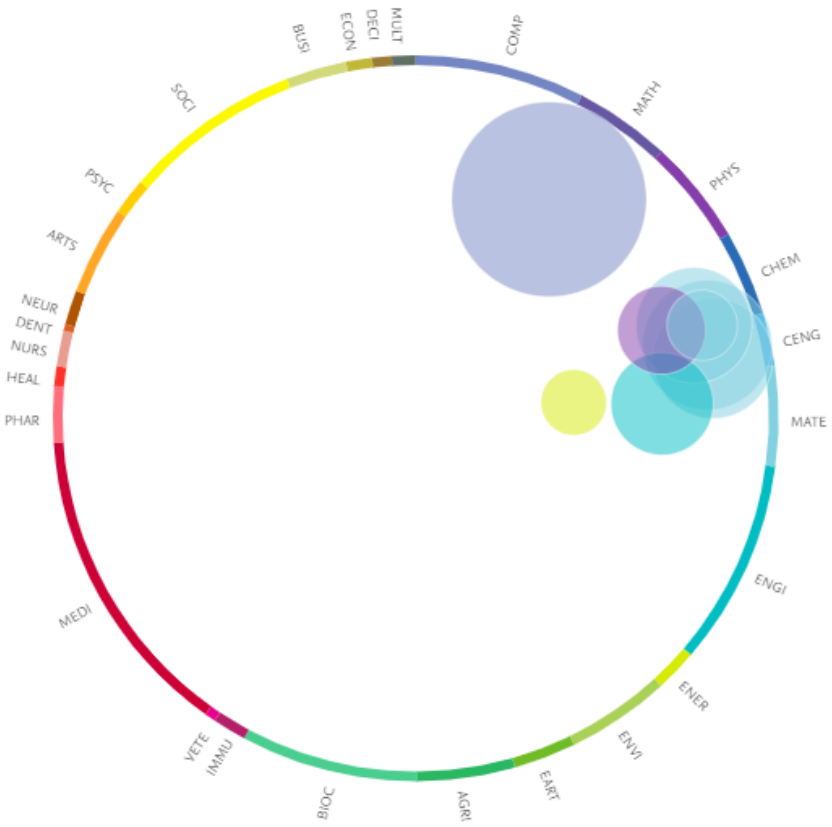
407个课题按照参与程度，与课题的前沿性进行划分，形成4X4的矩阵

参与度较高的主题

★ 本机构排名前10　　本机构排名10-30间　　本机构排名31-100间　　本机构无文献 ?

	★ 本机构排名前10	本机构排名10-30间	本机构排名31-100间	本机构无文献 ?
前1%主题	6 T51 锂电池阴极胶囊 T18168 石墨烯气凝胶 T16939 石墨烯储能材料	7 T21 疏水性材料接触算法 T1727 纳离子电池 T34461 过度金属碳化物	33 T8882 黑磷场效应晶体管 T9968 碳纳米管增强金属基 T9968 纳米复合水凝胶	81 T397 聚乳酸共混复合材料 T5505 导电聚合物薄膜材料 T217 变相存储器材料
2% - 10%主题	11 T9106 硫化铜纳米复合材料 T787 阻燃聚丙烯复合材料 T35735 有机光敏晶体管	18 若干	67 若干	328 若干
11% - 50%主题	35 若干	65 若干	79 若干	1349 若干
51% - 100%主题	66 T61906 牛顿干涉环 T72725 环湖精改性壳聚糖 T50886 区熔法制取坞单晶	20 若干	0 若干	1614 若干

全球电气工程学科前1%研究主题 (2014-2018)

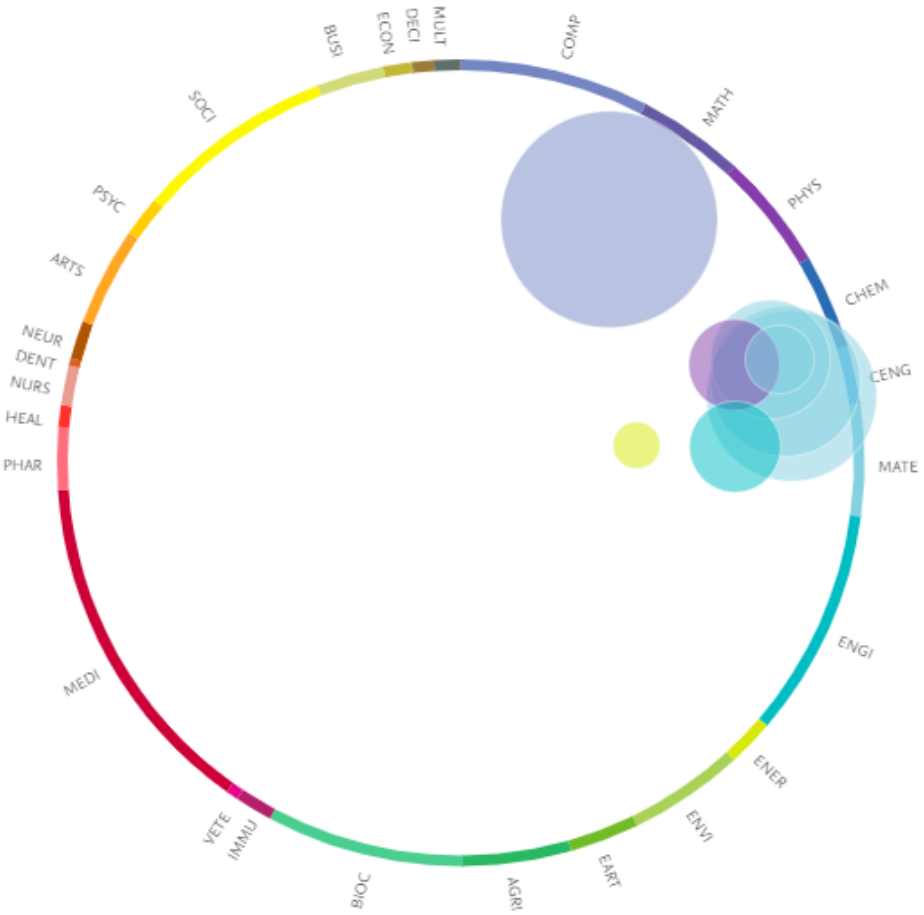


Between 2014 to 2018, researchers in the World have contributed to:
•239 Topic Clusters

全球电气工程学科前1%研究主题 (2014-2018)

Topic Cluster	Topic Cluster Number	Scholarly Output	Field-Weighted Citation Impact	Prominence percentile
Secondary Batteries; Electric Batteries; Lithium Alloys	TC.30	87538	2.28	100
Photocatalysis; Photocatalysts; Solar Cells	TC.8	95389	1.83	99.933
Graphene; Carbon Nanotubes; Nanotubes	TC.22	83583	1.69	99.866
Algorithms; Computer Vision; Models	TC.0	152184	1.5	99.799
Plasmons; Metamaterials; Surface Plasmon Resonance	TC.47	59654	1.32	99.531
Organic Light Emitting Diodes (OLED); Solar Cells; Conjugated Polymers	TC.61	44388	1.34	99.465
Electric Power Transmission Networks; Wind Power; Electric Power Distribution	TC.28	72065	1.26	99.331
Electricity; Energy; Economics	TC.81	40145	1.33	99.13

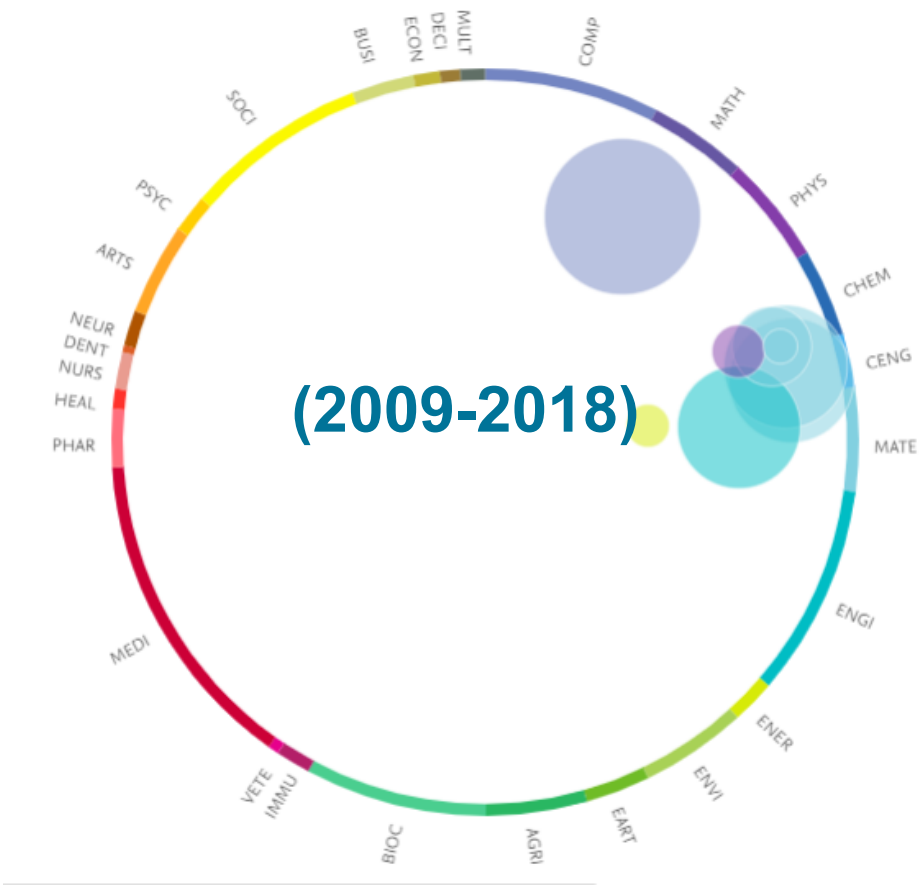
全球电气工程前1%研究主题 (2014-2018)



Topic Cluster	Field-Weighted Citation Impact	Worldwide Prominence percentile
Secondary Batteries; Electric	2.56	100
Lithium Alloys	2.02	99.933
Photocatalysis; Photocatalys	1.9	99.866
Graphene; Carbon Nanotube	1.19	99.799
Algorithms; Computer Vision	1.53	99.531
Plasmons; Metamaterials; Su	1.84	99.465
Plasmon Resonance	0.97	99.331
Organic Light Emitting Diode	1.4	99.13
Solar Cells; Conjugated Polyr		
Electric Power Transmission		
Wind Power; Electric Power D		
Electricity; Energy; Economic		

Between 2014 to 2018, researchers in China have contributed to:
•239 Topic Clusters
•that appear within Engineering - Electrical & Electronic

重庆大学电气工程学科前1%研究主题

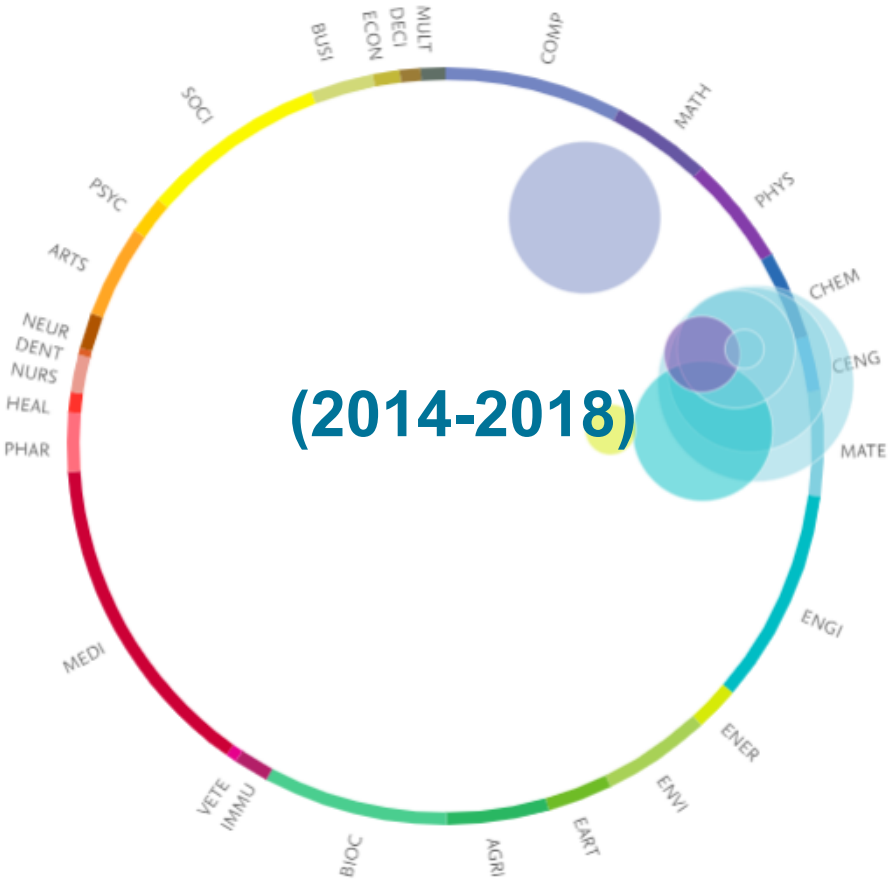


Between 2014 to 2018, researchers at Chongqing University have contributed to:
•228 Topic Clusters

重庆大学电气工程前1%研究主题 (2009-2018)

	At this Institution				Worldwide
Topic Cluster	Topic Cluster Number	Scholarly Output	Publication share (%)	Growth (%)	Field-Weighted Citation Impact	Prominence percentile
Secondary Batteries; Electric Batteries; Lithium Alloys	TC.30	790	0.65	199.2	2.64	100
Photocatalysis; Photocatalysts; Solar Cells	TC.8	781	0.5	97.8	2.6	99.933
Graphene; Carbon Nanotubes; Nanotubes	TC.22	438	0.33	1630.4	1.81	99.866
Algorithms; Computer Vision; Models	TC.0	1039	0.4	-33	0.74	99.799
Plasmons; Metamaterials; Surface Plasmon Resonance	TC.47	228	0.23	1229.5	1.52	99.531
Organic Light Emitting Diodes (OLED); Solar Cells; Conjugated Polymers	TC.61	86	0.11	30	0.98	99.465
Electric Power Transmission Networks; Wind Power; Electric Power Distribution	TC.28	778	0.67	4.2	1.02	99.331
Electricity; Energy; Economics	TC.81	152	0.22	607.8	2.34	99.13

重庆大学电气工程学科前1%研究主题

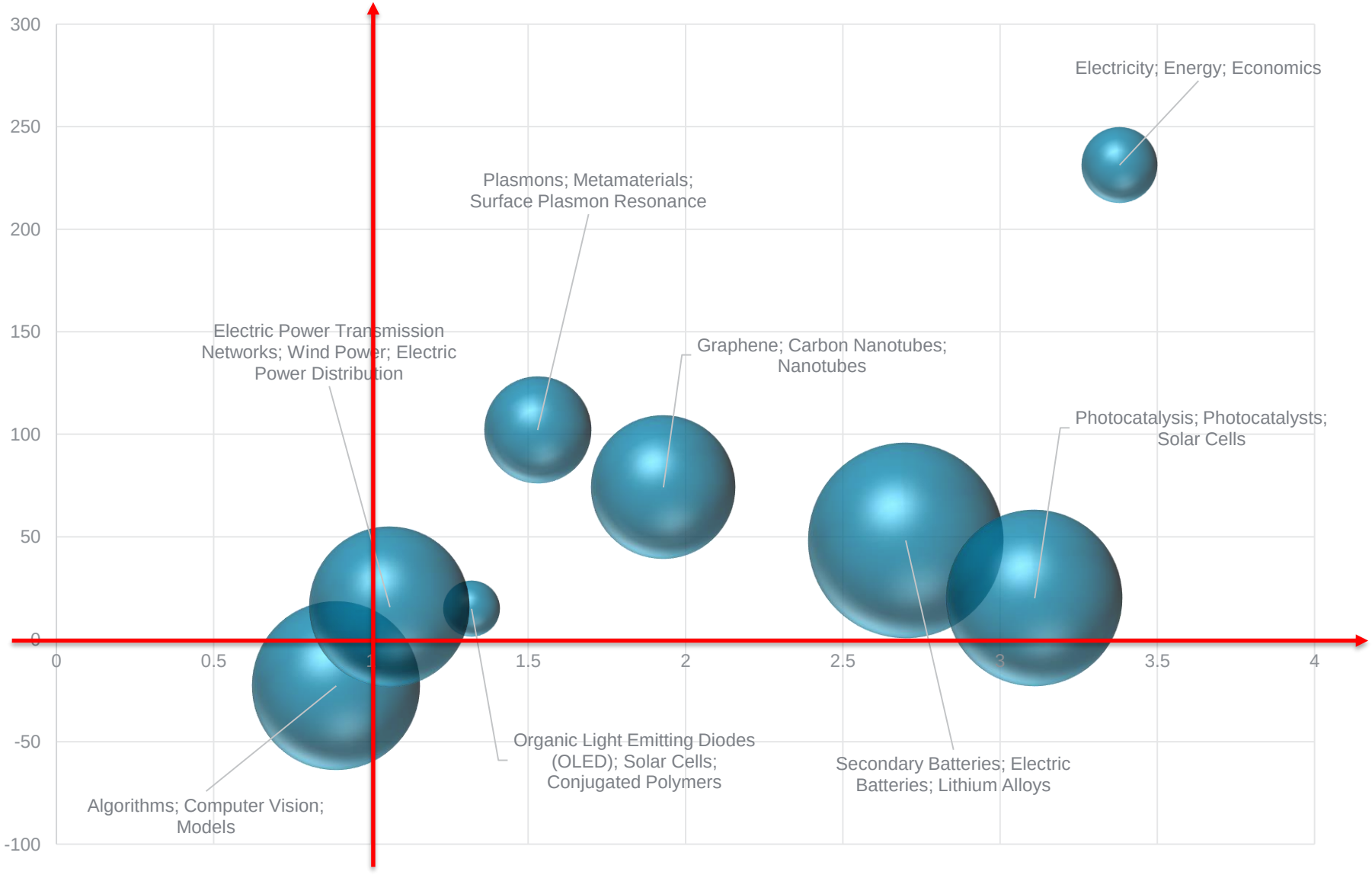


Between 2014 to 2018, researchers at Chongqing University have contributed to:
•228 Topic Clusters

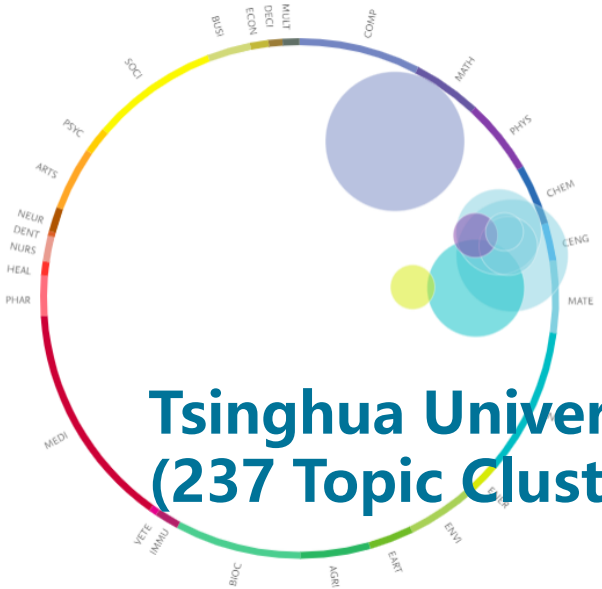
重庆大学电气工程学科前1%研究主题 (2014-2018)

	At this Institution					Worldwide
Topic Cluster	Topic Cluster Number	Scholarly Output	Publication share (%)	Growth (%)	Field-Weighted Citation Impact	Prominence percentile
Secondary Batteries; Electric Batteries; Lithium Alloys	TC.30	672	0.77	48.2	2.7	100
Photocatalysis; Photocatalysts; Solar Cells	TC.8	548	0.57	20	3.11	99.933
Graphene; Carbon Nanotubes; Nanotubes	TC.22	365	0.44	74.1	1.93	99.866
Algorithms; Computer Vision; Models	TC.0	500	0.33	-22.8	0.89	99.799
Plasmons; Metamaterials; Surface Plasmon Resonance	TC.47	201	0.34	102.1	1.53	99.531
Organic Light Emitting Diodes (OLED); Solar Cells; Conjugated Polymers	TC.61	55	0.12	14.8	1.32	99.465
Electric Power Transmission Networks; Wind Power; Electric Power Distribution	TC.28	453	0.63	15.7	1.06	99.331
Electricity; Energy; Economics	TC.81	101	0.25	231.3	3.38	99.13

重庆大学电气工程学科前1%研究主题 (2014-2018)



各校电气工程学科参与研究主题的共性与差异性分析



Tsinghua University (237 Topic Clusters)

Zhejiang (235 Topic Clusters)

Huazhong (234 Topic Clusters)

Xian Jiaotong (234 Topic Clusters)

Key Findings

Between 2014 to 2018, researchers in the World have contributed to:

•239 Topic Clusters

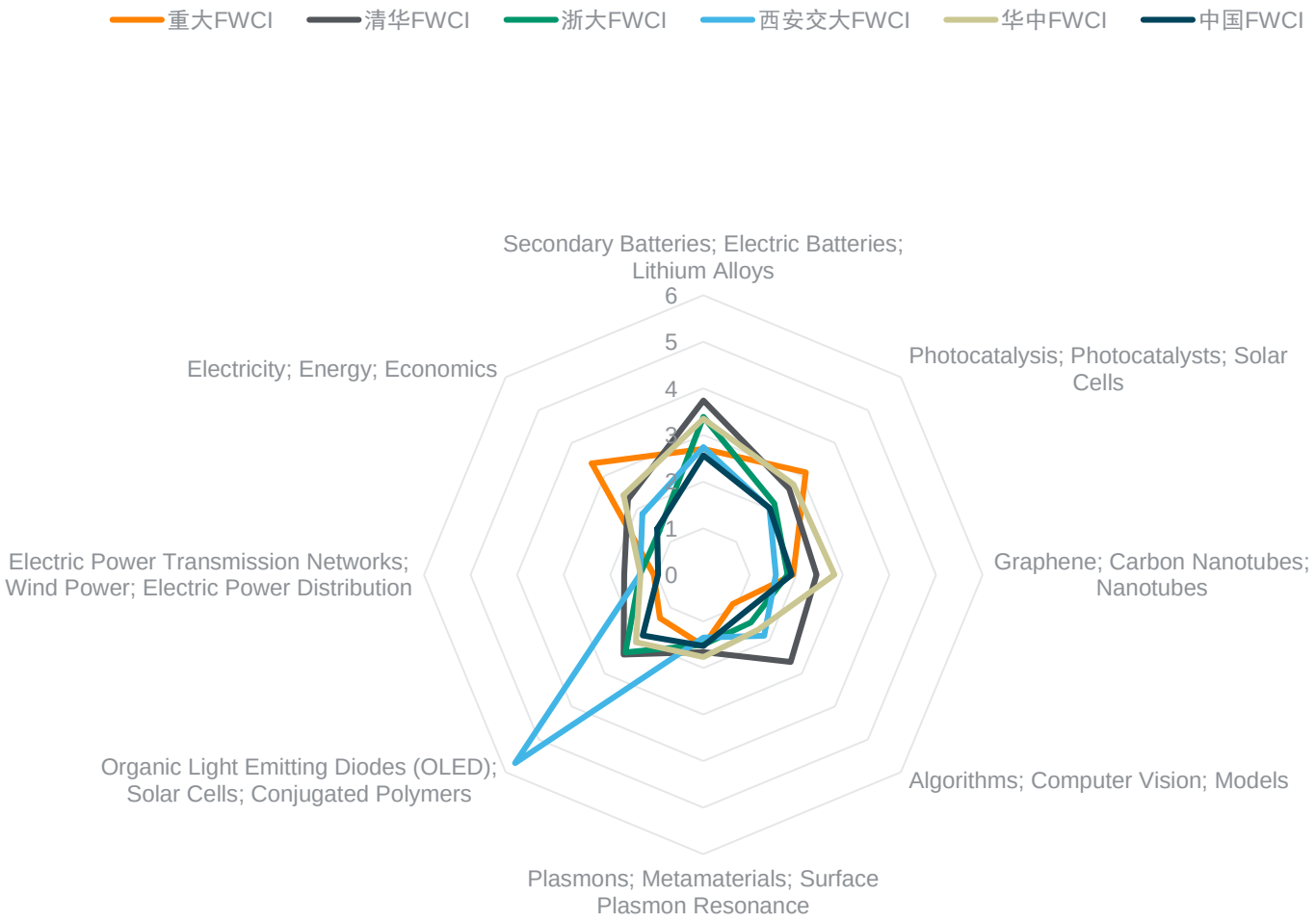
电气工程学科参与的前1%研究主题发文量分析(2014-2018)

Topic Cluster	Topic Clus	重大发文	清华发文	浙大发文	西安交大	华中发文量
Secondary Batteries; Electric Batteries; Lithium Alloys	TC.30	672	1083	997	571	929
Photocatalysis; Photocatalysts; Solar Cells	TC.8	548	820	773	691	814
Graphene; Carbon Nanotubes; Nanotubes	TC.22	365	1314	746	543	692
Algorithms; Computer Vision; Models	TC.0	500	2305	1327	1054	1159
Plasmons; Metamaterials; Surface Plasmon Resonance	TC.47	201	563	653	412	517
Organic Light Emitting Diodes (OLED); Solar Cells; Conjugated Polymers	TC.61	55	442	290	309	221
Electric Power Transmission Networks; Wind Power; Electric Power Distribution	TC.28	453	1537	775	645	663
Electricity; Energy; Economics	TC.81	101	562	89	70	91

电气工程学科参与的前1%研究主题 FWCI分析 (2014-2018)

Topic Cluster	Topic Clus	重大FWCI	清华FWCI	浙大FWCI	西安交大	华中FWCI	中国FWCI
Secondary Batteries; Electric Batteries; Lithium Alloys	TC.30	2.7	3.74	3.39	2.74	3.35	2.56
Photocatalysis; Photocatalysts; Solar Cells	TC.8	3.11	2.61	2.16	2.01	2.74	2.02
Graphene; Carbon Nanotubes; Nanotubes	TC.22	1.93	2.43	1.81	1.56	2.82	1.9
Algorithms; Computer Vision; Models	TC.0	0.89	2.65	1.45	1.85	1.67	1.19
Plasmons; Metamaterials; Surface Plasmon Resonance	TC.47	1.53	1.66	1.5	1.35	1.77	1.53
Organic Light Emitting Diodes (OLED); Solar Cells; Conjugated Polymers	TC.61	1.32	2.42	2.36	5.72	2.05	1.84
Electric Power Transmission Networks; Wind Power; Electric Power Distribution	TC.28	1.06	1.7	1.36	1.36	1.35	0.97
Electricity; Energy; Economics	TC.81	3.38	2.29	1.33	1.85	2.42	1.4

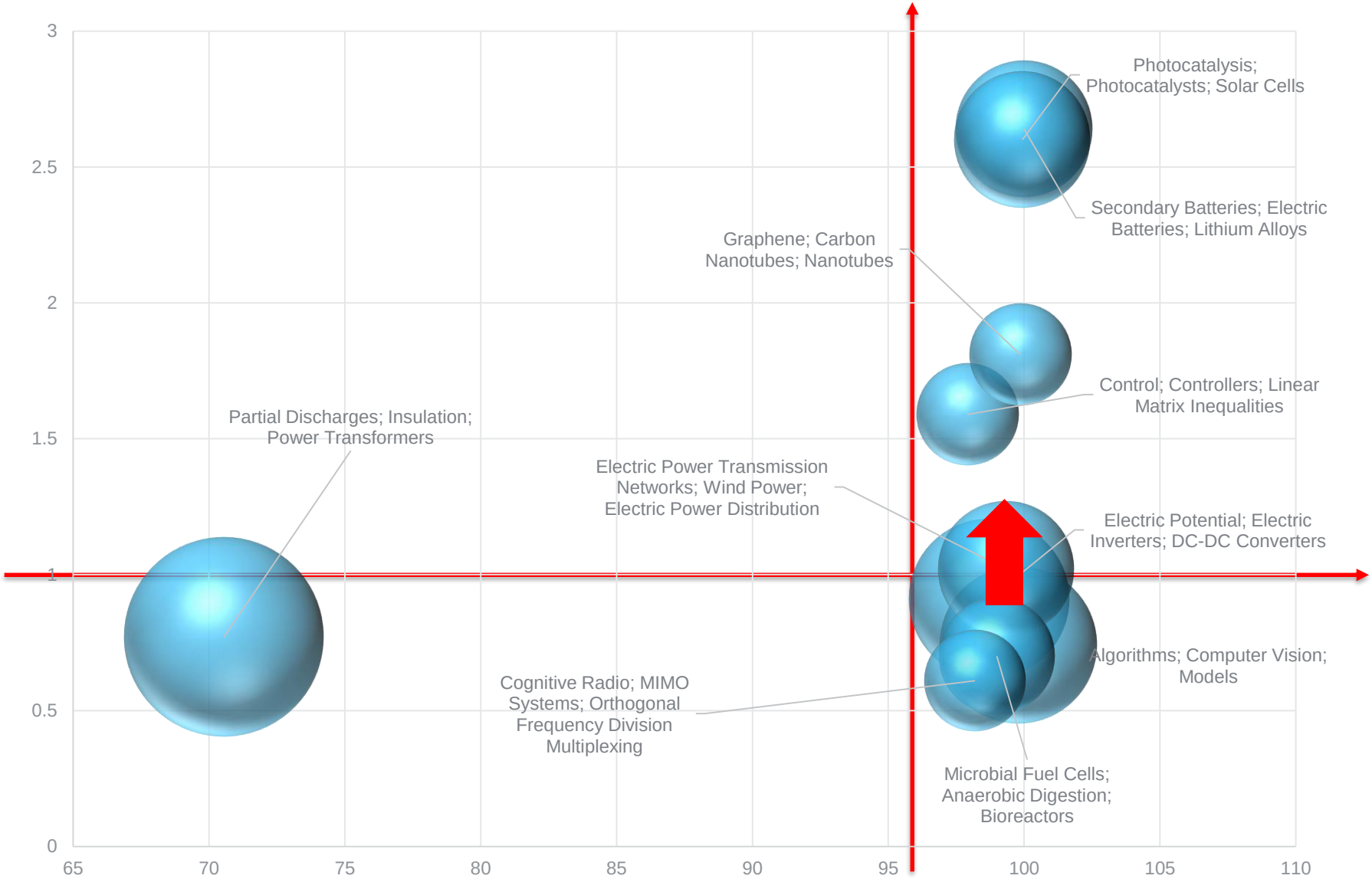
电气工程学科研究主题 FWCI分析



电气工程学科发文量高的研究主题

Topic Cluster	Topic Cluster Number	Scholarly Output	Publication share (%)	Growth (%)	Field-Weighted Citation Impact	Prominence percentile
Partial Discharges; Insulation; Power Transformers	TC.297	1670	5.2	3.9	0.77	70.549
Electric Potential; Electric Inverters; DC-DC Converters	TC.13	1081	0.82	129.9	0.91	98.728
Algorithms; Computer Vision; Models	TC.0	1039	0.4	-33	0.74	99.799
Secondary Batteries; Electric Batteries; Lithium Alloys	TC.30	790	0.65	199.2	2.64	100
Photocatalysis; Photocatalysts; Solar Cells	TC.8	781	0.5	97.8	2.6	99.933
Electric Power Transmission Networks; Wind Power; Electric Power Distribution	TC.28	778	0.67	4.2	1.02	99.331
Microbial Fuel Cells; Anaerobic Digestion; Bioreactors	TC.65	565	0.83	-6.5	0.7	98.996
Control; Controllers; Linear Matrix Inequalities	TC.9	439	0.4	36.6	1.59	97.925
Graphene; Carbon Nanotubes; Nanotubes	TC.22	438	0.33	1630.4	1.81	99.866
Cognitive Radio; MIMO Systems; Orthogonal Frequency Division Multiplexing	TC.3	429	0.27	108	0.61	98.193

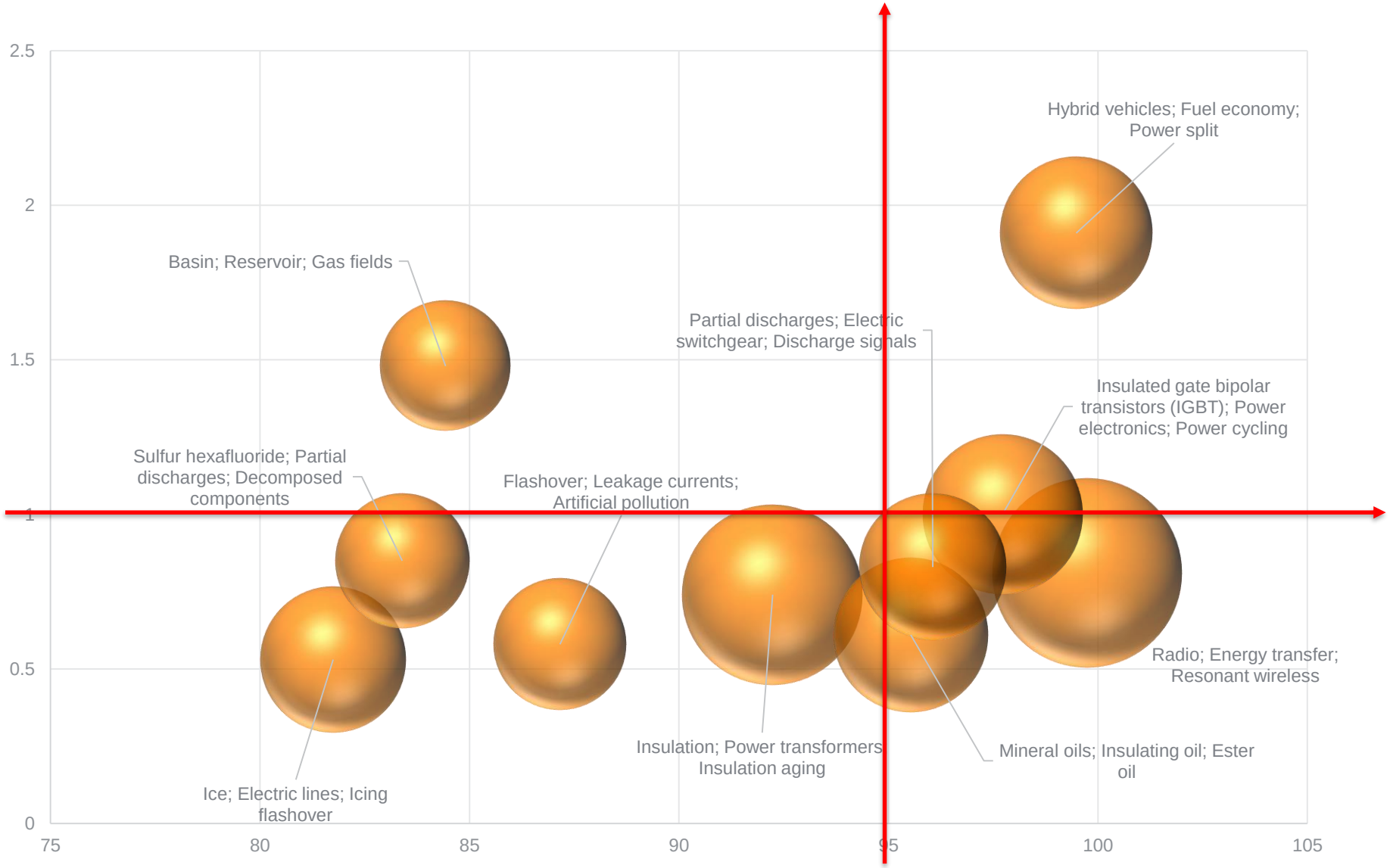
电气工程学科发文量高的研究主题



重庆大学电气工程学科作为重要贡献机构的科技前沿主题

Topic	Topic Number	Scholarly Output	Publication share (%)	Growth (%)	Field-Weighted Citation Impact	Prominence percentile
Radio; Energy transfer; Resonant wireless	T.85	129	2.78	-3.8	0.81	99.746
Insulation; Power transformers; Insulation aging	T.5661	117	13.07	47.7	0.74	92.234
Insulated gate bipolar transistors (IGBT); Power electronics; Power cycling	T.4420	92	6.74	57.5	1	97.725
Mineral oils; Insulating oil; Ester oil	T.4190	86	8.19	123.4	0.61	95.531
Hybrid vehicles; Fuel economy; Power split	T.370	83	3.42	127.8	1.91	99.482
Partial discharges; Electric switchgear; Discharge signals	T.345	78	4.87	-63.8	0.83	96.058
Ice; Electric lines; Icing flashover	T.9357	76	17.16	-6	0.53	81.746
Sulfur hexafluoride; Partial discharges; Decomposed components	T.26710	65	24.34	-53.7	0.85	83.397
Flashover; Leakage currents; Artificial pollution	T.5478	63	9.59	16.8	0.58	87.158
Basin; Reservoir; Gas fields	T.14540	61	15.17	-25.9	1.48	84.427

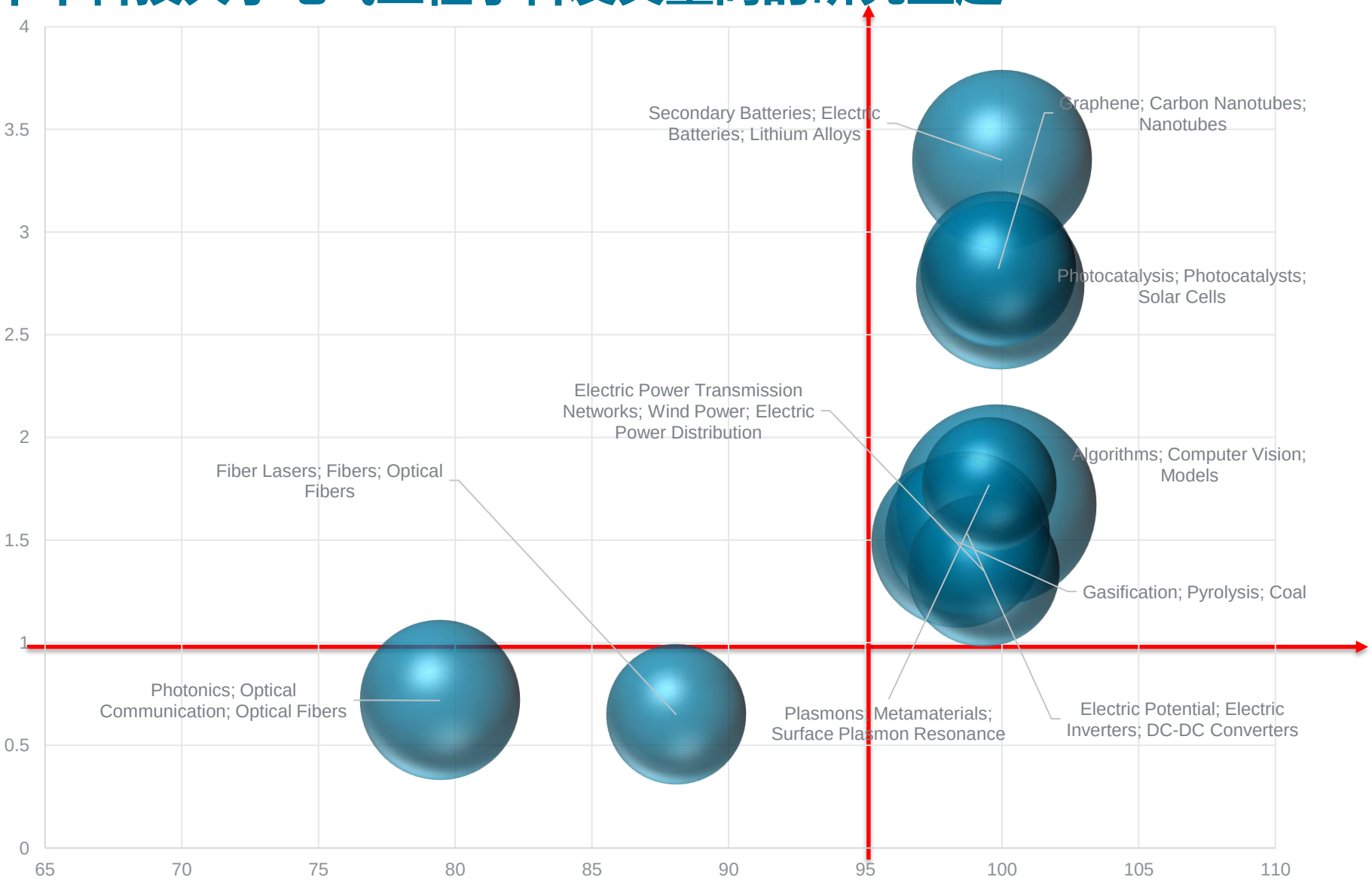
重庆大学电气工程学科作为重要贡献机构的科技前沿主题



华中科技大学电气工程学科发文量高的研究主题

Topic Cluster	Topic Cluster Number	Scholarly Output	Publication share (%)	Growth (%)	Field-Weighted Citation Impact	Prominence percentile
Algorithms; Computer Vision; Models	TC.0	1159	0.76	-14.7	1.67	99.799
Secondary Batteries; Electric Batteries; Lithium Alloys	TC.30	929	1.06	48.6	3.35	100
Gasification; Pyrolysis; Coal	TC.87	856	2.6	13.4	1.49	98.394
Photocatalysis; Photocatalysts; Solar Cells	TC.8	814	0.85	-5.9	2.74	99.933
Electric Potential; Electric Inverters; DC-DC Converters	TC.13	778	0.95	28.8	1.53	98.728
Photonics; Optical Communication; Optical Fibers	TC.113	734	2.92	56.6	0.72	79.451
Graphene; Carbon Nanotubes; Nanotubes	TC.22	692	0.83	70.2	2.82	99.866
Electric Power Transmission Networks; Wind Power; Electric Power Distribution	TC.28	663	0.92	-15.9	1.35	99.331
Fiber Lasers; Fibers; Optical Fibers	TC.111	564	2	75.3	0.65	88.086
Plasmons; Metamaterials; Surface Plasmon Resonance	TC.47	517	0.87	-6.2	1.77	99.531

华中科技大学电气工程学科发文量高的研究主题



研究主题分析
Electricity; Energy; Economics TC.81

Activity of Chongqing University

Within: **Electricity; Energy; Economics** TC.81 | Year range used for metrics: 2014 to 2018 | Analyze Topic Cluster worldwide

Summary Authors Topics

Performance

Export

Scholarly Output
101

Field-Weighted Citation Impact
3.38

International Collaboration
56

View list of publications

Views Count
2,490

Citation Count
1,129

Worldwide Topic Cluster Prominence
99.130

Collaboration

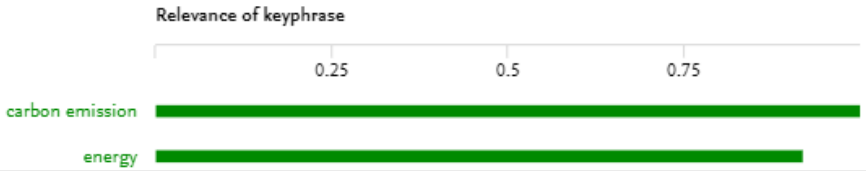
International Collaboration

Publications co-authored with Institutions in other countries

Chongqing University:
55.4%

Top 15 keyphrases

Based on 101 publications



研究主题分析
Electricity; Energy; Economics TC.81

Activity of Chongqing University

Within: **Electricity; Energy; Economics** TC.81 | Year range used for metrics: 2014 to 2018 | Analyze Topic Cluster worldwide

Summary Authors Topics

Most active Authors

Top 10 Authors at Chongqing University in this Topic Cluster, by Scholarly Output

Add to panel

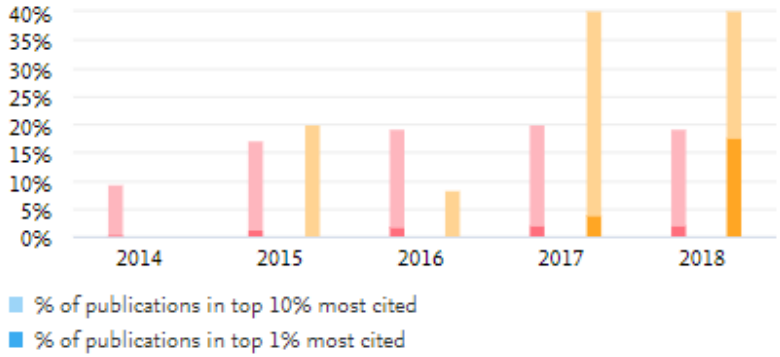
	Author	Scholarly Output
1.	Shen, Liyin	16
2.	Ma, Minda	9
3.	Cai, Weiguang	8
4.	Wu, Ya	8
5.	Hu, Mingming	5
6.	Shuai, Chenyang	5
7.	Feng, Chao	4
8.	Lou, Yingli	4
9.	Yan, Ran	4
10.	Sun, Luxi	3

研究主题分析
Electricity; Energy; Economics TC.81

Outputs in Top Citation Percentiles

Share of publications in Electricity; Energy; Economics (TC.81) that are among the most cited publications worldwide

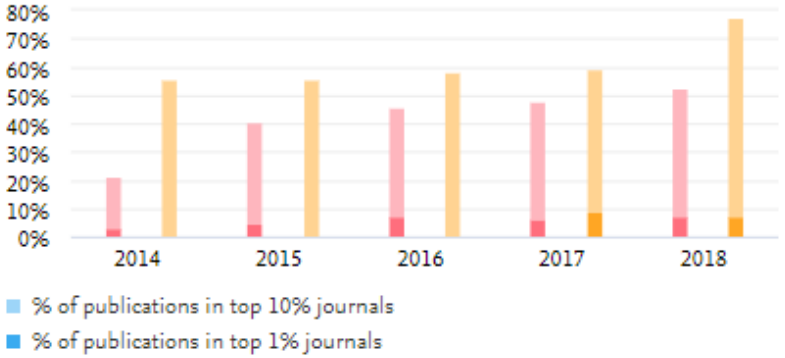
Show as field-weighted



	Share of publications in top 1% most cited publications	Share of publications in top 10% most cited publications
Worldwide	1.7%	15.3%
Asia Pacific	1.9%	15.7%
China	1.7%	17.2%
Chongqing University	**8.9%**	**30.7%**

Publications in Top Journal Percentiles

Share of publications in Electricity; Energy; Economics (TC.81) that are in the top journals by CiteScore Percentile



	Share of publications in top 1% journals	Share of publications in top 10% journals
Worldwide	6.2%	42.7%
Asia Pacific	5.8%	42.5%
China	5.9%	43.1%
Chongqing University	**5.4%**	**66.3%**

研究主题分析
Electricity; Energy; Economics TC.81

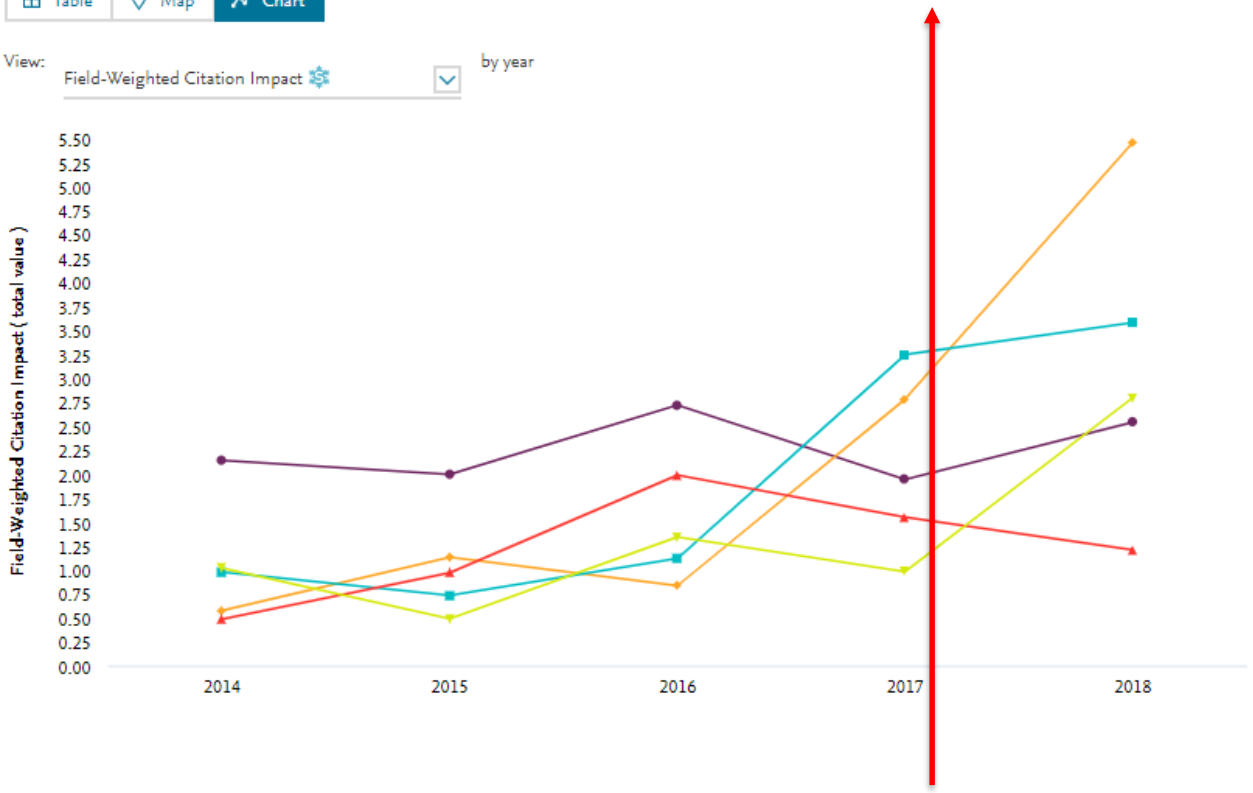
Top Institutions

Asia Pacific | China | All sectors | reset filter

Table | Map | Chart

+ Add to Reporting Expor

View: Field-Weighted Citation Impact by year

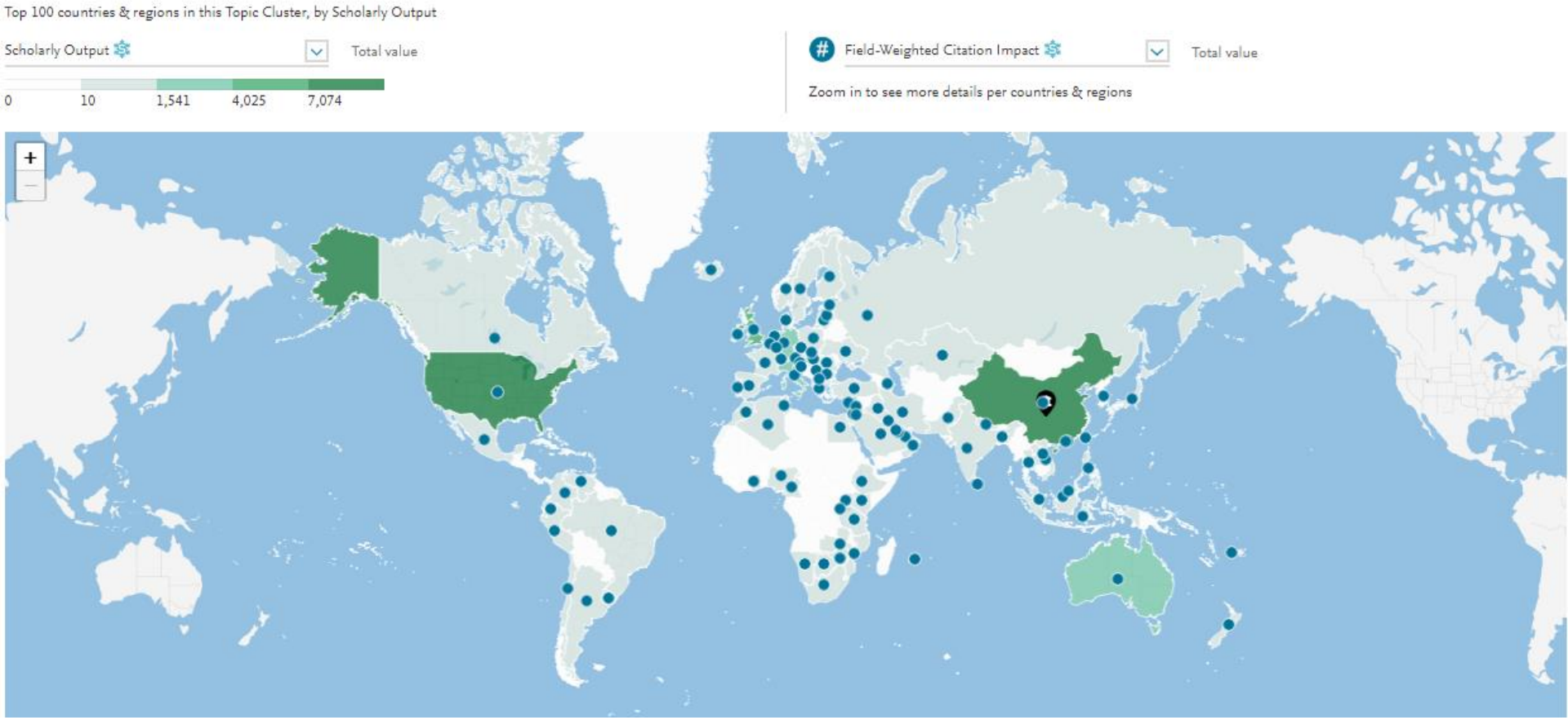


Top 100 Institutions in this Topic Cluster

by Scholarly Output

2.	Tsinghua University
20.	**Chongqing University**
24.	Huazhong University of Science and Technology
28.	Zhejiang University
38.	Xi'an Jiaotong University
1.	Chinese Academy of Sciences
3.	North China Electric Power University
4.	Beijing Institute of Technology
5.	Beijing Normal University
6.	University of Chinese Academy of Sciences
7.	Peking University
8.	Xiamen University

研究主题分析
Electricity; Energy; Economics TC.81



研究主题分析
Electricity; Energy; Economics TC.81

Publication	Citations
Rapidly falling costs of battery packs for electric vehicles. Nykvist, B., Nilsson, M. (2015) Nature Climate Change, 5 (4), pp. 329-332. View in Scopus ↗	636
Paris Agreement climate proposals need a boost to keep warming well below 2 °c. Rogelj, J., Den Elzen, M., Höhne, N. and 7 more (2016) Nature, 534 (7609), pp. 631-639. View in Scopus ↗	620
What are we doing here? Analyzing fifteen years of energy scholarship and proposing a social science research agenda. Sovacool, B.K. (2014) Energy Research and Social Science, 1, pp. 1-29. View in Scopus ↗	529
A new scenario framework for climate change research: The concept of shared socioeconomic pathways. O'Neill, B.C., Kriegler, E., Riahi, K. and 5 more (2014) Climatic Change, 122 (3), pp. 387-400. View in Scopus ↗	486
A review on circular economy: The expected transition to a balanced interplay of environmental and economic systems. Ghisellini, P., Cialani, C., Ulgiati, S. (2016) Journal of Cleaner Production, 114, pp. 11-32. View in Scopus ↗	479

研究主题分析-全球主要贡献学者
Electricity; Energy; Economics TC.81

	Author	Affiliation	Scholarly Output	Views Count	Field-Weight...	Citation Count
22.	Guan, Dabo	University of East Anglia	29	1,263	10.25	1,844
287.	Wu, Ya	Chongqing University	8	164	8.91	214
35.	Zhang, Qiang Q.	Tsinghua University	25	1,219	8.49	1,505
222.	Ma, Minda	Chongqing University	9	146	8.17	190
386.	Davis, Steven J.	University of California at Irvine	6	368	8.08	619
245.	Cai, Weiguang	Chongqing University	8	133	7.94	171
194.	Liu, Zhu	Tsinghua University	10	590	7.72	627
93.	Shao, Shuai	Shanghai University of Finance and Economics	15	422	7.12	661
162.	Paramati, Sudharshan Reddy	University of Dundee	11	493	7.10	409
272.	Mi, Zhifu	University College London	8	218	6.90	378

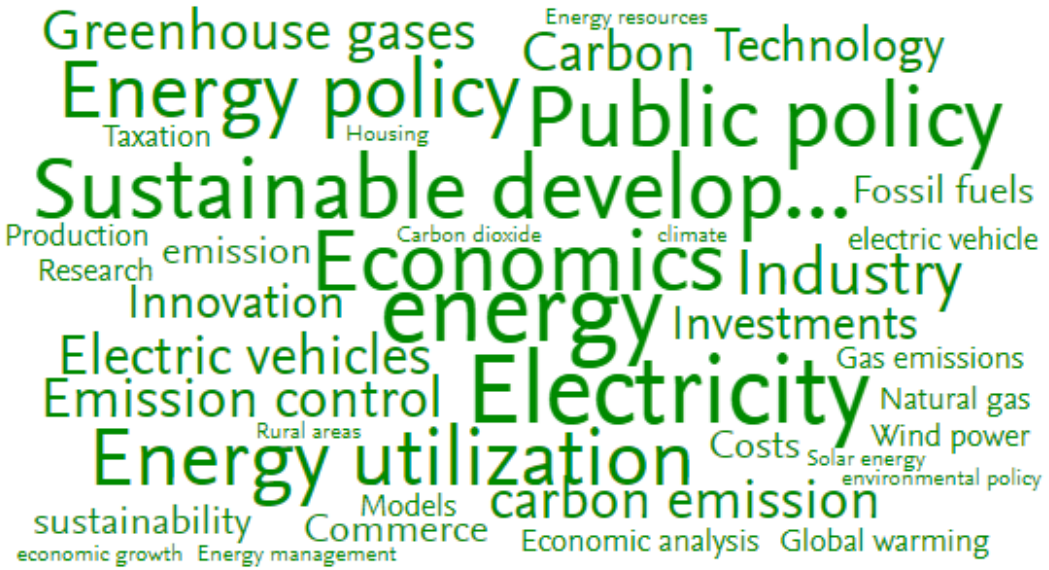
研究主题分析-全球主要贡献机构
Electricity; Energy; Economics TC.81

	Institution	Scholarly Output	Views Count	Field-Weight...	Citation Count
28.	University of East Anglia	212	9,594	5.04	6,374
13.	Potsdam Institute for Climate Impact Research	271	15,509	4.90	9,116
9.	International Institute for Applied Systems Analysis, Laxenburg	317	18,417	4.86	10,818
37.	Wageningen University & Research	192	11,285	4.67	5,238
97.	CSIRO	104	6,329	4.59	3,649
10.	Utrecht University	317	20,568	4.30	8,293
22.	University of Sussex	229	13,799	3.98	4,280
71.	University of Exeter	125	6,703	3.96	3,601
31.	University of Manchester	202	10,378	3.95	3,331
90.	Fondazione Eni Enrico Mattei	112	5,353	3.88	2,292

研究主题分析-热词
Electricity; Energy; Economics TC.81

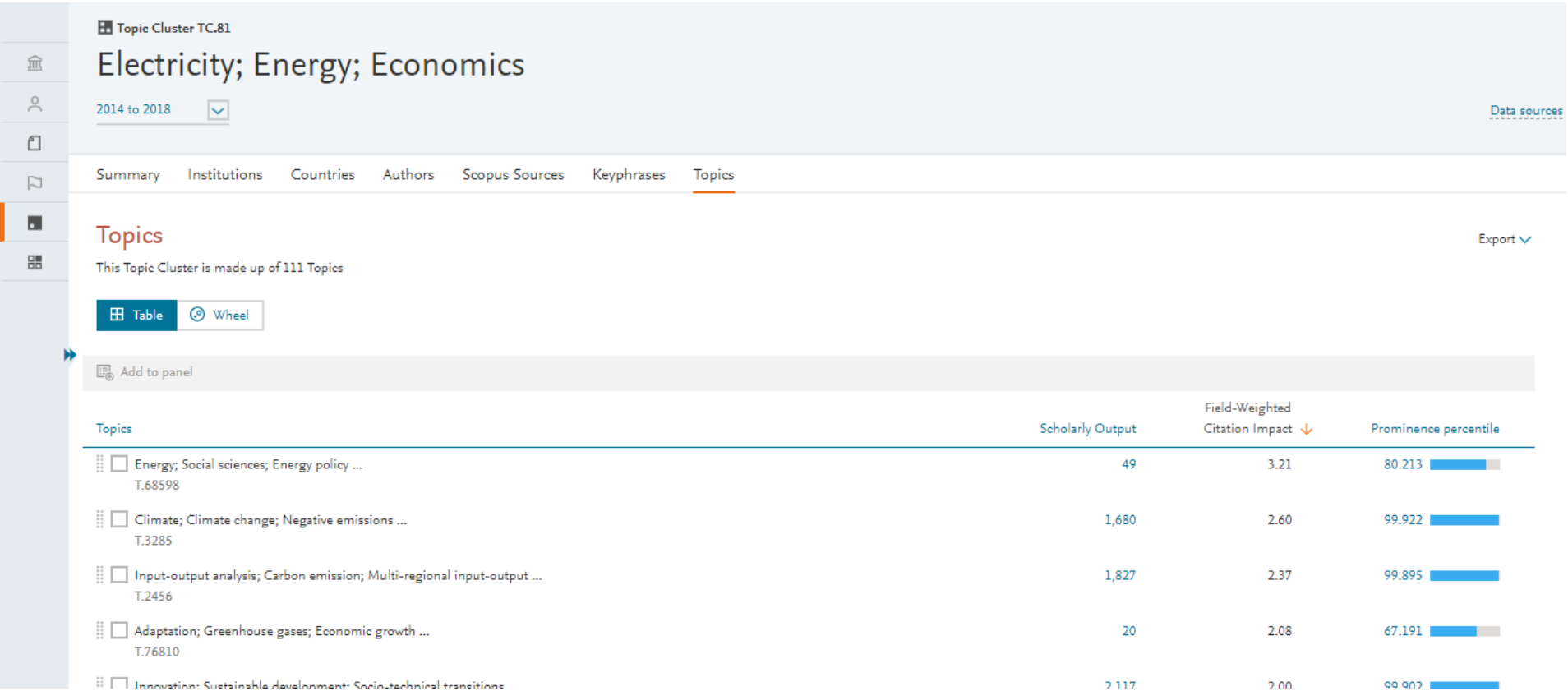
Topic Cluster character

Top 50 keyphrases by relevance, based on 40,145 publications | Learn about keyphrase calculations



A A A relevance of keyphrase | declining A A A growing (2014-2018)

研究主题分析-包涵子主题
Electricity; Energy; Economics TC.81



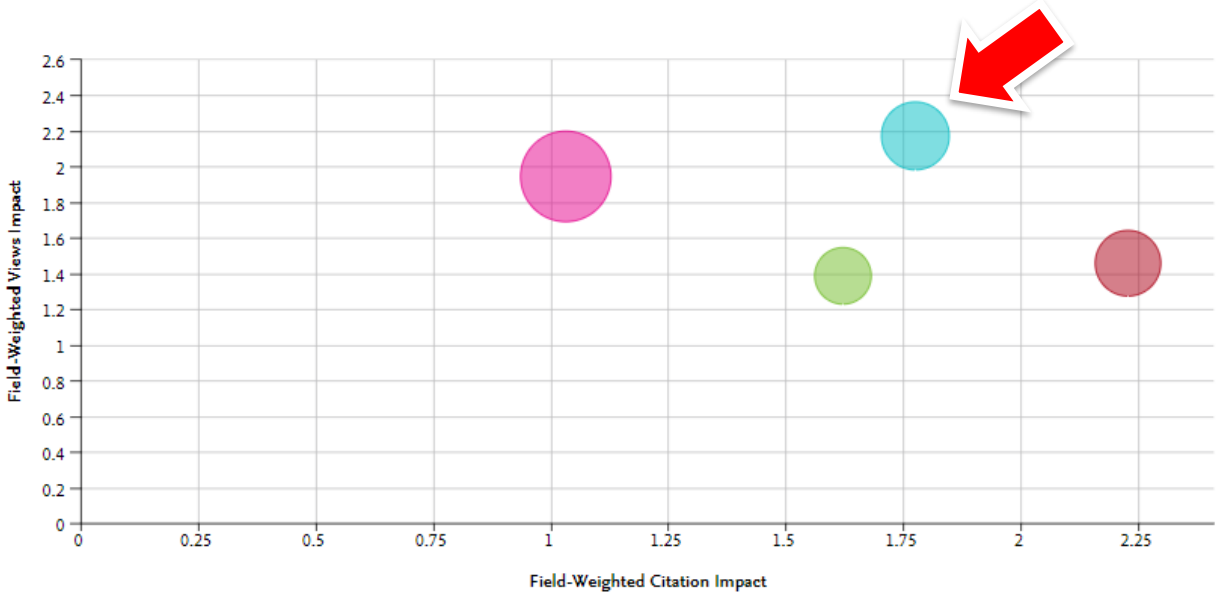
研究主题分析-包涵子主题
Electricity; Energy; Economics TC.81

SciVal

y-axis
Field-Weighted Views Impact

x-axis
Field-Weighted Citation Impact

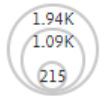
Bubble size
Scholarly Output



Topics and Topic Clusters

- Climate; Climate change; Negative emissions T.3285
- Electric vehicles; Vehicles; Electric cars T.5878
- Innovation; Sustainable development; Socio-technical transitions T.5457
- Input-output analysis; Carbon emission; Multi-regional input-output T.2456

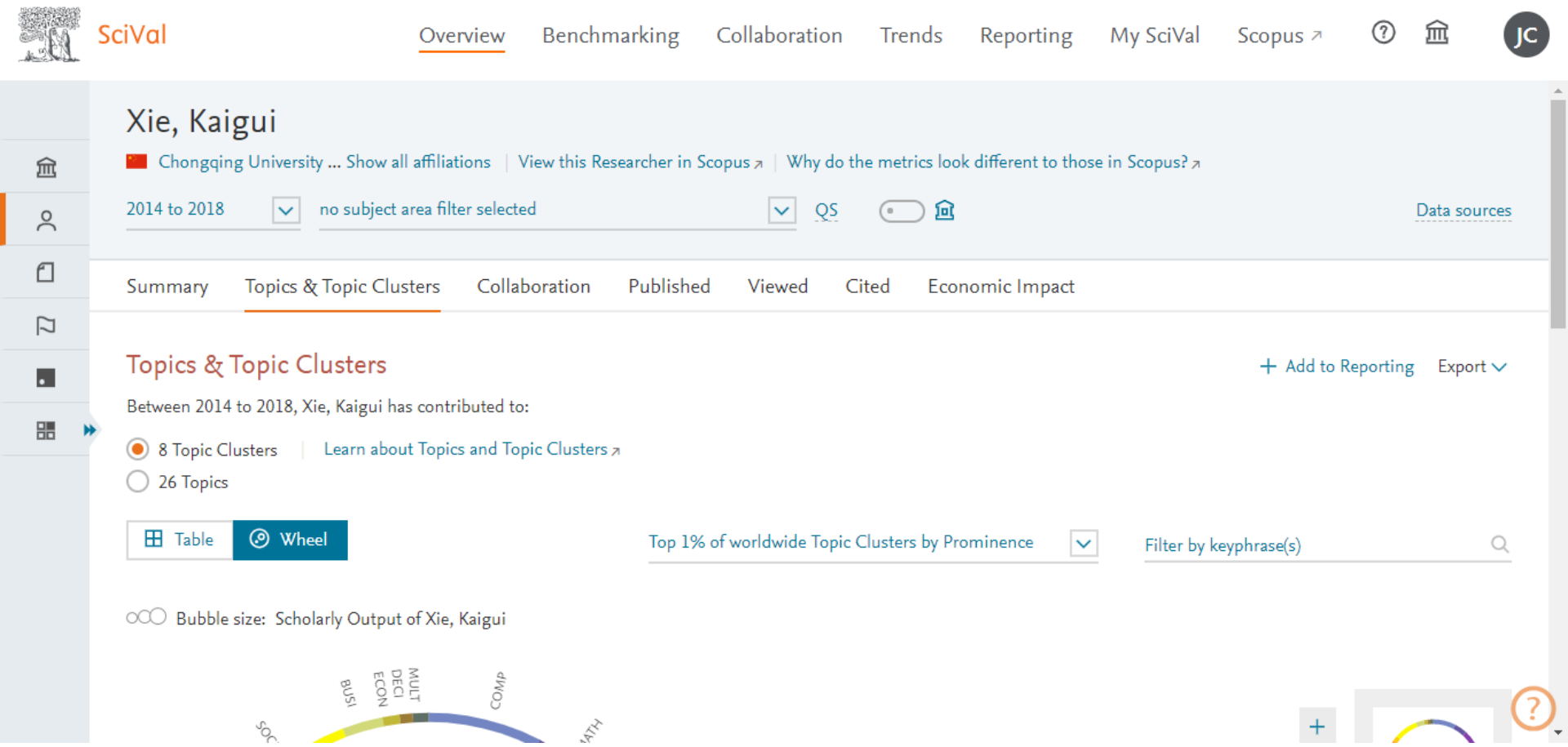
View list of Scopus Sources for the selected Researchers and Groups



Scholarly Output

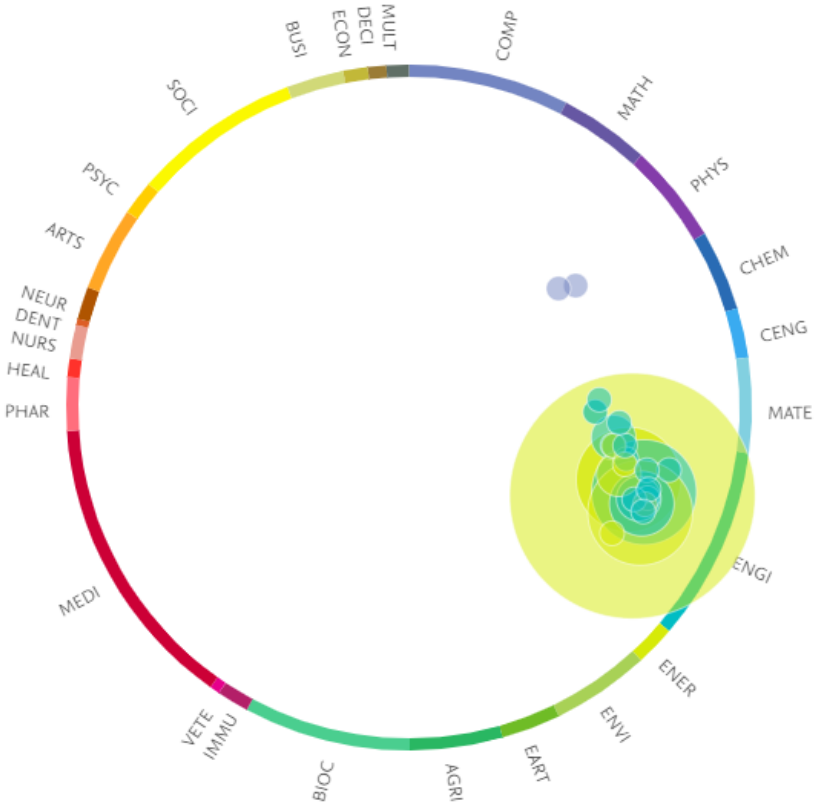
学者研究主题分析

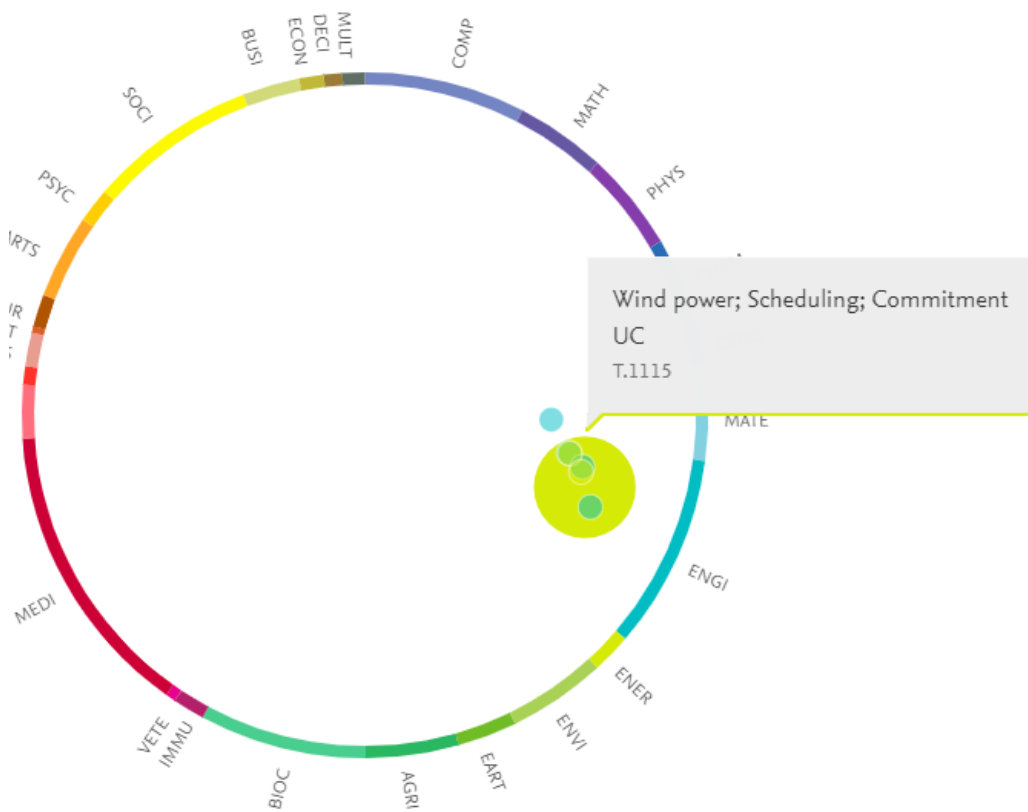
SciVal



学者研究主题分析
参与研究热点

SciVal





学者研究主题分析

SciVal

Topic	Topic Number	Scholarly Output	Publication share (%)	Prominence percentile
Electric power transmission networks; Electric load management; Electricity cost	T.257	1	0.02	99.954
Electric vehicles; Charging (batteries); Smart charging	T.200	1	0.02	99.907
Reactive power; Electric load flow; Voltage rise	T.6451	1	0.04	99.747
Natural gas; Electricity; Energy hubs	T.13607	1	0.06	99.618
Wind power; Forecasting; Speed forecasting	T.2377	1	0.05	99.524
Wind power; Scheduling; Commitment UC	T.1115	5	0.28	99.116
Distributed power generation; Electric power distribution; Loss reduction	T.1238	1	0.05	99.095

学者研究主题分析
高倍引文献

SciVal

Top 5 publications of Xie, Kaigui, by number of citations

Publication	Citations
Optimal economic short-term scheduling of CHP microgrid incorporating heat pump. Guo, Y., Hu, B., Wan, L. and 3 more (2015) Dianli Xitong Zidonghua/Automation of Electric Power Systems, 39 (14), pp. 16-22. View in Scopus ↗	21
Optimal capacity and type planning of generating units in a bundled wind-thermal generation system. Xie, K., Dong, J., Singh, C. and 1 more (2016) Applied Energy, 164, pp. 200-210. View in Scopus ↗	19
Optimization of coordinated control parameters for hybrid energy storage system based on life quantization. Li, F., Xie, K., Zhang, X. and 2 more (2014) Dianli Xitong Zidonghua/Automation of Electric Power Systems, 38 (1), pp. 1-5. View in Scopus ↗	19
Isolated island operating characteristics based analysis on reliability of microgrid. Wang, Y., Wan, L., Hu, B. and 2 more (2014) Dianwang Jishu/Power System Technology, 38 (9), pp. 2379-2385. View in Scopus ↗	19
Wind Farm Layout Optimization and Its Application to Power System Reliability Analysis. Yang, H., Xie, K., Tai, H.-M. and 1 more (2016) IEEE Transactions on Power Systems, 31 (3), pp. 2135-2143. View in Scopus ↗	18

学者研究主题分析
合作机构

SciVal

Institution	Co-authored publications	Citations
1. Chongqing University	51	254
2. University of Tulsa	10	58
3. University of Wisconsin-Milwaukee	8	13
4. Hefei University of Technology	4	20
5. State Grid	3	0
6. Texas A and M University	3	40
7. Logistical Engineering University China	3	3
8. University of Toledo	2	0
9. China Electric Power Research Institute	2	15
10. Guangdong Power Grid Corporation	1	0

研究主题分析基金资助项目

SciVal Overview Benchmarking Collaboration Trends Reporting My SciVal Scopus RK

Topic T.1567 | part of Topic Cluster TC.438 - Disasters; Floods; Risks

adaptation; climate change; vulnerability assessments

2016 to 2019 Data sources

Summary Institutions Countries Authors Scopus Sources Keyphrases Related Topics Funding bodies

Top Funding bodies

Table Chart Export

Funding bodies in this Topic, by Awards Volume

	Grant Agency	Number of Awarded Grants	Number of Articles	Grant ID
1.	National Natural Science Foundation of China (NSFC)	73	40	1155725
2.	National Science Foundation (NSF)	54	40	#1235317
3.	Economic and Social Research Council (ESRC)	30	28	ES/I010521/1
4.	International Development Research Centre (IDRC)	23	20	#106204-99906075-058
5.	Social Sciences and Humanities Research Council of Canada (SSHRC)	20	20	#435-2013-2017
6.	Australian Research Council (ARC)	13	12	DE150101552

Roadmap 2019

Theme	Q1	Q2	Q3	Q4
Move to Spark	HPCC to Spark Migration - Phase 1 Infrastructure maintenance and improvements		HPCC to Spark Migration - Phase 2	
Enhanced functionality		Implementation of ID+	Topics for Publication Sets, who has cited my Researchers / University	
Support researchers in SciVal + new metrics	Improve researcher onboarding experience	Metrics wizard: Responsible use of metrics	Introducing researcher/faculty-level use cases in Collaboration module	**SciVal Metrics Exchange pilot**, PlumX metrics
Optimizing our core platform	**Richer visualization options across SciVal and in Reporting**	First and corresponding author as options in Scholarly Output	Advance flow to create Research Areas (better search, quicker iteration)	University Systems as new institutional entity type

参考资料

1. Download Scopus source list https://www.elsevier.com/__data/assets/excel_doc/0015/91122/ext_list_October_2017_3.xlsx
2. Download Scopus book title list https://www.elsevier.com/__data/assets/excel_doc/0016/91123/Scopus_books_12_12_17_v2.xlsx
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4. Get started with SciVal at www.scival.com (registration required, on campus login)
5. Further information on indicators within SciVal https://www.elsevier.com/__data/assets/pdf_file/0020/53327/scival-metrics-guidebook-v1_01-february2014.pdf

Elsevier Research Intelligence

Online Product webinars

Scopus https://www.brighttalk.com/channel/13703/scopus

SciVal https://www.brighttalk.com/channel/13819/elseviers-research-intelligence

指标手册

- https://www.elsevier.com/research-intelligence/resource-library/scival-metrics-guidebook

Research Metrics Guidebook

This Guidebook is intended to be a straightforward, practical companion to the use of tools like Scopus and SciVal, which are a part of the Research Intelligence portfolio of solutions. It provides some facts about how the data underlying the metrics are used, how the metrics are calculated and displayed, and about variables besides performance that can affect the metrics. It also provides some suggestions about situations where the metrics are useful, when care should be taken, and how shortcomings may be addressed. Download the guidebook now as your companion to get the most out of Scopus, SciVal and their metrics.

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