



CiteSpace 介绍及导用

主讲人：聂茶庚

1

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「一」 CiteSpace介绍

「二」 CiteSpace理论基础

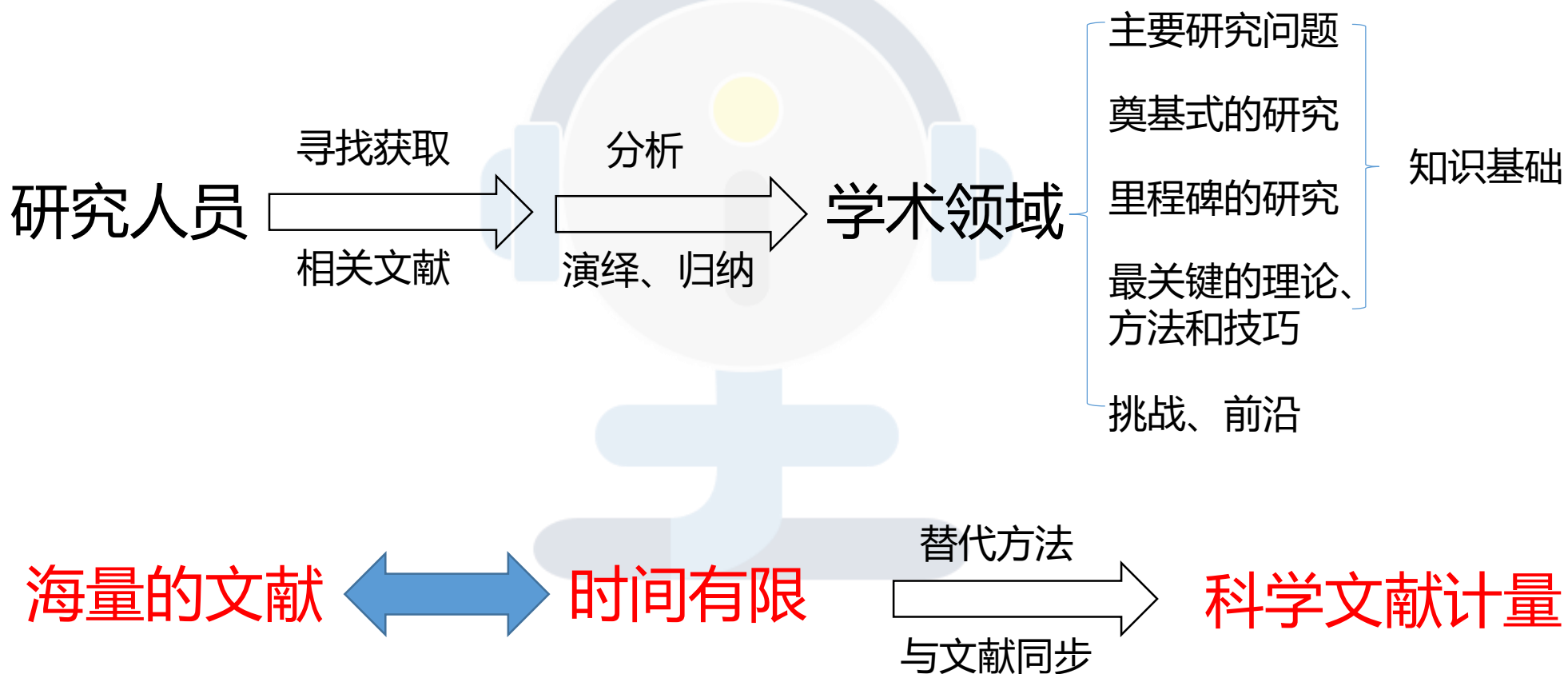
「三」 CiteSpace进行文献分析步骤

「四」 CiteSpace图谱解读

目录

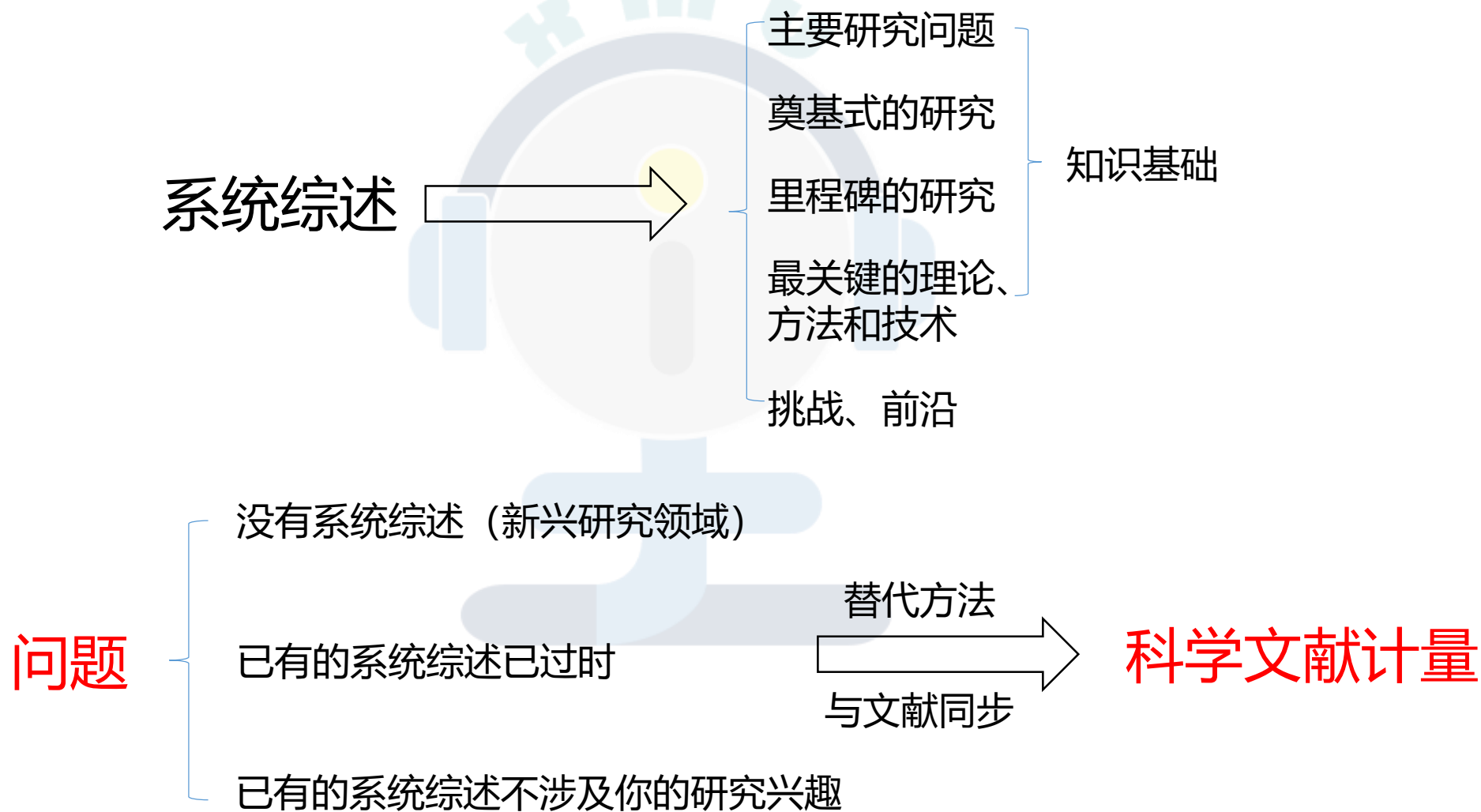


传统的研究模式





传统的研究模式





CiteSpace

1

从大数据的角度归纳现有的
国内外研究文献

2

从时间维度展现学术演变的
动态进程

3

突出核心作者和关键词

4

呈现研究者和机构的发文及
合作的地理空间分布







- 由美国德雷克赛尔大学（费城）信息科学与技术学院（The College of Information Science and Technology, Drexel University）Dr. ChaomMei Chen研究开发

<http://blog.sciencenet.cn/home.php?mod=space&uid=496649>

- 基于JAVA的应用软件





- CiteSpace是近年来信息分析领域最具影响力的信息可视化软件
- 强大的文献共被引分析功能，且随着不断的发展算法，功能不断优化
- 被广泛应用于WoS分类类别的研究领域



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citespace (主题) and 2004-2024 (出版年)

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+ vosviewer

+ bibliometric analysis

+ visualization analysis

+ bibliometrics

+ research hotspots

+ >

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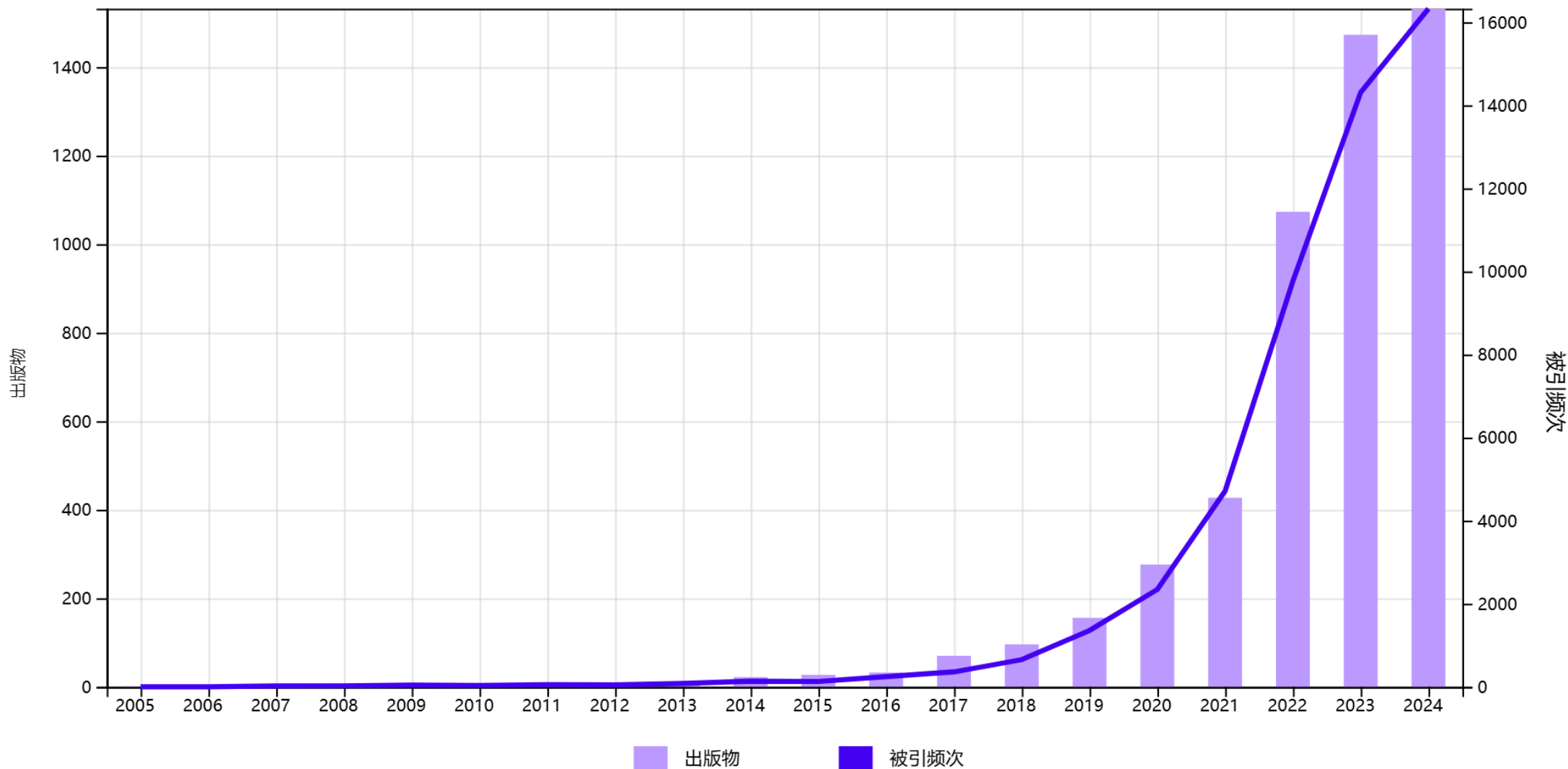
Zhang, WW; Zhang, KL; (...); Zhang, GF

Dec 31 2024 | HEMATOLOGY 29 (1)

36

参考文献

被引参考文献深度分析



使用CiteSpace进行文献研究的论文



显示 25 共计 212 条目 / **254**

全选 ☐	字段: Web of Science 类别	记录数	5,230的百分位
☐	Environmental Sciences	734	14.034%
☐	Medicine General Internal	336	6.424%
☐	Green Sustainable Science Technology	287	5.488%

CiteSpace的用户在全球的分布

<http://blog.sciencenet.cn/u/ChaomeiChen>



过去16年，CiteSpace的应用呈显著增长趋势，应用遍布54个国家或地区，涉及337个不同的城市。在CiteSpace的应用中，VOSviewer和Histcite是常常结合使用的软件，Web of Science是主要数据源。

[CiteSpace全球应用特征与核心功能演化](#). DOI: [10.13266/j.issn.2095-5472.2023.025](https://doi.org/10.13266/j.issn.2095-5472.2023.025)



<http://cluster.ischool.drexel.edu/~cchen/citespace/download/>

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CiteSpace: Visualizing Patterns and Trends in Scientific Literature
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CiteSpace理论基础

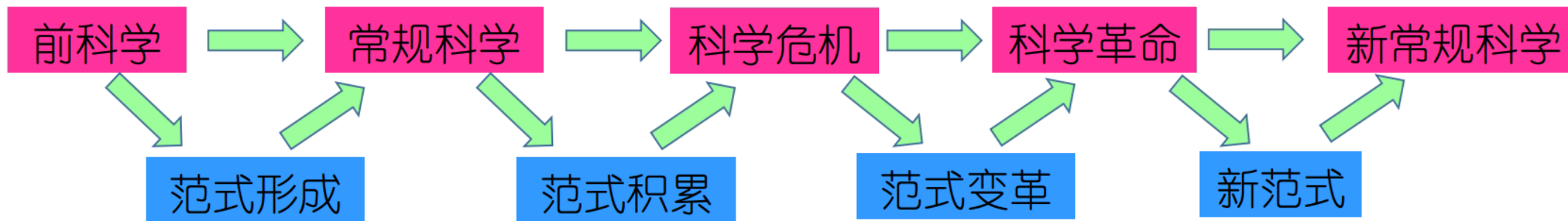




1 库恩的科学革命的范式转换理论

托马斯·库恩认为，科学推进是建立在不断的科学革命过程之中，人们通过科学革命而接纳新观点——新旧科学范式的交替和兴衰。CiteSpace中体现为一个又一个时间段所出现的主题聚类。

KUHN T S. The Structure of Scientific Revolutions [M]. Chicago: University of Chicago Press, 1962.



T.S.Kuhn (1962). 科学革命的结构

2

Burt的结构洞理论

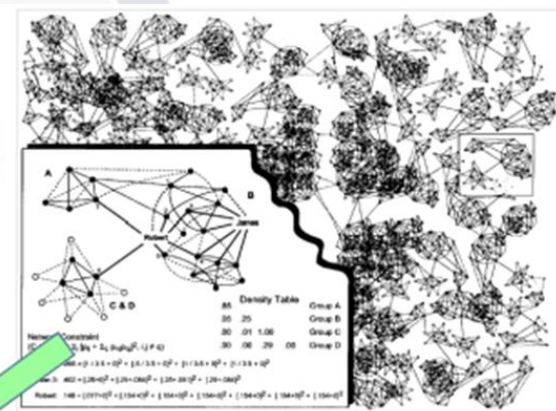
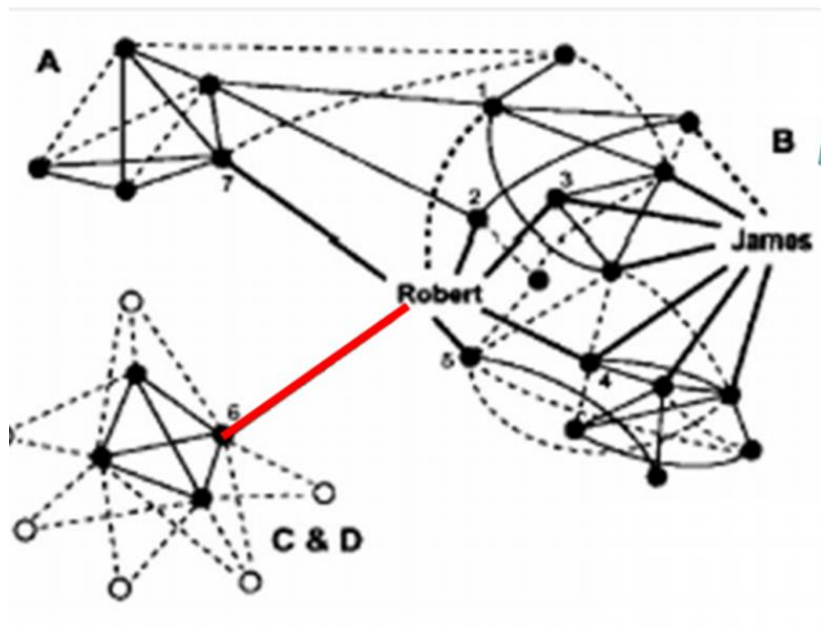
芝加哥大学罗纳德·Burt在研究社会网络和社会价值时提出——人们在社会网络中的位置在于他们的意见和创意的质量。CiteSpace中体现为寻找具有高度中介中心性。

BURT R S. Structural holes and good ideas [J]. American Journal of Sociology, 2004, 110(2): 349-99.

BURT R S. Structural Holes: The Social Structure of Competition [M]. Cambridge, Massachusetts: Harvard University Press, 1992.



结构洞(structural holes)



结构洞是“社会网络中的某个或某些个体和有些个体发生直接联系，但与其他个体不发生直接联系，无直接联系或关系间断(disconnection)的现象，从网络整体看好像网络结构中出现了洞穴”。



3 Pirolli提出的最优信息觅食理论

解释信息搜索中人们如何做出决定

PIROLI P. *Information Foraging Theory: Adaptive Interaction with Information* [M]. Oxford, England: Oxford University Press, 2007.

4 Kleinberg的探测频率突增的算法

一篇论文的引文频次突然呈现急速增长——最合理的解释就是这篇论文切中了学术领域这个复杂系统中的某个关键点

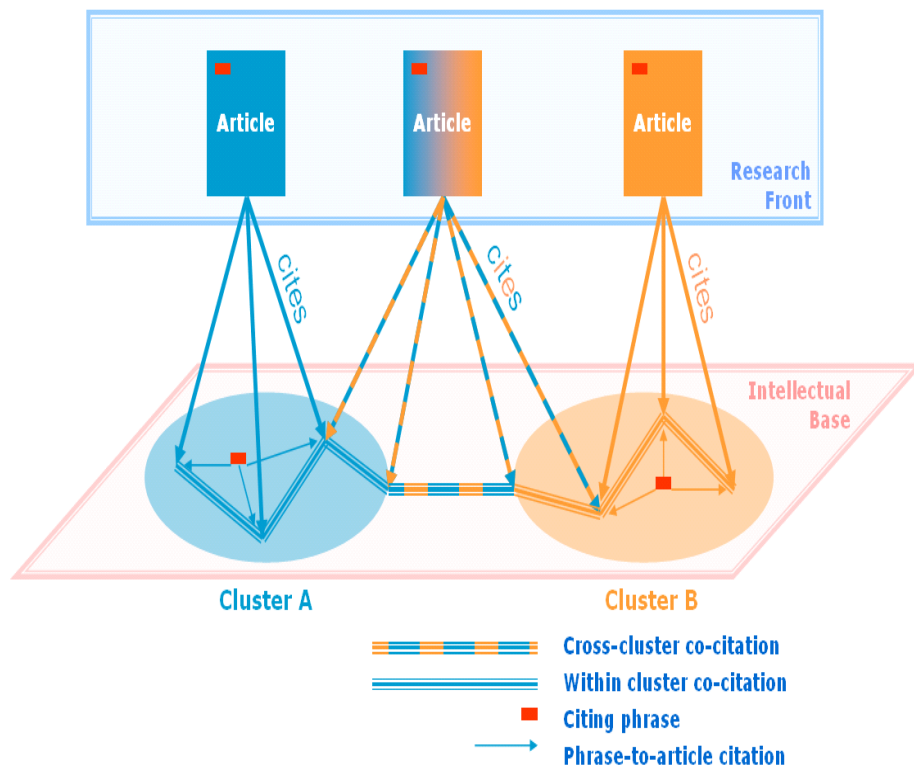
KLEINBERG J. *Bursty and hierarchical structure in streams* [M]. *Proceedings of the 8th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*. Edmonton, Alberta, Canada; ACM Press. 2002: 91-101.

5 结构变异理论

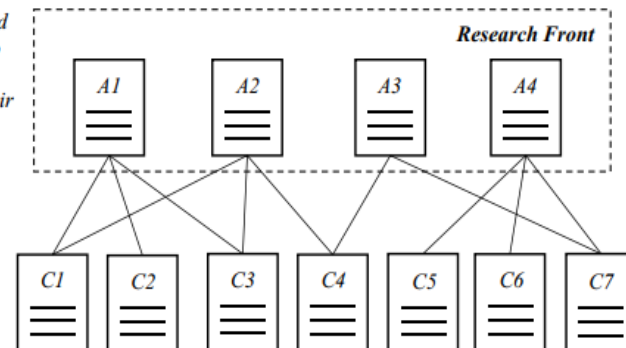
网络的模块化是对其整体结构的一个全局性量度。局部结构的变化可能会引起全局的改变，但是也同样可能不会引起任何全局上的改变。

CHEN C M. *Predictive Effects of Structural Variation on Citation Counts* [J]. *Journal of the American Society for Information Science and Technology*, 2012, 63(3): 431-49.

CHEN C. *The Fitness of Information: Quantitative Assessments of Critical Evidence* [M]. Hoboken, New Jersey, USA: Wiley, 2014.



Use key words and search criteria to get focal papers (A1, A2...) and their reference (C1, C2...) from database.



Build the co-citation network based on citing relations.

The co-citation network is further clustered by using the expectation maximization algorithm.

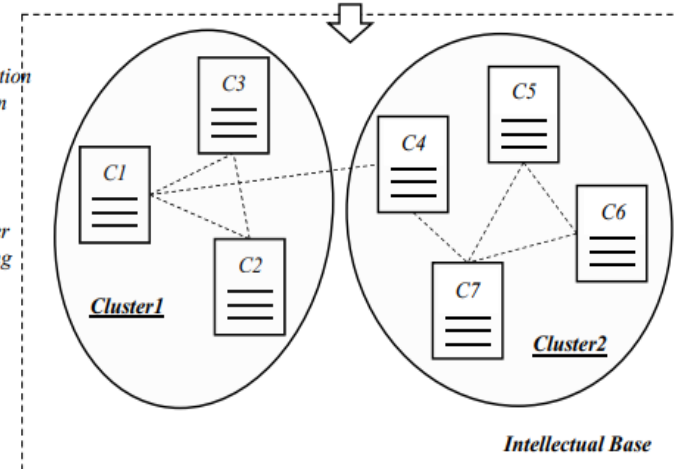
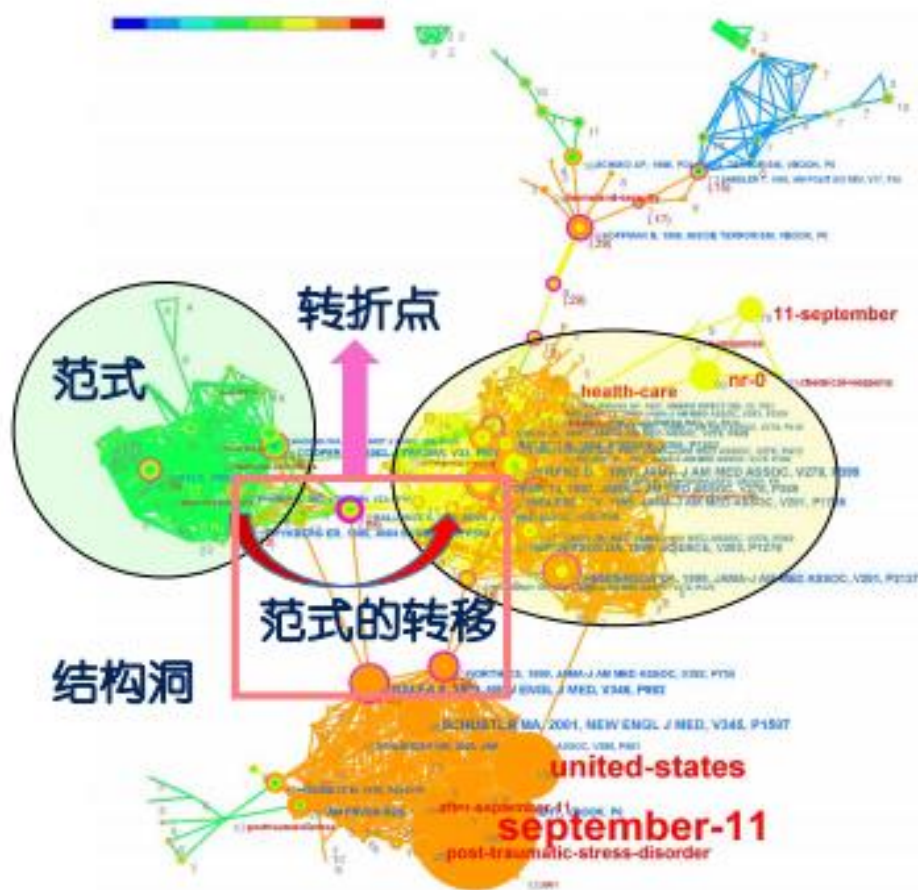


Fig. 1. The conceptual frame work of the co-citation network.



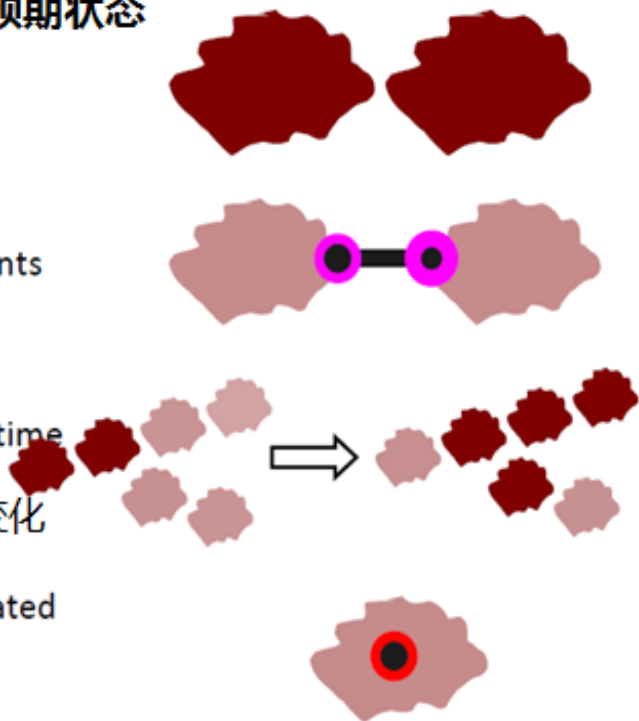
Terrorism Research

陈超美，绘制

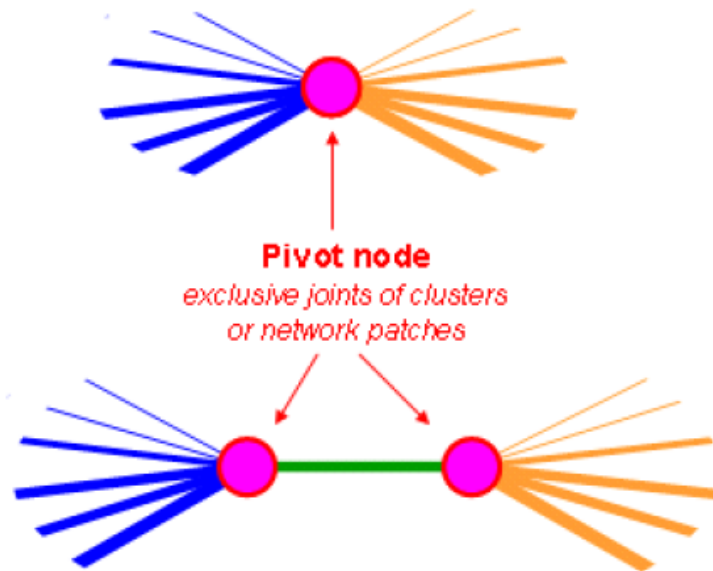
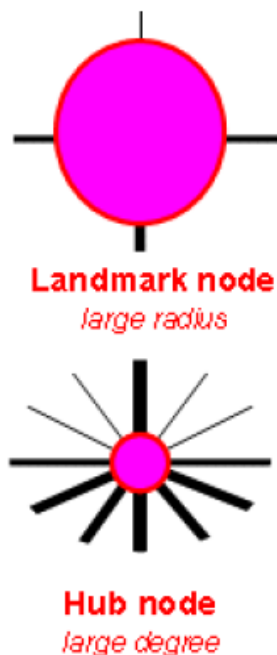


Expected Patterns 预期状态

- Thematic grouping
主题分组
- Intellectual turning points
转折点
- Thematic change over time
主题随着时间的推移变化
- Abrupt changes associated with triggers
触发性的研究突变



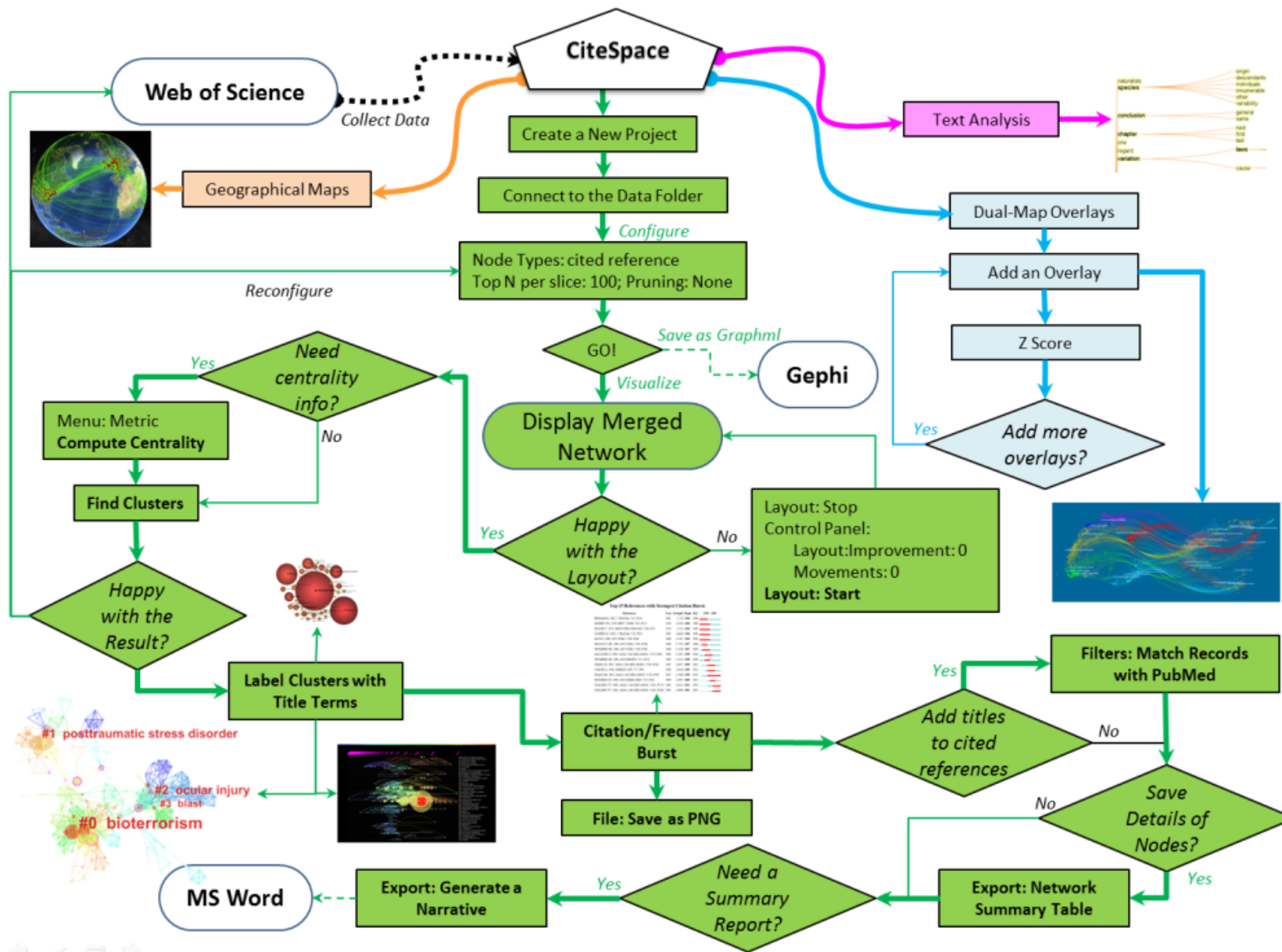
CiteSpace





CiteSpace进行文献分析步骤







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- **CSSCI**(Chinese Social Science Citation Index)
- **CNKI**
- **CSCD**
- **Pubmed**
- **Derwent**
- **Scopus**
- **arxiv e-Print**
- **CSV**
- **EndNote**



各数据库可供分析的功能

数据库 \ 功能	合作网络			共现分析			共被引			文献耦合	双因子叠加
	作者	机构	国家/地区	关键词	术语	领域	文献	作者	期刊		
Web of Science	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Scopus 合	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓
Derwent 合	✓	✗	✗	✓	✓	✓	✓	✓	✓	✗	✗
CNKI 合	✓	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗
CSSCI 合	✓	✓	✗	✓	✗	✓	✓	✓	✓	✗	✗
CSCD	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✗
RCI	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗	✗

CiteSpace分析的对象——文献题录信息



Author / Co-author	Cited / Co-cited References
AU Galea, S Ahern, J Resnick, H Kilpatrick, D Bucvalas, M Gold, J Vlahov, D TI Psychological sequelae of the September 11 terrorist attacks in New York City. SO NEW ENGLAND JOURNAL OF MEDICINE LA English DT Article ID POSTTRAUMATIC-STRESS-DISORDER; NATIONAL COMORBIDITY SURVEY; MAJOR DEPRESSION; NATURAL DISASTER; SOCIAL SUPPORT; OKLAHOMA-CITY; PREVALENCE; PSYCHOPATHOLOGY; SURVIVORS; SYMPTOMS AB Background: The scope of the terrorist attacks of September 11, 2001, was unprecedented in the United States. We assessed the prevalence and correlates of acute post-traumatic stress disorder (PTSD) and depression among residents of Manhattan five to eight weeks after the attacks. Methods: We used random-digit dialing to contact a representative sample of adults living south of 110th Street in Manhattan. Participants were asked about demographic characteristics, exposure to the events of September 11, and psychological symptoms after the attacks. Results: Among 1008 adults interviewed, 21.5 percent reported symptoms consistent with PTSD, 19.5 percent reported symptoms consistent with current depression (with "current" defined as occurring within the previous 30 days). Among respondents who lived south of Canal Street (i.e., near the World Trade Center), the prevalence of PTSD was 20.0 percent. C1 New York Acad Med, Ctr Urban Epidemiol Studies, New York, NY 10029 USA. Columbia Univ, Mailman Sch Publ Hlth, Dept Epidemiol, New York, NY USA. Med Univ S Carolina, Natl Crime Victims Res & Treatment Ctr, Charleston, SC 29425 USA. Schulman Ronca & Bucvalas, New York, NY USA. Bellevue Hosp Ctr, New York, NY 10016 USA. RP Galea, S, New York Acad Med, Ctr Urban Epidemiol Studies, Rm 556, 1216 5th Ave, New York, NY 10029 USA. CR 2001, NY TIMES 1226, B2 *AM PSYCH ASS, 1994, DIAGN STAT MAN MENT *DEP HLTH HUMAN SE, 1999, MENT HLTH REP SURG G *US BUR CENS, 2000, STF3A DEP COMM BUR C	BLAZER DG, 1994, AM J PSYCHIAT, V151, P979 EATON L, 2001, NY TIMES 1116, A1 FOTHERGILL A, 1999, DISASTERS, V23, P156 FULLERTON CS, 1999, AVIAT SPACE ENVIR MD, V70, P902 GINEXI EM, 2000, AM J COMM GOENJIAN AK, 2001, AM J PSY GREEN BL, 1990, J APPL SOC HANSON RF, 1995, J CONSULT HARVEY AG, 1999, J CONSULT KAWACHI I, 2001, J URBAN HEALTH, V78, P458 KESSLER RC, 1995, ARCH GEN PSYCHIAT, V52, P1048 KILPATRICK DG, 1987, CRIME DELINQUENCY, V33, P479 MADAKASIRA S, 1987, J NERV MENT DIS, V175, P286 MAZURE CM, 2000, AM J PSYCHIAT, V157, P896 NORTH CS, 1999, JAMA-J AM MED ASSOC, V282, P755 ORTEGA AN, 2000, AM J PSYCHIAT, V157, P615 POLE N, 2001, J NERV MENT DIS, V189, P442 RESNICK H, 1999, J ANXIETY DISORD, V13, P359 RESNICK HS, 1993, J CONSULT CLIN PSYCH, V61, P984 ROTHBAUM BO, 1992, J TRAUMA STRESS, V5, P455 RUBONIS AV, 1991, PSYCHOL BULL, V109, P384 RUEF AM, 2000, CULTURAL DIVERSITY E, V6, P235 SHAH B, 1997, SUDAAN USERS MANUAL SHALEV AY, 1998, AM J PSYCHIAT, V155, P630 SHALEV AY, 2000, J CLIN PSYCHIAT, V61, P33 SHERBOURNE CD, 1991, SOC SCI MED, V32, P705 SHORE JH, 1989, J NERV MENT DIS, V177, P681 TUCKER P, 2000, J BEHAV HEALTH SER R, V27, P406
Location	Citation Counts
NR 22 TC 178 PU MASSACHUSETTS MEDICAL SOC/NEJM PI WALTHAM PA WALTHAM WOODS CENTER, 860 WINTER ST., WALTHAM, MA 02451-1413 USA SN 0028-4793 J9 N ENGL J MED JI N. Engl. J. Med. PD MAR 28 PY 2002 VL 346 IS 13 BP 982 EP 987 PG 6 SC Medicine, General & Internal GA 534UY UT ISI:000174608600006 FD	Year of Publication
Citing Article	



AU Galea, S
Ahern, J
Resnick, H
Kilpatrick, D
Bucuvalas, M
Gold, J
Vlahov, D

co-authorship



co-occurring burst terms

TI Psychological sequelae of the September 11 terrorist attacks in New York City.

SO NEW ENGLAND JOURNAL OF MEDICINE

LA English

DT Article

ID POSTTRAUMATIC-STRESS-DISORDER; NATIONAL COMORBIDITY SURVEY; MAJOR DEPRESSION; NATURAL DISASTER; SOCIAL SUPPORT; OKLAHOMA-CITY; PREVALENCE; PSYCHOPATHOLOGY; SURVIVORS; SYMPTOMS

AB Background: The scope of the terrorist attacks of September 11, 2001, was unprecedented in the United States. We assessed the prevalence and correlates of acute post-traumatic stress disorder (PTSD) and depression among residents of Manhattan five to eight weeks after the attacks. Methods: We used random-digit dialing to contact a representative sample of adults living south of 110th Street in Manhattan. Participants were asked about demographic characteristics, exposure to the events of September 11, and psychological symptoms after the attacks. Results: Among 1008 adults interviewed, 7.5 percent reported symptoms consistent with a diagnosis of current PTSD related to the attacks, and 9.7 percent reported symptoms consistent with current depression (with ``current`` defined as occurring within the previous 30 days). Among respondents who lived south of Canal Street (i.e., near the World Trade Center), the prevalence of PTSD was 20.0 percent.



CR 2001, NY TIMES 1226, B2
 *AM PSYCH ASS, 1994, DIAGN STAT MAN MENT
 *DEP HLTH HUMAN SE, 1999, MENT HLTH REP SURG G
 *US BUR CENS, 2000, STF3A DEP COMM BUR C
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 SHAH B, 1997, SUDAAN USERS MANUAL
 SHALEV AY, 1998, AM J PSYCHIAT, V155, P630
 SHALEV AY, 2000, J CLIN PSYCHIAT S5, V61, P33
 SHERBOURNE CD, 1991, SOC SCI MED, V32, P705
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 TUCKER P, 2000, J BEHAV HEALTH SER R, V27, P406

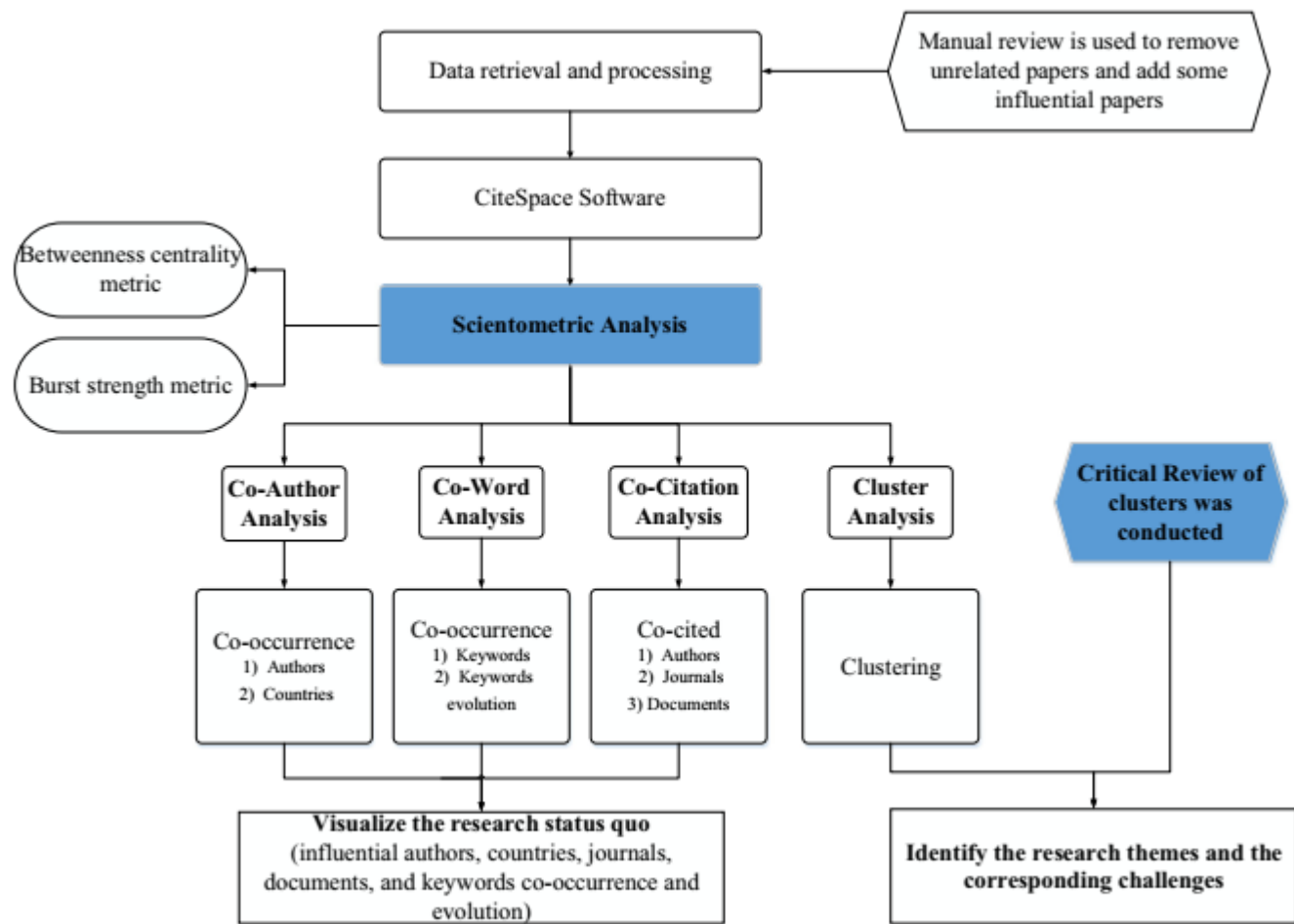


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Zhang, WW; Zhang, KL; (...); Zhang, G

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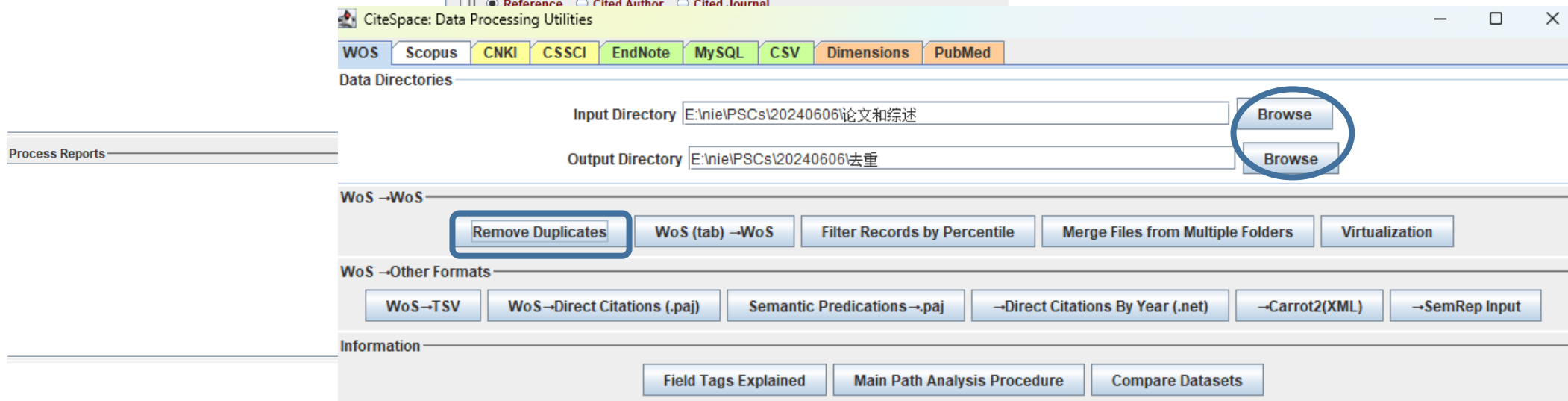
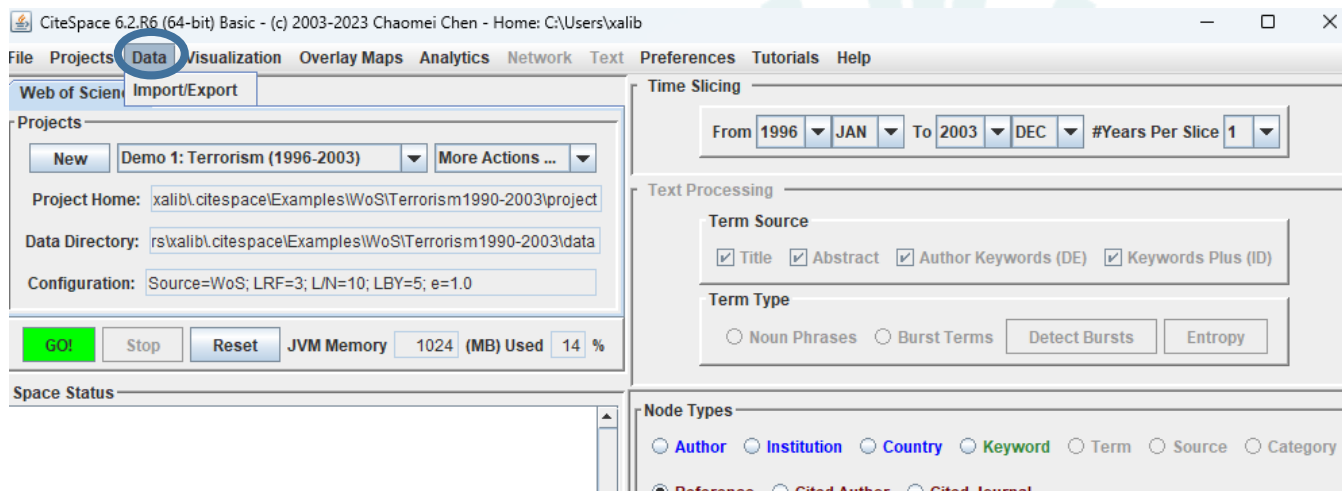
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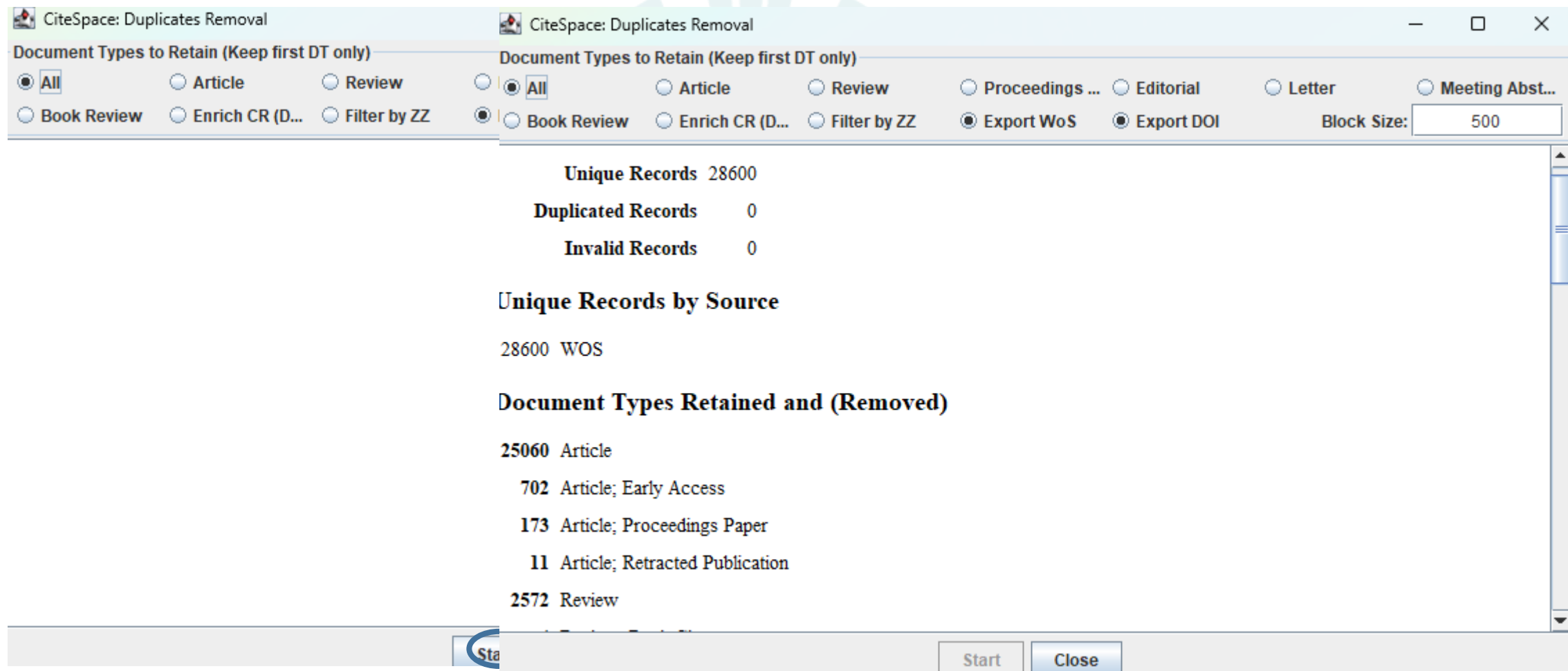


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CSSCI

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**中文社会科学引文索引**
Chinese Social Sciences Citation Index

来源文献

被引文献

篇名(词)

Q 搜索

高级检索>>>

期刊导航: ◆来源期刊(2014-2015) 扩展版来源期刊(2014-2015) 收录集刊(2014-2015)

法学	高校综合性社科学报	管理学	环境科学
教育学	经济学	考古学	历史学
马克思主义	民族学与文化学	人文、经济地理	社会学
体育学	统计学	图书馆、情报与文献学	外国文学
心理学	新闻学与传播学	艺术学	语言学
哲学	政治学	中国文学	宗教学
综合性社会科学	中国少数民族语言文字类	汉语类	外语类



2、进入检索页面

以《科学学研究》为例，收集其2023-2024年的数据

**中文社会科学引文索引**
Chinese Social Sciences Citation Index

首页

来源文献检索

被引文献检索

来源期刊导航

科学学研究

期刊名称 ▾

☒ 精确

与 ▾

作者 ▾

☐ 精确 ☐ 第一作者

与 ▾

期刊名称 ▾

☐ 精确

Q 检索

清除

发文年代：☒ 从

2023 ▾

 至

2024 ▾

年代卷期：☐ 年 卷 期

文献类型：

请选择 ▾

学科类别：

请选择 ▾

学位分类：

请选择 ▾

☒ 一级 ☐ 二级

基金类别：

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每页显示：

20 ▾

排序方式：

年代 ▾

降序 ▾



3、检索结果

中文社会科学引文索引
Chinese Social Sciences Citation Index

首页 来源文献检索 来源文献检索结果 被引文献检索 来源期刊导航

检索条件: 期刊名称(精确) = 科学学研究 文献类型 = 论文 年 = 2023 - 2024, 显示数: 304, 结果数: 304, 运行耗时: 0.379秒

二次检索

所有字段 检索

精炼检索

- 类型
 - 论文 (304)
- 学科
 - 管理学 (184)
 - 哲学 (10)
 - 经济学 (78)
 - 政治学 (2)
 - 法学 (6)
 - 社会学 (4)
 - 图书馆、情报与文献学 (6)
 - 教育学 (5)
 - 统计学 (1)
 - 社会科学总论 (2)
 - 更多选项...
- 期刊
 - 科学学研究 (304)
- 年代
 - 2024 (85)
 - 2023 (219)

显示方式: 列表 视图

序号	来源作者	来源篇名
☐ 1	张云昊 / 田海容	打通学术研究与公共政策的“最后一公里”——知识中介的内涵、功能及争议
☐ 2	陈林生 / 赵星 / 明文彪 / 张蕾	元宇宙技术本质、演进机制与其产业发展逻辑
☐ 3	徐磊	科学研究中个人信息权利的克减及其限度
☐ 4	张贵红 / 邓克清	社会化研究框架下算法公平性的实现策略研究
☐ 5	陈玲 / 王晓飞 / 付宇航	制造业企业自生能力与数字化转型路径
☐ 6	黄莉芳 / 吴福象 / 王芳	全球双链与中国制造业增长: 事实与启示
☐ 7	项丽瑶 / 赵一智 / 俞荣建	芯片产业技术链风险及其演化
☐ 8	王颖 / 刘艺扬	什么样的制度产生高人力资本经济增长效应? ——一个基于动态QCA方法的研究
☐ 9	闫妍 / 叶广宇 / 梁肖梅	制度压力、地方政府响应与区域环境绩效——基于30省数据的定性比较分析
☐ 10	王山 / 余东华	数字经济的降碳效应与作用路径研究——基于中国制造业碳排放效率的经验考察
☐ 11	刘海波 / 安涌洁 / 任婧 / 张亚峰	科研机构知识产权贯标效果与机理研究——基于中国科学院问卷调查的分析
☐ 12	周冬梅 / 朱璇玮 / 陈雪琳 / 鲁若墨	数字平台生态系统: 概念基础、研究现状与未来展望
☐ 13	丁守海 / 冀承	企业数字化与劳动收入份额新变化
☐ 14	胡谐 / 熊焰 / 梁玲玲 / 卓训方	技术和数据知识产品交易平台模式及实现路径
☐ 15	闫伟 / 肖雪 / 严飞	卓越与活力: 中国企业家积极心理品质的研究
☐ 16	梁春娟 / 邓思铭	专利质量动态监测二维指标模型构建与实证
☐ 17	国容毓 / 陈劲 /	基于知识网络的创新、知识演进、理论认知与展望

检索条件及精炼结果304条

精炼只选择论文



4、选择并下载数据

点击全部选择按钮，cssci一次最多下载500条记录，点击下载，直到下载完所有记录

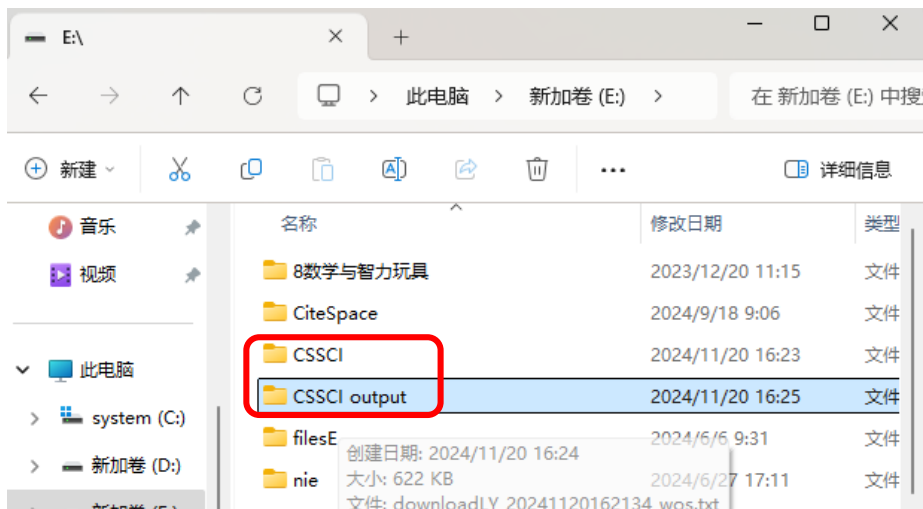
☒ 9	郑佳佳	区际CO2排放不平等性及与收入差距的关系研究——基于中国省际数据的分析
☒ 10	熊磊 / 吴晓波 / 朱培忠 / 陈小玲	技术能力、东道国经验与国际技术许可——境外企业对中国企业技术许可的实证研究
☒ 11	吴利华 / 纪静	中美电子信息制造业产业环境比较分析——基于关联产业的视角
☒ 12	曾国屏 / 林菲	创业型科研机构初探
☒ 13	薛元昊 / 王重鸣	基于组织学习理论的企业知识产权策略研究
☒ 14	樊路青 / 刘雯雯	“二元论”视角下的技术获取战略与吸收能力——基于中国经验的实证研究
☒ 15	孙永磊 / 党兴华 / 宋晶	网络惯例形成的影响因素探索及实证研究
☒ 16	阿儒涵 / 李晓轩	我国政府科技资源配置的问题分析——基于委托代理理论视角
☒ 17	王瑜 / 任浩	模块化组织价值创新: 内涵与本质
☒ 18	张文红 / 赵亚普 / 陈爱玲	外部研发机构联系能否提升企业创新? ——跨界搜索的中介作用
☒ 19	张爱琴 / 侯光明 / 李存金	面向工程技术项目的群体创新方法集成研究
☒ 20	王建 / 胡琰琪 / 马涛	联盟网络中企业创新平衡模式选择的影响研究——基于网络结构的视角
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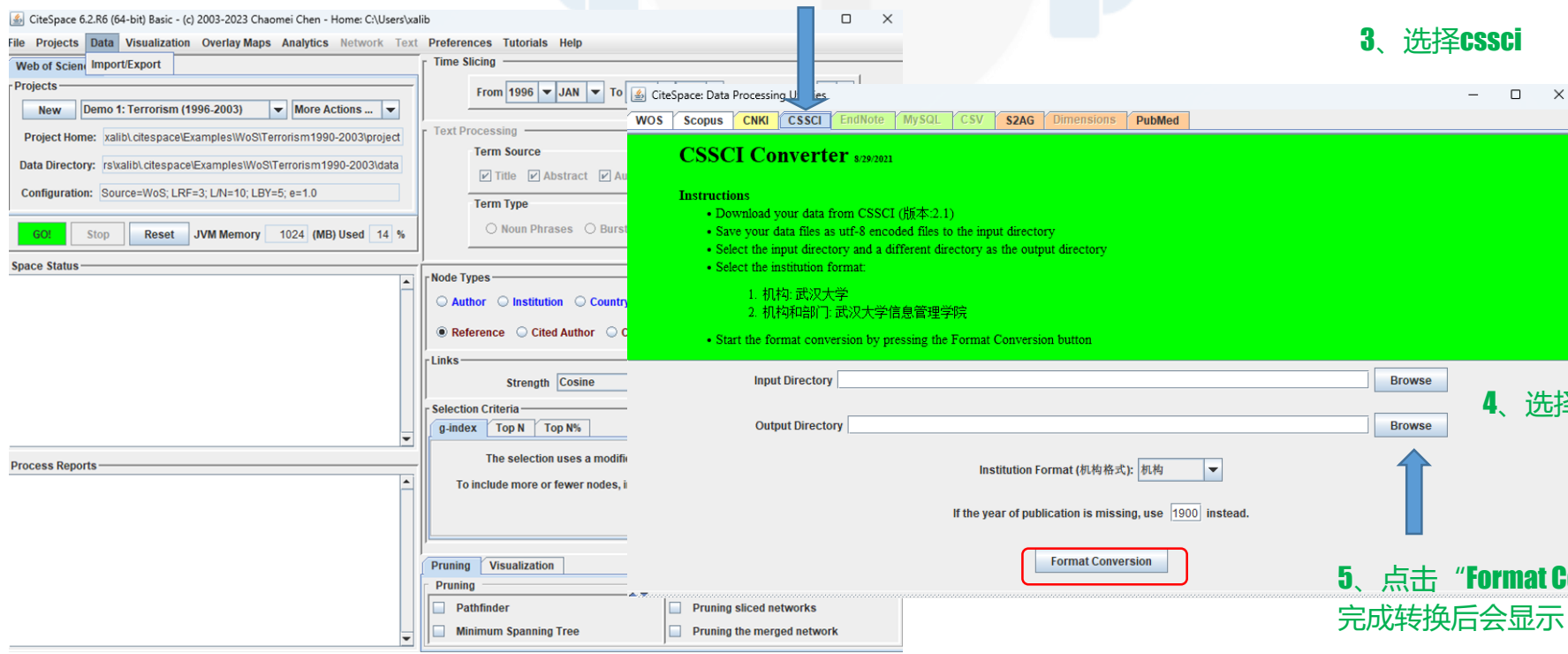
6、数据转换

1、为原始数据和转换后数据分别建立文件夹

2、导入数据



3、选择cssci



4、选择原始数据夹和转换后数据夹

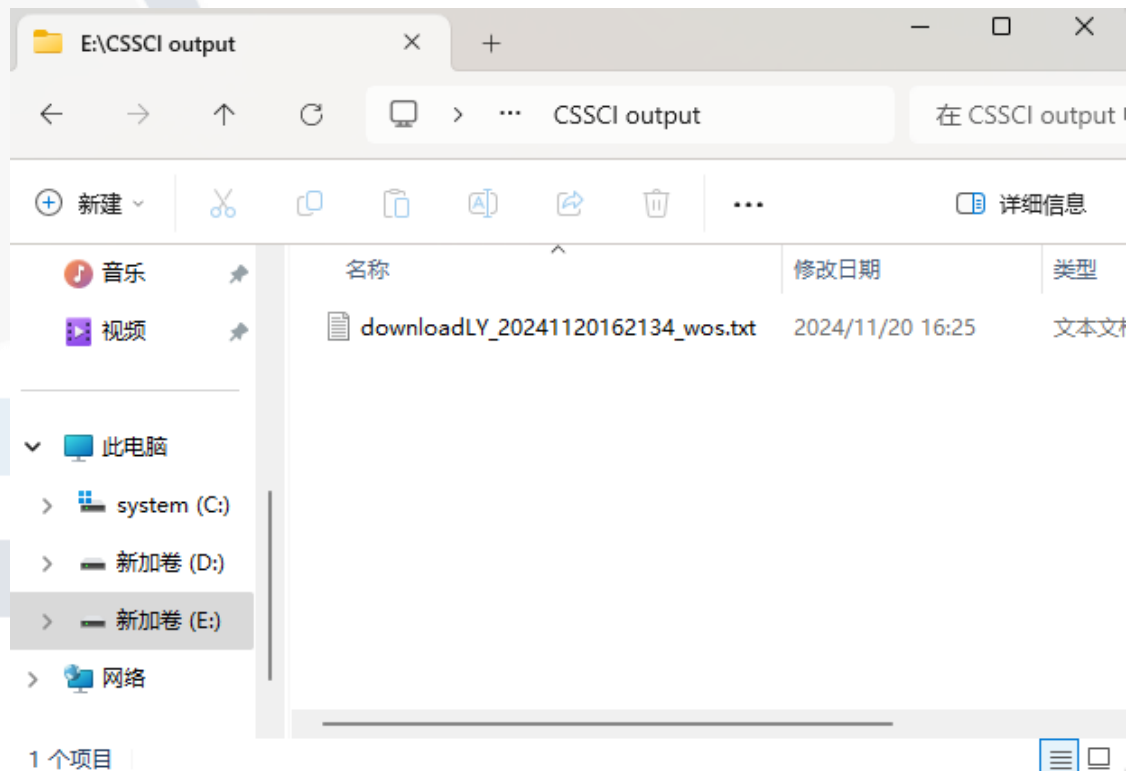
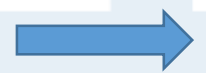
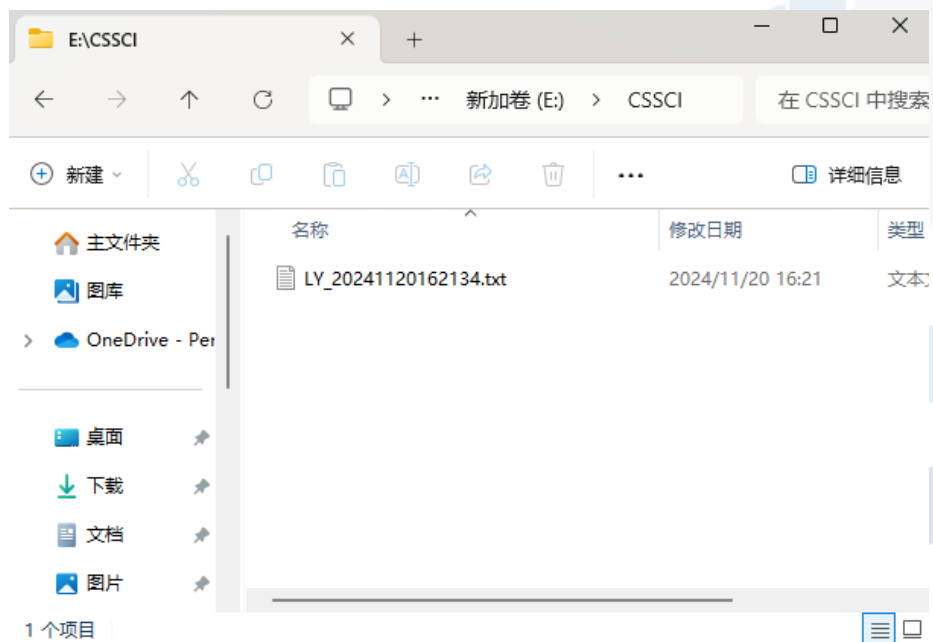
5、点击“Format Conversion”，完成转换后会显示“Finished”



7、数据转换结果

转换后

转换前





CNKI

1、登录CNKI → 2、进入期刊检索页面

以《科学学研究》为例，收集其**2023-2024**年的数据

cnki 中国知网 www.cnki.net

文献 期刊 博硕士 会议 报纸 图书 年鉴 工具书 专利 标准 成果 更多>>

高级检索 专业检索 作者发文检索 句子检索 一框式检索

新型出版模式介绍 期刊导航

>>文献分类目录 全选 清除

- 基础科学
- 工程技术 I 辑
- 工程技术 II 辑
- 农业科技
- 医药卫生科技
- 哲学与人文科学
- 社会科学 I 辑
- 社会科学 II 辑
- 信息科技
- 经济与管理科学

为我推荐

- 活性炭在常减压生产航煤中的使用寿命
- 基于STM32的智能台灯控制系统设计
- 双碳目标背景下ESG对企业价值的影响机理与实证研究
- 商业银行数字化转型与劳动力需求：创造还是破坏？
- 数字化转型、知识溢出与企业全要素生产率——来自制造业上市公司的经验证据
- 多元主体需求下网络微短剧热潮及未来突破

输入检索条件：

主题 词频 并含 词频 精确

并且 篇名 词频 并含 词频 精确

作者 中文名/英文名/拼音 精确 作者单位 全称/简称/曾用名 模糊

从 2023 年到 2024 年 指定日期 更新时间： 不限

来源期刊： 科学学研究 精确

来源类型： ☒ 全部期刊 ☐ SCI来源期刊 ☐ EI来源期刊 ☐ 核心期刊 ☐ CSSCI ☐ CSCD

支持基金： 基金 精确

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检索

结果中检索

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分组浏览： 主题 发表年度 研究层次 作者 机构 基金

数字化转型 (22) 人工智能 (22) 实证研究 (15) 科学学 (13) 科技创新 (12) 数字技术 (11) 《科学学研究》 (11) 创新链 (10) 数字经济 (10)

产业链 (10) 科技成果转化 (9) 影响因素 (9) 案例研究 (9) 技术创新 (9) 创新绩效 (8) >>

排序： 相关性 发表时间 被引 综合 下载

中文文献 外文文献 摘要 列表 显示 10 20 50

全选 已选： 1 清除 批量下载 导出/参考文献 计量可视化分析

共找到466条结果 1/24

篇名	作者	刊名	发表时间	被引	下载	操作

需要注意的是**CNKI**没有文献类型的分类，而检索的结果中**新闻、会议通知**等信息需要在**数据收集时删除**。因此需要进行手工删除，建议可以在**下载时逐页检查**。



3、导出数据

筛选出455篇

分组浏览: 主题 发表年度 研究层次 作者 机构 基金

数字化转型 (22) 人工智能 (22) 实证研究 (15) 科学学 (13) 科技创新 (12) 数字技术 (11) 《科学学研究》 (11) 创新链 (10) 数字经济 (10) 产业链 (10) 科技成果转化 (9) 影响因素 (9) 案例研究 (9) 技术创新 (9) 创新绩效 (8) >>

排序: 相关度 发表时间 被引 综合 下载 中文文献 外文文献 摘要 列表 显示 10 20 50

共找到466条结果 24/24

筛选出455篇

导出/参考文献

	篇名	作者	刊名	发表时间	被引	下载	操作
☒	461 中国复杂产品系统的追赶路径研究——基于创新生态系统的视角	柳卸林;葛爽	科学学研究	2022-02-09 10:12	20	2766	下载 引用 收藏 分享
☒	462 高端科普智库的内涵、治理体系与建设路径	汝鹏;付文婷;何持之	科学学研究	2022-01-26 20:47	8	1130	下载 引用 收藏 分享
☒	463 企业内部知识对核心技术能力的影响研究	胡川;黄华	科学学研究	2021-12-22 19:28	13	2791	下载 引用 收藏 分享
☒	464 制度资本对生物医药企业突破性创新的影响研究	李钰婷;高山行	科学学研究	2021-11-29 19:26	11	1805	下载 引用 收藏 分享
☒	465 战略性新兴产业专利运营活动与服务需求识别	李莹莹;王宏起;王珊珊	科学学研究	2021-11-29 15:33	8	1472	下载 引用 收藏 分享
☒	466 技术轨道延伸与破解技术路径锁定研究——以光刻产业为例	杨武;陈培;Gad David;孙世强	科学学研究	2021-11-20 12:10	12	2027	下载 引用 收藏 分享

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首页 上一页 20 21 22 23 24 25 26 27 28



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使用CiteSpace进行分析的文献类型输入为“Refworks”。建议输入“Refworks”和“Endnote”两种格式。前者可以进行文献可视化分析，而后者可以用于进行论文写作时使用。

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条件: 中英文刊名=科学学研究 or ISSN = 科学学研究 or CN = 科学学研究 and 年 between 2013,2014 (精确匹配)						
☒	1 公众参与创新的社会网络:创客运动与创客空间	徐思彦; 李正风	科学学研究	2014-12-15	期刊	X
☒	2 协同创新效应运行机理研究:一个都市圈视角	解学梅	科学学研究	2013-12-15	期刊	X
☒	3 研发投入强度对企业绩效影响的门槛效应研究					
☒	4 创新3.0与创新生态系统					
☒	5 后发者如何实现快速追赶?——一个二次商业技术创新的共演模型					
☒	6 创新生态系统:源起、知识演进和理论框架					
☒	7 创业学习的内涵、维度及其测量					
☒	8 多重视角下的创新生态系统					
☒	9 中国企业专利实施和产业化问题研究					
☒	10 创业自我效能感、创业资源与农民创业动力					
☒	11 组织激励、组织文化对知识共享的作用机制:社会影响理论					
☒	12 技术联盟知识转移有效性的差异来源研究:战略柔性的视角					
☒	13 社会资本促进了组织创新吗?——一项基于企业家的实证研究					
☒	14 企业家资源、动态能力和企业创业期的绩效:科技企业的对比研究					
☒	15 产业技术创新联盟内部风险管理研究——以华为为例					

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[1]李万,常静,王敏杰,朱学彦,金爱民. 创新3.0与创新生态系统[J]. 科学学研究, 2014, 12: 1761-1770.
[2]梅亮,陈劲,刘洋. 创新生态系统:源起、知识演进和理论框架[J]. 科学学研究, 2014, 12: 1771-1780.
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[12]张军荣,袁晓东. 中国“拜杜规则”促进高校专利产出了吗?[J]. 科学学研究, 2014, 12: 1859-1866+1887.
[13]单标安,蔡莉,鲁喜凤,刘利. 创业学习的内涵、维度及其测量[J]. 科学学研究, 2014, 12: 1867-1875.



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A1 李万;常静;王敏杰;朱学彦;金爱民;

AD 上海市科学学研究所;

T1 创新3.0与创新生态系统

JF 科学学研究

YR 2014

IS 12

OP 1761-1770

K1 创新3.0;创新生态系统;第三代创新政策 innovation 3.0;innovation ecosystems;the third generation of innovation policy

AB 从创新理论发展演变、企业创新模式3.0兴起、第三代创新政策实践等多重视角,系统梳理了近年来创新3.0范式演变的理论基础与实践探索,认为其实质是以创新生态系统为核心特征的新一代创新范式。在分析创新生态系统兴起和发展动因的基础上,深入阐释了创新生态系统的概念与特征。并提出在我国创新驱动发展战略下,建设世界顶级创新生态系统的基本考虑。

SN 1003-2053

CN 11-1805/G3

LA 中文;

DS CNKI

RT Journal Article

SR 1

A1 梅亮;陈劲;刘洋;

AD 浙江大学公共管理学院;清华大学经济管理学院;华南理工大学工商管理学院;

T1 创新生态系统:源起、知识演进和理论框架

JF 科学学研究

YR 2014

IS 12

OP 1771-1780

K1 创新生态系统;知识图谱;共生演化;科学计量 innovation ecosystem;knowledge mapping;coevolution;scientific metrology

AB 创新驱动发展的背景下,企业竞争优势的提升越来越依赖其所处的创新生态系统。作为市场与组织的中间层次,生态系统视角成为创新理论研究范式的新方向。现有的研究缺乏对于创新生态系统理论及其研究演进的系统性回顾。本文以科学计量方法为基础,系统论述了创新生态系统理论的源起、知识演进和理论框架。研究结论显示:创新生态系统的理论研究主要围绕商业生态系统、价值创造、开放式创新、创新生态系统四大聚类展开。基于重点文献对创新生态系统理论知识演进的分析,创新生态系统的理论框架可分为核心文献、理论基础、研究方法三大层次。

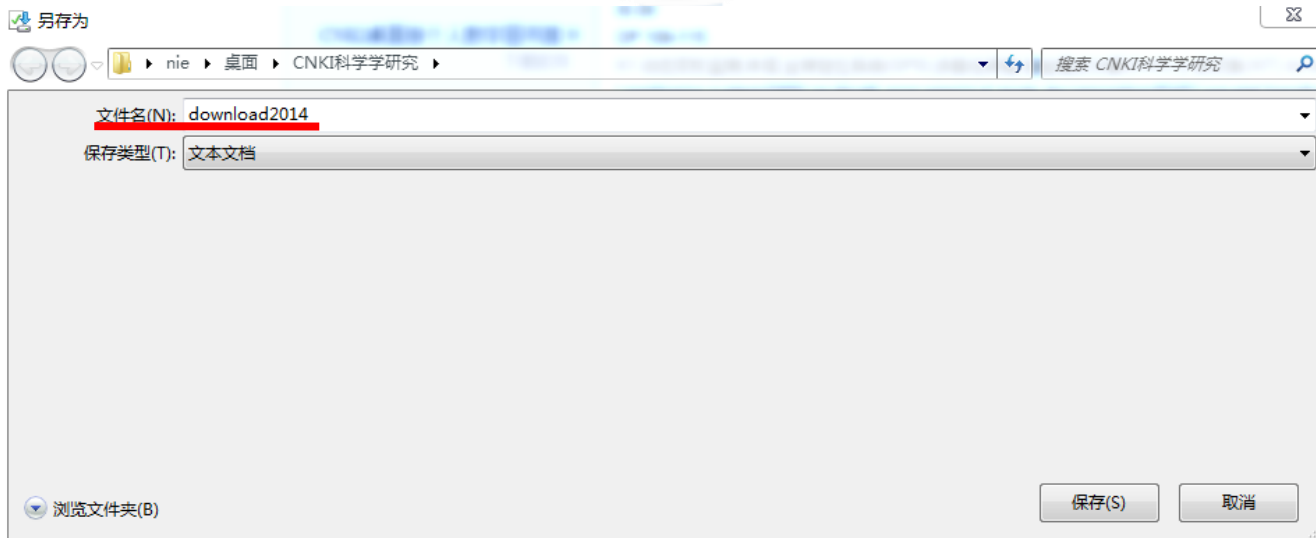
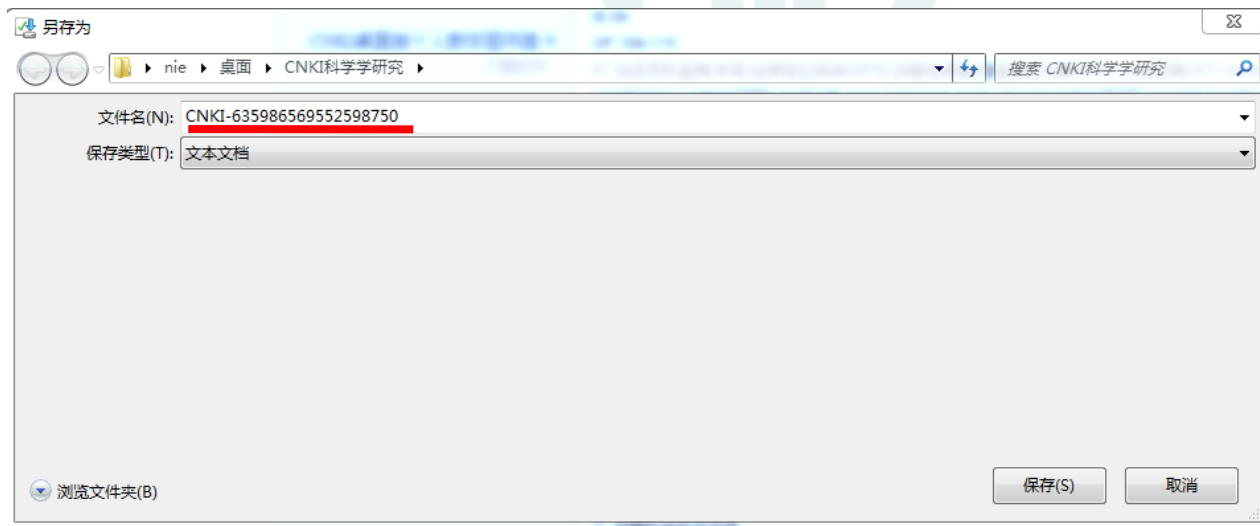
SN 1003-2053

CN 11-1805/G3

LA 中文;

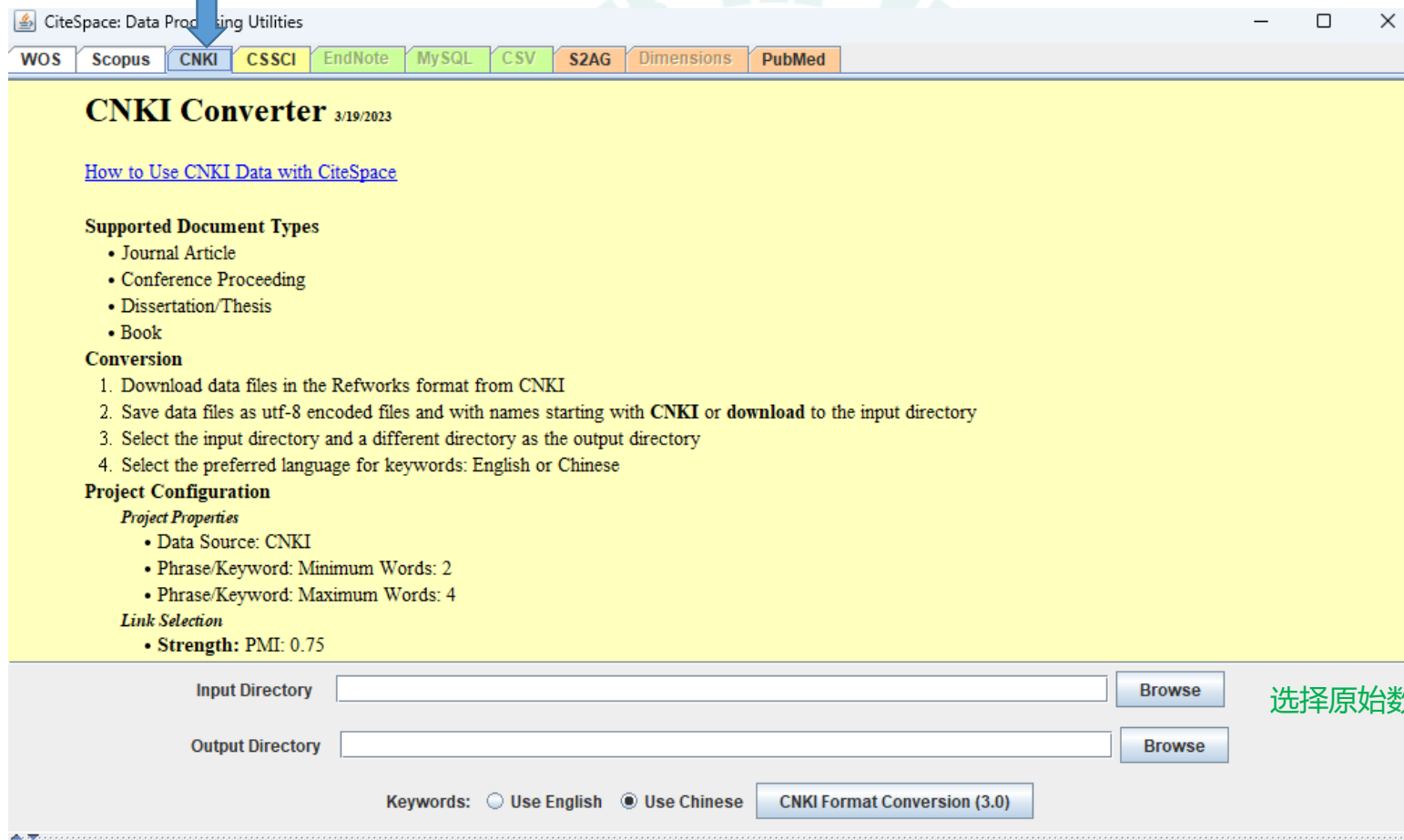


4、保存数据以download*.txt命名





5、数据转换



选择原始数据夹和转换后数据夹

Citespace操作界面

运行CiteSpace



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English

6.4.R1 Demo Video * CiteSpace Survey * CiteSpace Blogs

Current Versions: 6.4.R1 (Advanced), 6.3.R3 (Advanced)

[CiteSpace101 \(Experimental GPT\)](#) | [CiteSpace FAQ in English/Chinese \(英文/中文\)](#)

Videos: (1) [Visual Analytic Studies of Science \(2024\)](#) (2) [研究领域的形成, 发展, 和消亡 \(2022\)](#) (3) [Delineating the Scholarly Landscape of a Research Field \(2021\)](#)

Upgrade to CiteSpace (Advanced): [1 Year on 1 Computer](#); [2 Years on 2 Computers](#)

升级高级版: 微信/支付宝 (S/¥): [1年1台电脑](#); [2年2台电脑](#)

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System Information

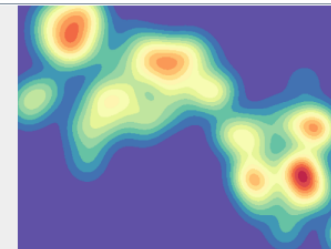
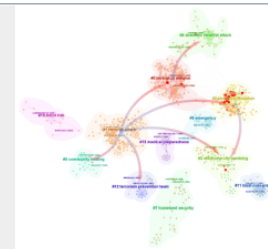
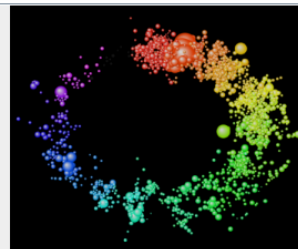
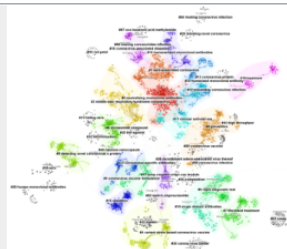
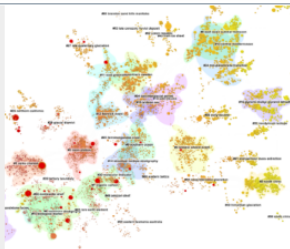
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Built: August 20, 2024	Processors: 12	Substrate VM
Expire: December 31, 2025	Host: 4CE301FFZV 59.77.41.150	Java Home: null

Key Publications

- Chen, C. (2020) [A Glimpse of the First Eight Months of the COVID-19 Literature on Microsoft Academic Graph](#). Front. Res. Metr. Anal. 5:607286.
- Chen, C., Song, M. (2019) [Visualizing a field of research: A methodology of systematic scientometric reviews](#). PLoS ONE, 14(10):e0223994.
- Chen, C. (2017) [Science mapping: A systematic review of the literature](#). JDIS, 2(2), 1-40.
- Chen, C. (2016) [CiteSpace: A Practical Guide for Mapping Scientific Literature](#). Nova Science Publishers.
- Chen, C. et al. (2010) [The structure and dynamics of co-citation clusters: A multiple-perspective co-citation analysis](#). JASIST, 61(7), 1386-1409.
- Chen, C. (2006) [CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature](#). JASIST, 57(3), 359-377.
- Chen, C. (2004) [Searching for intellectual turning points: Progressive Knowledge Domain Visualization](#). Proc. Nat. Acad. Sci., 101(Suppl.), 5303-5310.
- Chen, C. (2010) [System and method for automatically generating systematic reviews of a scientific field](#). US Patent US20110295903A1.

Acknowledgements

National Science Foundation (NSF): [SMA-1633286](#), [IIS-0612129](#), NSFACCS-10P1303; [NEVAC](#); Thomson Reuters Citation Analysis Research Grant ([2002](#))
Elsevier; Higher Education Press; IMS Health; Pfizer; Microsoft Azure Sponsorship



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Agree

Disagree



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文件 项目 数据 可视化 地图 双图叠加 分析 网络 文本 用户设置 教程 帮助

Web of Science

项目

新建 Demo 1: Terrorism (1996-2003) 相关选择 ...

项目文件夹: xalib\citespace\Examples\WoS\Terrorism1990-2003\project

数据文件夹: rs\xalib\citespace\Examples\WoS\Terrorism1990-2003\data

Configuration: Source=WoS; LRF=3.0; L/N=10; LBY=5; e=1.0

开始 停止 重来 JVM Memory 6303 (MB) Used 1 %

引文空间状态

时间划分

起 1996 JAN 止 2003 DEC 时间段/年 (月) 1

文本处理

词汇来源

☒ 主题 ☒ 摘要 ☒ 关键词 (DE) ☒ 关键词 Plus (ID)

名词短语类型

☐ 名词短语 ☐ 热点词汇 热点探测 信息熵

节点类型

☐ 合作作者 ☐ 机构 ☐ 国家 ☐ 关键词 ☐ 名词 ☐ 来源 ☐ 学科

☒ 被引文献 ☐ 被引作者 ☐ 被引期刊

链接

强度 Cosine 范围 Within Slices

节点筛选方式

g-index Top N Top N% Thresholds Citations Usage180 Usage2013

每个时间切片内节点的筛选条件: $g^2 \leq k \sum_{i \in g} c_i, k \in \mathbb{Z}^+$

通过增减比例参数 k 调节网络的大小。k 越大，网络越大。k = 25

精简 可视化

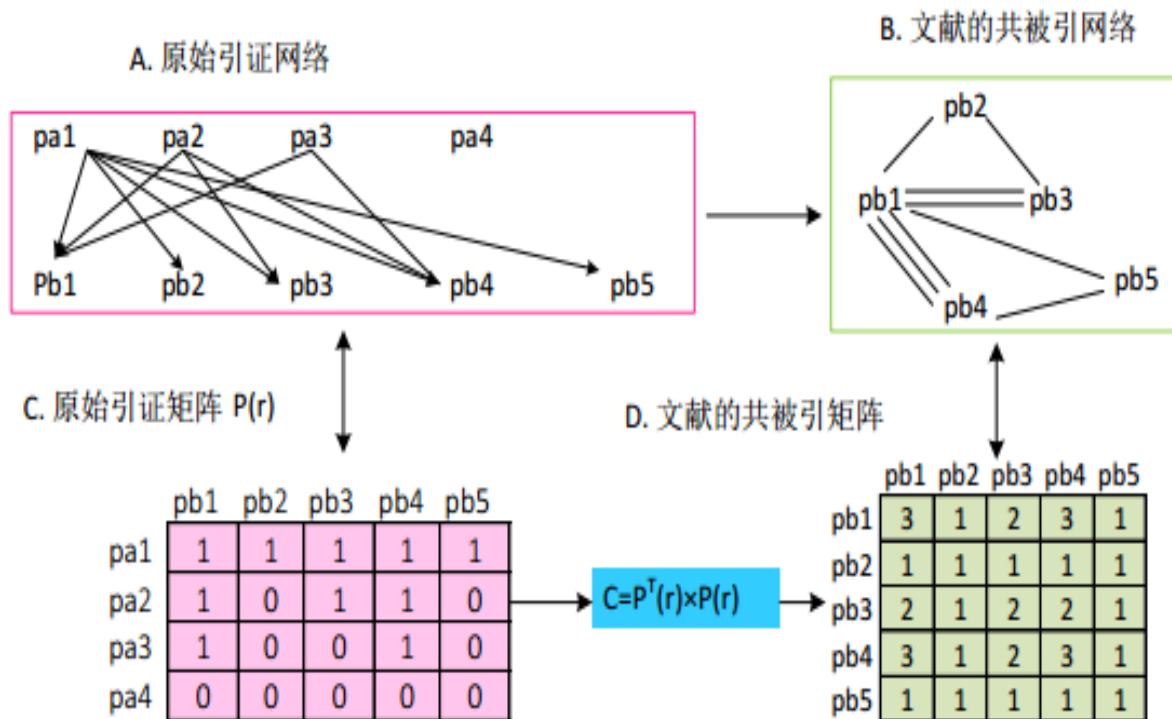
精简

☐ Pathfinder ☐ 最小生成树

可视化

Cluster View - Static ☒ Cluster View - Animated ☐

Show Networks by Time Slices ☐ Show Merged Network ☒



文献共被引分析

van Raan A F J. *Advances in bibliometric analysis: Research performance assessment and science mapping*[J]. *Bibliometrics. Use and Abuse in the Review of Research Performance*, 2014: 17-28.



CiteSpace 6.1.R4 (64-bit) Basic - (c) 2003-2022 Chaomei Chen - Home: C:\Users\library

File Projects Data Visualization Overlay Maps Analytics Network Text Preferences Tutorials Help

Web of Science

Time Slicing

From 2004 JAN To 2021 DEC #Years Per Slice 1

Projects

New Project

Title Untitled

To compute uncertainties, use the same project name in MySQL as well.

Project Home C:\Users\library\citespace\Examples\Template\project Browse

Data Directory C:\Users\library\citespace\Examples\Template\data Browse

Data Source ☒ WoS ☐ Scopus ☐ Lens ☐ S2AG/MAG ☐ CNKI/WanFang ☐ CSCD ☐ CSSCI ☐ PubMed

Preferred Language ☒ English ☐ Chinese

SO Filter: Enable Disable SC Filter: Enable Disable

Alias List (on/off) on

Export Space (on/off) off

Export Matrices (csv) (off/on) off

Save Merged Slice (off/on) off

Phrase/Keyword: Maximum Words (4) 4

Maximum GML Node Label Length (8) 8

Include GP (Group Author) (off/on) off

Node Degree Weighted (true) true

Link Retaining Factor (LRF)(*N; -1:unlimited) 3

Maximum Links Per Node (L/N) (-1:unlimited) 5

Filter Refs By Intrinsic Citations on

Use Authors' Fullnames on

☐ Normalize Citations ☒ Global Check

Exclusion List (on/off) on

Export Abstracts (Time Consuming) (on/off) on

Enable JDIC (on/off) on

Phrase/Keyword: Minimum Words (2) 2

Burst Term Threshold (0.00) 0.00

CTSA (1-Disciplines, 2-Sciences) (1) 1

Include ED (Editors) (off/on) off

Look Back Years (LBV)(-1:unlimited) 8

Percentage of Nodes to Label (%) 2.0

TopN = {n|f(n) ≥ e} 2.0

Concept Tree Home C:\Users\library\citespace

Dimensions Endpoint https://app.dimensions.ai/

Description How did you create the dataset?

Save Cancel

分析结果保存
数据文件夹



CiteSpace 6.1.R4 (64-bit) Basic - (c) 2003-2022 Chaomei Chen - Home: C:\Users\library

File Projects Data Visualization Overlay Maps Analytics Network Text Preferences Tutorials Help

Web of Science

Projects

New PSCs More Actions ...

Project Home: D:\PSCs\测试

Data Directory: D:\PSCs\2020.01.17

GO! Stop Reset JVM Memory 1596 (MB) Used 44 %

Time Slicing

From 2009 JAN To 2019 DEC #Years Per Slice 1

Text Processing

Term Source

☒ Title ☒ Abstract ☒ Author Keywords (DE) ☒ Keywords Plus (ID)

Term Type

☐ Noun Phrases ☐ Burst Terms Detect Bursts Entropy

Space Status

Pruning configuration:

Year	Top	50	16	16	120 / 120
2009	top 50	16	16	120 / 120	
2010	top 50	13	13	78 / 78	
2011	top 50	79	79	745 / 745	
2012	top 50	128	128	1682 / 1682	
2013	top 50	636	60	1080 / 1080	
2014	top 50	3277	51	1275 / 1275	
2015	top 50	9397	51	1275 / 1275	
2016	top 50	15652	51	1275 / 1275	
2017	top 50	22990	51	1275 / 1275	
2018	top 50	29046	52	1326 / 1326	
2019	top 50	34410	52	1326 / 1326	

Process Reports

Document Types

112607 Article

1683 Article; Early Access

1518 Article; Proceedings Paper

33 Article; Retracted Publication

7282 Review

462 Review; Early Access

Distinct references [Valid]: 107706 99.4231%

Distinct references [Invalid]: 625 0.5769%

Parsing Time: 2 minutes 20 seconds

Your Options

What's your choice?

Visualize Save As GraphML Cancel

Keyword Term Source Category

Journal

Strength Cosine Scope Within Slices

Selection Criteria

g-index Top N Top N%

Select top 50 levels of most cited or occurred items from each slice.

Each level may include multiple qualified nodes.

The minimum level e is set in the project properties.

Pruning Visualization

Pruning

☐ Pathfinder ☐ Pruning sliced networks

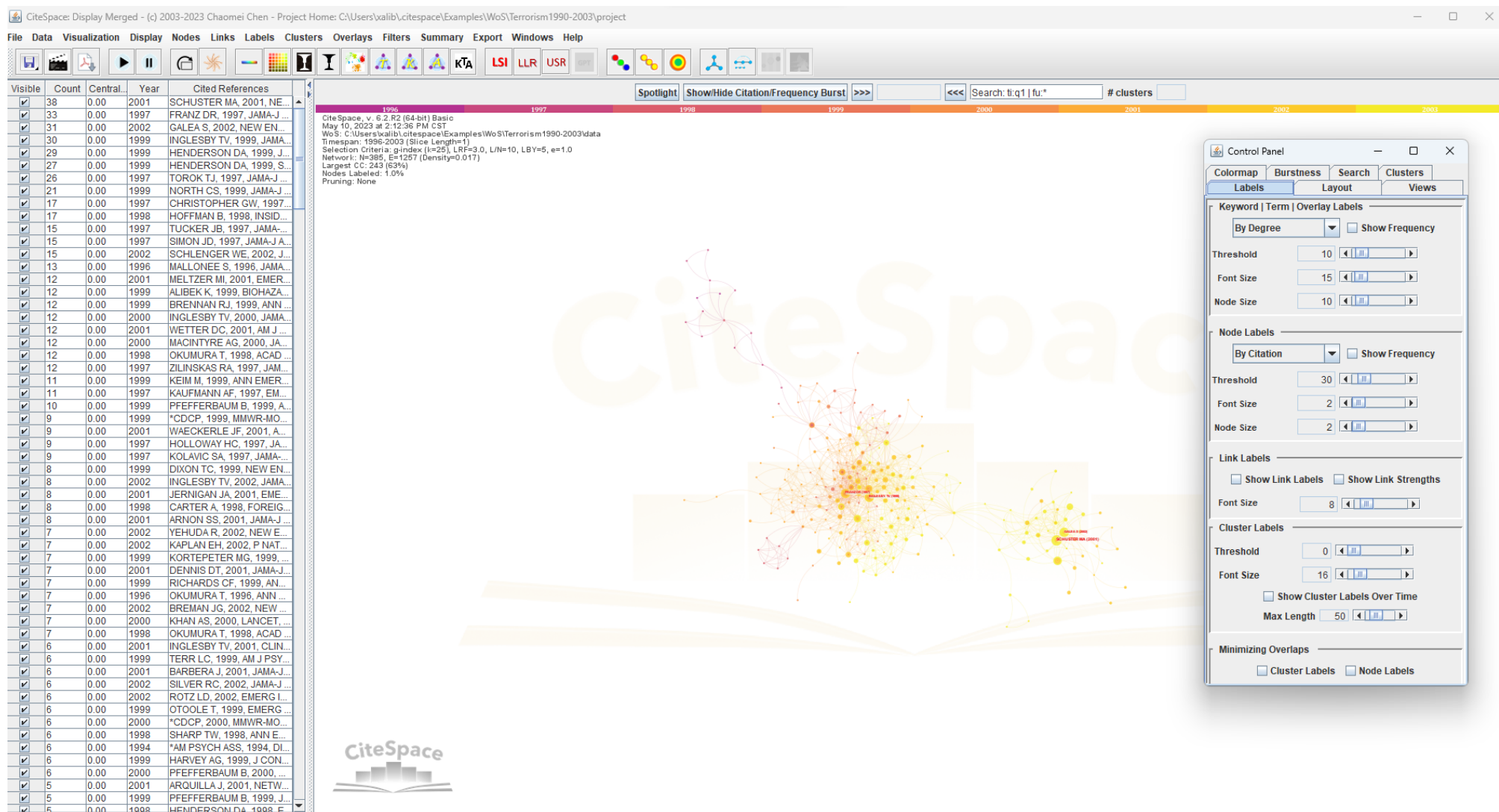
☐ Minimum Spanning Tree ☐ Pruning the merged network

按照预设条件运行的情况

将所生成的网络存为图表文件

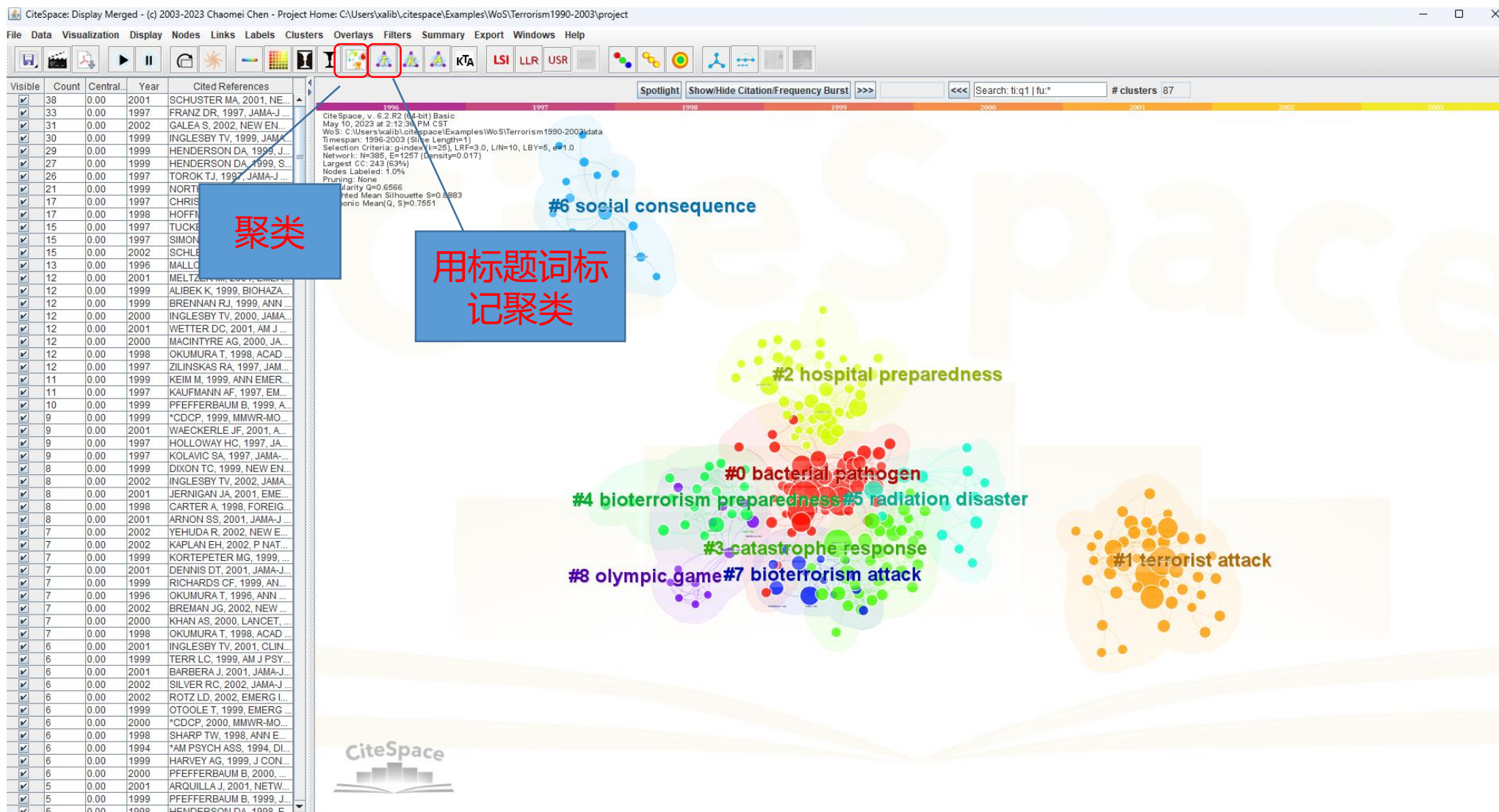
可视化

网络基本参数及运行过程



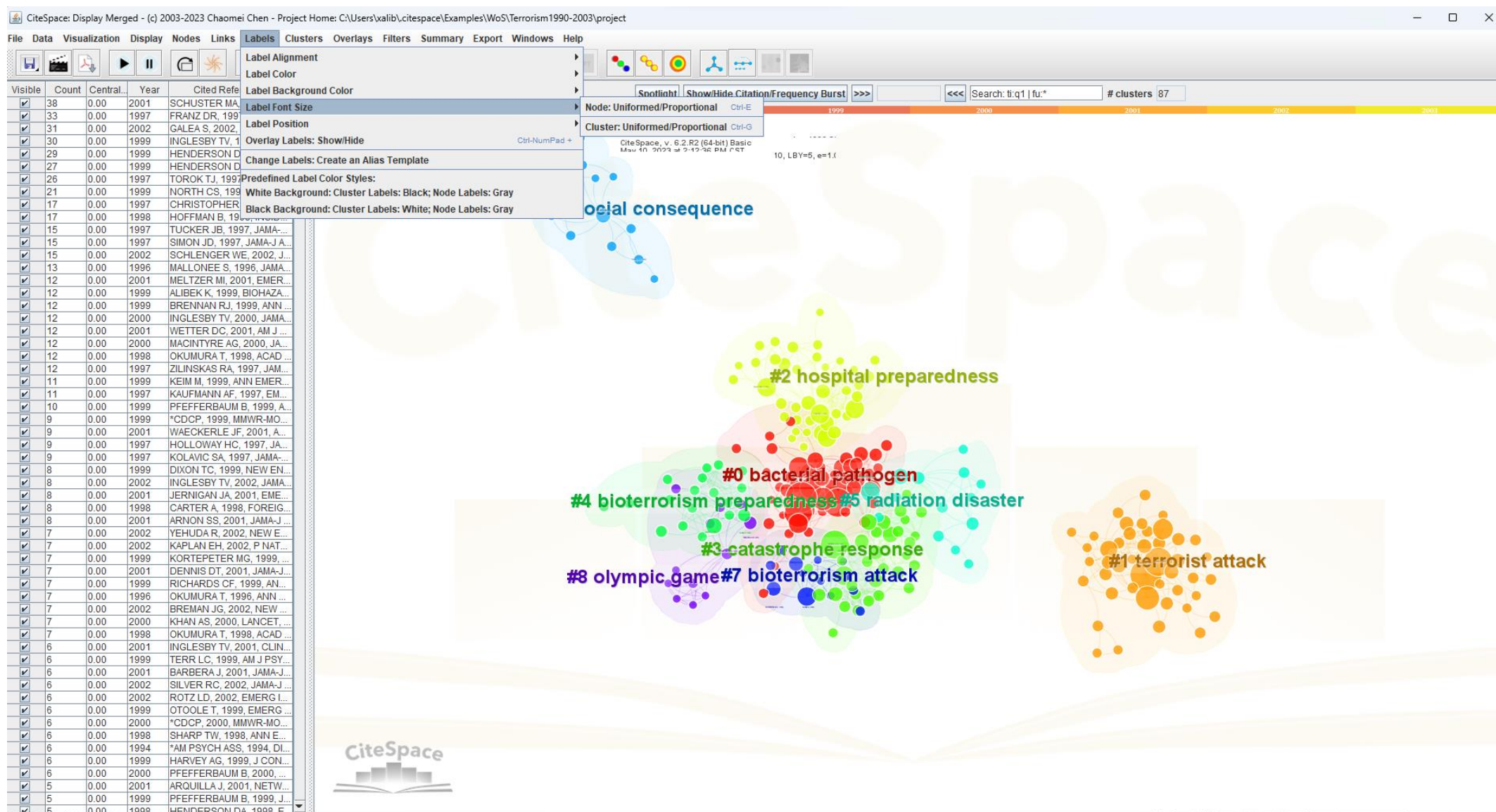
当网络布局稳定

对共被引网络进行聚类



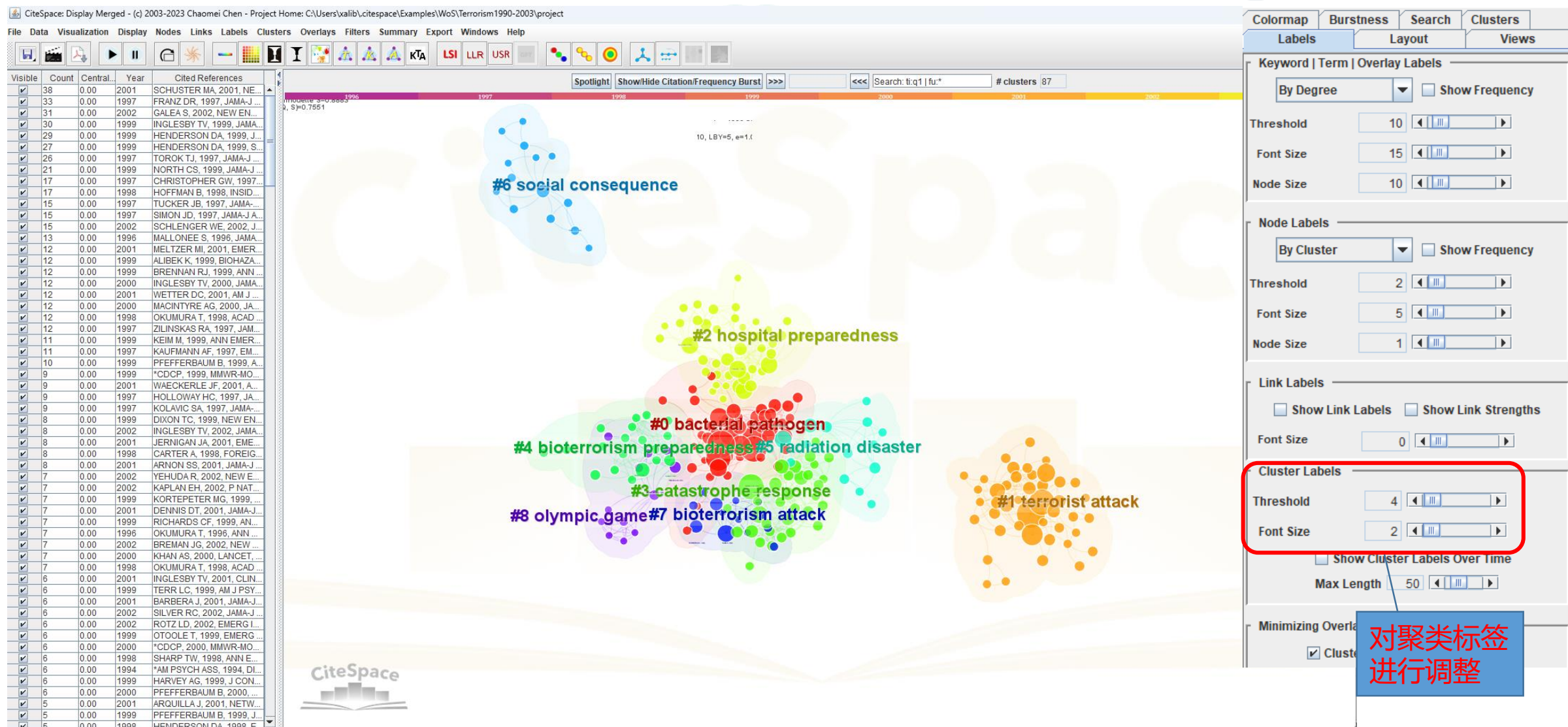


对聚类的标签进行调整 (按照聚类规模进行显示)



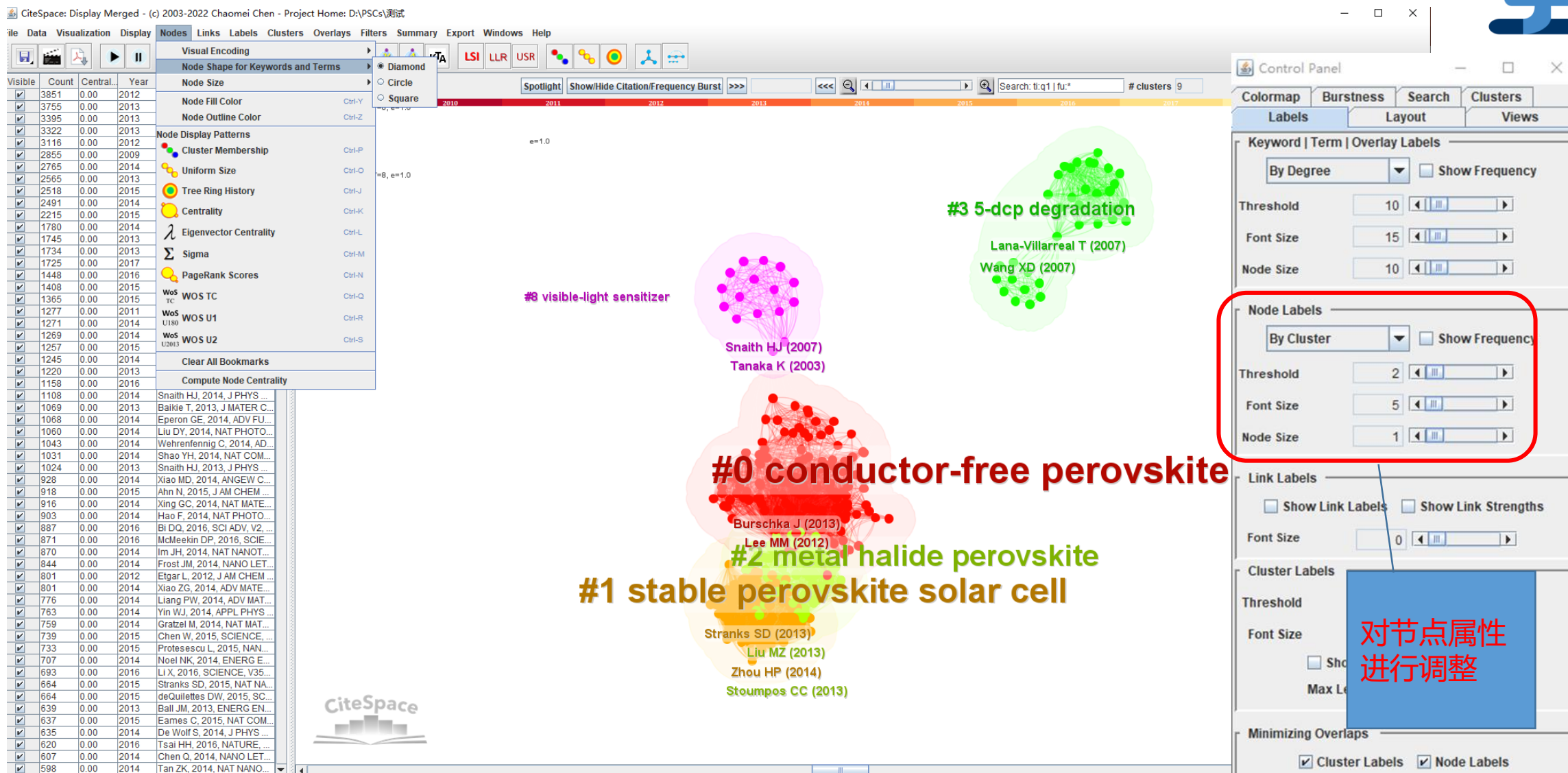


对聚类的标签进行调整 (按照聚类规模进行显示)



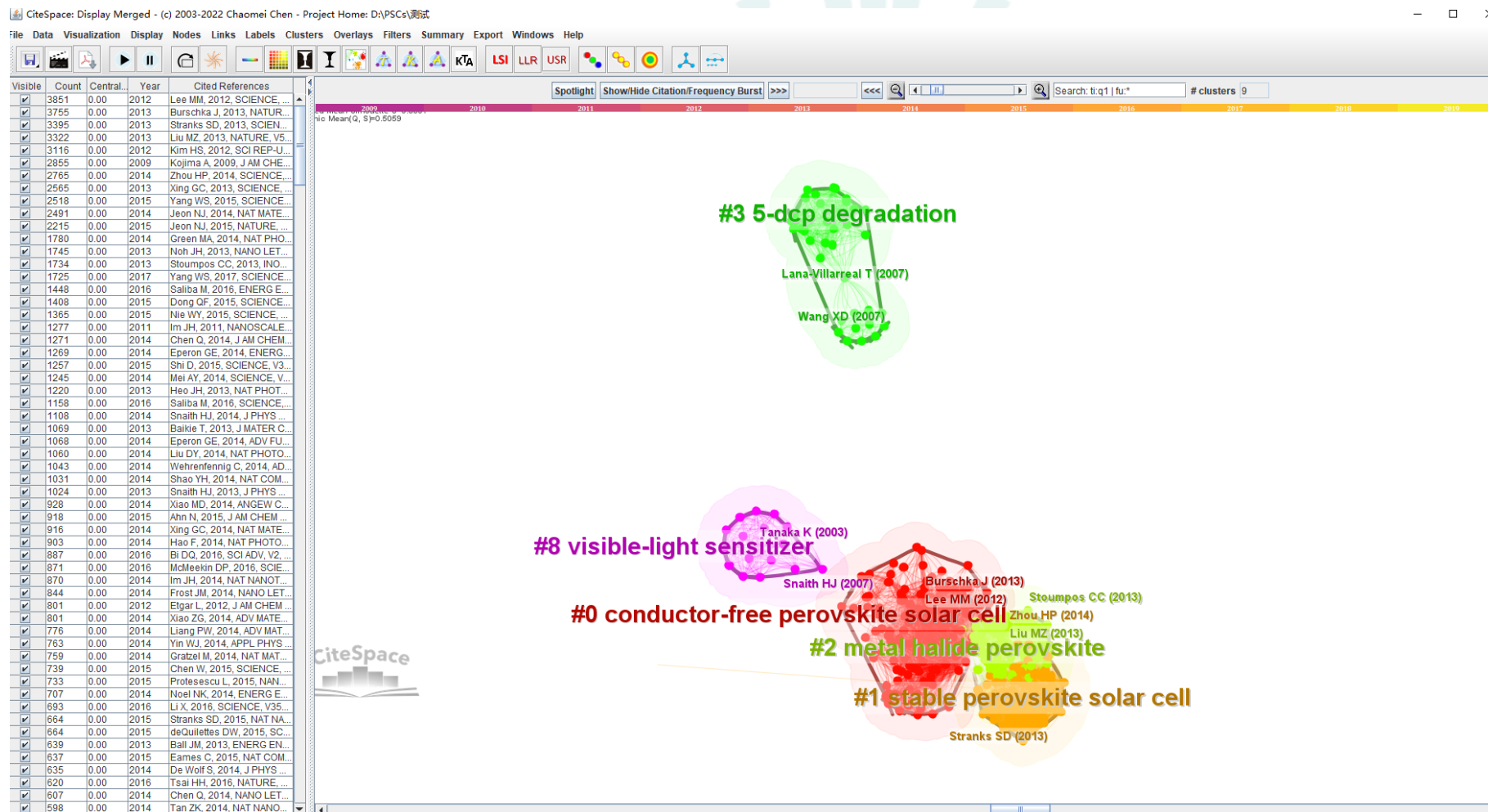


对节点属性进行调整



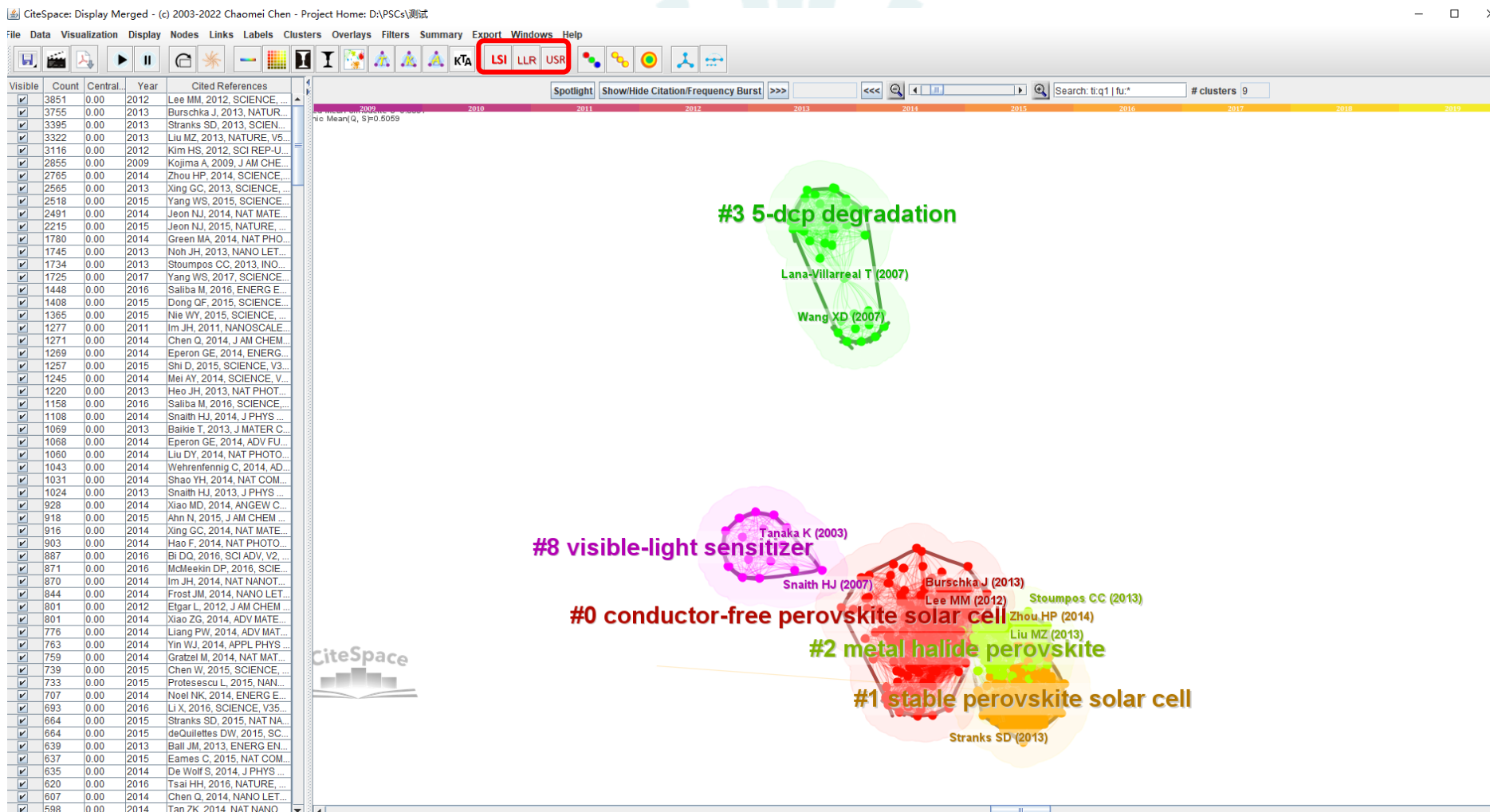


对聚类的轮廓显示进行调整





得到较为满意的图谱后，使用有三种不同的算法对聚类进行命名。通常情况下陈教授推荐使用LLR算法得到的结果。



LLR

06

文献共被引分析

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File Data Visualization Display Nodes Links Labels Clusters Overlays Filters Summary Export Window



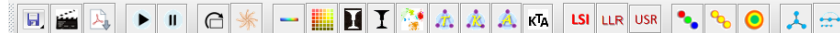
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☒	3395	0.00	2013	Stranks SD, 2013, SCIE...
☒	3322	0.01	2013	Liu MZ, 2013, NATURE, V5...
☒	3116	0.09	2012	Kim HS, 2012, SCI REP-U...
☒	2855	0.19	2009	Kojima A, 2009, J AM CHE...
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(2015)



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File Data Visualization Display Nodes Links Labels Clusters Overlays Filters Summary Export Windows Help



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☒	3395	0.00	2013	Stranks SD, 2013, SCIE...
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☒	1068	0.00	2014	Eperon GE, 2014, ADV FU...
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☒	1043	0.00	2014	Wehrenfennig C, 2014, AD...
☒	1031	0.00	2014	Shao YH, 2014, NAT COM...
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☒	759	0.00	2014	Grazel M, 2014, NAT MAT...
☒	739	0.00	2015	Chen W, 2015, SCIENCE...
☒	733	0.00	2015	Protesescu L, 2015, NAN...
☒	707	0.00	2014	Noel NK, 2014, ENER G E...
☒	693	0.00	2016	Li X, 2016, SCIENCE, V35...
☒	664	0.00	2015	Stranks SD, 2015, NAT NA...
☒	664	0.00	2015	deQuilletes DW, 2015, SC...
☒	639	0.02	2013	Ball JM, 2013, ENER G EN...
☒	637	0.00	2015	Eames C, 2015, NAT COM...
☒	635	0.00	2014	De Wolf S, 2014, J PHYS...
☒	620	0.00	2016	Tsai HH, 2016, NATURE...
☒	607	0.00	2014	Chen Q, 2014, NANO LET...
☒	598	0.00	2014	Tan ZK, 2014, NAT NANO...



CiteSpace

v. 5.10.R3 (64-bit) Basic

December 5, 2022 at 4:13:49 PM CST

WoS: D:\PSCs\2020.01.17

Timespan: 2003-2019 (Slice Length=1)

Selection Criteria: Top 100 per slice, LRF=1.0, L/N=5, LB=8, e=1.0

Network: N=456, E=23059 (Density=0.1879)

Largest CC: 408 (82%)

Nodes Labeled: 1.0%

Pruning: None

Modularity Q=0.362

Weighted Mean Silhouette S=0.8397

Harmonic Mean(Q, S)=0.5059

Spotlight Show/Hide Citation/Frequency Burst >>>

<<< Search: t:q1 | fu* # clusters 9

Highlight periods of citation/frequency burst in tree rings

Park NG (2013)

#3 5-dcp degradation

Green MA (2014)

Xing GC (2013)

Im JH (2011)

#0 conductor-free perovskite solar cell

Metal halide perovskite

stable perovskite solar cell

Stranks SD (2013)

Kim HS (2012)

#0 conductor-free perovskite solar cell

Metal halide perovskite

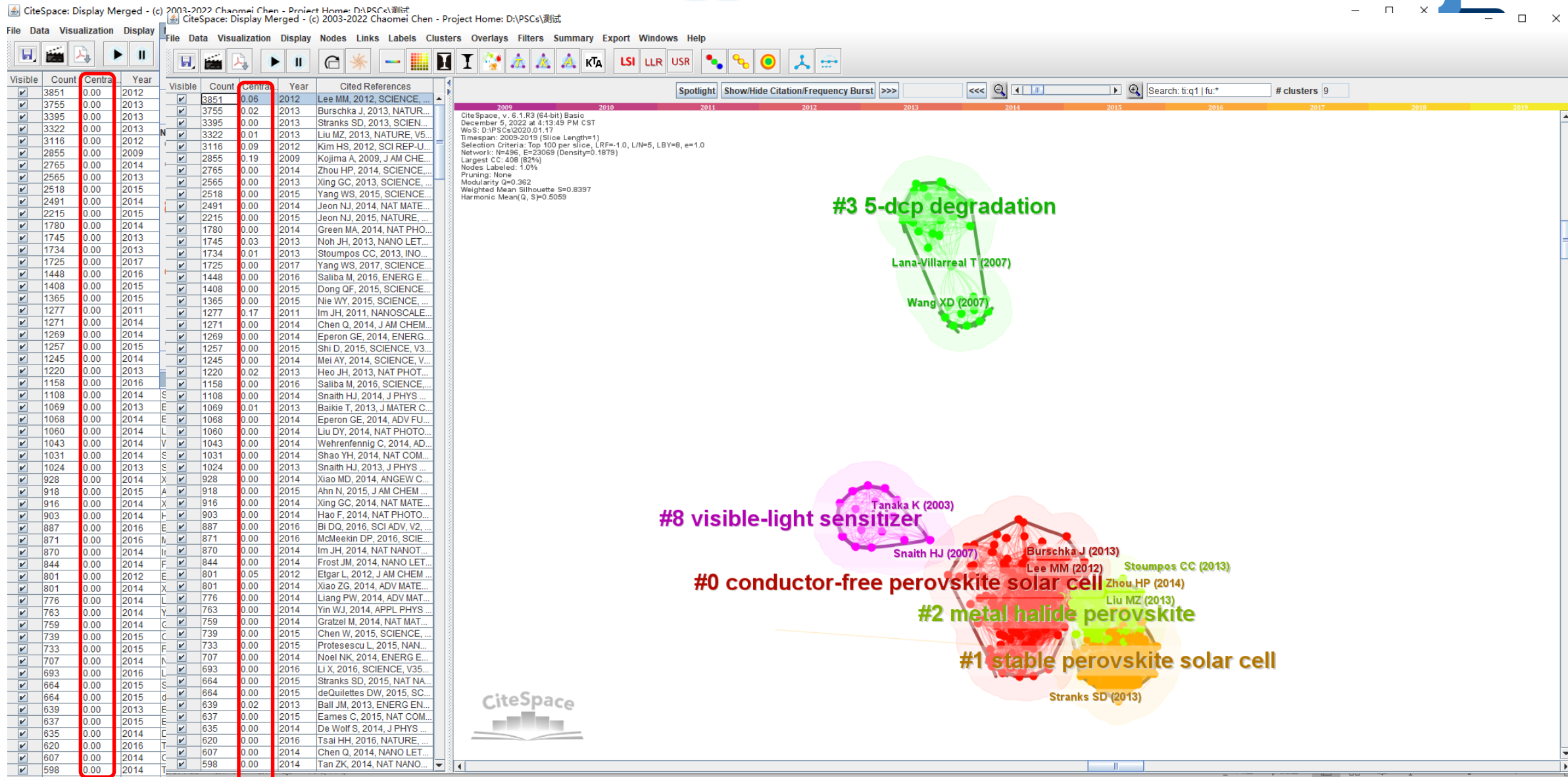
stable perovskite solar cell

Stranks SD (2013)

Kim HS (2012)

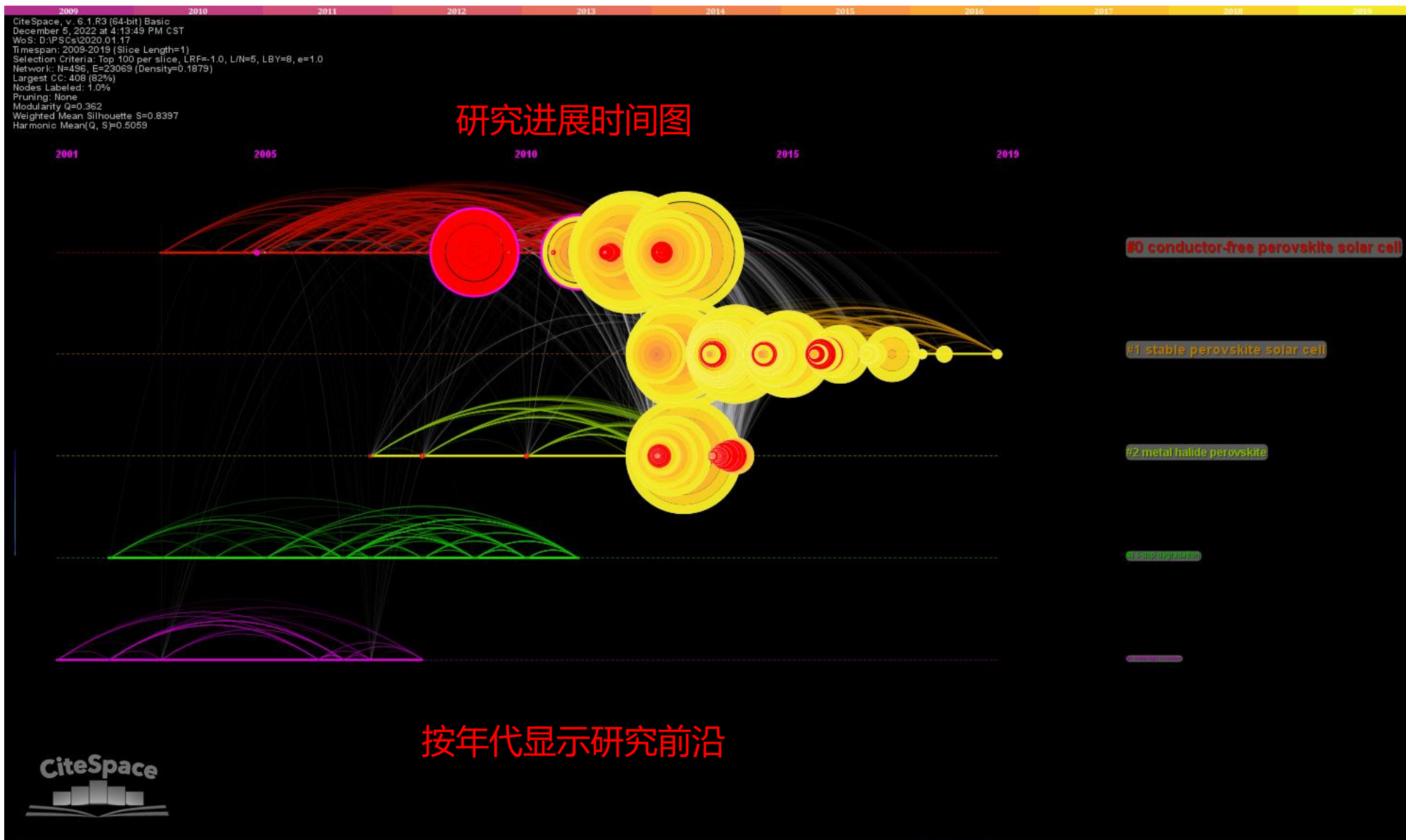
对文献被引的突变进行检测

计算节点的中介中心性





Timeline 呈现方式



Timeline 呈现方式



CiteSpace: Display Merged - (c) 2003-2022 Chaomei Chen - Project Home: D:\PSCs\测试

File Data Visualization Display Nodes Links Labels Clusters Overlays Filters Summary Export Windows Help



Visible Count Central.

Visible	Count	Central.
3851	0.06	
3755	0.02	
3395	0.00	
3322	0.01	
3116	0.09	
2855	0.19	
2765	0.00	
2565	0.00	
2518	0.00	
2491	0.00	
2215	0.00	
1780	0.00	
1745	0.03	
1734	0.01	
1725	0.00	
1448	0.00	
1408	0.00	
1365	0.00	
1277	0.17	
1271	0.00	
1269	0.00	
1257	0.00	
1245	0.00	
1220	0.02	
1158	0.00	
1108	0.00	
1069	0.01	
1068	0.00	
1060	0.00	
1043	0.00	
1031	0.00	
1024	0.00	
928	0.00	
918	0.00	
916	0.00	
903	0.00	
887	0.00	
871	0.00	
870	0.00	
844	0.00	
801	0.05	
801	0.00	
776	0.00	
763	0.00	
759	0.00	
739	0.00	
733	0.00	
707	0.00	
693	0.00	
664	0.00	
664	0.00	
639	0.02	
637	0.00	
635	0.00	
620	0.00	
607	0.00	
598	0.00	

Legend

Background Color

Black Background

White Background

Colormap Palate

Toggle 3D Effects

Show/Hide Signature

Set Signature Color

Show/Hide Legend

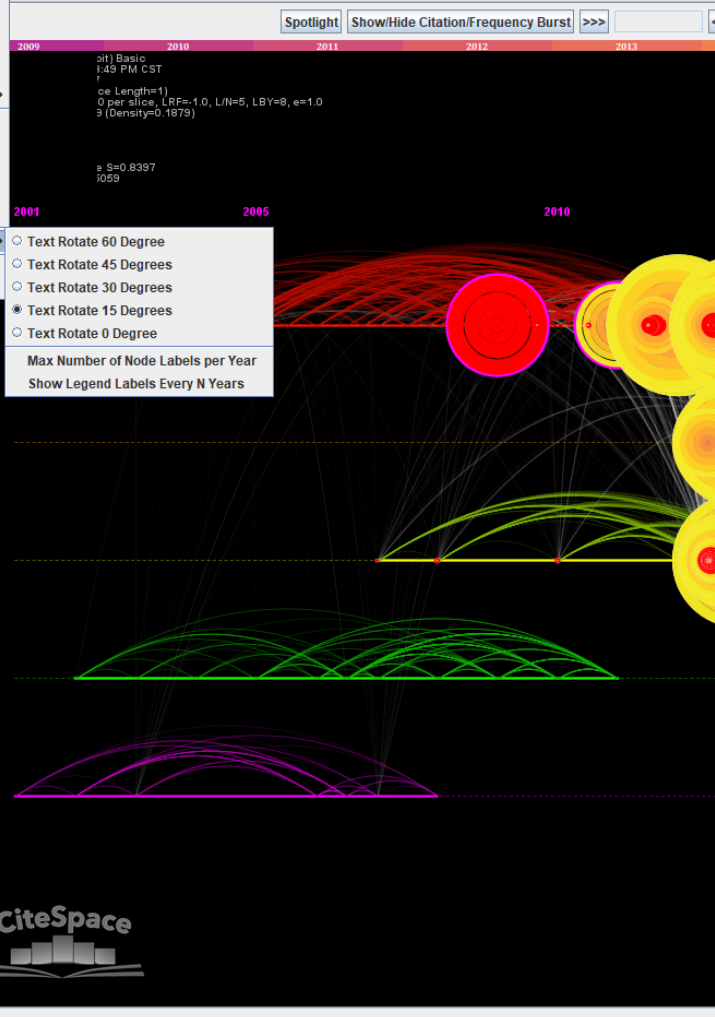
Show/Hide Citation Frequency

Timeline View

Predefined Styles:

Classic

- Text Rotate 60 Degree
- Text Rotate 45 Degrees
- Text Rotate 30 Degrees
- Text Rotate 15 Degrees
- Text Rotate 0 Degree
- Max Number of Node Labels per Year
- Show Legend Labels Every N Years



Control Panel

Colormap Burstness Search Clusters

Labels Layout Views

Fisheye View

Distortion 0

Focal Point 100

Timeline View Controls

Cluster Label Padding 154

SubCluster Label Height -37

Row Span 121

Link Filter 0

Snap Node Positions

Clusters Uniform Tree Rings

Centrality Sigma Eigenvector

WoS TC WoS U180 WoS U2013

Control Panel

Burstness Search Clusters

Layout Views

Timeline Landscape

Stretch

16,081

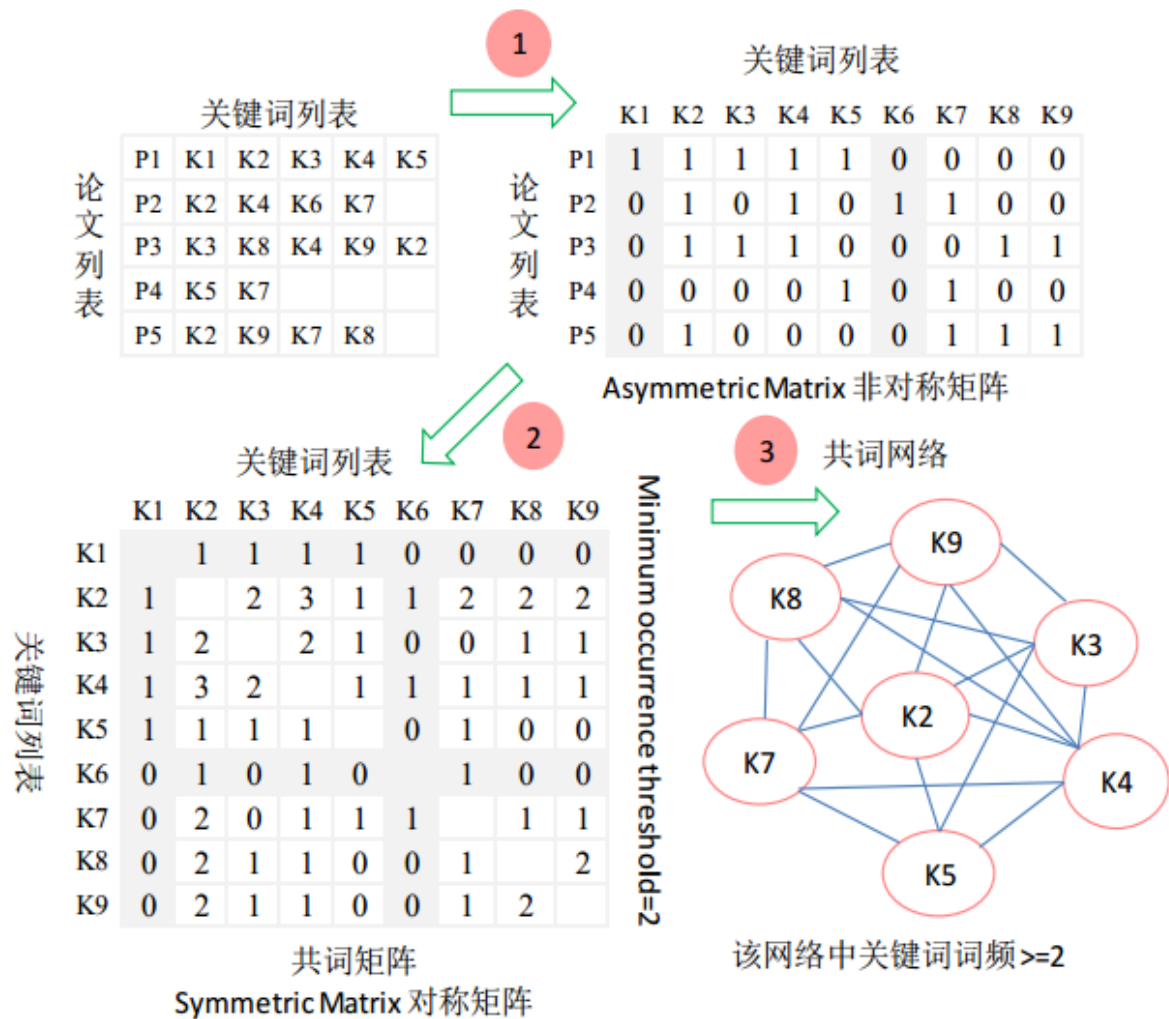
ment 0.073

nts 42.0

Expand Shrink



词频和共词分析





Whittaker最早提出共词分析的假设前提 (Whittaker, 1989)

- a)作者是很认真的选择技术术语;
- b)当在同一篇文章中使用不同的术语时,就意味着这些术语之间的关系并不是微不足道,且一定是被作者认可和认同;
- c)如果有足够多的作者对同一种关系认可,那么这种关系可以认为在他们所关注的科学领域中具有一定意义;
- d)当针对关键词时,经过专业学习的学者,在其论文中标引出来的关键词是能够反映文章的内容的,是值得信赖的指标。在作者标引关键词时,通常也会受到其他学者成果的影响,而在论文中使用相同或者类似的关键词标引自己的论文。



File Project Data Network Visualization Geographical Overlay Maps Analytics Text Preferences Help

Web of Science PubMed

Projects

New PSCs More Actions ...

Project Home: E:\PSCs\analysis

Data Directory: E:\PSCs\data

GO! Stop Reset JVM Memory 1021 (MB) Used 18 %

Space Status

2010-2010	top 100	7	0	0 / 0
2011-2011	top 100	40	3	2 / 2
2012-2012	top 100	70	7	9 / 9
2013-2013	top 100	223	57	425 / 425
2014-2014	top 100	805	113	2506 / 2506
2015-2015	top 100	2217	103	3563 / 3563
2016-2016	top 100	3427	103	4152 / 4152
2017-2017	top 100	4803	101	4217 / 4217
2018-2018	top 100	2275	110	3408 / 3408

Process Reports

Records in the dataset: 6462
Records within the chosen range: 6452

Parsing Time: 30.608 seconds
Total Run time: 35.169 seconds

Merged network: Nodes=184, Links=9061
Exclusion List: 0
Network modeling ends at Fri May 25 16:15:41 CST 2018.

Time Slicing

From 2009 To 2018 #Years Per Slice 1

Term Source

☒ Title ☒ Abstract ☒ Author Keywords (DE) ☒ Keywords Plus (ID)

Term Type

☐ Noun Phrases ☐ Burst Terms ☒ De Bursts Entropy

Node Types

☐ Author ☐ Institution ☐ Country ☐ Term ☒ Keyword ☐ Category

☐ Cited Reference ☐ Cited Author ☐ Cited Journal ☐ Paper ☐ Grant

Links

Strength Cosine Scope Within Slices

Selection Criteria

Top N Top N% g-index Thresholds Citations Usage180 Usage2013

Select top 100 most cited or occurred items from each slice.

Pruning

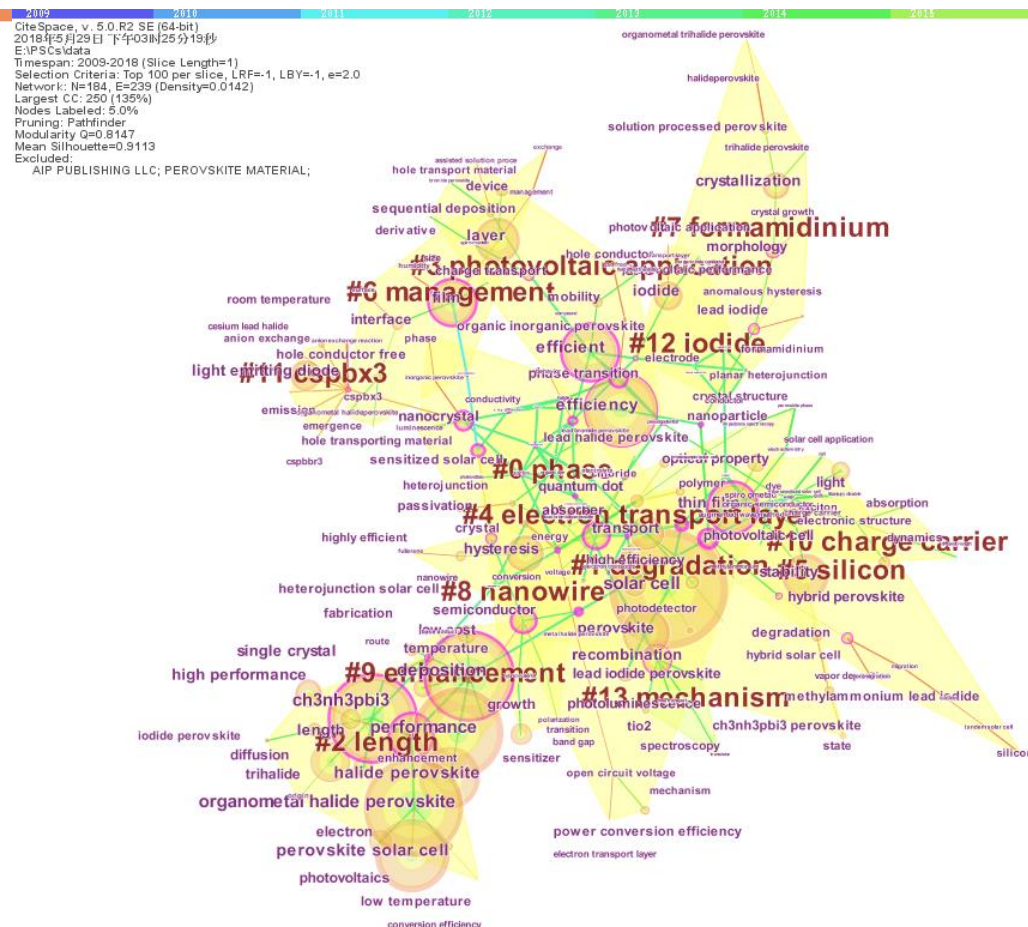
☒ Pathfinder ☐ Pruning sliced networks

☐ Minimum Spanning Tree ☒ Pruning the merged network

Visualization

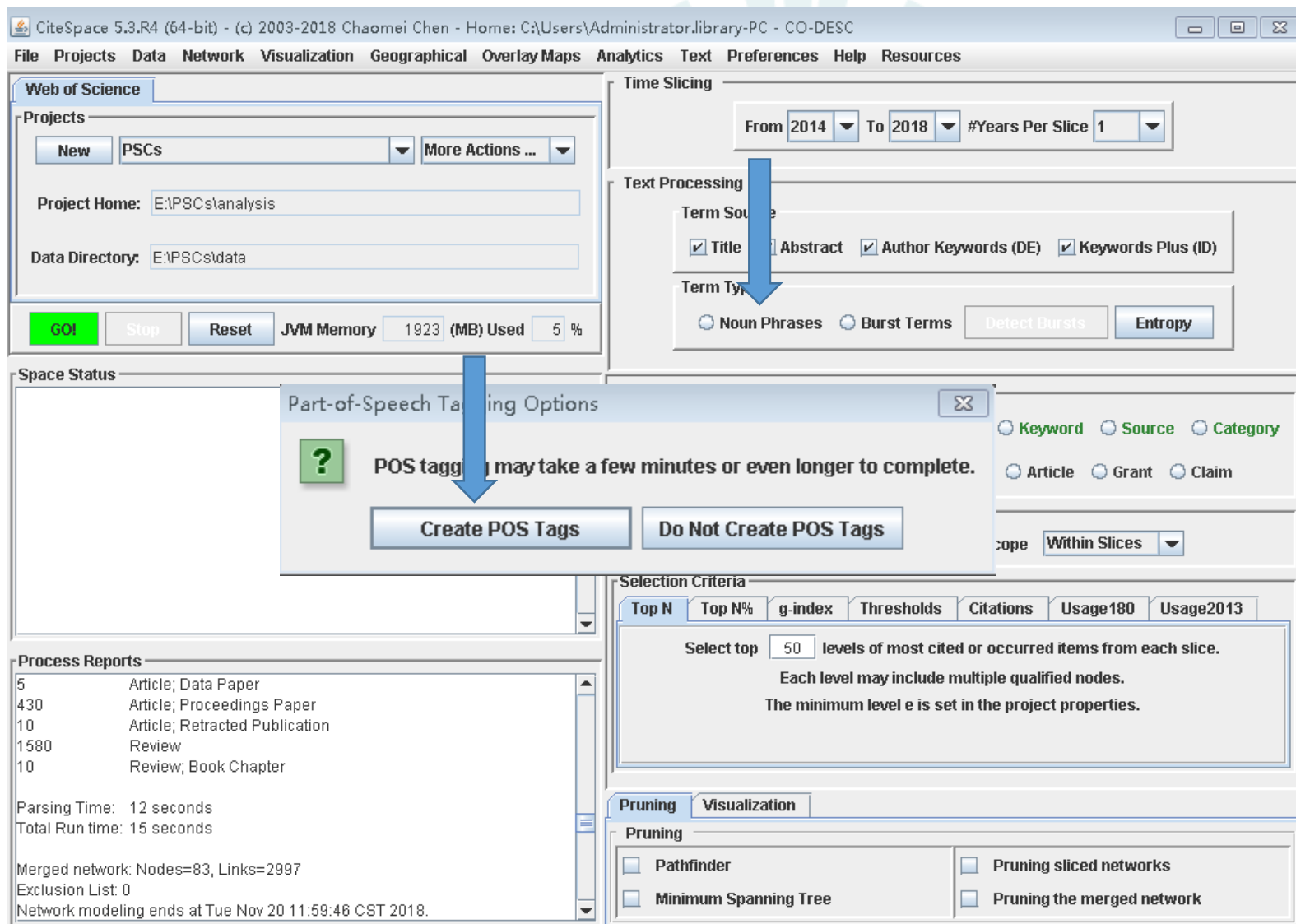
☒ Cluster View - Static ☐ Show Networks by Time Slices

☐ Cluster View - Animated ☒ Show Merged Network





1. 点击Term type中的 “Noun Phrases”。再点击 “Create POS Tags”

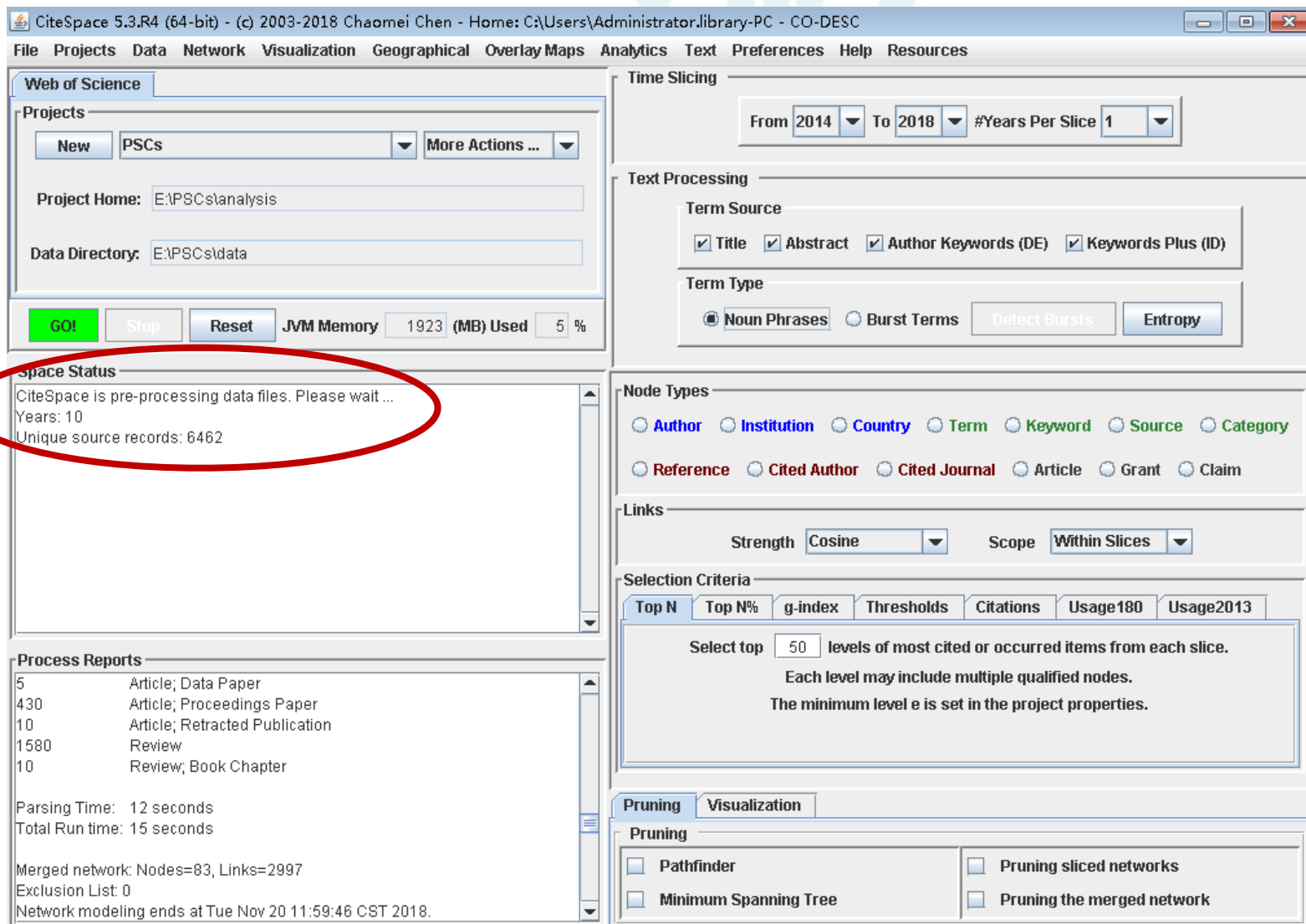


注意

中文不能使用名词性术语提取功能，因为该功能是专门基于英文处理的



2. 在Space status中出现主题提取的years...Uniquesource records,表示提取过程结束





3. 节点类型选择Term, 并点击GO

CiteSpace 5.0.R2 SE (64-bit) - (c) 2003-2018 Chaomei Chen - Home: C:\Users\Administrator\Library-PC - COT

File Project Data Network Visualization Geographical Overlay Maps Analytics Text Preferences Help

Web of Science PubMed

Projects

New PSCs More Actions ...

Project Home: E:\PSCs\analysis

Data Directory: E:\PSCs\data

GO Stop Reset JVM Memory 1022 (MB) Used 9 %

Space Status

Year Range	Top N	Nodes	Edges	Weighted Mean Silhouette (Q)
2010-2010	top 100	18	0	0 / 0
2011-2011	top 100	77	0	0 / 0
2012-2012	top 100	200	3	1 / 1
2013-2013	top 100	776	51	228 / 228
2014-2014	top 100	5491	155	2089 / 2089
2015-2015	top 100	14914	119	2309 / 2309
2016-2016	top 100	25748	105	2724 / 2724
2017-2017	top 100	33780	101	2941 / 2941
2018-2018	top 100	11162	111	1772 / 1772

Process Reports

Records in the dataset: 6462
Records within the chosen range: 6457

Parsing Time: 43.058 seconds
Total Run time: 30.945 seconds

Merged network: Nodes=262, Links=7710
Exclusion List: 2
Network modeling ends at Tue May 29 11:02:17 CST 2018.

Time Slicing

From 2009 To 2018 #Years Per Slice 1

Term Source

☒ Title ☒ Abstract ☒ Author Keywords (DE) ☒ Keywords Plus (ID)

Term Type

☒ Noun Phrases ☐ Burst Terms Detect Bursts Entropy

Node Types

☐ Author ☐ Institution ☐ Country ☒ Term ☐ Keyword ☐ Category

☐ Cited Reference ☐ Cited Author ☐ Cited Journal ☐ Paper ☐ Grant

Links

Strength Cosine Scope Within Slices

Selection Criteria

Top N Top N% g-index Thresholds Citations Usage180 Usage2013

Select top 100 most cited or occurred items from each slice.

Pruning

☒ Pathfinder ☐ Pruning sliced networks
☐ Minimum Spanning Tree ☒ Pruning the merged network

Visualization

☒ Cluster View - Static ☐ Show Networks by Time Slices
☐ Cluster View - Animated ☒ Show Merged Network



4.可视化结果



Dual-map overlay—Journal



↓

CiteSpace 5.6.R5 (64-bit) - (c) 2003-2020 Chaomei Chen - Home...Users\Library

File Projects Data Network Visualization Geographical **Overlay Maps** Analytics Text Preferences Tutorials Resources Help Donate

Web of Science JCR Journal Maps Time Slicing

Projects

New PSCs More Actions ...

Project Home: D:\PSCs\Pathfinder outcome

Data Directory: D:\PSCs\2020.01.17

GO! Stop Reset JVM Memory 165 (MB) Used 51 %

Space Status

Process Reports

From 2009 To 2019 #Years Per Slice 1

Text Processing

Term Source

☒ Title ☒ Abstract ☒ Author Keywords (DE) ☒ Keywords Plus (ID)

Term Type

☐ Noun Phrases ☐ Burst Terms Detect Bursts Entropy

Node Types

☐ Author ☐ Institution ☐ Country ☐ Term ☐ Keyword ☐ Source ☐ Category

☒ Reference ☐ Cited Author ☐ Cited Journal ☐ Article ☐ Grant ☐ Claim

Links

Strength Cosine Scope Within Slices

Selection Criteria

g-index Top N Top N% Thresholds Citations Usage180 Usage2013

The selection uses a modified g-index in each slice: $g^2 \leq k \sum_{i \in g} c_i, k \in \mathbb{Z}^+$

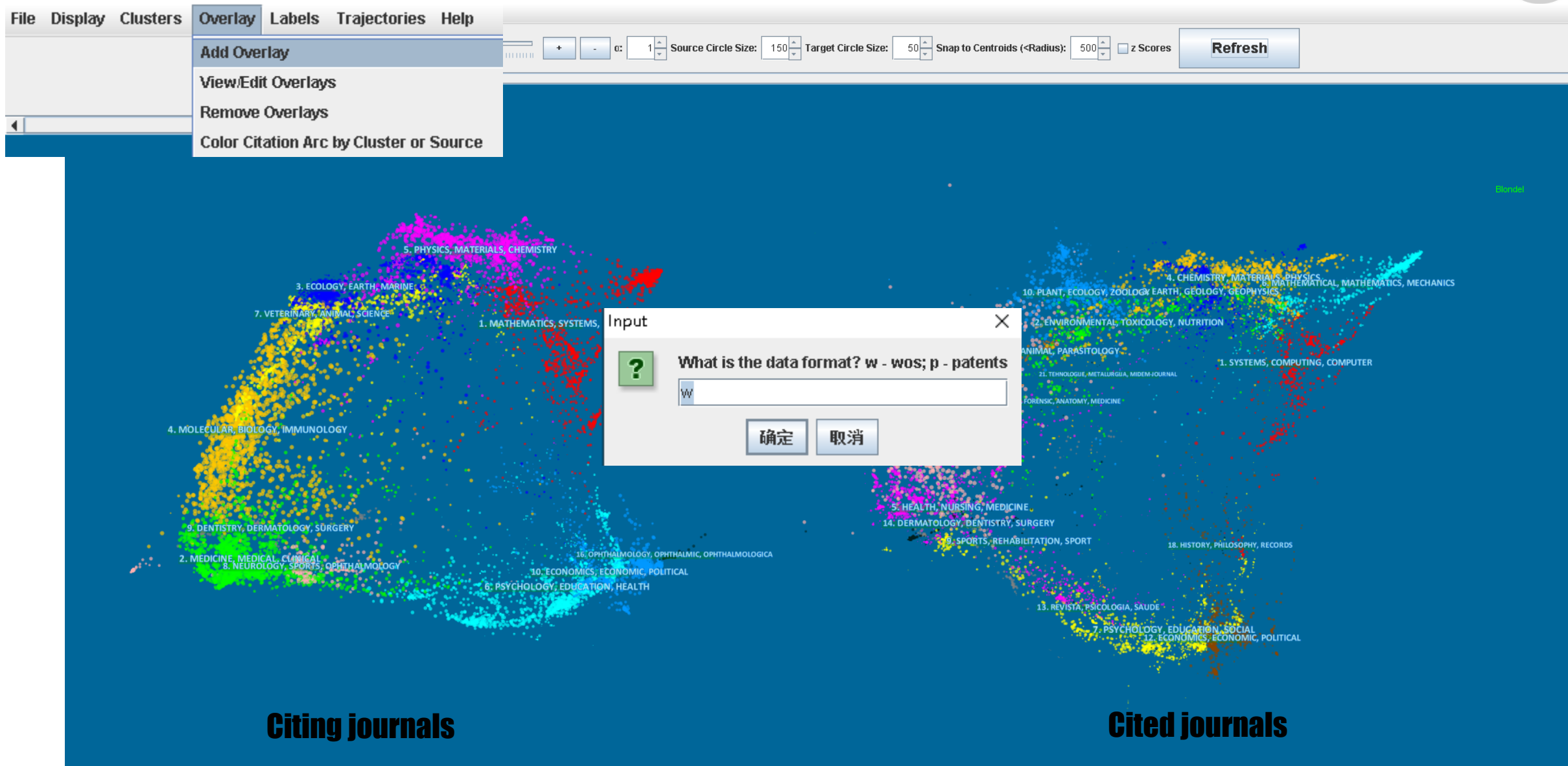
To include more or fewer nodes, increase or decrease the scale factor k = 25

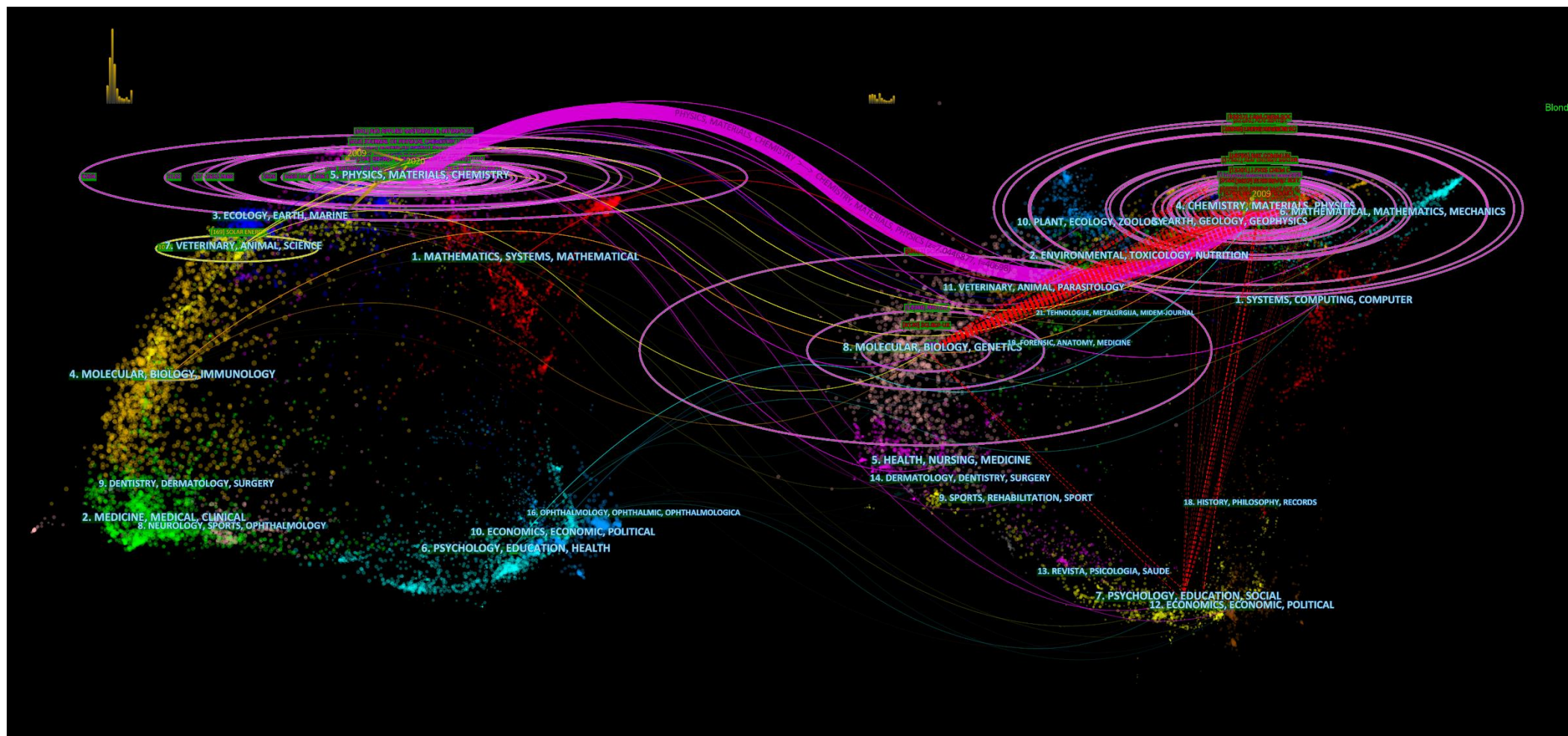
Pruning Visualization

Pruning

☐ Pathfinder ☐ Pruning sliced networks

☐ Minimum Spanning Tree ☐ Pruning the merged network





Citing journals

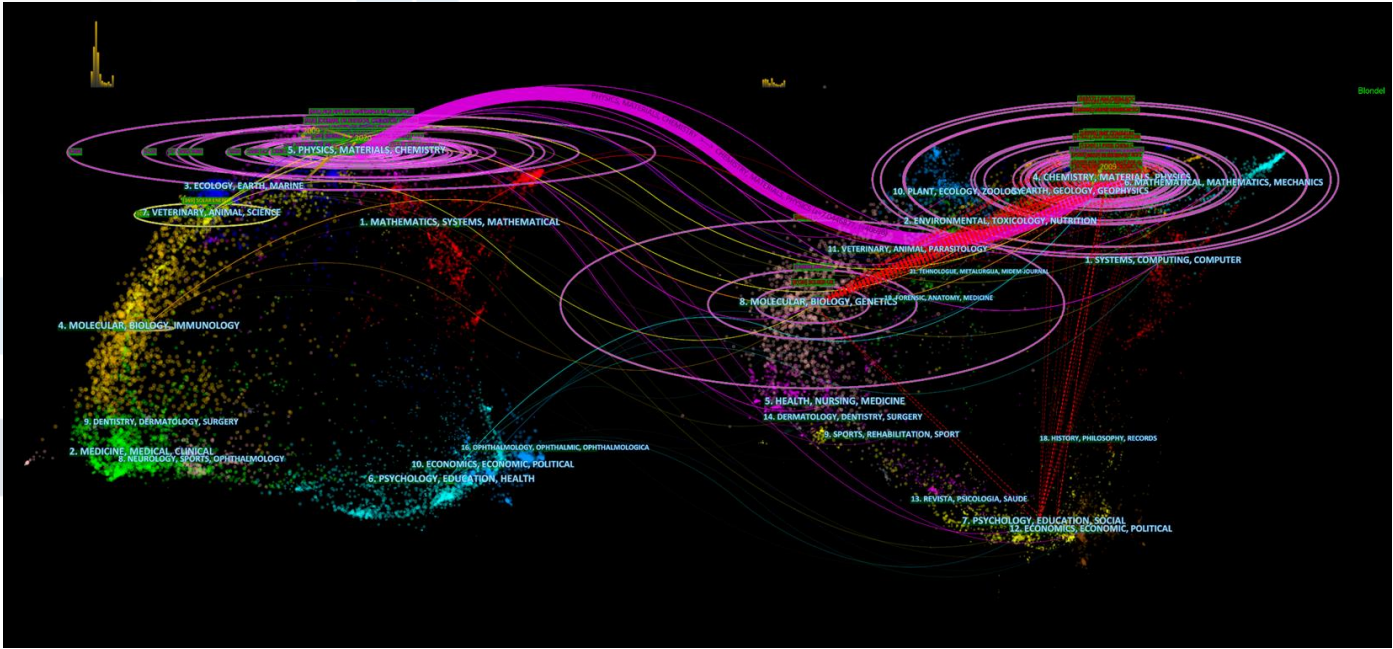
Cited journals



CiteSpace图谱解读

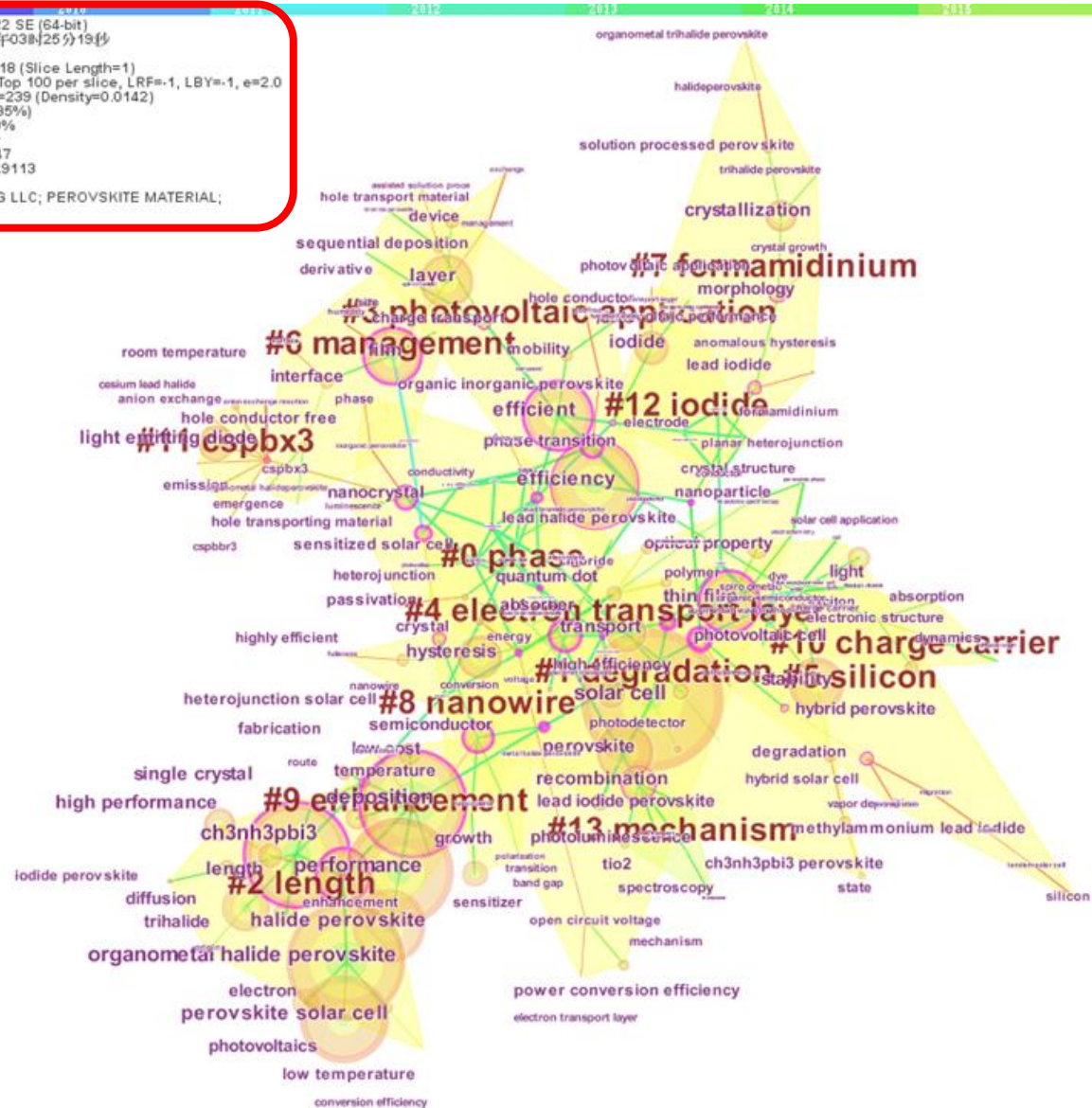


Dual-map overlay—Journal



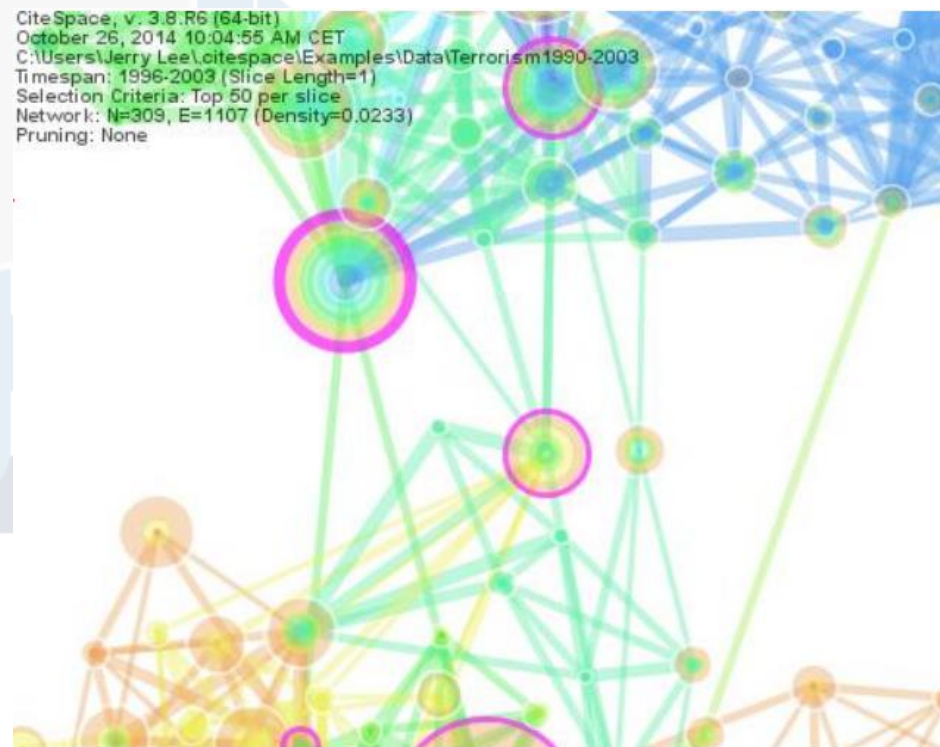
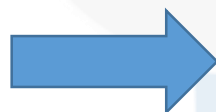
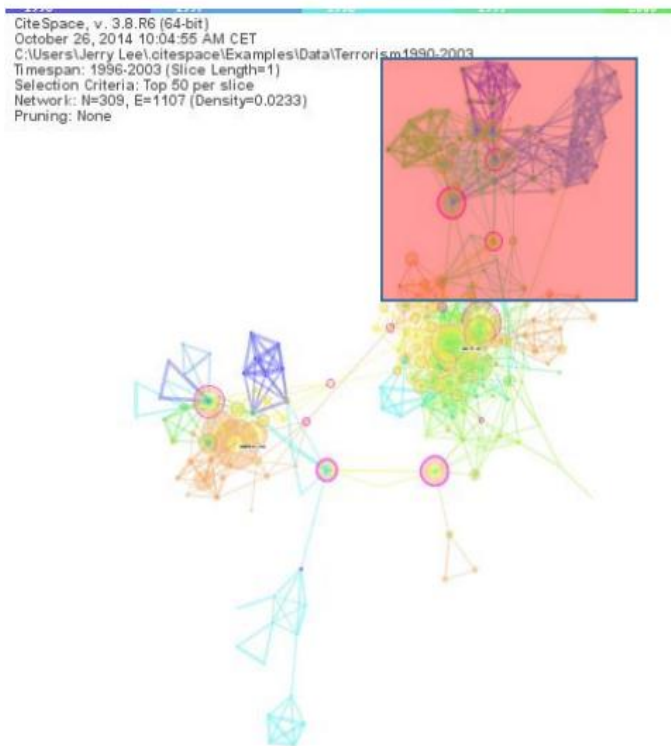


- CiteSpace, v. 5.0.R2 SE [64-bit]
2018年5月29日 下午03时25分19秒
E:\PSCs\data
Timespan: 2009-2018 (Slice Length=1)
Selection Criteria: Top 100 per slice, LRF=1, LBY=1, e=2.0
Network: N=184, E=239 (Density=0.0142)
Largest CC: 250 (135%)
Nodes Labeled: 5.0%
Pruning: Pathfinder
Modularity Q=0.8147
Mean Silhouette=0.9113
Excluded:
AIP PUBLISHING LLC; PEROVSKITE MATERIAL;



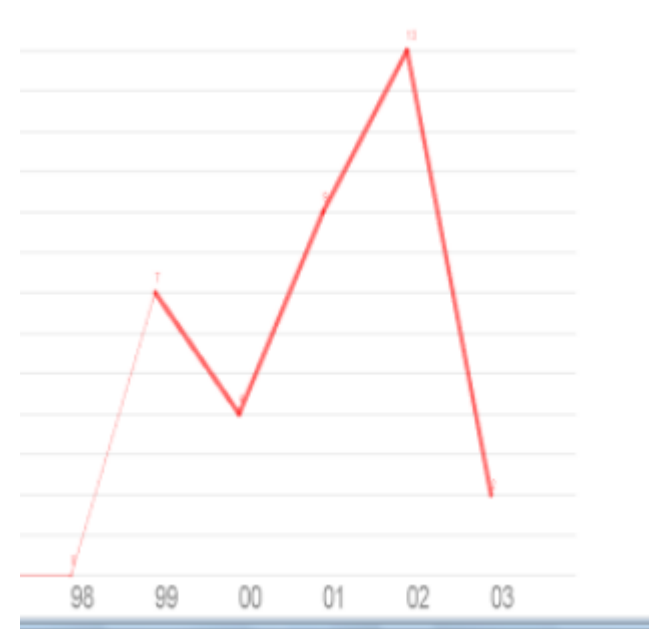
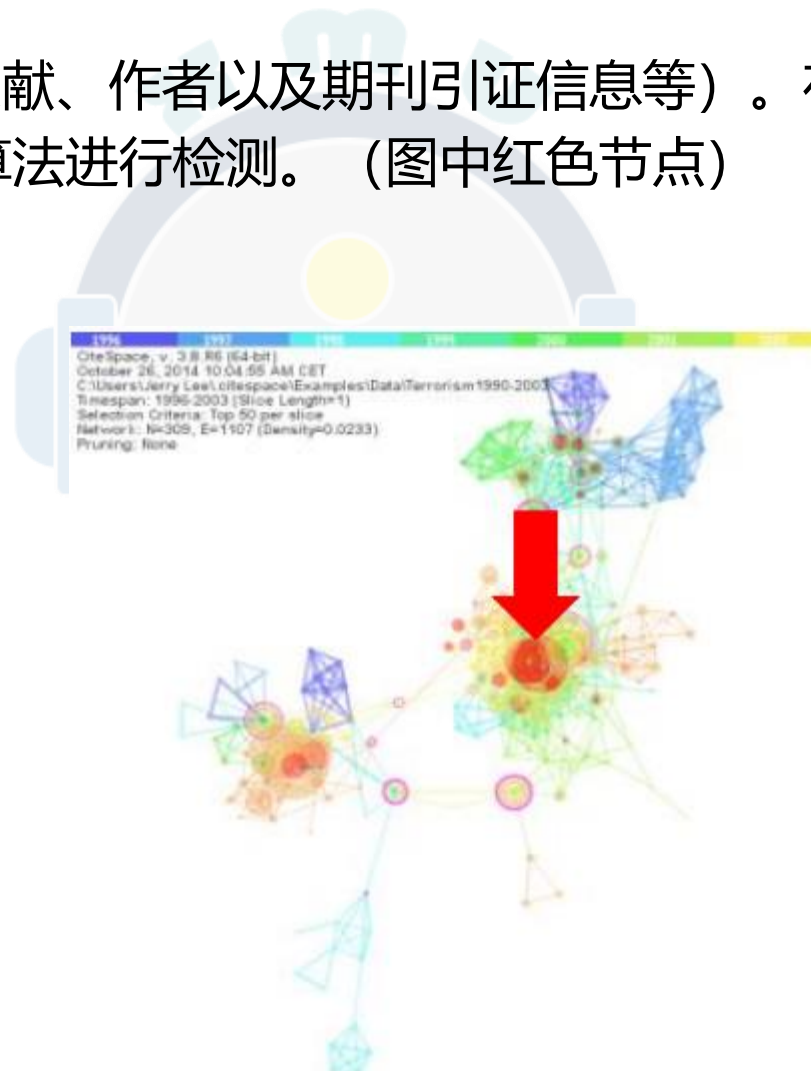
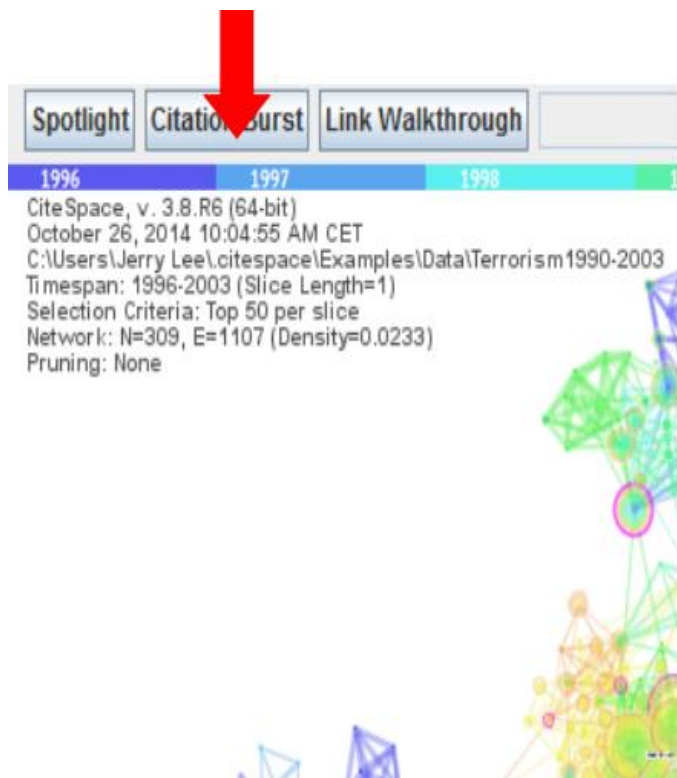


- Betweenness centrality: **中介中心性**是测度节点在网络中重要性的一个指标。CiteSpace 中使用此指标来发现和衡量文献的重要性，并用紫色圈对该类文献（或作者、期刊以及机构等）进行重点进行标注。



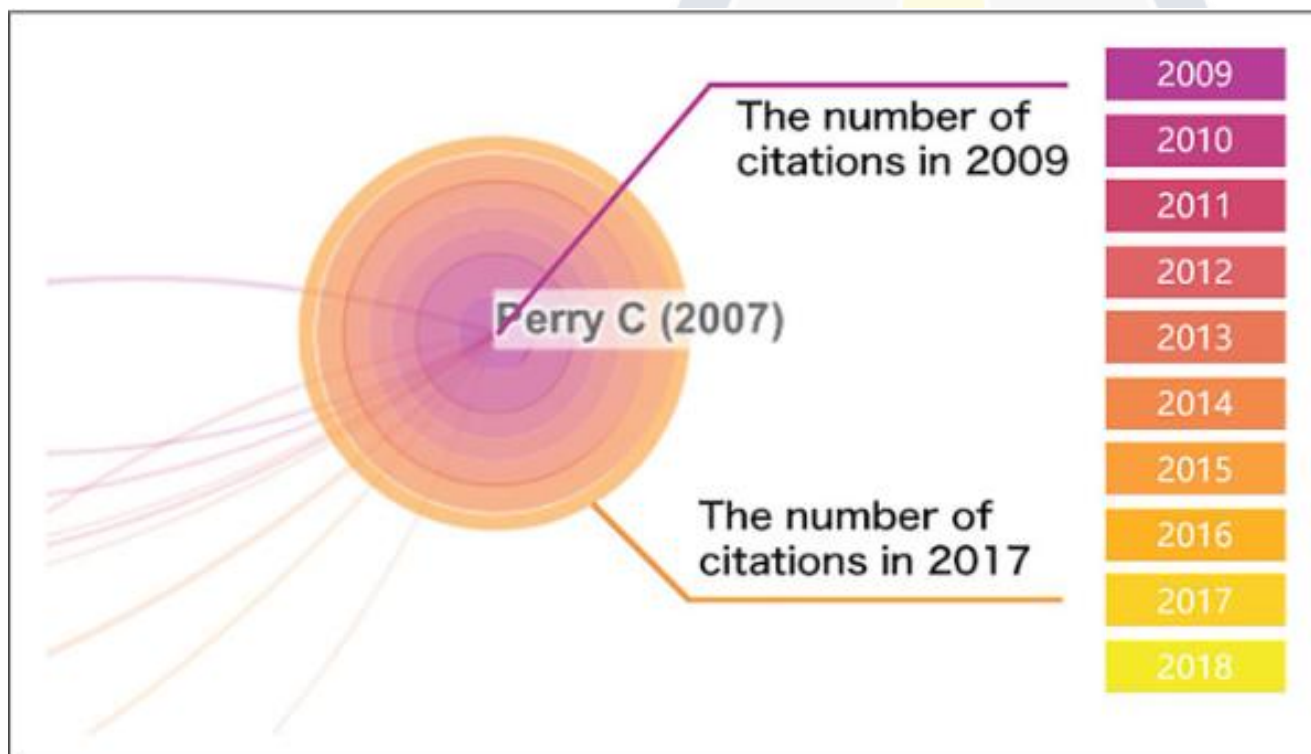


- **Burst 检测**: 突发主题（或文献、作者以及期刊引证信息等）。在 CiteSpace 中使用 Kleinberg, J (2002) 年提出的算法进行检测。（图中红色节点）



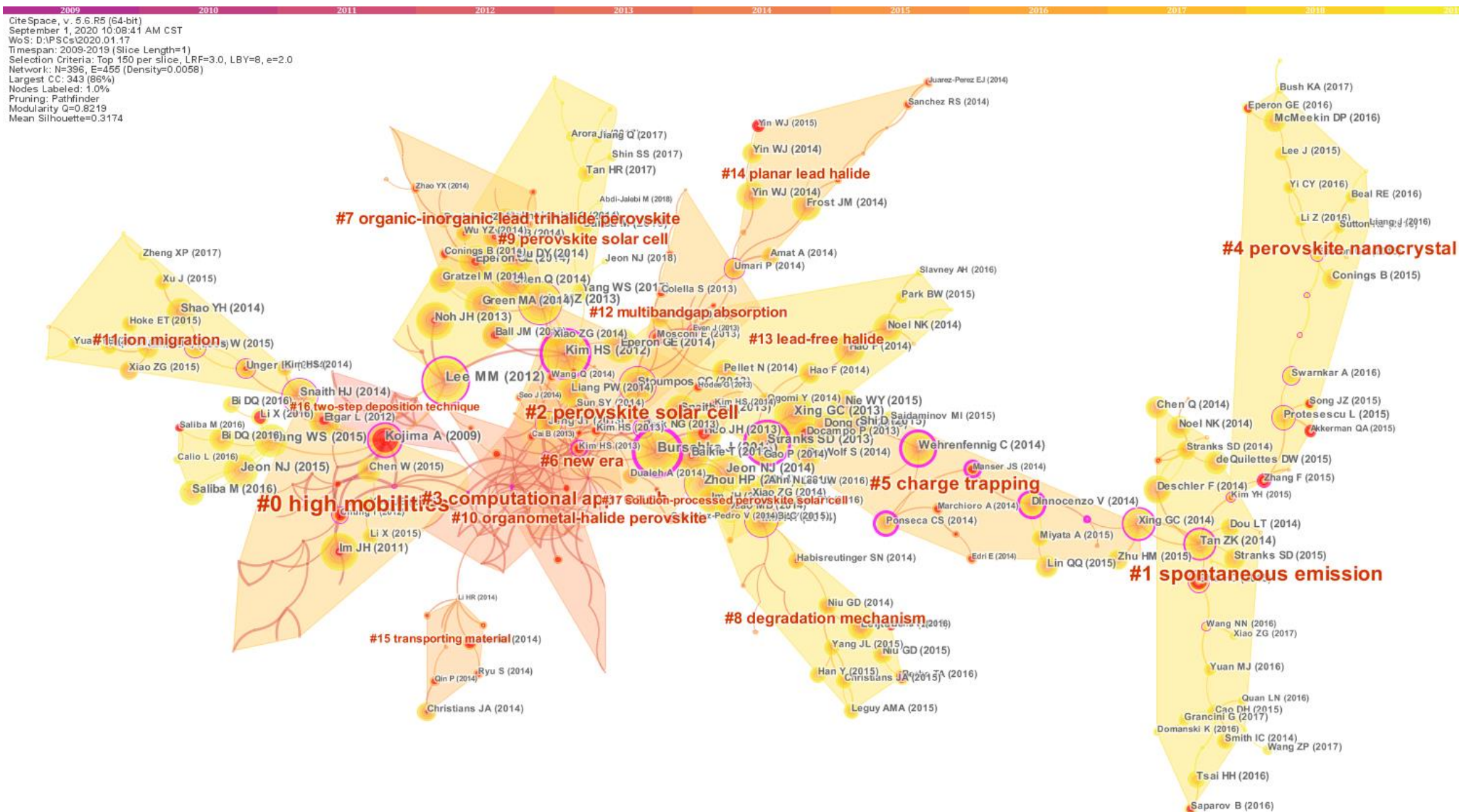


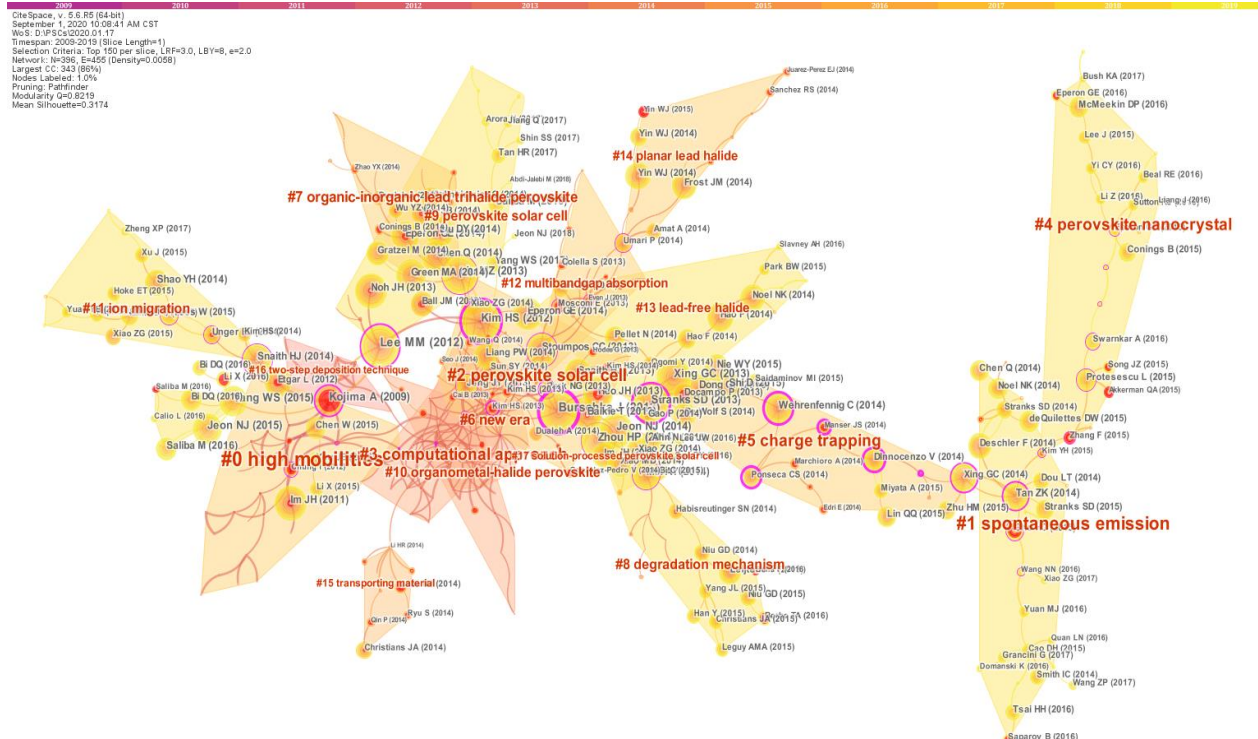
- Citation tree-rings : **引文年轮**—代表着某篇文章的引文历史。引文年轮的颜色与时间切片的颜色相对应，一个年轮厚度和与相应时间分区内引文数量成正比。
- 共引线的颜色与首次发生共引的时间切片的颜色相对应





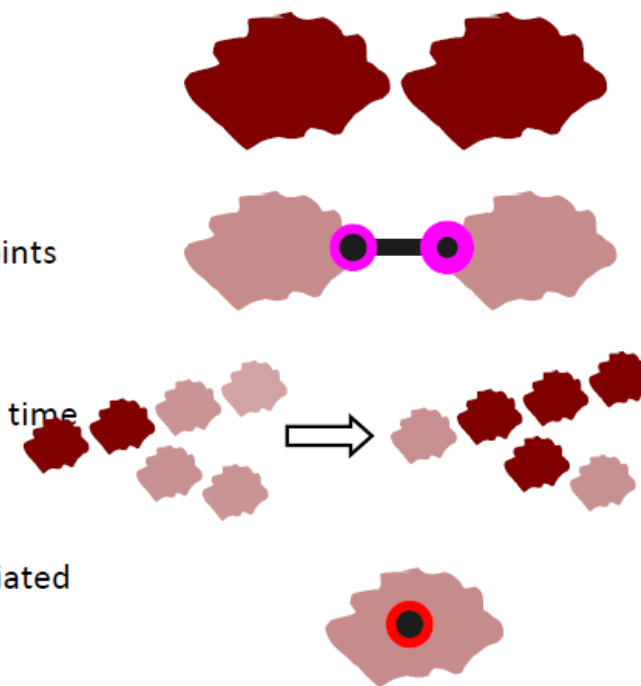
Term	Description
Co-citation network	- A knowledge network represents how frequently two references are cited by other articles simultaneously. For instance, if two references are cited by a third or different articles, there may be a stronger correlation between them (Chen et al., 2014, https://doi.org/10.1517/14712598.2014.920813; Small, 1973, https://doi.org/10.1002/asi.4630240406). - Co-citation literature represents the knowledge foundation and development of the given field (Chen et al., 2010, https://doi.org/10.1002/asi.21309; Small, 1973, https://doi.org/10.1002/asi.4630240406).
Cluster	- The synthesized network is divided into clusters of cited references. - Thematic patterns of each cluster are identified based on noun phrases extracted from citing articles' titles and abstracts; then, the most representative noun phrases are further computed to identify the label of the cluster (Chen & Song, 2019, https://doi.org/10.1002/asi.4630240406).
Modularity Q	Modularity $Q > 0.3$ means that the separated social structures in the given field are clearly defined in terms of co-citation clusters (Chen, 2016, <i>CiteSpace: A Practical Guide for Mapping Scientific Literature</i>. Nova Science; Chen et al., 2010, https://doi.org/10.1002/asi.21309).
Silhouette	Silhouette > 0.5 means that the clustering effects are reasonable, and the level of homogeneity is relatively high, suggesting that each cluster is well matched with each other (Chen, 2016; Chen et al., 2010).
Log-likelihood ratio (LLR) tests	The LLR tests are considered to recognize labels effectively within the cluster; these labels are used to name clusters with better representativeness (Chen et al., 2010, 2012)
Size	- Size denotes the number of cited references in each cluster. - Clusters with few members tend to be less representative than larger ones, since small clusters are susceptible to the citing behavior of a small number of articles (Chen, 2012, https://doi.org/10.1517/14712598.2012.674507).
Betweenness centrality (BC)	- BC value is commonly used as structural metric for qualifying the academic impact of one reference in citation networks (Li & Chen, 2016, <i>CiteSpace: Text mining and visualization in scientific literature</i> Capital University of Economics and Business Press.). - Nodes with high BC (whose BC value > 0.1) tend to identify boundary spanning potentials that may lead to transformative discoveries (Chen, 2017, https://doi.org/10.1515/jdis-2017-0006; Chen et al., 2009, https://doi.org/10.1016/j.joi.2009.03.004; Schierz et al., 2010, https://doi.org/10.1016/j.joi.2009.03.004).
Citation Burstness (CB)	CB is a computational technique that has been used to identify references attracting increased attention to the underlying research and to trace the development of study focus (Chen, 2017; Kleinberg, 2003, https://doi.org/10.1515/jdis-2017-0006).
Sigma	- The sigma score is a combinant metric of the BC and the citation burstness of the cited reference (Chen, 2017). - A cited reference with high sigma score reflects its structural and temporal significance (Chen, 2017).

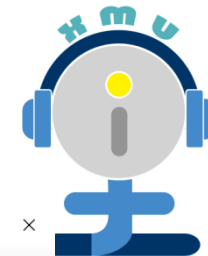




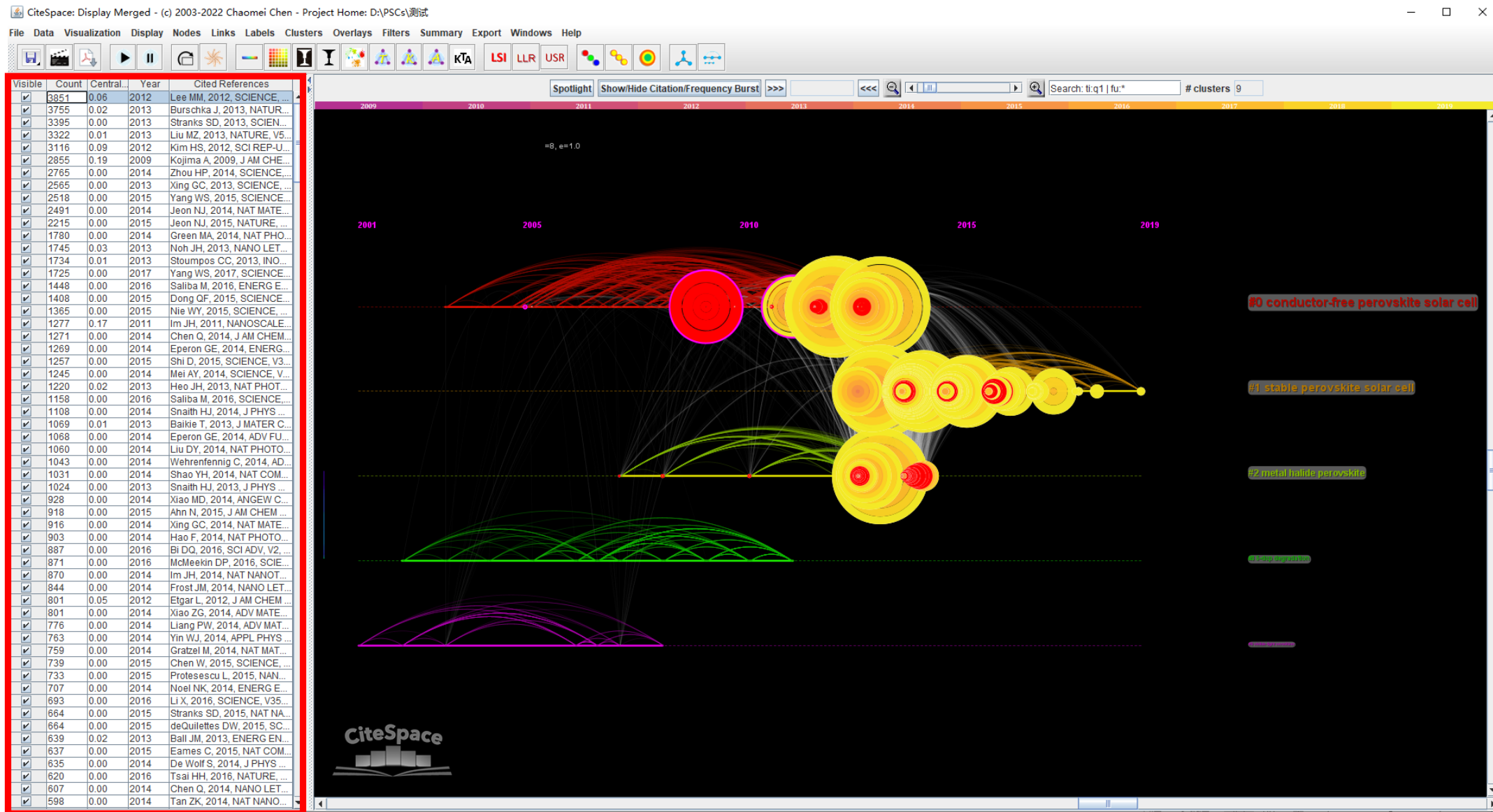
Expected Patterns

- Thematic grouping
- Intellectual turning points
- Thematic change over time
- Abrupt changes associated with triggers





详细信息查询





详细信息查询

CiteSpace: Display Merged - (c) 2003-2022 Chaomei Chen - Project Home: D:\PSCs\测试

File Data Visualization Display Nodes Links Labels Clusters Overlays Filters Summary Export Windows Help

Visible Count Central... Year Cited References

Visible	Count	Central...	Year	Cited References
☒	3851	0.06	2012	Lee MM, 2012, SCIENCE...
☒	3755	0.02	2013	Burschka J, 2013, NATUR...
☒	3395	0.00	2013	Stranks SD, 2013, SCIEN...
☒	3322	0.01	2013	Liu MZ, 2013, NATURE, V...
☒	3116	0.09	2012	Kim HS, 2012, SCI REP...
☒	2855	0.19	2009	Kojima A, 2009, J AM CHE...
☒	2765	0.00	2014	Zhou HP, 2014, SCIENCE...
☒	2565	0.00	2013	Xing GC, 2013, SCIENCE...
☒	2518	0.00	2015	Yang WS, 2015, SCIENCE...
☒	2491	0.00	2014	Jeon NJ, 2014, NAT MATE...
☒	2215	0.00	2015	Jeon NJ, 2015, NATURE...
☒	1780	0.00	2014	Green MA, 2014, NAT PHO...
☒	1745	0.03	2013	Noh JH, 2013, NANO LET...
☒	1734	0.01	2013	Stoumpos CC, 2013, INO...
☒	1725	0.00	2017	Yang WS, 2017, SCIENCE...
☒	1448	0.00	2016	Saliba M, 2016, ENERGI...
☒	1408	0.00	2015	Dong QF, 2015, SCIENCE...
☒	1365	0.00	2015	Nie WY, 2015, SCIENCE...
☒	1277	0.17	2011	Im JH, 2011, NANOSCAL...
☒	1271	0.00	2014	Chen Q, 2014, J AM CHEM...
☒	1269	0.00	2014	Eperon GE, 2014, ENERGI...
☒	1257	0.00	2015	Shi D, 2015, SCIENCE, V...
☒	1245	0.00	2014	Mei AY, 2014, SCIENCE, V...
☒	1220	0.02	2013	Heo JH, 2013, NAT PHOT...
☒	1158	0.00	2016	Saliba M, 2016, SCIENCE...
☒	1108	0.00	2014	Snaith HJ, 2014, J PHYS...
☒	1069	0.01	2013	Baikie T, 2013, J MATER...
☒	1068	0.00	2014	Eperon GE, 2014, ADV FU...
☒	1060	0.00	2014	Liu DY, 2014, NAT PHOT...
☒	1043	0.00	2014	Wehrenfennig C, 2014, AD...
☒	1031	0.00	2014	Shao YH, 2014, NAT COM...
☒	1024	0.00	2013	Snaith HJ, 2013, J PHYS...
☒	928	0.00	2014	Xiao MD, 2014, ANGEW C...
☒	918	0.00	2015	Ahn N, 2015, J AM CHEM...
☒	916	0.00	2014	Xing GC, 2014, NAT MATE...
☒	903	0.00	2014	Hao F, 2014, NAT PHOTO...
☒	887	0.00	2016	Bi DQ, 2016, SCI ADV, V2...
☒	871	0.00	2016	McMeekin DP, 2016, SCIE...
☒	870	0.00	2014	Im JH, 2014, NAT NANOT...
☒	844	0.00	2014	Frost JM, 2014, NANO LET...
☒	801	0.05	2012	Etgar L, 2012, J AM CHEM...
☒	801	0.00	2014	Xiao ZG, 2014, ADV MATE...
☒	776	0.00	2014	Liang PW, 2014, ADV MAT...
☒	763	0.00	2014	Yin WJ, 2014, APPL PHYS...
☒	759	0.00	2014	Grätzel M, 2014, NAT MAT...
☒	739	0.00	2015	Chen W, 2015, SCIENCE...
☒	733	0.00	2015	Protesescu L, 2015, NAN...
☒	707	0.00	2014	Noel NK, 2014, ENERGI...
☒	693	0.00	2016	Li X, 2016, SCIENCE, V35...
☒	664	0.00	2015	Stranks SD, 2015, NAT NA...
☒	664	0.00	2015	deQuilettes DW, 2015, SC...
☒	639	0.02	2013	Ball JM, 2013, ENERGI...
☒	637	0.00	2015	Eames C, 2015, NAT COM...
☒	635	0.00	2014	De Wolf S, 2014, J PHYS...
☒	620	0.00	2016	Tsai HH, 2016, NATURE...
☒	607	0.00	2014	Chen Q, 2014, NANO LET...
☒	598	0.00	2014	Tan ZK, 2014, NAT NANO...

Find Clusters

- Extract Cluster Labels
- Label Selection
- Visual Encoding: Advanced Settings
- Summary Table | Whitelists
- Show Clusters by IDs
- Show the Largest K Clusters
- Convex Hull: Show/Hide
- Find Clusters' k-Cores
- Clusters' k-Cores: Show/Hide Contours
- Clusters' k-Cores: Highlight k >= m
- Clusters' k-Cores: Maximum Layers

Cluster Exploration

- Save Cluster Information
- Concept Tree of Citation Contexts (MA)
- Cluster Explorer
- List Top Ranked Terms per Cluster by LSA
- View Similarity Networks of Citing Terms (VSM)
- View Citing Networks to Clusters (LSA)
- Expectation Maximization (EM)
- Set the Maximum Number of LSI Terms to display
- Set the Maximum Number of LLR Terms to display
- Summarize a Single Cluster
- Set Citation Threshold
- Select Cluster-Summarizing Sentences

Looking for Saved Information of Clusters

Can you locate the clusters folder where the required information of clusters is saved?

是(Y) 否(N) 取消

CiteSpace

2012 2013 2014 2015 2016 2017 2018 2019

perovskite solar cell

solar cell

metal halide perovskite



以下将对获得的三个重要的窗口进行解释

CiteSpace: Cluster Explorer

Clusters

Select	Cluster ID	Size	Silhouette	mean(Year)	Top Terms (LSI)	Top Terms (log-likelihood ratio, p-level)	Terms (mutual information)
☒	0	146	0.833	2009	perovskite solar cell; solar cell; efficient perovsk...	conductor-free perovskite solar cell (7787.04, 1...	5-dcp degradation (2.83); zinc stannate nanocu...
☐	1	122	0.879	2015	perovskite solar cell; solar cell; perovskite film; ...	stable perovskite solar cell (13625.23, 1.0E-4); ...	5-dcp degradation (7.49); zinc stannate nanocu...
☐	2	88	0.707	2013	perovskite solar cell; solar cell; efficient perovsk...	metal halide perovskite (15494.19, 1.0E-4); stab...	5-dcp degradation (3.49); zinc stannate nanocu...
☐	3	36	0.996	2007	zinc stannate nanocubes and nanourchins with ...	5-dcp degradation (28.35, 1.0E-4); zinc stannate...	perovskite solar cell (0.26); solar cell (0.05); per...
☐	8	16	0.985	2005	organometal halide perovskites as visible-light ...	visible-light sensitizer (29.54, 1.0E-4); photovolt...	perovskite solar cell (0.26); solar cell (0.05); per...

Citing Articles | Keywords

Coverage	GCS	LCS	Bibliography
81	413	0	Chen, Q (2015.0) Under the spotlight, the organic-inorganic hybrid halide perovskite for optoelectronic applications . NANO TODAY, V10, P42 DOI 10.1016/j.nantod.2015.04.009
54	32	0	Chen, J (2019.0) Causes and solutions of recombination in perovskite solar cells . ADVANCED MATERIALS DOI 10.1002/adma.201803019
54	709	0	Berhe, TA (2016.0) Organometal halide perovskite solar cells: degradation and stability . ENERGY & ENVIRONMENTAL SCIENCE DOI 10.1039/c5ee02733k
53	501	0	Correa-baena, J (2017.0) The rapid evolution of highly efficient perovskite solar cells . ENERGY & ENVIRONMENTAL SCIENCE, V10, P18 DOI 10.1039/c6ee03397k
52	54	0	Cui, J (2015.0) Recent progress in efficient hybrid lead halide perovskite solar cells . SCIENCE AND TECHNOLOGY OF ADVANCED MATERIALS DOI 10.1088/1468-6996/16/3/036004
49	68	0	Brittman, S (2015.0) The expanding world of hybrid perovskites: materials properties and emerging applications . MRS COMMUNICATIONS DOI 10.1557/mrc.2015.6
47	8	0	Ding, R (2017.0) Organometal trihalide perovskites with intriguing ferroelectric and piezoelectric properties . ADVANCED FUNCTIONAL MATERIALS DOI 10.1002/adfm.201702207
46	28	0	Ahmed, MI (2015.0) Perovskite solar cells: potentials, challenges, and opportunities . INTERNATIONAL JOURNAL OF PHOTOENERGY DOI 10.1155/2015/592308
44	296	0	Chen, B (2016.0) Origin of j-v hysteresis in perovskite solar cells . JOURNAL OF PHYSICAL CHEMISTRY LETTERS DOI 10.1021/acs.jpclett.6b00215

Cited References | Keywords

Freq	Burst	BurstID	BurstE...	Degree	Central...	Σ	PageR...	Label	Author	Year	Title	Source	Vol	Page	HalfLife	DOI	Cluster
1	0.00			29.00	1.00	0.00	0.00	Ma W (...)	Ma W (...)	2009	...	NANO ...	V9	P1699	2.5	10.102...	0
2	0.00			22.00	1.00	0.00	0.00	Mishra (...)	Mishra A	2009	...	ANGE ...	V48	P2474	3.5	10.100...	0
1	0.00			18.00	1.00	0.00	0.00	Rogac (...)	Rogac ...	2007	...	J PHY ...	V111	P14628	3.5	10.102...	0
3	0.00			49.00	1.00	0.00	0.00	Kamat (...)	Kamat ...	2008	...	J PHY ...	V112	P18737	4.5	10.102...	0
1	0.00			18.00	1.00	0.00	0.00	Lee YL (...)	Lee YL	2009	...	ADV F ...	V19	P604	1.5	10.100...	0
3	0.00			29.00	1.00	0.00	0.00	Takah (...)	Takah ...	2011	...	DALTO ...	V40	P5563	1.5	10.103...	0
5	3.43	2011	2013	80.01	1.03	0.00	0.00	Ruhle (...)	Ruhle S	2010	...	CHEM ...	V11	P2290	2.5	10.100...	0
2	0.00			35.00	1.00	0.00	0.00	Snailth (...)	Snailth ...	2006	...	APPL ...	V89	P0	6.5	10.106...	0
7	4.81	2012	2013	87.01	1.03	0.00	0.00	Kojima (...)	Kojima ...	2012	...	CHEM ...	V41	P397	0.5	10.124...	0
1	0.00			22.00	1.00	0.00	0.00	Jang S (...)	Jang SR	2011	...	ACS N ...	V5	P8267	0.5	10.102...	0
24	15.12	2012	2014	149.01	1.16	0.00	0.00	Im JH (...)	Im JH	2012	...	NANO ...	V7	P0	1.5	10.118...	0
2	0.00			25.00	1.00	0.00	0.00	Kim M (...)	Kim MJ	2010	...	J PHY ...	V114	P19849	1.5	10.102...	0
801	81.15	2013	2015	282.05	54.21	0.00	0.00	Etgar L (...)	Etgar L	2012	...	J AM C ...	V134	P17396	3.5	10.102...	0
1277	32.84	2012	2014	342.07	154.55	0.00	0.00	Im JH (...)	Im JH	2011	...	NANO ...	V3	P4088	4.5	10.103...	0
1	0.00			18.00	1.00	0.00	0.00	Gonzal (...)	Gonzal ...	2010	...	ACS N ...	V4	P5783	0.5	10.102...	0
2	0.00			35.00	1.00	0.00	0.00	Abrusc (...)	Abrusc ...	2011	...	ADV F ...	V21	P2571	1.5	10.100...	0
1	0.00			29.00	1.00	0.00	0.00	Gao J (...)	Gao JB	2011	...	NANO ...	V11	P3263	0.5	10.102...	0
2	0.00			52.00	1.00	0.00	0.00	Im SH (...)	Im SH	2011	...	ENER ...	V4	P2799	1.5	10.103...	0
3	0.00			38.00	1.00	0.00	0.00	Li G (2 ...)	Li G	2012	...	NAT P ...	V6	P153	0.5	10.103...	0
2	0.00			29.00	1.00	0.00	0.00	Kamat (...)	Kamat ...	2010	...	CHEM ...	V110	P6664	2.5	10.102...	0
2	0.00			29.00	1.00	0.00	0.00	Lin H (...)	Lin H	2006	...	APPL ...	V68	P1	5.5	10.101...	0
1	0.00			29.00	1.00	0.00	0.00	Semo (...)	Semo ...	2011	...	SCIEN ...	V334	P1530	0.5	10.112...	0
2	0.00			37.00	1.00	0.00	0.00	Park J (...)	Park J	2007	...	SOL E ...	V91	P1749	4.5	10.101...	0
2	0.00			17.00	1.00	0.00	0.00	Mashiy (...)	Mashiy ...	2007	...	FERR ...	V348	P584	5.5	10.108...	0
639	119.25	2013	2015	246.02	6.11	0.00	0.00	Ball JM (...)	Ball JM	2013	...	ENER ...	V6	P1739	1.5	10.103...	0
159	78.38	2012	2015	244.05	52.08	0.00	0.00	Chung (...)	Chung I	2012	...	NATURE	V485	P486	1.5	10.103...	0
4	0.00			29.00	1.00	0.00	0.00	Chen (...)	Chen Z	2012	...	J LUMIN	V132	P345	0.5	10.101...	0
2	0.00			25.00	1.00	0.00	0.00	Papav (...)	Papav ...	2012	...	J MATE ...	V22	P8271	0.5	10.103...	0

Summary Sentences

Representative Sentences

Selection method:

☒ Centrality

☐ PageRank

☒ select from Abstracts

Start

Clusters processed:

0 of 9

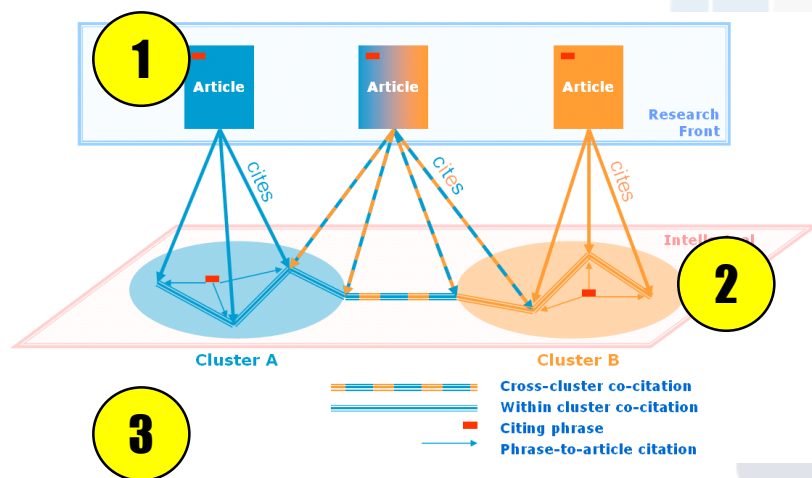
Time taken (sec):

Timeout

Save the List



CiteSpace概念模型与软件提供的信息查询比较



CiteSpace: Cluster Explorer

Clusters

Select	Cluster ID	Size	Silhouette	mean(Year)	St	Top Terms (log-likelihood ratio, p-level)	Terms (mutual information)
☒	0	146	0.833	2009	perovskite	conductor-free perovskite solar cell (2787.04, 1.0E-4)	5-dcp degradation (2.83), zinc stannate nanoc...
☒	1	122	0.879	2015	perovskite	stable perovskite solar cell (13625.23, 1.0E-4)	5-dcp degradation (7.49), zinc stannate nanoc...
☒	2	68	0.707	2013	perovskite	metal halide perovskite (15484.19, 1.0E-4)	5-dcp degradation (3.48), zinc stannate nanoc...
☒	3	36	0.996	2007	zinc stannate	5-dcp degradation (28.35, 1.0E-4)	perovskite solar cell (0.26), solar cell (0.05), per...
☒	8	16	0.985	2005	organon...	visible-light sensitizer (29.54, 1.0E-4)	photovolt...

Citing Articles | Keywords

Coverage	GCS	LCS	Bibliography
81	413	0	Chen, Q. (2015.0) Under the spotlight: the organic-inorganic hybrid halide perovskite for optoelectronic applications. NANO TODAY, V10, P42 DOI 10.1016/j.nano.2015.04.009
54	32	0	Chen, J. (2019.0) Causes and solutions of recombination in perovskite solar cells. ADVANCED MATERIALS DOI 10.1002/adma.201803919
54	709	0	Berhe, TA (2016.0) Organometal halide perovskite solar cells: synthesis, properties, and stability. ENERGY & ENVIRONMENTAL SCIENCE DOI 10.1039/c5ee02733k
53	501	0	Correa-Bueno, J. (2017.0) The rapid evolution of perovskite solar cells. ENERGY & ENVIRONMENTAL SCIENCE, V10, P18 DOI 10.1039/c6ee03397f
52	54	0	Cui, J. (2015.0) Recent progress in efficient hybrid perovskite solar cells. SCIENCE AND TECHNOLOGY OF ADVANCED MATERIALS DOI 10.1088/1468-6996/16/3/036004
49	68	0	Brittman, S. (2015.0) The expanding world of hybrid perovskites: materials properties and emerging applications. MRS COMMUNICATIONS DOI 10.1557/mrc.2015.6
47	8	0	Ding, R. (2017.0) Organometal halide perovskites with intriguing ferroelectric and piezoelectric properties. ADVANCED FUNCTIONAL MATERIALS DOI 10.1002/adfm.201702207
46	28	0	Almed, M. (2015.0) Perovskite solar cells: potentials, challenges, and opportunities. INTERNATIONAL JOURNAL OF PHOTOENERGY DOI 10.1155/2015/592308
44	296	0	Chen, B. (2016.0) Origin of j-v hysteresis in perovskite solar cells. JOURNAL OF PHYSICAL CHEMISTRY LETTERS DOI 10.1021-acs.jpclett.6b00215

Cited References | Keywords

Freq	Burst	BurstID	BurstE	Degree	Centrality	Label	Author	Year	Title	Source	Vol	Page	HalfLife	DOI	Cluster
1	0.00			290.00	1.00	0.00	Ma W L, Ma W	2009	NANO	V9	P1699	2.5	10.102.0		
2	0.00			220.00	1.00	0.00	Mishra, Mishra A	2009	ANGE	V48	P2474	3.5	10.100.0		
1	0.00			180.00	1.00	0.00	Rogac, Rogac	2007	JPHY	V111	P14828	3.5	10.102.0		
3	0.00			490.00	1.00	0.00	Kamat, Kamal	2008	JPHY	V112	P18737	4.5	10.102.0		
1	0.00			180.00	1.00	0.00	Lee YL, Lee YL	2009	ADV F	V19	P604	1.5	10.100.0		
3	0.00			290.00	1.00	0.00	Takah, Takah	2011	DALTO	V40	P5583	1.5	10.103.0		
5	3.43	2011	2013	800.01	1.03	0.00	Ruhle, Ruhle S	2010	CHEM	V11	P2290	2.5	10.100.0		
2	0.00			350.00	1.00	0.00	Snath, Snath	2009	APPL	V69	P0	6.5	10.106.0		
7	4.81	2012	2013	870.01	1.03	0.00	Kojima, Kojima	2012	CHEM	V41	P397	0.5	10.124.0		
1	0.00			220.00	1.00	0.00	Jiang SR	2011	ACS N	V5	P8267	0.5	10.102.0		
24	15.12	2012	2014	1490.01	1.16	0.00	Lin H, Lin H	2012	NANO	V7	P0	1.5	10.118.0		
2	0.00			250.00	1.00	0.00	Lin H, Lin H	2010	JPHY	V114	P18849	1.5	10.102.0		
801	81.15	2013	2015	2820.05	54.21	0.00	Lin H, Lin H	2012	JPHY	V114	P17396	3.5	10.103.0		
1277	32.84	2012	2014	3420.17	154.59	0.00	Lin H, Lin H	2011	NANO	V3	P4088	4.5	10.103.0		
1	0.00			190.00	1.00	0.00	Lin H, Lin H	2010	ACS N	V4	P5783	0.5	10.102.0		
2	0.00			350.00	1.00	0.00	Lin H, Lin H	2011	ADV F	V21	P2571	1.5	10.100.0		
1	0.00			290.00	1.00	0.00	Lin H, Lin H	2011	NANO	V11	P3263	0.5	10.102.0		
3	0.00			520.00	1.00	0.00	Lin H, Lin H	2011	ENER	V4	P2799	1.5	10.103.0		
1	0.00			380.00	1.00	0.00	Lin H, Lin H	2012	NAT P	V6	P163	0.5	10.103.0		
2	0.00			290.00	1.00	0.00	Kamat, Kamal	2010	CHEM	V110	P6664	2.5	10.102.0		
2	0.00			290.00	1.00	0.00	Lin H, Lin H	2006	APPL	V68	P1	5.5	10.101.0		
1	0.00			290.00	1.00	0.00	Semo, Semo	2011	SCEN	V334	P1530	0.5	10.112.0		
2	0.00			370.00	1.00	0.00	Parf J, Parf J	2007	SOLE	V91	P1749	4.5	10.101.0		
2	0.00			170.00	1.00	0.00	Mashy, Mashy	2007	FERR	V348	P584	5.5	10.108.0		
639	119.25	2013	2015	2450.02	6.11	0.00	Bail JM, Bail JM	2013	ENER	V6	P1739	1.5	10.103.0		
159	78.38	2012	2015	2440.05	52.08	0.00	Chung, Chung	2012	NATURE	V485	P466	1.5	10.103.0		
4	0.00			290.00	1.00	0.00	Chen, Chen	2012	J LUMIN	V132	P345	0.5	10.101.0		
2	0.00			250.00	1.00	0.00	Papav, Papav	2012	J MATE	V22	P8271	0.5	10.103.0		

Summary Sentences

Selection method:

- ☒ Centrality
- ☐ PageRank
- ☒ select from Abstracts

Representative Sentences

Start

Clusters processed: 0 of 9

Time taken (sec):

Timeout:

Save the List



该窗口显示的是通过三种方法得到的聚类命名（反映研究领域涵盖的主题）

CiteSpace: Display Merged - (c) 2003-2022 Chaomei Chen - Project Home: D:\PSCA\测试

File Data Visualization Display Nodes Links Labels Clusters Overlays Filters Summary Export Windows Help

Find Clusters
Extract Cluster Labels
Label Selection
Visual Encoding: Advanced
Summary Table | Whitelists
Show Clusters by IDs
Show the Largest K Clusters
Convex Hull: Show/Hide

Save/Show as HTML: cluster_summary.html Save Label Terms as a Whitelist

Select	Cluster ID	Size	Silhouette	mean(Year)	Top Terms (LSI)	Top Terms (log-likelihood)	Terms (mutual information)
☐	0	146	0.833	2009	perovskite solar cell; so...	conductor-free perovski...	5-dcp degradation (2.8...
☐	1	122	0.879	2015	perovskite solar cell; so...	stable perovskite solar ...	5-dcp degradation (7.4...
☐	2	88	0.707	2013	perovskite solar cell; so...	metal halide perovskite ...	5-dcp degradation (3.4...
☐	3	36	0.996	2007	zinc stannate nanocub...	5-dcp degradation (28...	perovskite solar cell (0...
☐	8	16	0.985	2005	organometal halide per...	visible-light sensitizer (...)	perovskite solar cell (0...

Cluster Exploration
Save Cluster Information
Concept Tree of Citations
Cluster Explorer

List Top Ranked Terms
View Similarity Network
View Citing Networks to

Expectation Maximization
Set the Maximum Number of Clusters
Set the Maximum Number of Nodes
Summarize a Single Cluster
Set Citation Threshold
Select Cluster-Summary

Labelled: 1.0%

CiteSpace

该窗口信息还可以通过菜单“Cluster”，“Summary Table /Whitelists”得到



该窗口显示的施引文献（**这些文献代表了研究前沿**）。标题中着重标识的词汇正是通过相关方法提取的聚类命名

Citing Articles Keywords			
Coverage	GCS	LCS	Bibliography
81	413	0	Chen, Q (2015.0) Under the spotlight: the organic-inorganic hybrid halide perovskite for optoelectronic applications . NANO TODAY, V10, P42 DOI 10.1016/j.nantod.2015.04.009
54	32	0	Chen, J (2019.0) Causes and solutions of recombination in perovskite solar cells . ADVANCED MATERIALS DOI 10.1002/adma.201803019
54	709	0	Berhe, TA (2016.0) Organometal halide perovskite solar cells: degradation and stability . ENERGY & ENVIRONMENTAL SCIENCE DOI 10.1039/c5ee02733k
53	501	0	Correa-baena, J (2017.0) The rapid evolution of highly efficient perovskite solar cells . ENERGY & ENVIRONMENTAL SCIENCE, V10, P18 DOI 10.1039/c6ee03397k
52	54	0	Cui, J (2015.0) Recent progress in efficient hybrid lead halide perovskite solar cells . SCIENCE AND TECHNOLOGY OF ADVANCED MATERIALS DOI 10.1088/1468-6996/16/3/036004
49	68	0	Brittman, S (2015.0) The expanding world of hybrid perovskites: materials properties and emerging applications . MRS COMMUNICATIONS DOI 10.1557/mrc.2015.6
47	8	0	Ding, R (2017.0) Organometal trihalide perovskites with intriguing ferroelectric and piezoelectric properties . ADVANCED FUNCTIONAL MATERIALS DOI 10.1002/adfm.201702207
46	28	0	Ahmed, MI (2015.0) Perovskite solar cells: potentials, challenges, and opportunities . INTERNATIONAL JOURNAL OF PHOTOENERGY DOI 10.1155/2015/592308
44	296	0	Chen, B (2016.0) Origin of j-v hysteresis in perovskite solar cells . JOURNAL OF PHYSICAL CHEMISTRY LETTERS DOI 10.1021/acs.jpcllett.6b00215

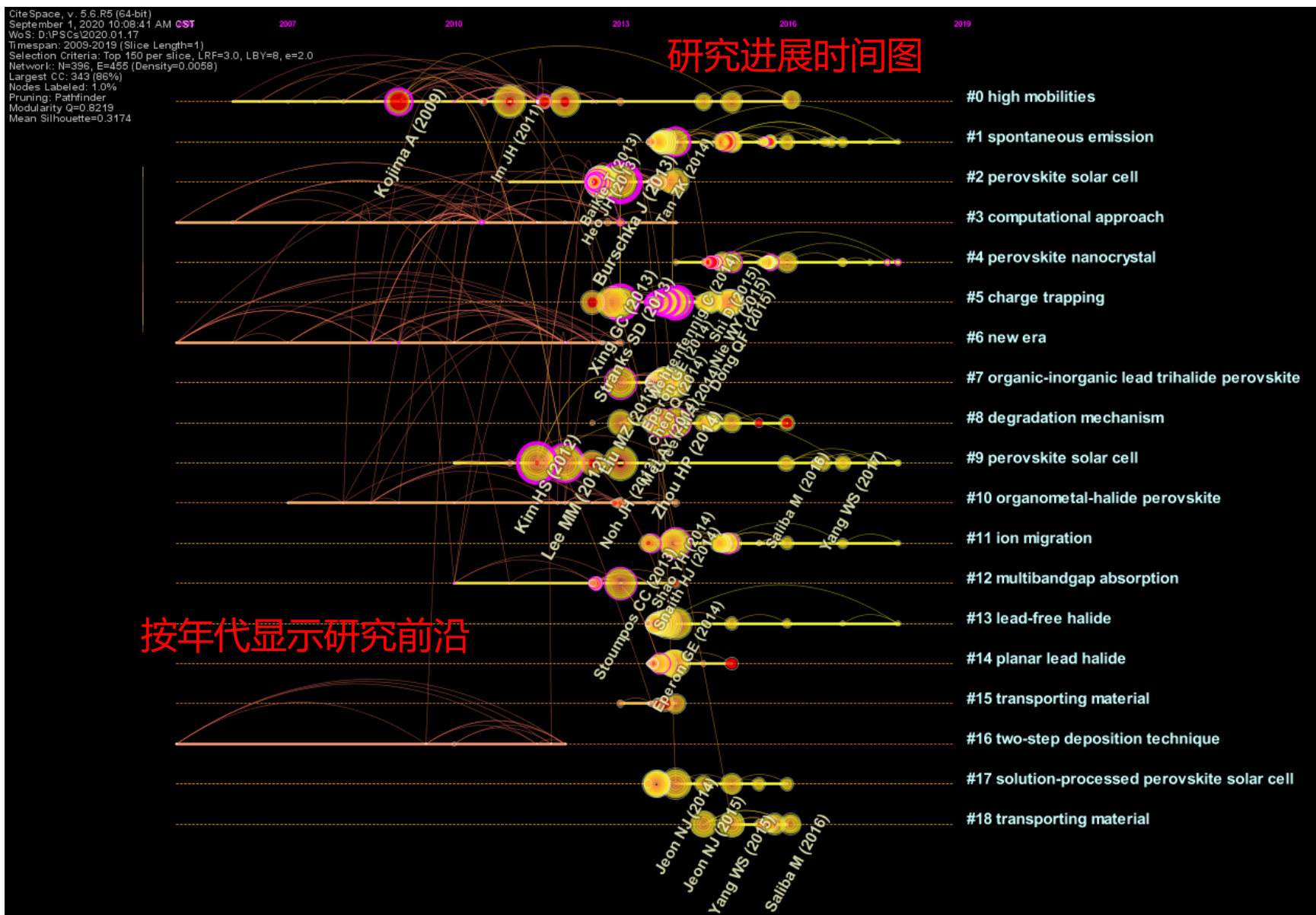


该窗口显示的是被引文献（**反映的是知识基础**），这些文献也是直接在图谱中显示的节点信息

Cited References Keywords																	
Freq	Burst	BurstB...	BurstE...	Degree	Central...	Σ	PageR...	Label	Author	Year	Title	Source	Vol	Page	HalfLife	DOI	Cluster
1	0.00			29	0.00	1.00	0.00	Ma W (...)	Ma W	2009	...	NANO ...	V9	P1699	2.5	10.102...	0
2	0.00			22	0.00	1.00	0.00	Mishra...	Mishra A	2009	...	ANGE...	V48	P2474	3.5	10.100...	0
1	0.00			18	0.00	1.00	0.00	Rogac...	Rogac...	2007	...	J PHY...	V111	P14628	3.5	10.102...	0
3	0.00			49	0.00	1.00	0.00	Kamat ...	Kamat ...	2008	...	J PHY...	V112	P18737	4.5	10.102...	0
1	0.00			18	0.00	1.00	0.00	Lee YL...	Lee YL	2009	...	ADV F...	V19	P604	1.5	10.100...	0
3	0.00			29	0.00	1.00	0.00	Takah...	Takah...	2011	...	DALTO...	V40	P5563	1.5	10.103...	0
5	3.43	2011	2013	80	0.01	1.03	0.00	Ruhle ...	Ruhle S	2010	...	CHEM...	V11	P2290	2.5	10.100...	0
2	0.00			35	0.00	1.00	0.00	Snaith ...	Snaith ...	2006	...	APPL ...	V89	P0	6.5	10.106...	0
7	4.81	2012	2013	87	0.01	1.03	0.00	Kojima...	Kojima...	2012	...	CHEM ...	V41	P397	0.5	10.124...	0
1	0.00			22	0.00	1.00	0.00	Jang S...	Jang SR	2011	...	ACS N...	V5	P8267	0.5	10.102...	0
24	15.12	2012	2014	149	0.01	1.16	0.00	Im JH (...)	Im JH	2012	...	NANO...	V7	P0	1.5	10.118...	0
2	0.00			25	0.00	1.00	0.00	Kim M...	Kim MJ	2010	...	J PHY...	V114	P19849	1.5	10.102...	0
801	81.15	2013	2015	282	0.05	54.21	0.00	Etgar L...	Etgar L	2012	...	J AM C...	V134	P17396	3.5	10.102...	0
1277	32.84	2012	2014	342	0.17	154.55	0.00	Im JH (...)	Im JH	2011	...	NANO...	V3	P4088	4.5	10.103...	0
1	0.00			18	0.00	1.00	0.00	Gonzal...	Gonzal...	2010	...	ACS N...	V4	P5783	0.5	10.102...	0
2	0.00			35	0.00	1.00	0.00	Abrusc...	Abrusc...	2011	...	ADV F...	V21	P2571	1.5	10.100...	0
1	0.00			29	0.00	1.00	0.00	Gao J...	Gao JB	2011	...	NANO ...	V11	P3263	0.5	10.102...	0
2	0.00			52	0.00	1.00	0.00	Im SH ...	Im SH	2011	...	ENER...	V4	P2799	1.5	10.103...	0
3	0.00			38	0.00	1.00	0.00	Li G (2...	Li G	2012	...	NAT P...	V6	P153	0.5	10.103...	0
2	0.00			29	0.00	1.00	0.00	Kamat ...	Kamat ...	2010	...	CHEM ...	V110	P6664	2.5	10.102...	0
2	0.00			29	0.00	1.00	0.00	Lin H (...)	Lin H	2006	...	APPL ...	V68	P1	5.5	10.101...	0
1	0.00			29	0.00	1.00	0.00	Semo...	Semo...	2011	...	SCIEN...	V334	P1530	0.5	10.112...	0
2	0.00			37	0.00	1.00	0.00	Park J ...	Park J	2007	...	SOL E...	V91	P1749	4.5	10.101...	0
2	0.00			17	0.00	1.00	0.00	Mashiy...	Mashiy...	2007	...	FERR...	V348	P584	5.5	10.108...	0
639	119.25	2013	2015	246	0.02	6.11	0.00	Ball JM...	Ball JM	2013	...	ENER...	V6	P1739	1.5	10.103...	0
159	78.38	2012	2015	244	0.05	52.08	0.00	Chung...	Chung I	2012	...	NATURE	V485	P486	1.5	10.103...	0
4	0.00			29	0.00	1.00	0.00	Chen ...	Chen Z	2012	...	J LUMIN	V132	P345	0.5	10.101...	0
2	0.00			25	0.00	1.00	0.00	Papav...	Papav...	2012	...	J MATE...	V22	P8271	0.5	10.103...	0



Timeline 呈现方式





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File Metrics View Layout Display Network Over



Citation/Frequency Burst History



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☒	433	0.00	1989	PEKALA RW, 1989, J MA...
☒	312	0.00	1998	HUSING N, 1998, ANGE...
☒	227	0.00	1931	KISTLER SS, 1931, NAT...
☒	223	0.00	2003	AL-MUHTASEB SA, 200...
☒	220	0.00	1985	SING KSW, 1985, PURE...
☒	205	0.00	2010	XU YX, 2010, ACS NAN...
☒	197	0.00	1938	BRUNAUER S. 1938. J ...



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Top 120 References with the Strongest Citation Bursts

References

Year

Strength

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2009 - 2019

h

Clusters

Quick Guide

Models

Views

Burstness

Configure the detection model:

$f(x)=ae^{-ax}, \alpha_1 / \alpha_0$

3.5

α_i / α_{i-1}

3.5

The Number of States

2

$\gamma [0,1]$

0.8

Minimum Duration

2

Burst items found

226

Refresh

View

Kim HS, 2014, J AM CHEM SOC, V118, P5615, [DOI](#)

2014

57.3831

2014

2016

Ryu S, 2014, ENERG ENVIRON SCI, V7, P2614, [DOI](#)

2014

57.0655

2014

2016

Bi DQ, 2013, RSC ADV, V3, P18762, [DOI](#)

2013

56.7108

2013

2015

Seo J, 2014, ENERG ENVIRON SCI, V7, P2642, [DOI](#)

2014

56.2275

2015

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Marchioro A, 2014, NAT PHOTONICS, V8, P250, [DOI](#)

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56.1127

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2016

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2016

55.4889

2017

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2013

54.1635

2013

2016

Jeon NJ, 2013, J AM CHEM SOC, V135, P19087, [DOI](#)

2013

54.1157

2014

2015

1325

2014

2016

4749

2013

2016

3608

2014

2016

5864

2012

2016

2982

2013

2015

2925

2013

2015

1677

2013

2016

0032

2013

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3259

2014

2016

2543

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2015

1.638

2017

2019

7249

2014

2015

6476

2017

2019

2.466

2014

2016

1796

2014

2015

7208

2013

2015

1667

2014

2015

6577

2013

2015

Search Clusters Quick Guide

Labels Views Burstness

Configure the detection model:

$f(x) = ae^{-\alpha x}, \alpha_1 / \alpha_0$ 3.5

α_i / α_{i-1} 3.5

The Number of States 2

$\gamma [0,1]$ 0.8

Minimum Duration 2

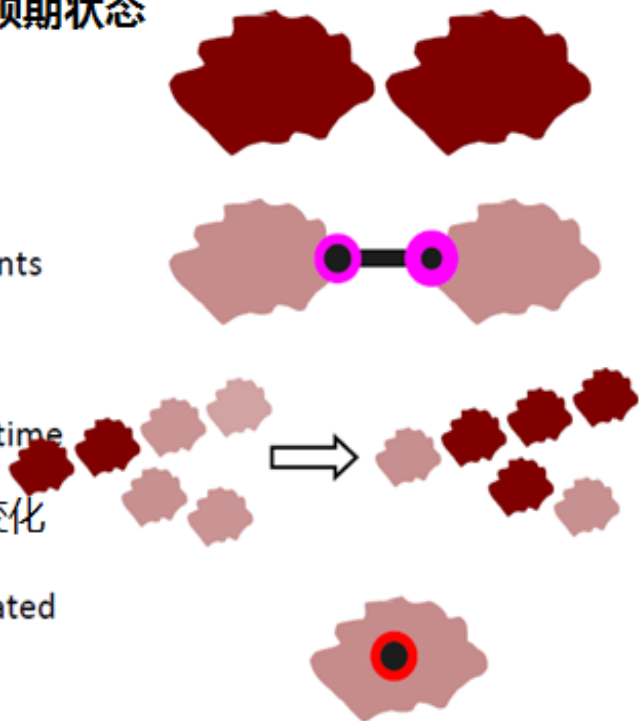
Burst items found 226

Refresh View

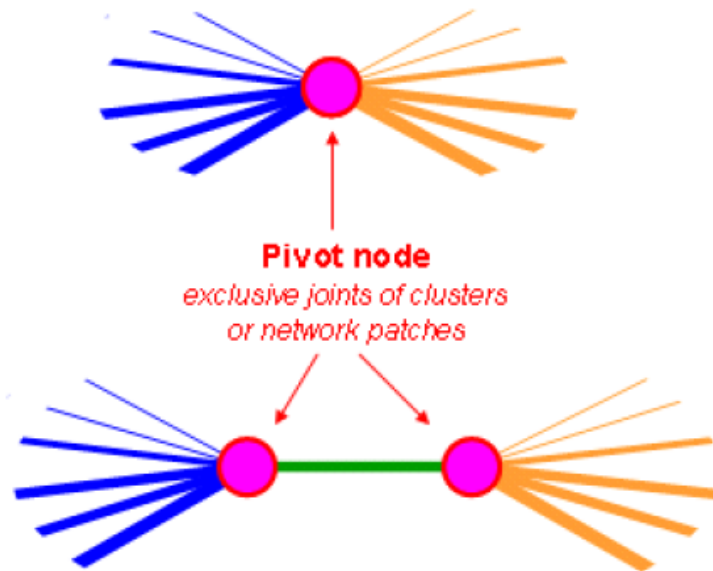
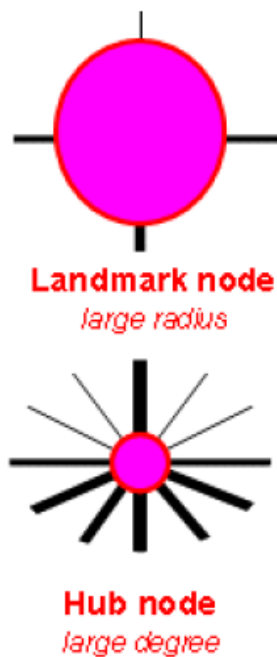


Expected Patterns 预期状态

- Thematic grouping
主题分组
- Intellectual turning points
转折点
- Thematic change over time
主题随着时间的推移变化
- Abrupt changes associated with triggers
触发性的研究突变



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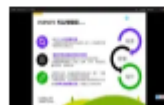


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