

“跨学科·跨边界：Inspec赋能未来工程解决方案” —Inspec数据库介绍

IET英国工程技术学会 孙鹏宁

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2025年5月

内容概览

1. Inspec数据库的历史及发展。
2. Inspec收录学科和内容介绍。
3. 文献检索中痛点问题及Inspec数据库的解决方案。
4. Inspec叙词表（Thesaurus）的深度运用。
5. 独有索引系统及实际问题的检索案例。
6. Inspec Analytics Plus (IAP)—开启文献检索“第一课”。
7. 使用Inspec数据库构建高级检索式（检索案例）。

IET 电子书 (1979-2024)

引用数据截止: 2024年11月。



研究领域	数量/册	总被引	册均被引
Radar, Sonar and Navigation	88	3530	40.11
Energy Engineering	205	2740	13.37
Electromagnetic Waves	114	1237	10.85
Control, Robotics and Sensors	99	909	9.18
Materials, Circuits and Devices	97	585	6.03
Computing and Networks	55	409	7.44
Healthcare Technologies	47	231	4.91
Telecommunications	87	224	2.57
Transportation	28	76	2.71
Security	19	41	2.16
History and Management of Technology	47	38	0.81
Built Environment (2022 new)	4	2	0.50
Manufacturing (2022 new)	4	0	0.00

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The IET inspires, informs and influences the global engineering community to **engineer a better world.**

- 成立于1871年，最早名称为电报工程师学会 (Society of Telegraph Engineers)
- 2006年英国电气工程师学会 (IEE) 和国际工业工程师学会 (IIE) 合并，更名为英国工程技术学会 (IET)
- 欧洲最大的工程技术专业机构
- 非盈利会员组织，全球150多个国家拥有约15.5万名会员



IET 知识服务与解决方案

IET Inspec



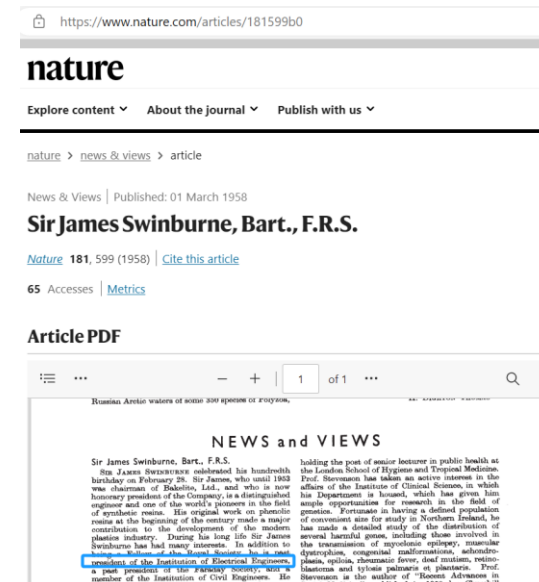
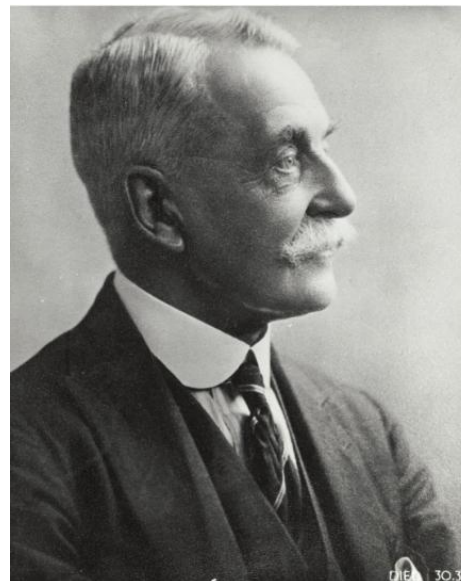
iet.tv

Inspec 历史：1898 –

詹姆斯·斯温伯恩爵士于1902被选为IEE主席

1898 年 1 月, 《科学文摘》 (*Science Abstracts*)
第一期出版, 包含 110 篇摘要, 分为 10 个部分:

- 一般物理学
- 电化学和化学物理学
- 光
- 通用电气工程
- 热
- 发电机、电机和变压器
- 声音
- 配电、牵引和照明
- 电力
- 电报和电话



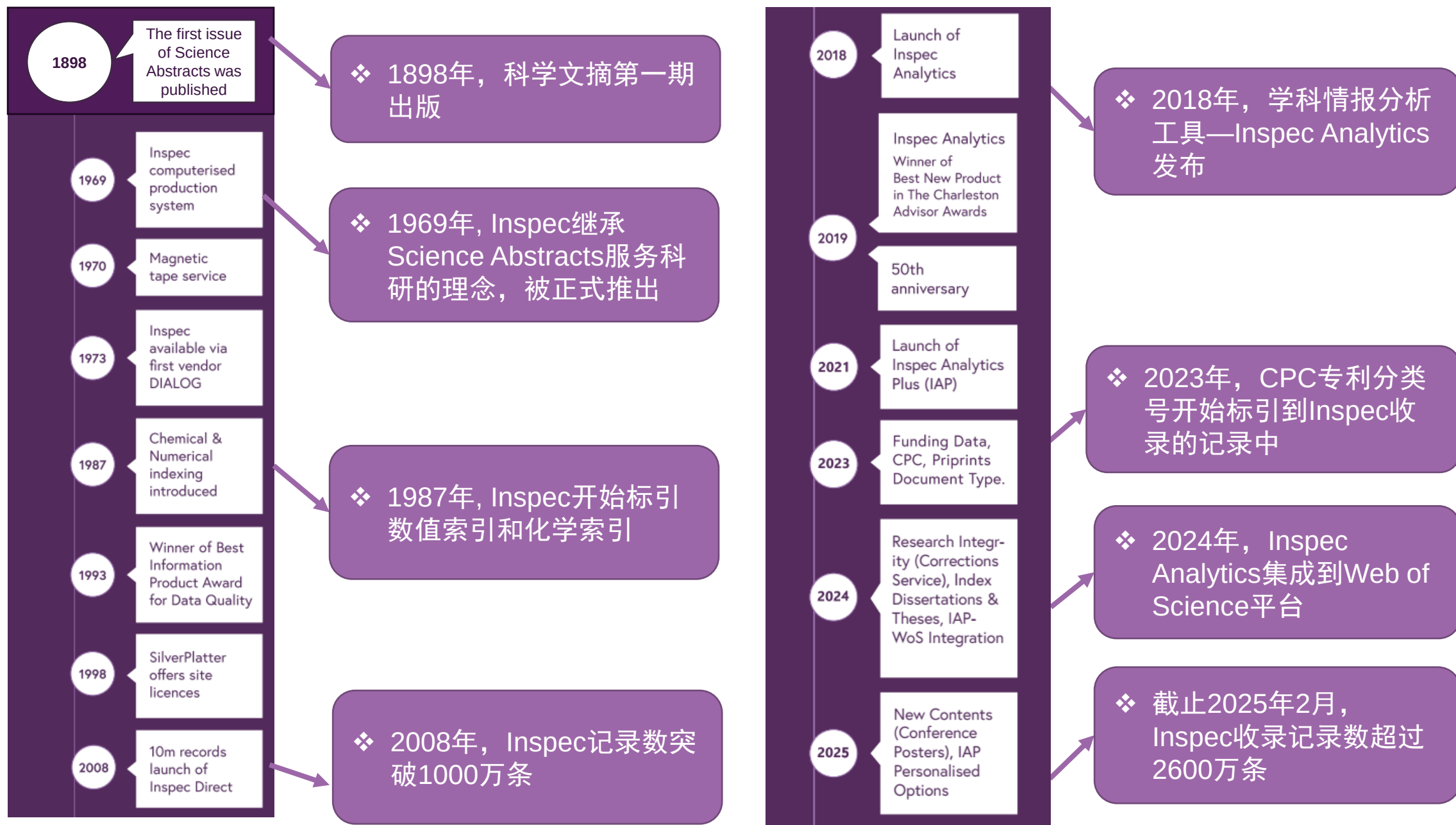
Sir James Swinburne, BART., F.R.S.

在第一年, 每月共出版 1,423 篇摘要, 并在年底增加了作者和学科索引。

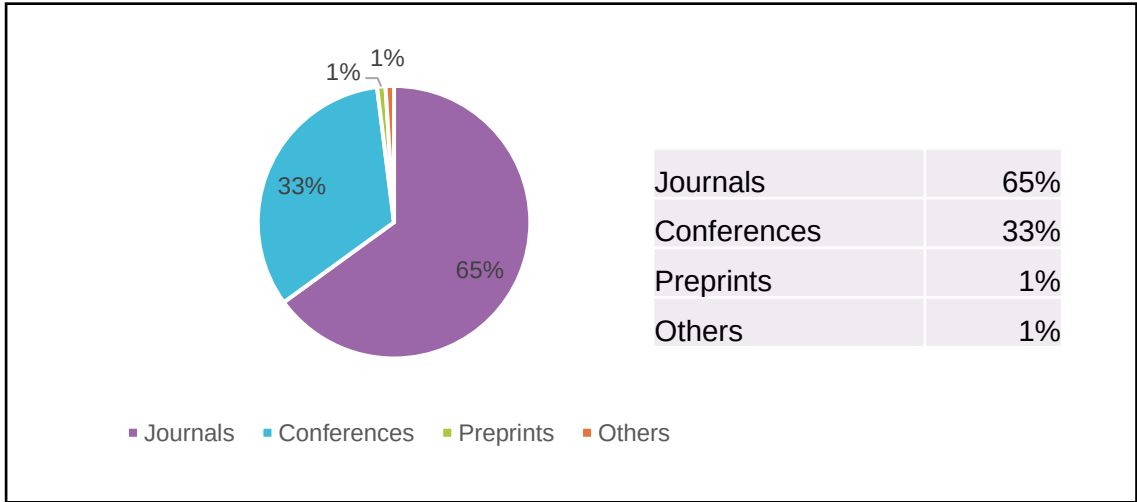
作者索引中充满了杰出科学家的名字, 包括安培、贝克勒尔、玻尔兹曼、库仑、杜瓦、爱迪生、赫维赛德、赫兹、拉普拉斯、马可尼、麦克斯韦、迈克尔逊、佩罗和法布里、庞加莱、波克尔斯、普朗克、伦琴、西门子、汤普森、汤森、范德瓦尔斯和泽曼等。

Science Abstracts 是电气工程师学会 (IEE, IET前身) 和伦敦物理学会 (The Physical Society of London) 合作的成果, 他们成立了一个出版委员会来组织和管理摘要服务。名誉编辑, James Swinburne 爵士和一个庞大的索引团队被任命。

Inspec (原*Science Abstracts*) 发展里程



Inspec收录内容概览（学科、文献类型等）



26M+文章，包含来自：**4,500+ 本期刊**、**3,500+会议论文集**、**420K预印本**等

Inspec Archive中额外包含约88万条文献记录。

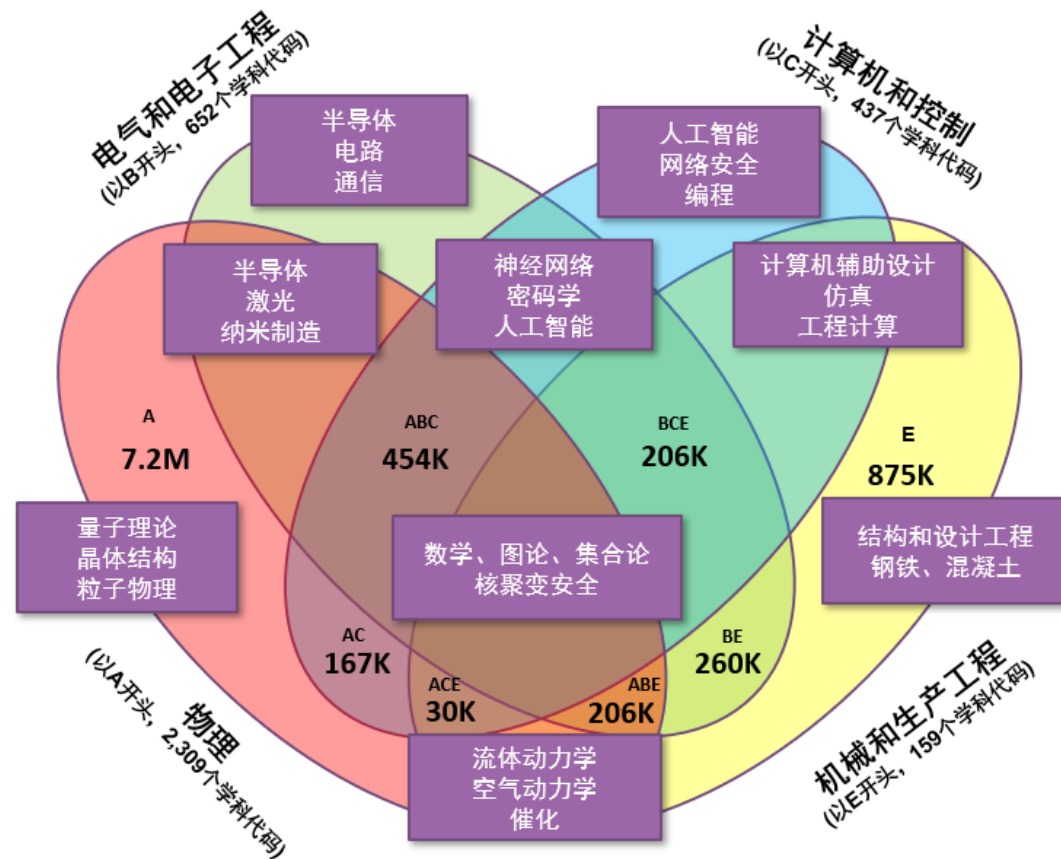
Inspec数据库的学科范围和内容覆盖

（一）核心学科

- 物理学：涵盖原子分子物理、核物理、凝聚态物理、光学、声学等多个分支领域
- 电气工程：包括电力系统、电工技术、高电压技术、分布式发电等方向
- 电子与通信工程：覆盖6G通信技术、信号处理、微波技术、半导体器件等方面
- 计算机科学：包括计算机视觉与图像处理、人工智能、数据处理等领域
- 控制理论与工程：包含未来机器人、自动控制、智能无人系统技术、系统工程等相关学科

（二）相关交叉学科

- 航空航天工程：包括飞行器设计、低空技术与工程、航空电子、航空材料、无人机技术等研究领域
- 生产与制造工程：包括新能源汽车、增材制造、高端装备等方向
- 材料科学：包括各类电子信息材料、工程材料、新型材料研发等领域
- 能源工程：涵盖能源转换、能源存储、可再生能源等相关内容
- 生物医学工程：融合生物学与工程技术的医疗器械、生物材料等方面



痛点1：资源太多（订购+OA），如何发现最值得信任的资源？



IET Inspec

- 客观的遴选：出版商中立，学科范围明晰，严格出版标准要求。
- 专家筛选机制：学科编辑团队从文章层面对内容质量进行审查。
- 出版一致性：优先收录权威出版社（IEEE、Springer, ACM等）内容。
- 实际价值评估：引用量、产业应用案例等维度。

可信的数据源

Inspec 是一个权威的、中立的发布商资源，用于获取科学文献。

- 发现来自全球出版物的最新研究，经过质量和学科相关性筛选
- 由主题专家进行细致的索引，对期刊标题进行主题分析
- 定期更新的主题分类和词库术语，反映最新的研究领域
- 严谨的期刊遴选流程和透明公开的期刊遴选标准
- 定期重新评估期刊和会议标题列表，关注标题的质量和范围，动态新增和剔除机制

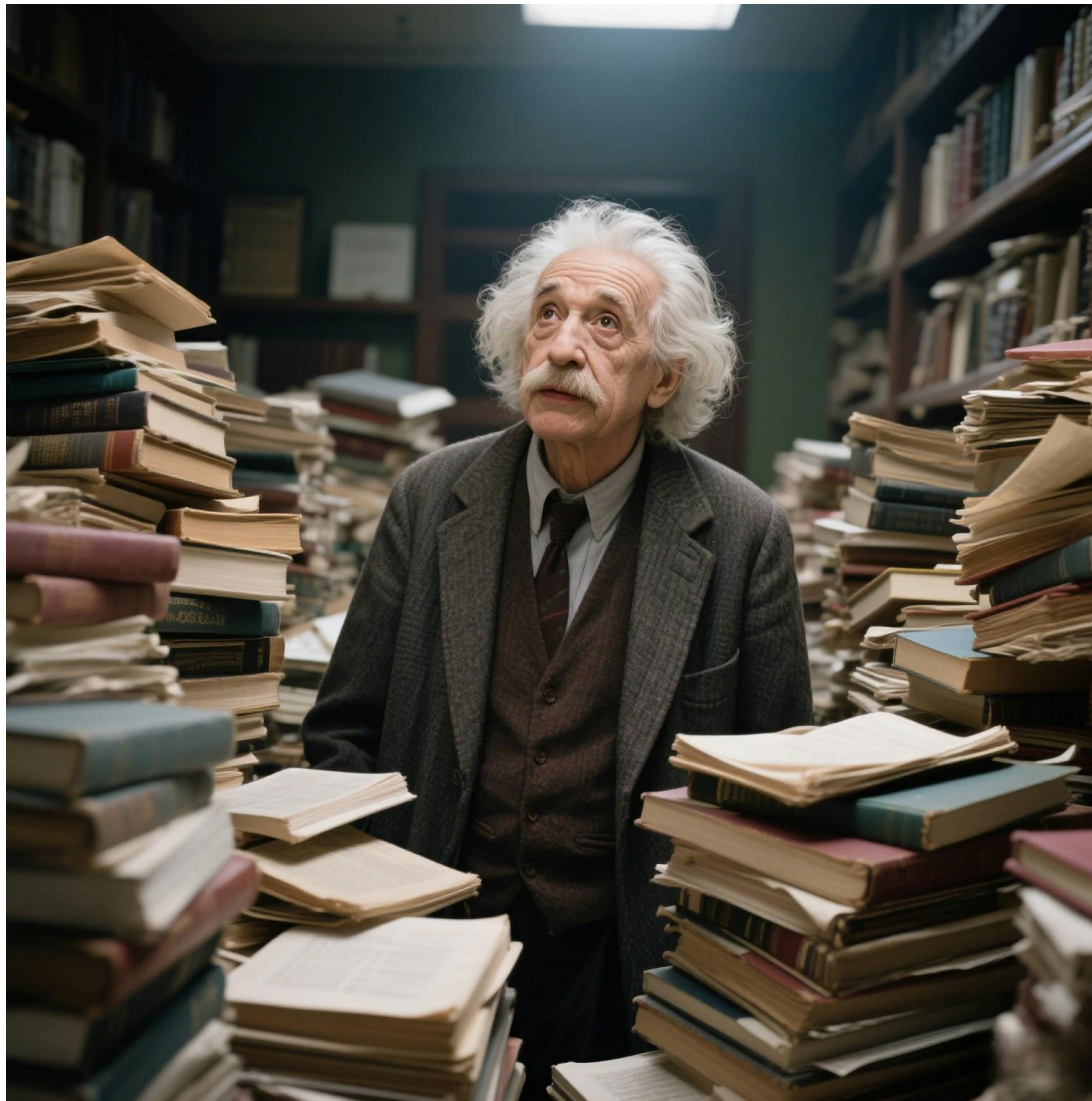
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(12,000 过往收录的期刊标题)

7 million+
会议论文

(3,500+ 每年举办的学术会议)

痛点2：知识爆炸的时代，我们被海量资源包围，如何高效精准定位最需要的资源？



沧海无尽，如何取之一瓢，定位所需？



IET Inspec

•人工底层标引体系：学科专家对每篇文摘进行数据标引。

Inspec 数据标引专家：
Dr. Christopher Marker

- UCL（伦敦大学学院）物理学博士
- 超20年的数据分析和处理经验



Inspec的精准人工专家索引

Bibliographic Record (书目记录)

- Title (标题)
- Abstract (摘要)
- Other Bibliographic Information (其他书目信息)
- (Author, Source, etc.) (作者、作者关键词、出版物标题等)

出版社
元数据

Subject Terms (学科术语)

- Consistent thesaurus maintained by subject experts for over 50 years (学科专家50年来维护的一致性的叙词表)
- Controlled Index – 5 levels of subject classification and >10k controlled terms (1万多受控关键词)
 - Uncontrolled Index – curated by expert indexers (标引专家挑选的非受控关键词)

INSPEC
人工数据专家
添加的
底层数据
字段

Special Indexes (特殊索引)

- Classification Codes (学科分类)
- Treatment Codes (文档处理类型)
- Chemical Indexing (化学索引)
- Numerical Data Indexing (数值索引)
- Astronomical Object Indexing (天文学物体对象索引)
- Patent Classification Codes (专利分类代码)

被Inspec收录 — 多维度的揭示，最大化的可见度

(Web of Science平台)

国际专利分类	H01Q Aerials; H03F Amplifiers; H03F3/20 Power amplifiers, e.g. class b amplifiers, class c amplifiers; H01L29/778 with two-dimensional charge carrier gas channel, e.g. HEMT	揭示非专利文献的专利方向，助力科研成果转化
化学物质索引	SiC/int Si/int C/int SiC/bin Si/bin C/bin; AlGaIn-GaN/int AlGaIn/int GaN/int Al/int Ga/int N/int AlGaIn/ss Al/ss Ga/ss N/ss GaN/bin Ga/bin N/bin	揭示文章中重要的物质
学科分类代码 ^①	B1220 ▾ Amplifiers; B5270B ▾ Single antennas; B1350H ▾ Microwave integrated circuits	揭示学科方向
CODEN	IETMAB	
受控词表 ^①	aluminium compounds ▾ ; gallium compounds ▾ ; high electron mobility transistors ▾ ; III-V semiconductors ▾ ; millimetre wave antennas ▾ ; millimetre wave power amplifiers ▾ ; MMIC power amplifiers ▾	揭示文章的核心主题
非受控词表	Ka-band MMIC amplifier; high electron-mobility transistor; monolithic-microwave integrated-circuit; millimeter-wave antenna; continuous wave saturated output power; RF power stress test; HEMT; Ka-band power amplifier; millimeter-wave monolithic microwave integrated circuit; 10 GHz; 26 to 36 GHz; 5 W; 50 ohm; 191 C; 1000 h; AlGaIn-GaN; SiC	揭示作者的重要术语表述
语种	English	
入藏号	INSPEC:9214414	
ISSN	0018-9480	
处理类型	Practical	揭示论文的研究方法
数值数据索引	frequency 1.0E+10 Hz; power 5.0E+00 W; frequency 2.6E+10 to 3.6E+10 Hz; time 3.6E+06 s; resistance 5.0E+01 ohm; temperature 4.64E+02 K	揭示文章重要的数值参数

被Inspec收录 — 多维度的揭示，最大化的可见度

(Engineering Village平台)

Indexing

Inspec controlled terms:

控制词

autonomous aerial vehicles

collision avoidance

genetic algorithms

graph theory

mobile robots

optimisation

Pareto optimisation

path planning

transportation

Uncontrolled terms:

非控制词

3D layered visibility graph network

average shortest path length

complete Pareto-optimal solution

complex nature

complex urban environments

critical operational constraints

exact Pareto-optimal solution

flight altitude limitations

flight efficiency

flight path optimization method

multicategory multiobjective path optimization problem

obstacle avoidance

path confidence level

path planning

research on 3D layered visibility graph route network model

safe operation

safety

UAVs

unmanned aerial vehicles

urban buildings

urban environment

urban transportation

Inspec classification codes:

学科分类

B0260 Optimisation techniques

B0250 Combinatorial mathematics

C1160 Combinatorial mathematics

C1180 Optimisation techniques

C3120C Spatial variables control

C3360L Aerospace control

C3390C Mobile robots

C3390T Telerobotics

E0210G Optimisation

Discipline:
Electrical/Electronic engineering (B); Computers/Control engineering (C); Manufacturing and production engineering (E)

Treatment:

处理类型

Practical (PRA); Theoretical or Mathematical (THR)

Database: Inspec

Multi-UAV path planning using DMGWO ensuring 4D collision avoidance and simultaneous arrival

Shahid, S.; Zhen, Z.; Javaid, U.

(2024) Aircraft Engineering and Aerospace Technology

Database: Inspec

View all journals

Conferences

Articles in Press

Book Chapters

Metrics

Scopus 7

5 Authors

Patent Information

IPC Codes: G05D1/00 - G05D3/00 - B60W30/08 - G08G - B60W30/095

CPC Codes: B60W30/08 - B60W30/095 - G05D1/00 - G05D3/00 - G08G

Funding

Funding details:

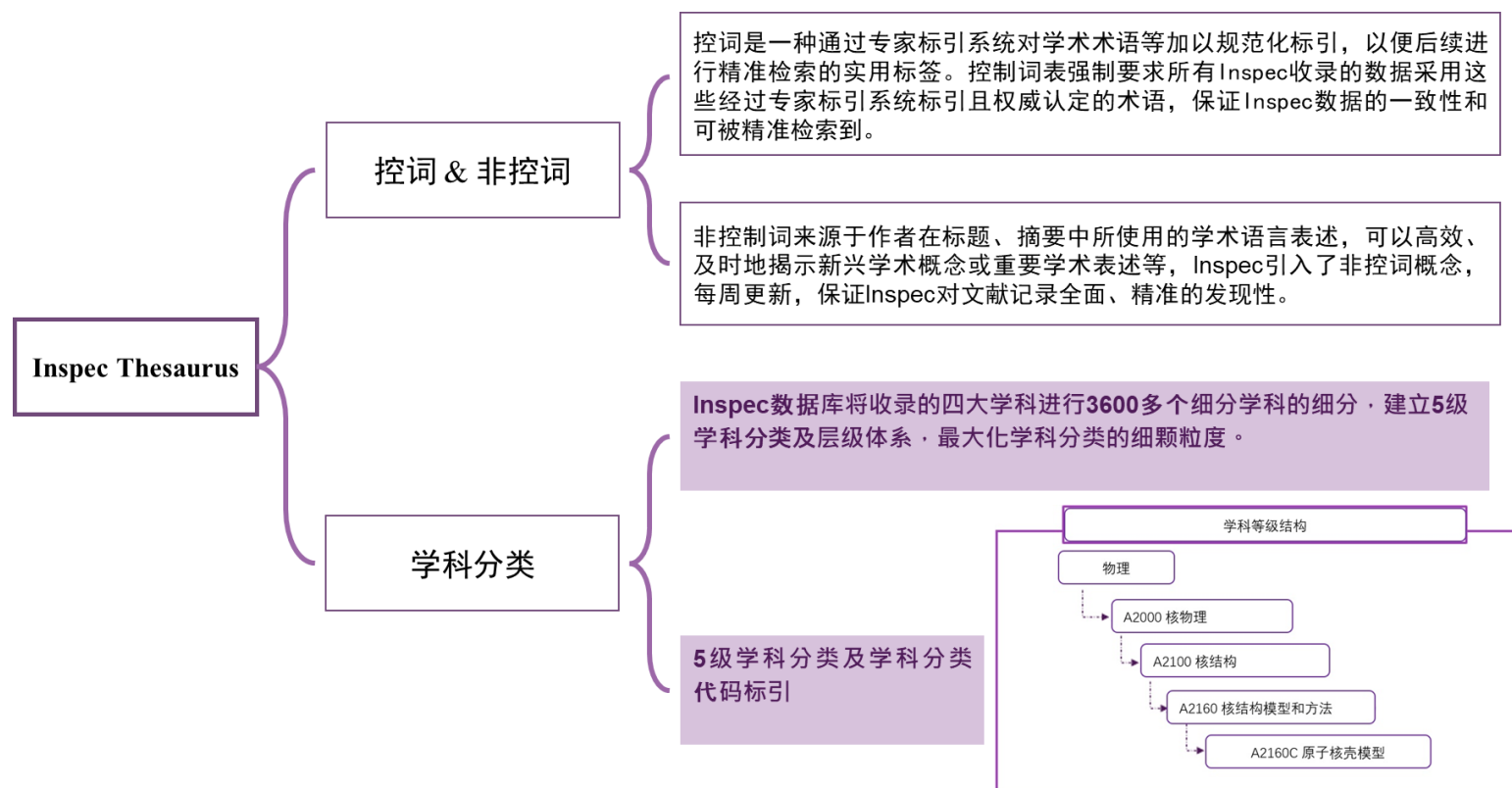
Number	Sponsor
3122023012	Ministry of Education of China
-	Civil Aviation University of China

痛点3：标准化控词—对初阶科研人员，如何查准规范的学术用语？

由于语言，文化，习惯，技术迭代，导致的表述语言的不太一致，Inspec叙词表标准化了工程术语。

作者没有提及的概念，被学科专家标引出来（拓展应用领域，研究范畴）。

Inspec底层数据深度加工—叙词表



叙词表价值案例：“magnetic levitation”

A new suppression strategy of pitching vibration based on the magnetic-electric-mechanical coupling dynamic model for superconducting EDS transport system

By Li, H.; Zhu, H.; Huang, H.; Li, H.; Deng, Z.; Zheng, J.

[View Web of Science ResearcherID and ORCID](#) (provided by Clarivate)

Source [Mechanical Systems and Signal Processing](#)

Page: 110039

DOI: 10.1016/j.ymssp.2022.110039

Published 2023

Indexed 2023-06-03

Document Type Journal Paper

Abstract

The superconducting electrodynamic suspension (EDS) system has the advantages of its low drag force, strong levitation force, large suspension force, and four pairs of superconducting coils on one bogie are dynamically coupled. The bogie tends to vibrate in the pitching axis, which affects the train safety. This paper proposes an appropriate strategy to suppress the bogie pitching vibration based on the dynamic circuit theory, energy method and rigid body dynamics. The dynamic model of eight superconducting high-field coils is established. The characteristics of fluctuating and unequal electromagnetic forces were further calculated using the Runge-Kutta method. The results were analyzed and the reasons for the vertical and pitching vibrations were verified by comparing the levitation force with the excitation current supply strategy for the superconducting coils was proposed. The results show that the total electromotive force increased by 10.5% using the exciting currents supply strategy. But the minimum and maximum rate of pitching vibration decreased by 97.00%, 95.76%, respectively. This strategy can suppress the pitching vibration of the bogie without changing the already-designed mechanical structure. This established magnetic-electric-mechanical coupling dynamic model and the suppression strategy provide reference and a new idea for the superconducting EDS system's safety, stability, and comfort. All rights reserved Elsevier.

Citation Network

In Web of Science Core Collection

17 Citations

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17 Times Cited in All Databases

[See more times cited](#)



International Patent Classification

H01F6/00 Superconducting magnets; Superconducting coils; H01F6/06 Coils, e.g. winding, insulating, terminating or casing arrangements therefor; B60L13/04 Magnetic suspension or levitation for vehicles

Subject Classification codes

[B5180W](#) Other electromagnetic device applications; [B3240E](#) Superconducting coils and magnets; [B8520](#) Transportation; [E2180D](#) Vibrations and shock waves (mechanical engineering); [E2210](#) Mechanical components

CODEN

MSSPEP

Controlled Terms

[electric potential](#); [electrodynamics](#); [electromagnetic forces](#); [maglev vehicles](#); [magnetic levitation](#); [Runge-Kutta methods](#); [superconducting coils](#); [vibrations](#)

Uncontrolled Terms

bogie pitching vibration; dynamic circuit theory; EDS transport system; ground null-flux coils; high-field coils; high-speed maglev rail transit; low drag force; magnetic-electric-mechanical coupling dynamic model; nonuniform exciting currents supply strategy; pitching axis; rigid body dynamics; strong levitation force; superconducting coils; superconducting EDS system; superconducting electrodynamic suspension train; suppression strategy; total electromotive force; train system; unequal electromagnetic forces; vertical pitching vibration

[See all](#)

该论文来自WoS核心合集的施引文献与Inspec的受控词标引高度关联。

17 results cited:

[Copy query link](#)

Citations of A new suppression strategy of pitching vibration based on the magnetic-electric-mechanical coupling dynamic model for superconducting EDS transport system

Analyze Results

Citation Report

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- ☐ Review Article 1
- ☐ Early Access 1
- ☐ Open Access 3
- ☐ Enriched Cited References 11

Publication Years

- ☐ Show Final Publication Year
- ☐ 2025 5
 - ☐ 2024 9
 - ☐ 2023 3

Document Types

- ☐ Article 16
- ☐ Early Access 1
- ☐ Review Article 1

☐ 0/17 [Add To Marked List](#) [Export](#)

1 **Dynamic Characteristics and Protection Strategy for Sup Suspension Train With Quenched Magnet**

Su, ZH; Ma, GT; (...); Feng, PJ

Apr 2025 | IEEE TRANSACTIONS ON TRANSPORTATION ELECTRIFICATION

[Enriched Cited References](#)

Superconducting magnet (SCM), as one of the key components of superconducting a critical role in load capacity and service safety. Quench behavior of SCM not only risk of accidents for the train, especially at high speeds where it becomes more dan

[Full Text at Publisher](#)

2 **Research on the Calculation Methods of the Mathematical Electrodynamic Suspension System and Experimental V**

Tan, YQ; Zhou, DF; (...); Li, J

Feb 2025 | IEEE TRANSACTIONS ON TRANSPORTATION ELECTRIFICATION

[Enriched Cited References](#)

Due to the advantages of no active control, self-stability, large clearance, and small (EDS) system has a wide range of applications in high-speed fields such as ultrahigh electromagnetic ejection, and rocket propulsion. The null-flux coil EDS system, as c

[Full Text at Publisher](#)

Analyze Results

17 publications selected from Web of Science Core Collection

Citation Topics Micro

Sort by: Results count Show: 25 Minimum record count: 1

Visualization: TreeMap Chart Number of results: 10

[Download](#)

施引文献的引文主题分析（微观）

8
7.57.2800 High-speed Train Aerodynamics

2
5.30.21 High-temperature Superconductors

在WoS平台如何使用Inspec叙词表

The screenshot displays the Clarivate Web of Science interface. At the top, the Clarivate logo and 'Web of Science' are visible. The search bar contains the term 'AI', and the results section shows '16 条结果: "AI"'. A modal window titled '返回检索' (Return Search) is open, displaying the Inspec thesaurus for 'AI'. The thesaurus lists various related terms, each with an '添加' (Add) button and a help icon (?). The terms are: AI chips, application specific integrated circuits, artificial intelligence, coprocessors, field programmable gate arrays, graphics processing units, hardware accelerators, learning (artificial intelligence), microprocessor chips, and multiprocessing systems. On the right side of the modal, there are sections for 'Prior Term(s)' and 'Related Term(s)', each with a list of terms and '添加' buttons. At the bottom of the modal, there are buttons for '清除' (Clear) and '添加到检索式' (Add to Search). The footer of the page includes the Clarivate logo, 'Accelerating innovation', copyright information, and links for data correction, privacy policy, cookie preferences, and contact.

Clarivate
Web of Science™ 检索

菜单

AI

16 条结果: "AI"

返回检索

添加 AI chips ?

添加 application specific integrated circuits ?

添加 artificial intelligence ?

添加 coprocessors ?

添加 field programmable gate arrays ?

添加 graphics processing units ?

添加 hardware accelerators ?

添加 learning (artificial intelligence) ?

添加 microprocessor chips ?

添加 multiprocessing systems ?

添加 programmable logic arrays

Prior Term(s)

添加 logic arrays

Related Term(s)

添加 AI chips

添加 field programmable analogue arrays

添加 hardware accelerators

添加 reconfigurable architectures

清除 添加到检索式

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在WoS平台如何查看Inspec叙词表

< 返回检索



8. 控词树状结构图

Top Term(s)

- 添加 pattern recognition (H)
- 添加 signal processing (H)
- 添加 user interfaces (H)

Date of Input

- January 1999

Related Classification Code(s)

- B6135E
- C0140
- C0240
- C1250M
- C5260B
- C6180
- G06K9/00

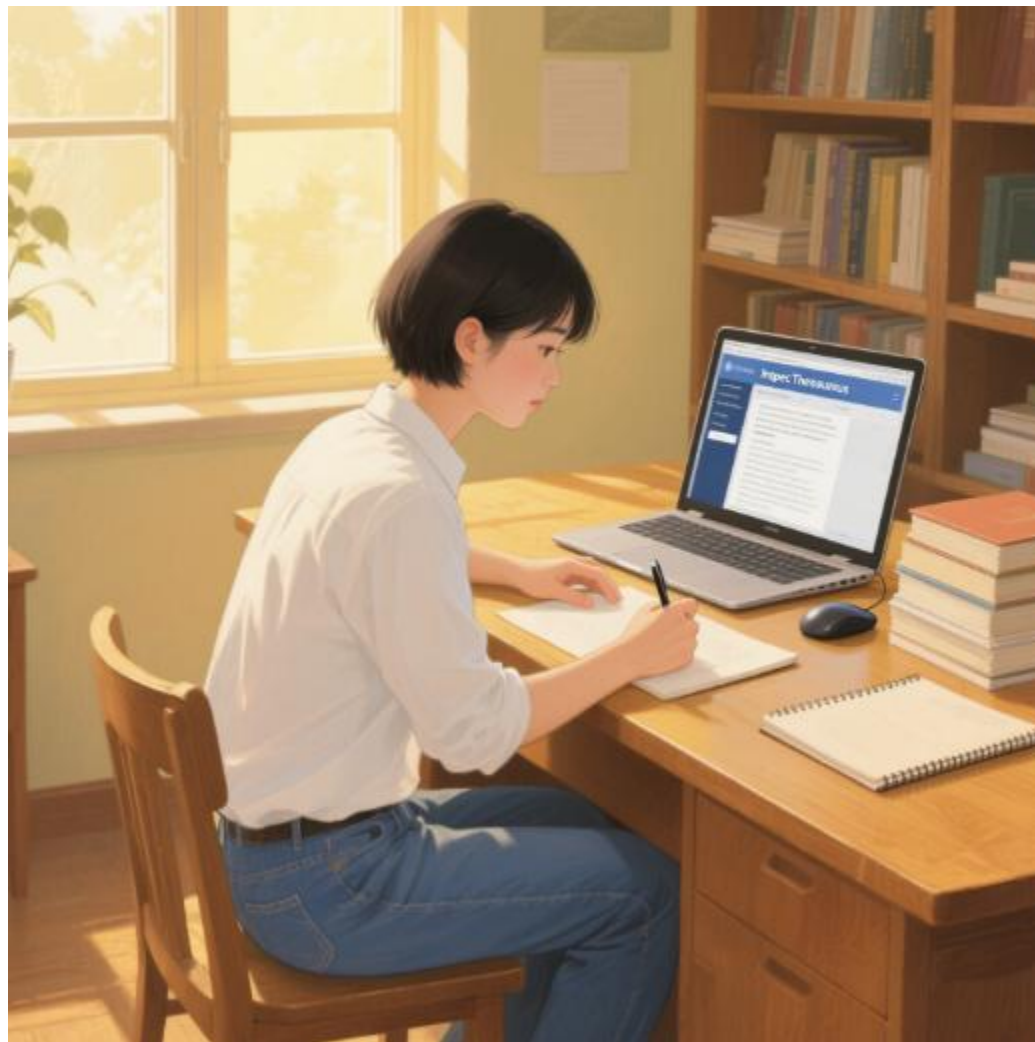
9. Inspec学科分类号

× 清除

添加到检索式

使用Inspec Thesaurus的情境示例：

当学生撰写毕业/期刊论文时，可以利用Inspec Thesaurus检查论文中使用的关键词是否为标准化的学术术语。



案例：智能电网中分布式发电系统应用逆变器实现电压控制

1. "高太阳能渗透率电网中的电压调节：以夏威夷智能逆变器部署为例"

2. 案例背景

分布式能源资源（DERs，如屋顶太阳能）的并网规模持续扩大，在夏威夷等地区尤为显著——当地某些区域的太阳能渗透率已超过60%。这种转变对传统电网管理提出了挑战，间歇性发电和反向功率流导致的电压波动问题日益突出。智能电网通过数字化技术提升稳定性，其中智能逆变器在电压控制中发挥着关键作用。

3. 问题陈述

夏威夷的高太阳能渗透率导致频繁的过电压状况，特别是在午间发电量超过需求时。传统的电压调节器和变压器分接开关无法有效应对反向电流，存在设备损坏风险和太阳能发电的被迫削减问题。

4. 解决方案：基于逆变器的电压控制

通过部署智能逆变器实现动态电压支撑，其核心机制是无功功率管理。

5. 案例研究描述

地点：夏威夷毛伊岛（2018 - 2020年前后）

电网概况：40兆瓦住宅太阳能容量，12千伏配电馈线

核心挑战：太阳能发电高峰期电压骤升高达标称值的110%



图片来源: <https://palmetto.com>

叙词表精炼检索案例：以“智能电网中分布式发电技术的基于逆变器电压控制的研究”为例

38,721 results from Inspec® for:

Q "smart grid*" (Topic)

38,721



Back to all filters

Export to Excel

Refine by Classifications

Search for Classifications

☐ Select all

☐ Power System Management Operation And Economics

15,654

☐ Power Engineering Computing

14,015

☐ Optimisation Techniques

6,817

☐ Control Of Electric Power Systems

6,059

☐ Data Security

5,594

☒ Distributed Power Generation

5,683

☒ Power System Measurement And Metering

5,347

☐ Power System Control

5,102

☐ Power Systems

4,627

☐ Computer Communications

4,075

☐ Reliability

3,979

☐ Power System Planning And Layout

2,909

☐ Power System Protection

2,766

☐ Other Topics In Statistics

2,582

☐ Transportation

2,371

☐ Neural Nets

2,157

☐ Solar Power Stations And Photovoltaic Power Systems

2,117

☐ Protocols

1,872

☐ Data Handling Techniques

1,858

☐ Cryptography

1,660

☐ Frequency Control

428

☐ Electromagnetic Compatibility And Interference

410

☐ Markov Processes

401

☐ Environmental Factors

393

☐ Reinforcement Learning

389

☐ Telecommunication Systems Energy Utilisation

386

☐ Data Acquisition Systems

377

☐ General And Management Topics

367

☐ Local Area Networks

364

☐ Control System Analysis And Synthesis Methods

353

☐ Algebra

341

☐ Dc Dc Power Convertors

340

☐ Time Series

336

☐ Computerised Instrumentation

334

☐ Software Engineering Techniques

326

☐ Signal Processing And Detection

325

☐ Plant Engineering Maintenance And Safety

304

☐ Smart Cities

299

☐ Knowledge Based Systems

292

☐ Pollution Detection And Control

288

☐ Monte Carlo Methods

279

☐ Graphics Techniques

157

☐ Mobile Robots

156

☐ Voltage Measurement

155

☐ Data Acquisition Systems For Control

154

☐ Optical Fibre Networks

150

☐ Synchronous Machines

150

☐ Formal Methods

148

☐ Direct Energy Conversion And Energy Storage

146

☐ Microprocessors And Microcomputers

145

☐ Other Numerical Methods

145

☐ Power Utilisation

143

☐ Image Recognition

137

☐ Intelligent Sensors

134

☐ Multiple Access Communication

132

☐ Telecommunication Applications

132

☐ Nonlinear Control Systems

130

☐ Computer Facilities

129

☐ Financial Computing

126

☐ Other Distributed Systems Software

125

☐ Refrigeration And Cooling Energy Utilisation

124

☐ Public Utility Administration

121

Results count

Alphabetical

Cancel

Exclude

Refine

Back to all filters

Export to Excel

Refine by Controlled Terms

Search for Controlled Terms

☐ Select all

☐ energy storage

347

☐ Distribution Networks

513

☐ Power Distribution Control

483

☐ Power Switching Quality

444

☐ Pricing

392

☒ Voltage Control

364

☐ Power System Interconnection

324

☐ Electric Vehicles

317

☐ Load Flow

314

☐ Power Generation Scheduling

299

☐ Power System Stability

292

☐ Power Distribution Faults

288

☐ Power System Security

276

☐ Power Distribution Economics

272

☐ Power Distribution Reliability

266

☐ Inverters

263

☒ Battery Powered Vehicles

251

☐ Power System Management

250

☐ Electric Vehicle Charging

240

☐ Wind Power Plants

238

☐ Battery Storage Plants

234

☐ Multi Agent Systems

229

☐ Power Generation Dispatch

221

☐ Reviews

143

☐ Secondary Cells

93

☐ Solar Power

93

☐ Tariffs

93

☐ Air Pollution Control

92

☐ Power System Interconnection

90

☐ Probability

90

☐ Data Privacy

89

☐ Optimal Control

88

☐ Scheduling

88

☐ Power Transformers

87

☐ Relay Protection

86

☐ Wind Power

86

☐ Energy Resources

84

☐ Phasor Measurement

84

☐ Power System Reliability

83

☐ Power Control

82

☐ Computer Network Security

80

☐ Substations

79

☐ Load Management

78

☐ Stochastic Processes

78

☐ Electricity Supply Industry

77

☐ Artificial Intelligence

76

☐ Government Policies

45

☐ Robust Control

45

☐ Iterative Methods

44

☐ Power System Protection

44

☐ Fuzzy Set Theory

43

☐ Open Systems

43

☐ Overcurrent Protection

43

☐ Sensitivity Analysis

43

☐ Fault Currents

42

☐ Regression Analysis

42

☐ Time Series

42

☐ Graph Theory

41

☐ Hardware In The Loop Simulation

40

☐ Pattern Clustering

40

☐ Data Acquisition

39

☐ Power Distribution

39

☐ Battery Management Systems

38

☐ Big Data

38

☐ Costing

38

☐ Supply And Demand

38

☐ Voltage Regulators

38

☐ Circuit Breakers

37

☐ Data Analysis

37

Results count

Alphabetical

Cancel

Exclude

Refine

通过叙词表精炼，消除99%的检索噪音（不相关记录），精准定位所需文献。

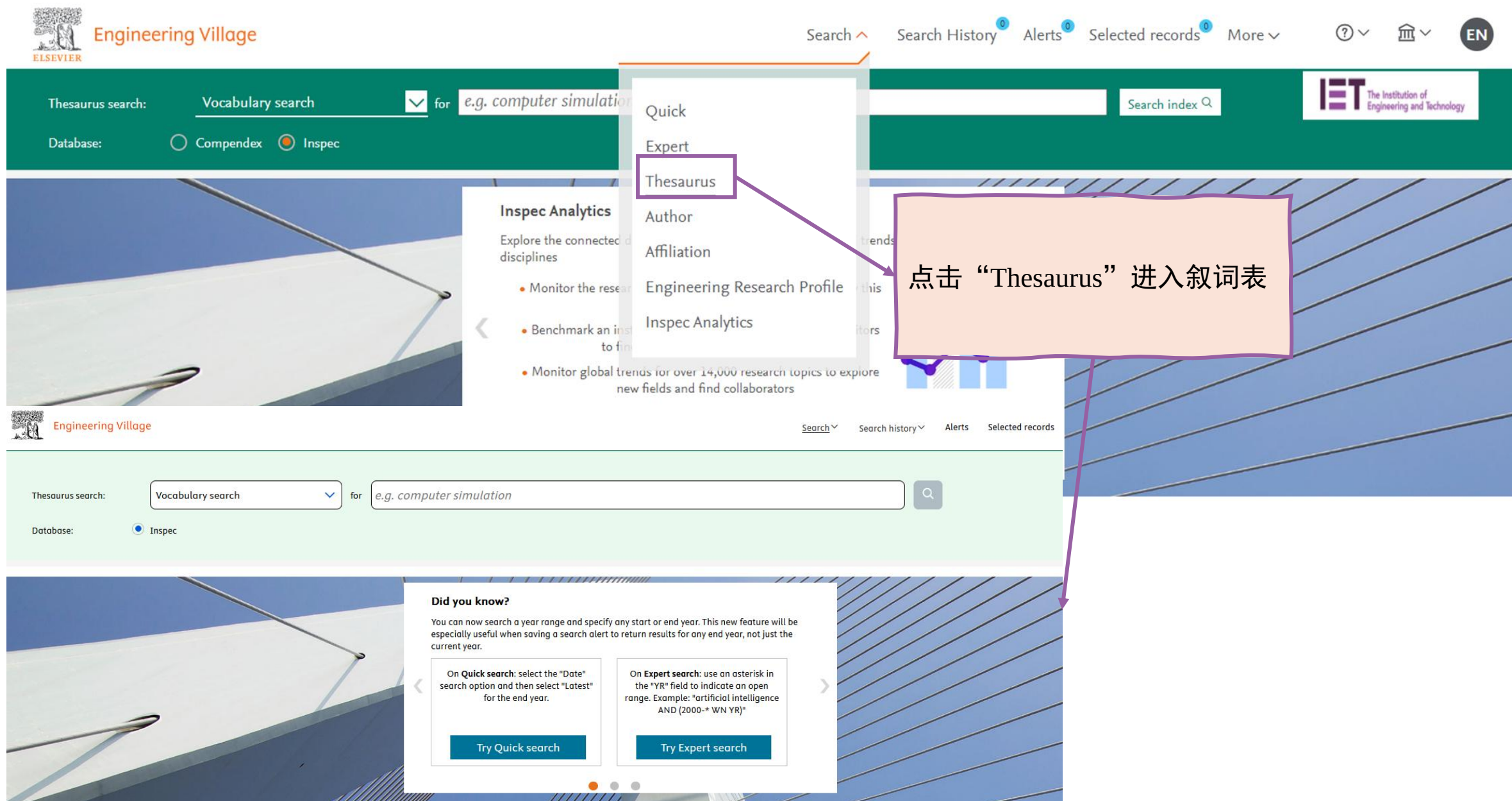
563

563 results from Inspec® for:

Q "smart grid*" (Topic)

Refined By: Classifications: Distributed Power Generation X Controlled Terms: Voltage Control or Invertors X Clear all

*基于Web of Science平台，检索结果截止于2025年5月



The screenshot displays the Engineering Village website interface. At the top, the Engineering Village logo and navigation links (Search, Search History, Alerts, Selected records, More) are visible. The main search bar is set to "Vocabulary search" for the database "Inspec". A dropdown menu is open, showing options: Quick, Expert, Thesaurus, Author, Affiliation, Engineering Research Profile, and Inspec Analytics. A red box highlights the "Thesaurus" option, with an arrow pointing to it and the text "点击 'Thesaurus' 进入叙词表". Below the search bar, there is a section for "Inspec Analytics" and a "Did you know?" section with instructions on how to use the search features.

Engineering Village

Search Search History Alerts Selected records More

Thesaurus search: Vocabulary search for e.g. computer simulation

Database: ☐ Compendex ☒ Inspec

Quick
Expert
Thesaurus
Author
Affiliation
Engineering Research Profile
Inspec Analytics

点击 "Thesaurus" 进入叙词表

Engineering Village

Thesaurus search: Vocabulary search for e.g. computer simulation

Database: ☒ Inspec

Did you know?

You can now search a year range and specify any start or end year. This new feature will be especially useful when saving a search alert to return results for any end year, not just the current year.

On Quick search: select the "Date" search option and then select "Latest" for the end year.

On Expert search: use an asterisk in the "YR" field to indicate an open range. Example: "artificial intelligence AND (2000-* WN YR)"

Try Quick search Try Expert search

叙词表精炼检索案例：以"机器学习在无人机飞行路径规划中的应用"为例

Quick search

All fields

for

"autonomous aerial vehicle*" OR drone* OR "UAV*" OR "unmanned aerial

Q

26,349



Classification code

Filter results: Start typing to filter results

☐ Mobile robots	14,799	☐ Other topics in solid Earth physics	759
☐ Aerospace control	10,500	☐ Data handling techniques	746
☐ Computer vision and image processing techniques	8,543	☐ Radio links and equipment	735
☐ Optical, image and video signal processing	6,276	☐ Control system analysis and synthesis methods	702
☐ Telerobotics	6,209	☐ Signal processing and detection	666
☐ Spatial variables control	3,774	☐ Protocols	664
☒ Neural nets	3,679	☐ Radionavigation and direction finding	662
☐ Control engineering computing	2,737	☐ Aerospace industry	662
☐ Optimisation techniques	2,732	☐ Fluid mechanics and aerodynamics	643
☐ Instrumentation and techniques for geophysical, hydrospheric and lower atmosphere research	2,564	☐ Knowledge engineering techniques	631
☐ Image recognition	2,486	☐ Traffic engineering computing	617
☐ Mobile radio systems	2,432	☐ Graphics techniques	615
☐ Data security	1,823	☒ Reinforcement learning	603
☐ Optimisation techniques	1,678	☐ Stability in control theory	583
☐ Computer communications	1,463	☐ Geography and cartography computing	560
☐ Agriculture	1,454	☐ Inspection and quality control	541
☐ Geophysical techniques and equipment	1,300	☐ Biology and medical computing	538
		☐ Internet software	517
		☐ Optical radar	506

View: 10 60 Max

Limit to Exclude



Controlled vocabulary

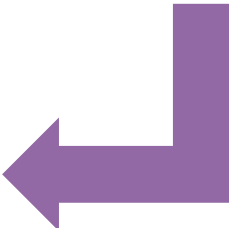
Filter results: Start typing to filter results

☐ Geophysical Image Processing	537	☐ Diseases	126
☐ Reinforcement Learning	534	☐ Image Capture	126
☐ Control Engineering Computing	511	☐ Helicopters	121
☐ Robot Vision	433	☐ Aerospace Computing	119
☐ Neural Nets	416	☐ Infrared Imaging	119
☐ Image Segmentation	389	☐ Power Engineering Computing	115
☐ Computer Vision	385	☐ Multi-Robot Systems	112
☐ Cameras	288	☐ Disasters	111
☐ Agriculture	278	☐ Edge Computing	108
☐ Image Resolution	267	☐ Data Augmentation	96
☐ Remote Sensing	250	☐ Support Vector Machines	94
☐ Crops	239	☐ Supervised Learning	89
☐ Optimisation	230	☐ Emergency Management	87
☐ Recurrent Neural Nets	223	☐ Gradient Methods	87
☐ Inspection	218	☐ Object Recognition	84
☐ Image Colour Analysis	205	☐ Condition Monitoring	82
☒ Path Planning	201	☐ Image Motion Analysis	77
☐ Video Signal Processing	180	☐ Computer Network Security	73
☐ Collision Avoidance	172	☐ Image Sensors	73
☐ Pattern Classification	171	☐ Target Tracking	73
		☐ Video Surveillance	73

View: 10 60 Max

Limit to Exclude

201



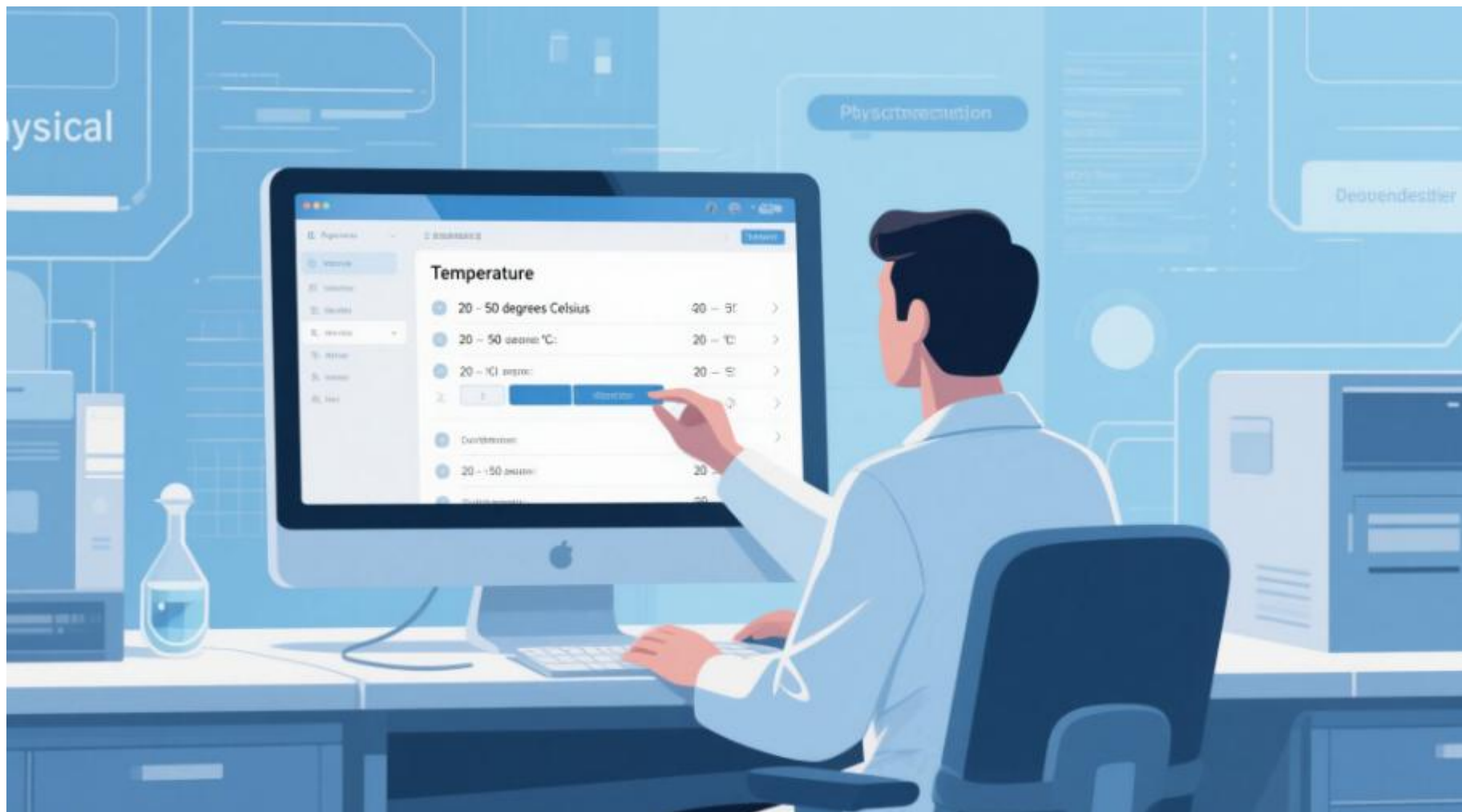
Expert search

((("autonomous aerial vehicle*" OR drone* OR "UAV*" OR "unmanned aerial vehicle*") WN ALL)) AND (((c6264} OR {c6263}) WN CL)) AND ({path planning} WN CV))

Reset form

*检索结果截止于2025年5月，数据来源于EV平台Inspec数据库

在检索涉及物理量及其数值区间的相关文献时面临的挑战



Inspec底层数据深度加工—数值索引

- 数值检索字段包含文献中涉及物理量参数。可使用科学计数法（如2.65E+10Hz）和普通计数法(如26500000000Hz)进行数值输入，较大数值建议使用科学计数法，以保证准确。每一个数值索引字段格式包含：

物理量	数值	单位
-----	----	----
- 检索设置规则：
 - ❖ 如果在左侧检索框中输入一个数值，而右侧空缺，表示检索范围为大于或等于左侧输入数值。
 - ❖ 如果在右侧检索框中输入一个数值，而左侧空缺，表示检索范围为小于或等于右侧输入数值。
 - ❖ 如果在左侧和右侧输入相等的数值，表示检索范围为等于输入数值。
 - ❖ 如果两侧输入不同的数据，则表示搜索范围在两者之间。

Inspec – 数值索引包含的物理量及单位		
• 年龄（年）	• 电子伏特能量（电子伏特）	• 辐射吸收剂量（戈雷）
• 海拔（米）	• 能量（焦耳）	• 辐射剂量当量（西弗）
• 视在功率（伏安）	• 频率（赫兹）	• 辐射暴露（库仑每公斤）
• 带宽（赫兹）	• 增益（分贝）	• 放射性（贝克勒尔）
• 比特率（每秒字节数）	• 银河距离（秒差距）	• 无功功率（乏）
• 字节率（每秒字节数）	• 地心距离（米）	• 电阻（欧姆）
• 电容（法拉）	• 日心距离（天文单位）	• 尺寸（米）
• 计算机执行率（每秒指令数）	• 损失（分贝）	• 恒星质量（太阳质量）
• 计算机速度(每秒浮点运算次数)	• 磁通密度（特斯拉）	• 存储容量（字节）
• 电导（西门子）	• 质量（公斤）	• 温度（开尔文）
• 电流（安培）	• 内存大小（字节）	• 时间（秒）
• 深度（米）	• 噪声系数（分贝）	• 速度（米每秒）
• 距离（米）	• 图片尺寸（图片元素）	• 电压（伏特）
• 效率（百分比）	• 功率（瓦特）	• 波长（米）
• 电导率（西门子每米）	• 压力（帕斯卡）	• 字长（字节）
• 电阻率（欧姆·米）	• 打印机速度（每秒字符数）	

19,904 results from Inspec® for:

Q "Insulated Gate Bipolar Transistor*" or "IGBT*" (Topic)

19,904 条记录

Search

Stellar Mass (Solar Mass)

Storage Capacity (Bit)

Temperature (Kelvin)

Time (Second)

Velocity (Meters Per Second)

Voltage (Volt)

Wavelength (Meter)

Word Length (Bit)

Voltage (Volt)

You can specify a minimal value (left-hand field), a maximum (right hand-field) or a range (both fields).

You can input values in the format 1.0E+02 or 0.005.

Examples:

2.0E+04 to 2.5E+04

5.1E+06 to 7.9E+06

219 results from Inspec® for:

Q "Insulated Gate Bipolar Transistor*" or "IGBT*" (Topic) and 2.5E+3 3E+3 (Voltage (Volt))

219 条记录

*基于Web of Science平台，
检索结果截止于2025年5月

在检索材料及材料系统（如半导体材料SiC等）相关文献时面临的挑战



Inspec底层数据深度加工—化学索引

分析方法—化学索引介绍：Inspec数据库将文献中讨论的物质和材料系统的信息进行标引。总体可分为两种角色类型：基本角色和功能角色。基本角色是对物质涉及化学信息的基本描述，即物质本身是由几种元素组成。功能角色是对物质涉及的材料工艺进行描述，即物质之间的相互关系，如掺杂、基质等。

物质角色说明

基本角色	缩写	例子	功能角色 (特殊工艺角色)	缩写	例子
Element（单元素）	EL	Na/el	Adsorbate（吸附物）	ADS	CO/ads
Binary System（双元素）	BIN	GaN/bin	Dopant（掺杂物）	DOP	P/dop
System of >2 components（多于2个元素）	SS	H2SO4/ss	Interface System（界面系统）	INT	Si/int
			Surface/Substrate（表面/基质）	SUR	Fe/sur

19,266 results from Inspec® for:

Q "insulated gate bipolar transistor*" or IGBT (Topic)

19,266 条记录

Search

Astronomical Object

Author Identifiers

All Chemical Roles

Subject Classification Codes

Controlled and Uncontrolled Terms

Controlled Terms

Document Type

Editor

All Chemical Roles

The Chemical role field contains controlled data on the significant substances and materials systems discussed in source documents. Organic substances are not covered.

Examples:

Ni/el

Rh/el

C/bin

Cu2O/bin



1,828 results from Inspec® for:

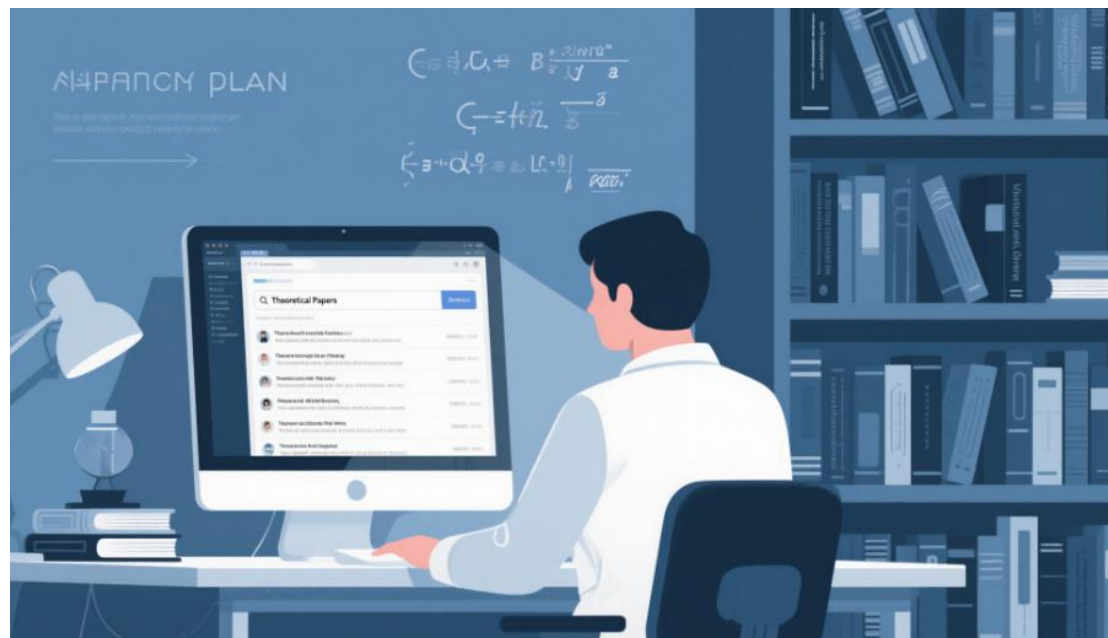
Q "insulated gate bipolar transistor*" or IGBT (Topic) and SiC/bin (All Chemical Roles)

1,828 条记录

*基于Web of Science平台，检索结果截止于2025年5月

不同的研究阶段，需要检索和阅读的不同文献。

早期阶段，文献主要关注理论或数学模型方面。



后期阶段，文献主要关注实验方法或应用领域方面。



Inspec底层数据深度加工—文档处理类型

处理类型	解释
Applications (a) /应用型	源文件中描述仪器、设备等的使用，涉及应用场景
Bibliography or Literature Survey (b) 书目或文献调查	参考文献超过50种的文章
Economic Aspects or Market Survey (e) 经济因素或市场调查	源文件涉及经济或商业方面，如成本、定价、市场预测等
General or Review Article (g) 综述文章	对某领域发展的总体回顾和总结，包含方法、最前沿的评论、概述等。对于想要对不熟悉主题领域进行研究的科研人员很有价值
New Developments (n) 新进展	专利意义上的任何新的或新颖的内容，或者可能产生某些专利的文章（查看文献时注意出版时间）
Practical Aspects (p)/实践型	实际使用和手工操作相关
Product Review (r) 产品评述	上述实践型的子集，包括产品规格和使用指南等
Theoretical Aspects or Mathematical Treatment (t)/理论型或数学解析	理论和数学分析方法，分析事实及其相互关系
Experimental Aspects (x)/试验型	涉及测试、试验、试行程序或政策的内容

使用文档处理类型（Treatment Type”）对检索结果进行分类

Search

Identifying Codes

Language

Meeting Information

PubMed ID

Treatment Type

Numerical Data

Age (Year)

Treatment Type

This field indicates the type of approach the authors have adopted to the subject of their publication. You may limit your search by selecting a single treatment type or multiple treatment types.

Examples:
New Development
Application
Bibliography
Economic

4,002 results from Inspec® for:

Q "smart grid*" (Topic)

Copy query link

Topic

Example: Radioactive Decay
"smart grid*"

And

Treatment Type

+ Add row

+ Add date range

Quick Filters

Highly Cited Papers

18

Application

Bibliography

Economic

General or Review

New Development

Practical

Search > Results for "smart grid*" (T... > ... > Refine results for "smart gri... > Refine results for "smart grid*" (Topic) AND Experimental (Treatment Type) ...

89 results from Inspec® for:

Q "smart grid*" (Topic) and Experimental (Treatment Type)

Copy query link

Topic

Example: Radioactive Decay
"smart grid*"

And

Treatment Type

Experimental

+ Add row

+ Add date range

Advanced search

Clear

Search

使用Inspec文档处理类型对检索结果按照研究方法进行分类



Engineering Village

Search ▾

Search history ▾

Alerts

Selected record

Expert search

((((("autonomous aerial vehicle*" OR drone* OR "UAV*" OR "unmanned aerial vehicle*") WN ALL)) AND ({c6264} OR {c6263}) WN CL)) AND ({path planning} WN CV))



Reset form

Databases ▾

Date ▾

Sort by ▾

Autostemming ▾

Search codes

Author ↗

Document type ↗

Source title ↗

Author affiliation ↗

IPC Code ↗

Treatment ↗

201 records found in Inspec for 1896-2025: ((("autonomous aerial vehicle*" OR drone* OR "UAV*" OR "unmanned aerial vehicle*") WN ALL)) AND ({c6264} OR {c6263}) WN CL AND ({path planning} WN CV)

Create alert

Save search

Share search

RSS feed

Refine

By physical property

Filter results by physical properties such as size, temperature, pressure and [many more](#).

Preprint articles are in



Engineering Village - Browse In...

www.engineeringvillage.com

Selected index: Treatment type ▾

Select terms below to add to search

Connect terms with: ☐ AND ☒ OR

- ☐ APP - Applications (Inspec)
- ☐ BIB - Bibliography (Inspec)
- ☐ ECO - Economic (Inspec)
- ☐ EXP - Experimental (Inspec)
- ☐ GEN - General review (Inspec)
- ☐ NEW - New development (Inspec)
- ☐ PRA - Practical (Inspec)
- ☐ PRO - Product review (Inspec)
- ☐ THR - Theoretical (Inspec)

Discipline ↗

Publisher ↗

{c6264} OR {c6263}) WN CL ✕

Sort by: {

type. [Learn more](#)

Inspec的IPC/CPC专利分类号索引在非专利文献检索中的作用

- 在**非专利文献检索**领域，往往能够运用的数据库和检索方法很少，在Inspec底层数据中所标引的IPC国际专利分类，能够填补非专利文献检索领域的空白，可以保证专利审查员、工程技术人员在专利查新中有非专利文献支持，同时配合Inspec独特的叙词、数值、化工检索等字段，能够快速准确定位相关文献

Inspec是**唯一**标引IPC和CPC分类号的文摘索引数据库

支持使用IPC和CPC对**非专利文献**进行检索

国际专利分类（IPC）

欧洲专利分类号(ECLA)

美国专利分类号（CCL）

日本的分类法（FI/F-term）

联合专利分类（CPC）

...

-A部—人类生活必需（农、轻、医）

-B部—作业、运输

-C部—化学、冶金

-D部—纺织、造纸

-E部—固定建筑物（建筑、采矿）

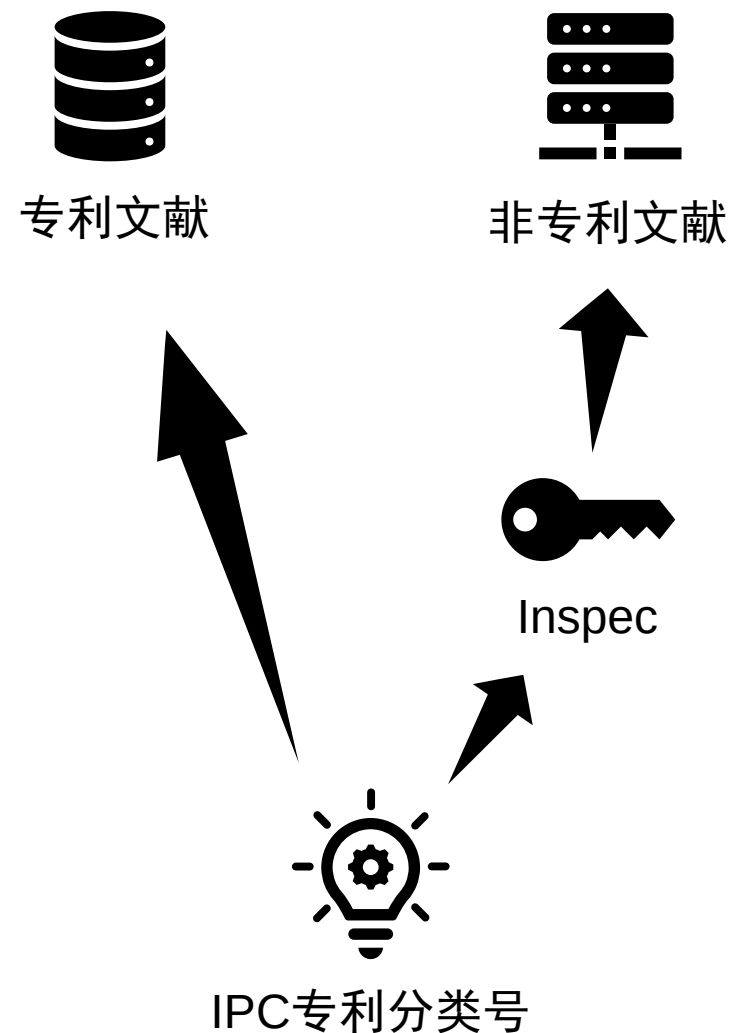
-F部—机械工程

-G部—物理

-H部—电学

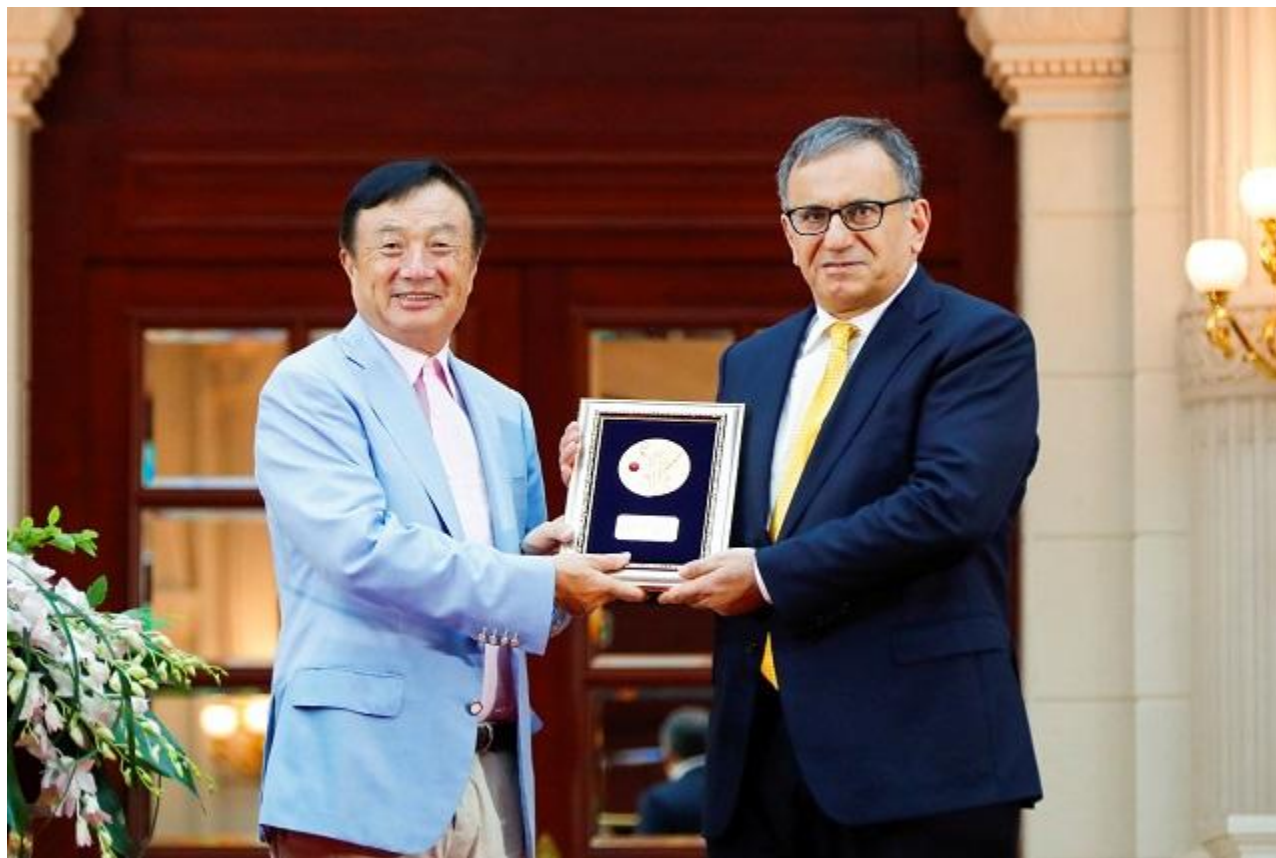
*全面覆盖，红色为Inspec重点覆盖领域

*随着CPC分类的更多应用，Inspec也在2023年开始对记录进行CPC分类代码标引



Inspec数据库IPC/CPC应用案例: 通过对科学论文的主题分析挖掘潜在的专利机会。

华为研究了土耳其教授Erdal Arikan的论文《极化码与里德-穆勒码的性能比较》（DOI: 10.1109/LCOMM.2008.080017），以识别潜在的专利机会。这涉及对科学文献进行主题分析，并将其与潜在的专利领域相关联。



图片来源：华为

文献检索第一课，全面了解研究课题——使用Web of Science / Engineering Village上的Inspec Analytics Plus实现文献/研究情报“一键查全”。



Welcome to Inspec Analytics

Explore the interconnected data within Inspec to uncover patterns and trends in engineering, computing & physics research to understand your place in a global landscape. With these precision research analytics, you can set the direction for your research outputs and monitor their impact.

Search for an Organisation, Subject classification or Controlled term

Search

C

34,771

Organisations

Monitor the research output for your organisation and compare trends with collaborators and competitors.

3,601

Subject classifications

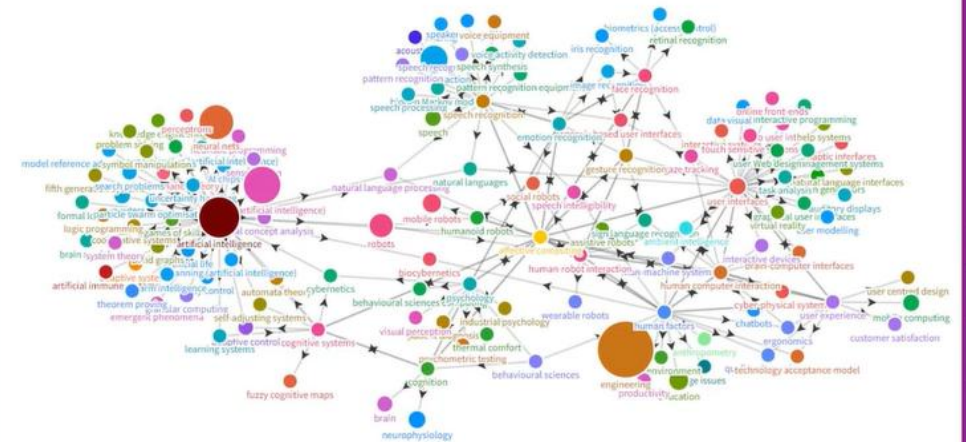
Explore our subject classifications to identify global trends for high-level research areas or niche fields.

10,125

Controlled terms

Discover emerging topics related to your field, find collaboration opportunities and identify relevant publications.

Inspec terms cluster of "Affective Computing"



Source: IET INSPEC

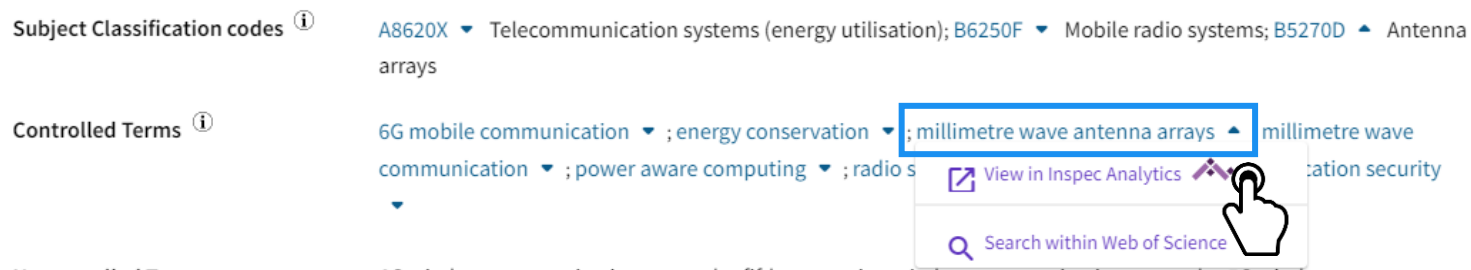
IET Inspec

Semantic Technology

Inspec用户可以直接在WoS上点击标引字段进入Inspec Analytics获取科研洞察

1

在Inspec数据库中定位相关论文

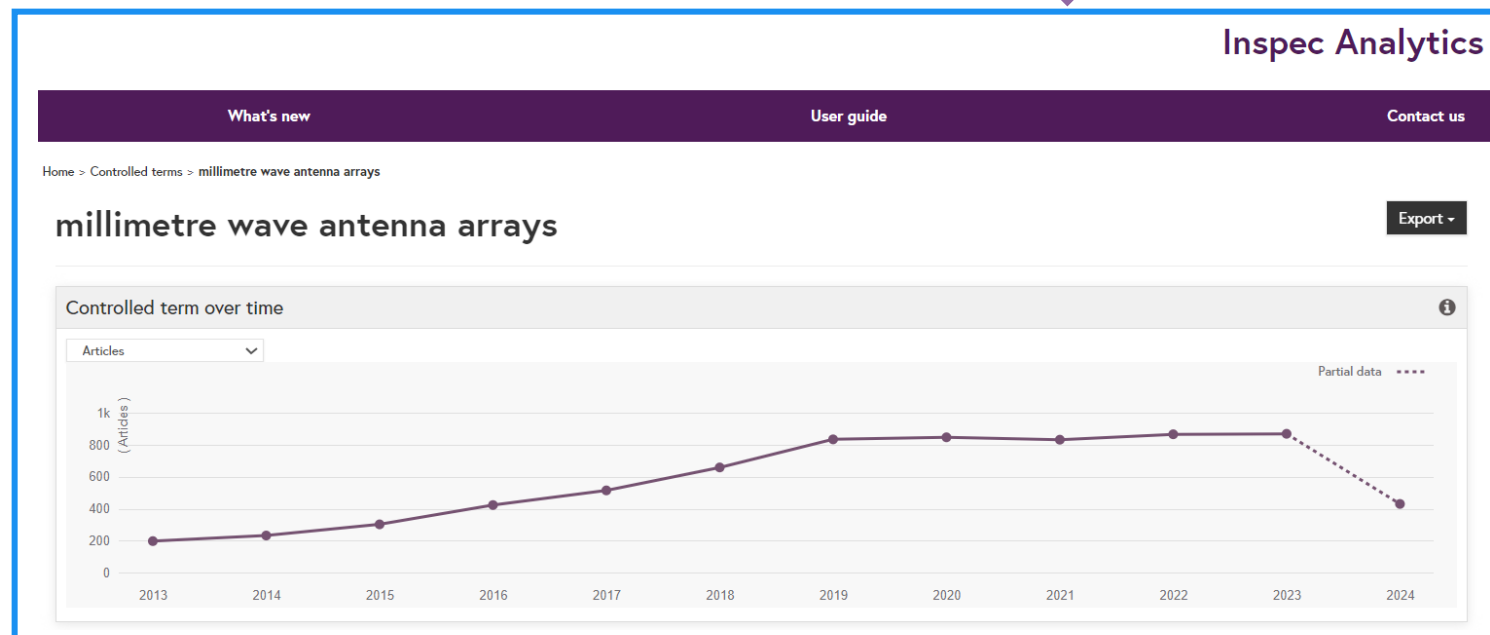


2

访问Inspec Analytics的直接链接以进行更深入的分析

3

在Inspec Analytics中跟踪更广泛的科研发文趋势



Inspec Analytics集成到WoS平台后, Inspec的记录结果页面

International Patent Classification G02F2/02 "Frequency-changing of light, e.g. by quantum counters"; G02F1/37 for second-harmonic generation

Subject Classification codes ① A4280W ▾ Ultrafast optical techniques; A3150 ▾ Excited states of atoms and molecules; A3280D ▾ Atomic autoionization; A3280F ▴ Atomic photoionization, photodetachment, photoelectron spectra; A4265K ▾ Optical harmonic generation, frequency conversion, parametric oscillation and amplification

CODEN PNASAG

Controlled Terms ① atom-photon collisions ▾ ; autoionisation ▾ ; dark states ▾ ; high-speed optical techniques ▴ ; optical harmonic generation ▾ ; spectral line breadth ▾

Uncontrolled Terms 2 dark state; attosecond extreme-ultraviolet pulse; attosecond p etra; attoseconds timescale; controlling laser-dressed resonance line shape; Cooper minimum; Fano resonance; gas medium; gas target; high-harmonic generation; narrow resonances; p autoionizing state; p Fano line shape; predicted ATA spectral line shape; rapid phase variation; sharp spectral features; spectral filtering; spectral minimum; strongly shaped attosecond XUV; strongly shaped XUV pulse; time 2.0 s; time delay; time domain; time-delayed infrared laser

Language English

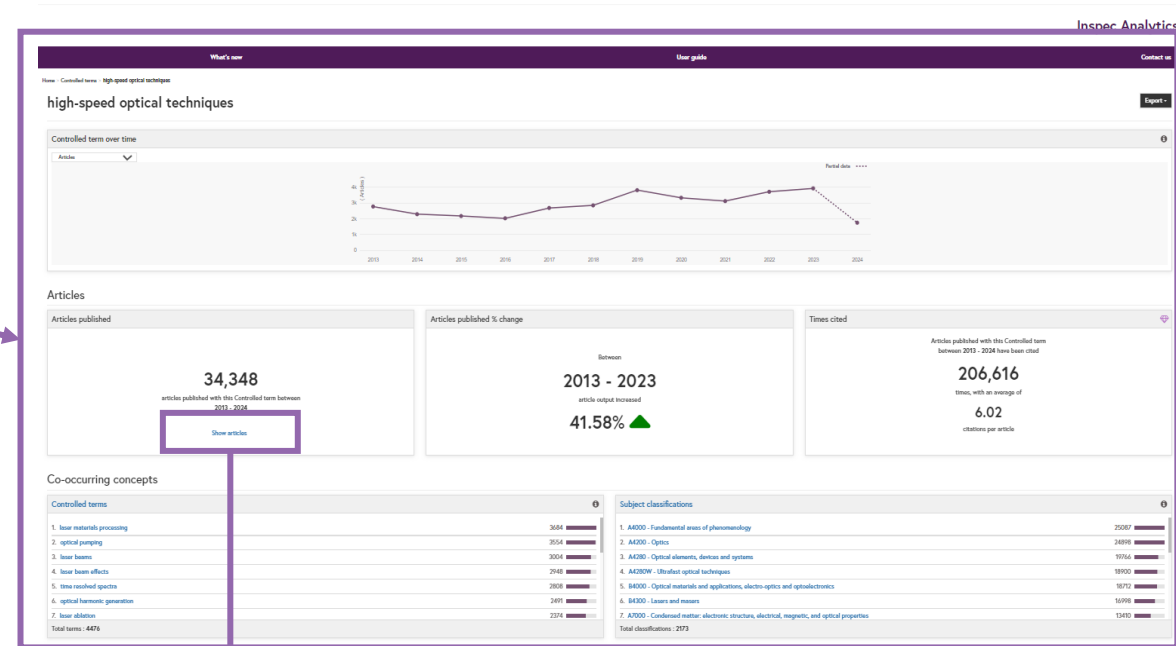
Accession Number INSPEC:24621353

PubMed ID 38170749

ISSN

Treatment

Numerical



*在Inspec Analytics平台点击“show articles”，返回WoS检索Inspec数据库的文献

在EV平台便捷使用Inspec Analytics Plus，挖掘科研洞察



Engineering Village

Search ^

Search history 50

Alerts 0

Selected records 1

More v

7

CL

Inspec Analytics

IET The Institution of Engineering and Technology

Welcome to Inspec Analytics

Explore the interconnected data within Inspec to uncover patterns and trends in engineering, computing & physics research to understand your place in a global landscape. With these precision research analytics, you can set the direction for your research outputs and monitor their impact.

Organisations

Controlled terms

Subject classifications

Search for an Organisation, Subject classification or Controlled term

Search



34,183

Organisations

Monitor the research output for your organisation and compare trends with collaborators and competitors.

3,588

Subject classifications

Explore our subject classifications to identify global trends for high-level research areas or niche fields.

10,084

Controlled terms

Discover emerging topics related to your field, find collaboration opportunities and identify relevant publications.

Inspec Analytics—发文机构 (武汉大学)

Wuhan University [view online](#)

Wuhan, China
academic

Report generated from year 2013 to 2025

Rank & Articles published

Rank **24 of 45881** organisations by article output, based upon **53265** articles published from **2013 - 2025**

Articles published % change

Between 2013 - 2023 article output increased **203.29%**

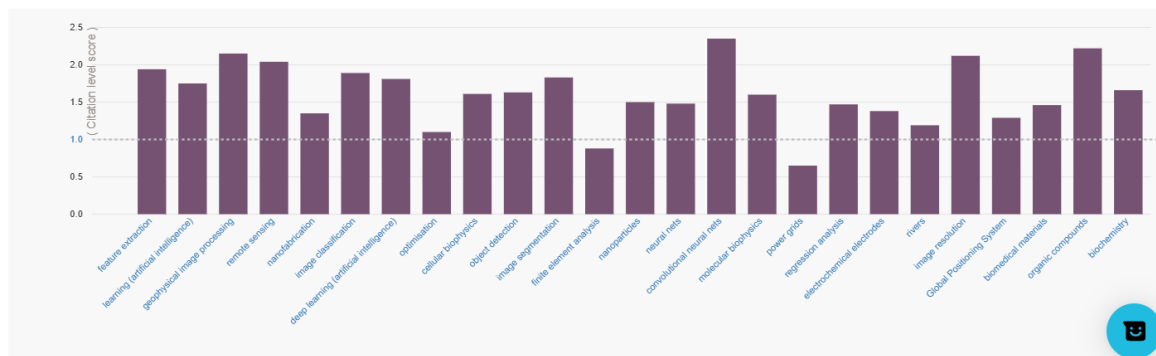
Times cited

Articles published at this Organisation between **2013 - 2025** have been cited **478544** times, with an average of **8.98** citations per article

Controlled term citation level score

Inspec Analytics Plus

Citation Level Score: Shows how an organisations average citations on a subject compare to the global average for the subject, as shown on the Concept pages. This can help identify areas where an organisation is outperforming or underperforming in citation impact for specific subjects. A Citation Level Score of 1.0 means the average citations for a Subject Classification or Controlled Term is exactly at the global average level.



Top controlled Terms

#	Controlled term	Articles	Citation Level Score	Global rank (Rank applicable from 2013 - 2025)
1	feature extraction	4611	1.94	6 of 13611
2	learning (artificial intelligence)	4029	1.75	15 of 17238
3	geophysical image processing	3613	2.15	2 of 8065
4	remote sensing	3602	2.04	2 of 8625
5	nanofabrication	2581	1.35	44 of 14276
6	image classification	2390	1.89	2 of 12284
7	deep learning (artificial intelligence)	2203	1.81	12 of 13367
8	optimisation	1991	1.10	27 of 13311
9	cellular biophysics	1826	1.61	16 of 14852
10	object detection	1773	1.63	12 of 8991
11	image segmentation	1727	1.83	4 of 10451
12	finite element analysis	1631	0.88	26 of 10701
13	nanoparticles	1584	1.50	33 of 13201
14	neural nets	1551	1.48	15 of 12994
15	convolutional neural nets	1519	2.35	9 of 11288
16	molecular biophysics	1462	1.60	24 of 14744
17	power grids	1431	0.65	10 of 7126
18	regression analysis	1423	1.47	5 of 15519
19	electrochemical electrodes	1372	1.38	49 of 9192
20	rivers	1346	1.19	3 of 8519
21	image resolution	1322	2.12	2 of 7396
22	Global Positioning System	1296	1.29	1 of 5890
23	biomedical materials	1276	1.46	18 of 11632
24	organic compounds	1275	2.22	49 of 14452
25	biochemistry	1212	1.66	20 of 13269

Total terms : 6941

Inspec Analytics—键获取主题的文献情报

以 “**photovoltaic power systems**” 为例

Journals

#	Journal
1	Energies
2	Renewable Energy
3	Solar Energy
4	IEEE Access
5	Applied Energy
6	Energy
7	Energy Conversion and
8	Renewable & Sust
9	Journal of Physics: Cor
10	AIP Conference Procee
11	Sustainability
12	IOP Conference Series:
13	IET Renewable Power C
14	IEEE Transactions on Ir
15	IEEE Transactions on P
16	Energy Reports
17	IOP Conference Series:
18	Journal of Energy Stora
19	Applied Sciences
20	E3S Web of Conference

Total journals : 1453

Conferences

#	Conference	Articles
1	2017 IEEE 44th Photovoltaic Specialist Conference (PVSC)	236
2	28th European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC 2013). Proceedings	152
3	33rd European Photovoltaic Solar Energy Conference and Exhibition. Proceedings of the International Conference	150

Page 5 of 6

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PDF created on Sun May 04 2025 11:44:05 GMT+0800 (China Standard Time)

#	Conference	Articles
4	2024 IEEE 52nd Photovoltaic Specialist Conference (PVSC)	146
5	2020 47th IEEE Photovoltaic Specialists Conference (PVSC)	143
6	29th European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC 2014)	142
7	2021 IEEE 48th Photovoltaic Specialists Conference (PVSC)	138
8	31st European Photovoltaic Solar Energy Conference 2015 (EUPVSEC)	135
9	2019 IEEE 46th Photovoltaic Specialists Conference (PVSC)	132
10	2023 IEEE 50th Photovoltaic Specialists Conference (PVSC)	132

1. 主题词检索（通过叙词表确定标准的关键词）

检索案例1（Web of Science平台）：假设你正在研究“光伏并网场景下逆变器对电压波动（过电压/低电压）的主动调节技术”的

相关技术，并希望找到以下内容的文献：

1. 学科范围：光伏电力系统，光伏电站。
2. 研究主题：电网，电压调节，电压控制。
3. 系统参数特性：电压（ $V < 3 \text{ kV}$ ）。
4. 电力电子部件材料：碳化硅（SiC）

The screenshot displays the search results for the query "renewable energy source*" on the Web of Science platform. The interface shows 101,318 results. On the left, there are options to refine results and a list of quick filters including Highly Cited Papers (1,614), Hot Papers (37), and Open Access (31,742). The main results area shows the first result, "Utilization of renewable energy sources for power generation in Iran" by Fadai, D., published in Renewable & Sustainable Energy Reviews in 2007. The result has 49 citations and 3 references. The interface also includes buttons for adding to a marked list, exporting, and sorting by relevance.

Search > Results for "renewable energy source*" (Topic)

101,318 results from Inspec® for:

Q "renewable energy source*" (Topic) [Copy query link](#)

101,318 Documents You may also like... [Analyze Results](#) [Create Alert](#)

Refine results [Export Refine](#)

Search within topic...

Filter by Marked List

Quick Filters

- ☐ Highly Cited Papers 1,614
- ☐ Hot Papers 37
- ☐ Open Access 31,742

0/101,318 [Add To Marked List](#) [Export](#) Sort by Relevance < 1 of 2,000 >

1 Utilization of renewable energy sources for power generation in Iran

Fadai, D.

Jan. 2007 | Renewable & Sustainable Energy Reviews 11 (1), pp.173-81

Utilization of non-renewable energy sources not only results in environmental deterioration but also confronts us with the dilemma of a rapid rate of depletion of such resources, while renewable energy sources can serve us indefinitely with minimal environmental impacts as compared with fossil and nuclear fuels. This article deals with the extent of ... [Show more](#)

Full Text at Publisher ...

49 Citations

3 References

[Related records](#)

2. 学科分类精炼结果—“光伏电力系统”

17,937 results from Inspec® for:

Q "renewable energy source*" (Topic)

Refined By: **Classifications: Solar Power Stations And Photovoltaic Power Systems X** [Clear all](#)

[Back to all filters](#)

[Export to Excel](#)

Refine by Classifications

Search for Classifications



☐ Select all

Results count

Alphabetical

☐ Power System Management Operation And Economics	39,445	☐ Power System Protection	1,475	☐ Reinforcement Learning	609
☐ Energy Resources	35,451	☐ Air Quality And Air Pollution	1,436	☐ Structure Of Solid Clusters Nanoparticles Nanotubes And Nanostructured Materials	587
☐ Environmental Issues	18,936	☐ Power And Plant Engineering Mechanical Engineering	1,433	☐ Refrigeration And Cooling Energy Utilisation	586
☒ Solar Power Stations And Photovoltaic Power Systems	17,937	☐ Financial Management	1,401	☐ Other Methods Of Nanofabrication	584
☐ Optimisation Techniques	17,223	☐ Fossil Fuels	1,363	☐ Machine Learning Artificial Intelligence	562
☐ Distributed Power Generation	16,834	☐ Wind Energy	1,361	☐ Energy Storage	555
☐ Control Of Electric Power Systems	15,408	☐ Diesel Power Stations And Plants	1,352	☐ Maintenance And Reliability	550
☐ Industrial Processes	12,366	☐ Reviews And Tutorial Papers Resource Letters	1,341	☐ Knowledge Engineering Techniques	547
☐ Wind Power Plants	12,252	☐ Fluid Mechanics And Aerodynamics Mechanical Engineering	1,257	☐ Geothermal Power Stations And Plants	543
☐ Power Engineering Computing	12,246	☐ Building Structures	1,243	☐ Time Series	540
☐ Fuel Processing Industry	10,805	☐ Battery Energy Storage Systems	1,242	☐ Neural Computing Techniques	539
☐ Engineering Materials	10,013	☐ Game Theory	1,236	☐ Storage In Electrical Energy	529
☐ Products And Commodities	8,162	☐ Optimisation	1,235	☐ Air Conditioning	520
☐ Biofuel And Biomass Resources	7,795	☐ Interpolation And Function Approximation Numerical Analysis	1,184	☐ Generating Stations And Plants	516
☐ Energy Resources And Fuels	7,466			☐ Sensing And Accommodation Coefficients Surface	515

[Cancel](#)

[Exclude](#)

[Refine](#)

3. 受控词精炼结果—“电网”，“逆变器”

7,344 results from Inspec® for:

Q "renewable energy source*" (Topic)

Refined By: Classifications: Solar Power Stations And Photovoltaic Power Systems X Controlled Terms: Power Grids or Invertors X Clear all

< Back to all filters

Export to Excel

Refine by Controlled Terms

Search for Controlled Terms



☐ Select all

Results count Alphabetical

☐ Photovoltaic Power Systems	12,917	☐ Global Warming	389	☐ Ecology	160
☐ Renewable Energy Sources	12,268	☐ Cost Reduction	388	☐ Switching Convertors	159
☒ Power Grids	6,923	☐ Thermal Power Stations	385	☐ Microcontrollers	157
☐ Power Generation Economics	5,481	☐ Learning Artificial Intelligence	380	☐ Photovoltaic Cells	156
☐ Solar Power Stations	4,597	☐ Integer Programming	369	☐ Profitability	156
☐ Distributed Power Generation	4,401	☐ Frequency Control	368	☐ Maintenance Engineering	155
☐ Wind Power Plants	3,783	☐ Fuzzy Control	365	☐ Optimal Control	155
☐ Hybrid Power Systems	3,448	☐ Load Forecasting	360	☐ Power Generation Faults	155
☐ Power Generation Control	2,894	☐ Neural Nets	359	☐ Solar Heating	149
☐ Solar Power	2,833	☐ Linear Programming	347	☐ Power System Reliability	147
☐ Power Engineering Computing	2,676	☐ Cogeneration	345	☐ Voltage Source Convertors	147
☐ Optimisation	2,184	☐ Power Electronics	343	☐ Proton Exchange Membrane Fuel Cells	146
☐ Wind Turbines	1,949	☐ Sunlight	331	☐ Natural Gas Technology	143
☐ Battery Storage Plants	1,912	☐ Biofuel	326	☐ Statistical Analysis	143
☐ Energy Storage	1,740	☐ Heat Pumps	315	☐ Life Cycle Costing	139

Cancel

Exclude

Refine

4.1 选择物理量—电压及数值区间

108 results from Inspec® for:

Q "renewable energy source*" (Topic) and LTE 3E+3 (Voltage (Volt)) [Copy query link](#)

Topic

And to

[+ Add row](#) [+ Add date range](#) [Advanced search](#) [x Clear](#) [Q Search](#)

4.2 选择化学角色字段，并输入材料及角色

4 results from Inspec® for:

Q "renewable energy source*" (Topic) and LTE 3E+3 (Voltage (Volt)) and SiC/bin (All Chemical Roles) [Copy query link](#)

Topic

And to

And

[+ Add row](#) [+ Add date range](#) [Advanced search](#) [x Clear](#) [Q Search](#)

5. 使用 “Treatment Type” 根据研究方法对文献进行分类

108 results from Inspec® for:

Q "renewable energy source*" (Topic) and LTE 3E+3 (Voltage (Volt)) [Copy query link](#)

Topic

And Voltage (Volt)

And Treatment Type

+ Add row + Add date range Advanced search

- Application
- Bibliography
- Economic
- General or Review
- New Development
- Practical
- Product Review
- Theoretical or Mathematical
- Experimental

9 results from Inspec® for:

Q "renewable energy source*" (Topic) and LTE 3E+3 (Voltage (Volt)) and Experimental (Treatment Type) [Copy query link](#)

Topic Example: Radioactive Decay "renewable energy source*"

And Voltage (Volt) 1.0E+03 to 1.9E+03 3E+3

And Treatment Type Experimental

+ Add row + Add date range Advanced search

检索案例2 (Engineering Village平台): 假设你正在研究“航空发动机镍基耐高温涡轮机转子叶片的故障诊断”的相关技术, 并希望找到以下内容的文献:

1. **学科范围:** 聚焦于航空发动机机械部件学科。
2. **研究主题:** 航空发动机, 涡轮机, 转子, 叶片, 故障诊断。
3. **材料特性:** 耐高温 ($1000\text{ Kelvin} < T < 1500\text{ Kelvin}$) 。
4. **材料要求:** 镍基超级合金。
5. **潜在专利领域:** 与镍或钴基合金相关的专利 (使用 IPC分类代码) 。

步骤 1: 使用 Inspec叙词表 确定标准术语

1. 打开 **Inspec叙词表 (Thesaurus Search)**, 输入关键词 “**aerospace engines**”。
2. 叙词表可能会返回:
 - **首选术语:** aerospace propulsion
 - **上位术语:** engines
 - **相关术语:** gas turbines, aerospace components
 - **下位术语:** aircraft engines, jet engines

检索策略

- 使用叙词表中的标准术语和相关术语构建检索式：

("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR "aerospace components")

在Engineering Village平台选择Inspec数据库，选择All fields字段，并将上述检索式复制到检索框中



Engineering Village

Search ▾

Search history ▾

Alerts

Selected records

More ▾

Expert search

((("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR "aerospace components") WN ALL))



Reset form

Databases ^

Date ▾

Sort by ▾

Autostemming ▾

Search codes ▾

Browse indexes ▾

110,988 records found in Inspec for 1896-2025: (((("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR "aerospace components") WN ALL))

步骤 2: 结合Inspec受控词 (Controlled term) 和学科分类代码 (Classification code), 对检索结果进行精炼。

1. 确定研究涉及的学科领域:

- **E2210** (Mechanical components)
- **E1630** (Testing)

2. 在检索时限定重点关注的研究主题:

- 使用数据库的受控词精炼功能, 选择上述主题:
- 叶片 (**blades**)
- 转子 (**rotors**)
- 故障诊断 (**fault diagnosis**)



Engineering Village

Search ▾

Search history ▾

Alerts

Selected records

More ▾

Expert search

((((("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR
"aerospace components") WN ALL))) AND (({e2210} OR {e1630}) WN CL)) AND (({blades} OR {rotors}
OR {fault diagnosis}) WN CV))



Reset form

Databases ▾

Date ▾

Sort by ▾

Autostemming ▾

Search codes ▾

Browse indexes ▾

13,461 records found in Inspec for 1896-2025: (((((((("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR "aerospace components") WN ALL))) AND (({e2210} OR {e1630}) WN CL)) AND (({blades} OR {rotors} OR {fault diagnosis}) WN CV)))

步骤 3：数值检索

1. 你需要检索耐热温度（Heat-resistant Temperature）（假设你关注温度在1000-1500 Kelvin之间的文献）。
2. 使用数值检索功能：
 - 在Refine下方，展开“By physical property”，选择物理量“Temperature”，在单位一栏选择K，并在数值框中输入1000（左）和1500（右）。
 - 点击refine，即可获得满足对应物理量和数值区间内的精炼结果。



Engineering Village

Search ▾

Search history ▾

Alerts

Selected records

More ▾

Expert search

((((((((("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR "aerospace components") WN ALL))) AND ((({e2210} OR {e1630}) WN CL)) AND ((({blades} OR {rotors} OR {fault diagnosis}) WN CV)))) AND (((NU_TEMPERATURE GTE 1000 K) AND (NU_TEMPERATURE



Reset form

Databases ▾

Date ▾

Sort by ▾

Autostemming ▾

Search codes ▾

Browse indexes ▾

153 records

found in Inspec for 1896-2025: (((((((("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR "aerospace components") WN ALL))) AND ((({e2210} OR {e1630}) WN CL)) AND ((({blades} OR {rotors} OR {fault diagnosis}) WN CV))) × + ((NU_TEMPERATURE GTE 1000 K) AND (NU_TEMPERATURE LTE 1500 K)) ×

步骤 4：化学检索

1. 如果你需要检索特定材料制造的涡轮机转子，如镍基超级合金（如Ni-9Cr-6Ta-6W-3Re，Ni-7Cr-7.5Co-6.5Ta-3Re等）。
2. 使用化学检索工具（如 **Inspec** 的化学物质检索功能）：
 - 输入化学式：**Ni/ss**
 - 将化学式编辑到检索式，如需要可使用相应的布尔运算符
3. 将化学检索与步骤3的检索式结合：



Engineering Village

Search ▾

Search history ▾

Alerts

Selected records

More ▾

Expert search

"aerospace components") WN ALL))) AND ((({e2210} OR {e1630}) WN CL)) AND ((({blades} OR {rotors} OR {fault diagnosis}) WN CV)))) AND (((NU_TEMPERATURE GTE 1000 K) AND (NU_TEMPERATURE LTE 1500 K)))) AND ((Ni/ss) WN CI)



Reset form

Databases ▾

Date ▾

Sort by ▾

Autostemming ▾

Search codes ▾

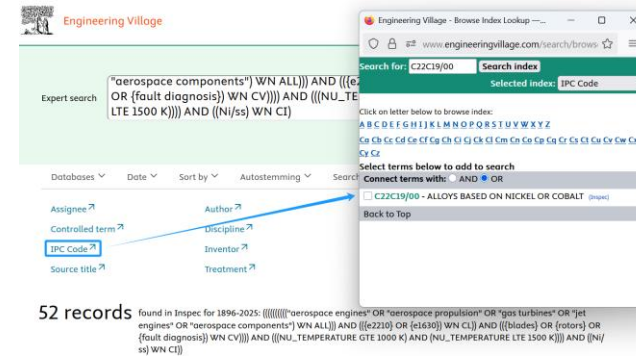
Browse indexes ▾

52 records

found in Inspec for 1896-2025: (((((((("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR "aerospace components") WN ALL))) AND ((({e2210} OR {e1630}) WN CL)) AND ((({blades} OR {rotors} OR {fault diagnosis}) WN CV)))) AND (((NU_TEMPERATURE GTE 1000 K) AND (NU_TEMPERATURE LTE 1500 K)))) AND ((Ni/ss) WN CI))

步骤 5: IPC专利分类代码检索

1. 你需要检索与钙钛矿太阳能电池相关的专利。
2. 在Inspec数据库中查找相关的 **IPC分类代码**:
3. 在IPC 代码库中选择对应的IPC代码:
 - **C22C19/00**: 镍或钴基合金。



Engineering Village

Search ▾

Search history ▾

Alerts

Selected records

More ▾

Expert search

"aerospace components") WN ALL))) AND (({e2210} OR {e1630}) WN CL)) AND (({blades} OR {rotors} OR {fault diagnosis}) WN CV))))) AND (((NU_TEMPERATURE GTE 1000 K) AND (NU_TEMPERATURE LTE 1500 K)))) AND ((Ni/ss) WN CI))) AND ({C22C19/00} WN PID))



Reset form

Databases ▾

Date ▾

Sort by ▾

Autostemming ▾

Search codes ▾

Browse indexes ▾

51 records

found in Inspec for 1896-2025: (((((((("aerospace engines" OR "aerospace propulsion" OR "gas turbines" OR "jet engines" OR "aerospace components") WN ALL))) AND (({e2210} OR {e1630}) WN CL)) AND (({blades} OR {rotors} OR {fault diagnosis}) WN CV))))) AND (((NU_TEMPERATURE GTE 1000 K) AND (NU_TEMPERATURE LTE 1500 K)))) AND ((Ni/ss) WN CI)) ✗ + {C22C19/00} WN PID ✗



Science drives Inspec.

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CLiu@theiet.org