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学科前沿快报

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山东工商学院图书馆

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山商学科快讯

《学科前沿快报》新增“山商学科快讯”栏目，更新周期为2个月。栏目内容基于ESI最新数据，统计分析我校ESI学科潜力值、中外文高水平论文成果产出情况，聚焦学科建设，整理推送我校学者、学科发展动态信息，为学校高质量发展、领导决策提供信息支持和参考依据。

指标说明

WOS (Web of Science) : Web of Science 是美国 Clarivate Analytics 公司基于 WEB 开发的产品,包括三大引文数据库(科学引文索引(Science Citation Index, 简称 SCI)、社会科学引文索引(Social Sciences Citation Index, 简称 SSCI)和艺术与人文科学引文索引(Arts & Humanities Citation Index, 简称 A&HCI))和两个化学信息事实性数据库(Current Chemical Reactions, 简称 CCR 和 Index Chemicus, 简称 IC),以及科学引文检索扩展版(Science Citation Index Expanded, SCIE)、科技会议文献引文索引(Conference Proceedings Citation Index-Science, CPCI-S)和社会科学以及人文科学会议文献引文索引(Conference Proceedings Citation index-Social Science & Humanities, CPCI-SSH)等引文数据库,以 ISI Web of Knowledge 作为检索平台。

基本科学指标数据库 ESI (Essential Science Indicators, 简称 ESI) : ESI 是由科睿唯安 (Clarivate Analytics, 知识产权与科技事业部) 在汇集和分析 Web of Science 核心合集所收录的学术文献及其所引用的参考文献的基础上建立起来的分析型数据库。ESI 由学术信息出版机构美国科学信息研究所 (ISI) 于 2001 年推出的衡量科学研究绩效、跟踪科学发展趋势的基本分析评价工具,现已成为世界范围内普遍用以评价高校、学术机构、国家/地区国际学术水平及影响力的重要评价指标工具。ESI 由引文排位 (Citation Rankings)、高被引论文 (Most Cited Papers)、引文分析 (Citation Analysis) 和评论报道 (Commentary) 4 部分构成。ESI 从引文分析的角度,将全部科学分为 22 个专业领域,分别对国家、研究机构、期刊、论文以及科学家进行统计分析和排序。数据更新周期为 2 个月。

InCites 平台: 由 JCR、INCITESBENCHMARKING 以及 ESI 三部分构成。其中 InCitesBenchmarking (以下简称 Incites) 是一个基于 Web of Science 数据建立的科研评价与分析平台,可以从人员、学科、国家、期刊、机构及基金六个维度,针对 Web of Science 中 1980 年至今的数据进行分析,每月更新一次。

JCR (Journal Citation Reports)：ISI 每年出版 JCR (《期刊引用报告》，全称 Journal Citation Reports)。JCR 对包括 SCI 收录的 3800 种核心期刊 (光盘版) 在内的 8000 多种期刊 (网络版) 之间的引用和被引用数据进行统计、运算，并针对每种期刊定义了影响因子 (Impact Factor) 等指数加以报道。

中科院 JCR 期刊分区数据：中国科学院文献情报中心世界科学前沿分析中心的科学研究成果。JCR 期刊分区数据自 2004 年开始发布，延续至今；中科院 JCR 期刊分区数据每年 10 月份发布。

高被引论文：10 年间基于按照年代该论文被引用次数的高低排在 1% 的论文。

热点论文：最近 2 年内各研究领域中被引频次在最近 2 个月内排名位于全球前 0.1% 的论文。

1. 我校 ESI 学科及潜力学科情况

ESI (Essential Science Indicators SM) 基本科学指标数据库是一种较为宽泛的学科分类模式。ESI 学科分类基于期刊分类，由自然科学与社会科学的 22 个学科构成。ESI 数据库以 10 年为 1 个滚动周期，数据每隔两月更新一次，给出某学科论文的总被引频次位于全球前 1% 的大学及科研机构的排序。该数据从论文的角度反映了某科研机构在全球领域的学科水平和学术影响力。

该部分数据采集于 Web of Science 数据平台 ESI 最新发布数据 (发布时间 2023 年 11 月 10 日)。

1.1 我校 ESI 前 1% 学科

表 1 我校进入 ESI 前 1% 学科数据表

序号	学科	论文数	被引频次	篇均被引	高被引论文数	热点论文数
1	Engineering	349	4273	12.24	15	5

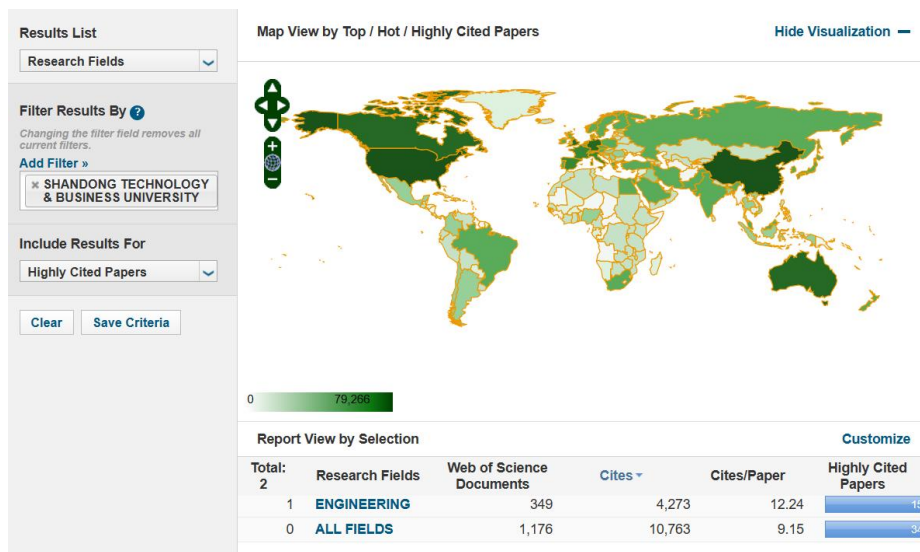


图 1 2023 年进入 ESI 前 1%学科

数据来源：Web Of Science ESI 数据库，更新时间为 2023 年 11 月 10 日，下载时间为 2023 年 12 月 13 日。

如表 1 所示，2023 年我校工程学科进入 ESI 全球前 1%学科，Web of science 论文数为 349 篇，被引用频次为 4273 次，篇均被引频次为 12.24。其中，高被引论文 15 篇，热点论文 5 篇。

图 1 中以 5 年为周期对工程学科的发文趋势进行统计分析，从图中可以看出我校工程学科的发文量和总被引频次呈现较好的增长趋势。

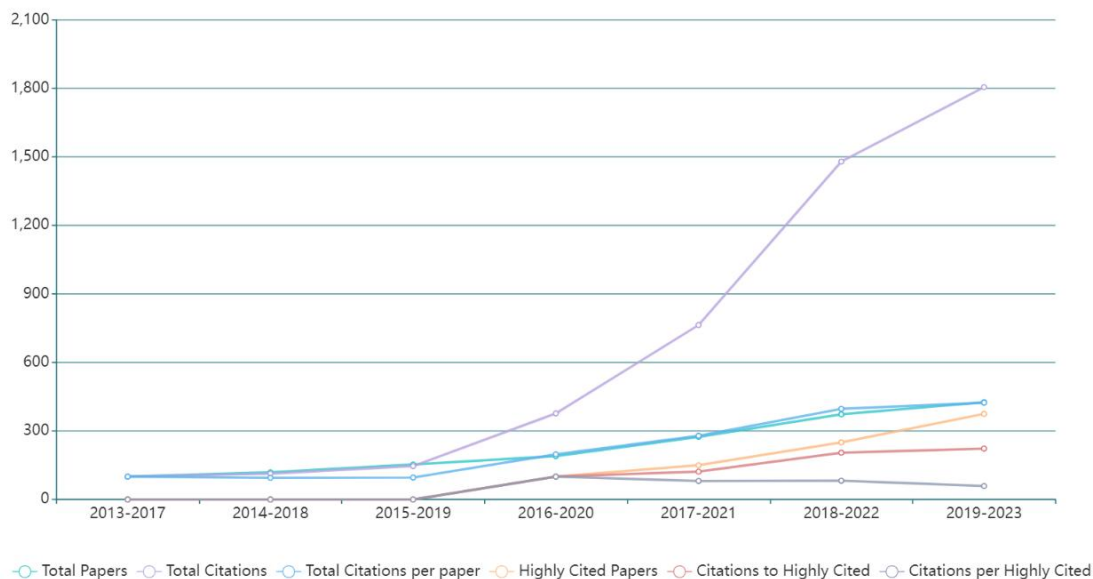


图 2 工程学科发文趋势图

数据来源：Web Of Science ESI 数据库，更新时间为 2023 年 11 月 10 日，下载时间为

2023年12月13日。

表2 我校ESI潜力学科情况一览表

排名	ESI 学科	WOS 论文数	被引频次	ESI 阈值	潜力值	差值 (次)
1	Social Sciences, general	55	832	1839	45.24%	1007
2	Mathematics	261	1772	4965	35.69%	3193
3	Computer Science	167	1662	4975	33.41%	3313
4	Environment/Ecology	88	681	4721	14.42%	4040
5	Economics & Business	59	512	6507	7.87%	5995
6	Chemistry	35	548	8138	6.73%	7590
7	Physics	116	965	20526	4.70%	19561
8	Materials Science	37	376	8296	4.53%	7920
9	Neuroscience & Behavior	30	275	7351	3.74%	7076
10	Geosciences	45	219	6388	3.43%	6169
11	Psychiatry/Psychology	23	72	4413	1.63%	4341
12	Multidisciplinary	2	48	3966	1.21%	3918
13	Molecular Biology & Genetics	5	114	13833	0.82%	13719
14	Biology & Biochemistry	10	55	7056	0.78%	7001
15	Clinical Medicine	21	25	4176	0.60%	4151
16	Plant & Animal Science	3	3	3126	0.10%	3123

17	Agricultural Sciences	1	1	3323	0.03%	3322
18	Pharmacology & Toxicology	5	1	3937	0.03%	3936
19	Microbiology	1	1	5813	0.02%	5812

数据来源：Web of science 论文数和被引用频次来源于 InCites，ESI 阈值来源于 ESI。InCites 更新时间为 2023 年 11 月 30 日，统计时间跨度为 1980-2023 年。ESI 更新时间为 2023 年 11 月 9 日。潜力值为被引频次占 ESI 阈值的百分比。差值为被引频次与 ESI 阈值的差距。

表 2 为我校 ESI 潜力学科情况，排名顺序依据潜力值大小，潜力值越大，说明进入 ESI 全球前 1% 潜力越大。截至 2023 年 12 月，潜力值最大的学科为社会科学，潜力值为 45.24%。社会科学、数学、计算机科学三大学科潜力值超过 30%，与 ESI 全球前 1% 有较大差距。

2. WOS 论文产出快报

2.1 WOS 论文发文量及学科分布

表 3 我校 2023 年度 WOS 论文产出总览

wos 发文量	被引用频次	高被引论文数	热点论文数
268	482	10	6

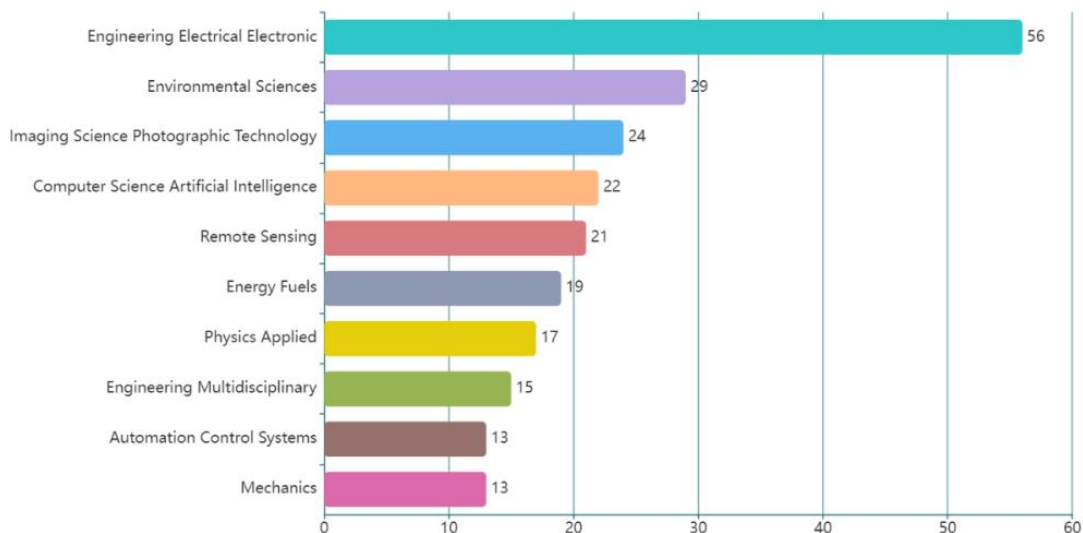


图 3 我校 2023 年 WOS 论文学科分布及发文量

数据来源：Web of Science 数据库，更新时间为 2023 年 11 月 10 日，下载时间为 2023 年 12 月 13 日。

如图 3 所示，2023 年我校 WOS 论文发文量为 268 篇（数据统计时间：2023.12.13），发文量排名前五位的学科（WOS）分别是 Engineering Electrical Electronic（56 篇）、Environmental Sciences（29 篇）、Imaging Science Photographic Technology（24 篇）、Computer Science Artificial Intelligence（22 篇）、Remote Sensing（21 篇）。

2.2 中科院 JCR 期刊分区及学科大类分布

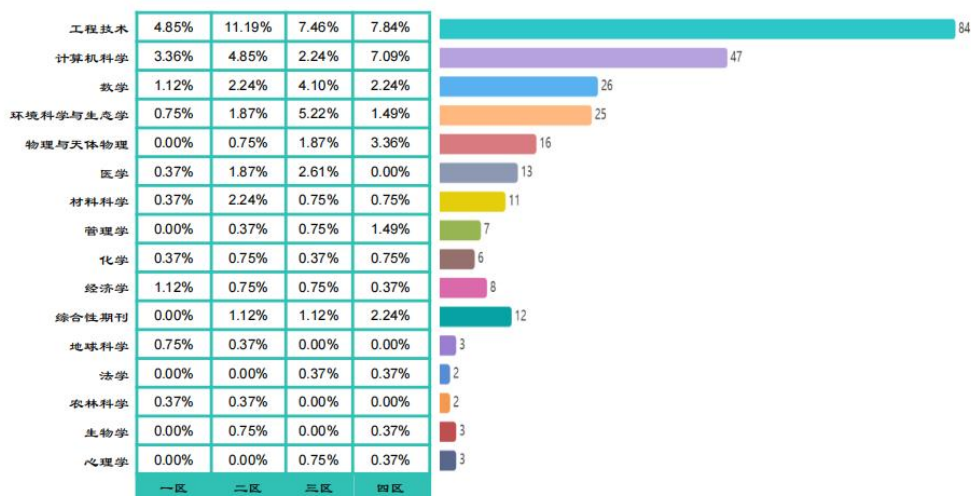


图 4 我校 2023 年 WOS 论文学科及期刊分区情况

数据来源: Web of Science 数据库、中科院 JCR 期刊分区及学科大类分布, 更新时间为 2023 年 11 月 10 日, 下载时间为 2023 年 12 月 13 日。

2023 年我校 WOS 论文发文量排名前五位的学科 (中科院 JCR 期刊分区数据) 分别是工程技术 (84 篇)、计算机科学 (47 篇)、数学 (26 篇)、环境科学与生态学 (25 篇)、物理与天体物理 (16 篇)。

一区发文量占比 (% of 268) 排名前五位的学科分别是工程技术 (4.85%)、计算机科学 (3.36%)、数学 (1.12%)、经济学 (1.12%)、环境科学与生态学 (0.75%)、地球科学 (0.75%)、医学 (0.37%)、材料科学 (0.37%)、化学 (0.37%)、农林科学 (0.37%)。

二区发文量占比 (% of 268) 排名前五位的学科分别是工程技术 (11.19%)、计算机科学 (4.85%)、数学 (2.24%)、材料科学 (2.24%)、环境科学与生态学 (1.87%)、医学 (1.87%)、综合性期刊 (1.12%)。

三区发文量占比 (% of 268) 排名前五位的学科分别是工程技术 (7.46%)、环境科学与生态学 (5.22%)、数学 (4.10%)、医学 (2.61%)、物理与天体物理 (1.87%)。

四区发文量占比 (% of 268) 排名前五位的学科分别是工程技术 (7.84%)、计算机科学 (7.09%)、物理与天体物理 (3.36%)、数学 (2.24%)、综合性期刊 (2.24%)、环境科学与生态学 (1.49%)、管理学 (1.49%)。

2.3 WOS 高被引论文统计

表 4 我校 2023 年高被引论文一览表

序号	论文题名	作者	来源期刊	领域	被引频次	作者机构
1	E-nose based on a high-integrated and low-power metal oxide gas sensor array	Li, Zhongzhou; Yu, Jun; Dong, Diandia; Yao, Guanyu; Wei, Guangfen; He, Aixiang; Wu, Hao; Zhu, Huichao; Huang, Zhengxin; Tang, Zhenan	SENSORS AND ACTUATORS B-CHEMICAL	化学	10	Dalian University of Technology; Shandong Technology & Business University
2	Practical Exponential Stability of Impulsive Stochastic Food Chain System with Time-Varying Delays	Zhao, Yuxiao; Wang, Linshan	MATHEMATICS	数学	31	Shandong Technology & Business University; Hunan University of Science & Technology; Ocean University of China
3	Scheduling equal-length jobs with arbitrary sizes on uniform parallel batch machines	Xin, Xiao; Khan, Muhammad Ijaz; Li, Shuguang	OPEN MATHEMATICS	数学	10	Shandong Technology & Business University; Lebanese American University; Peking University
4	Heat and mass transport analysis in radiative time dependent flow in the presence of Ohmic heating and chemical reaction, viscous dissipation: An entropy modeling	Li, Shuguang; Khan, M. Ijaz; Alzahrani, Faris; Eldin, Sayed M.	CASE STUDIES IN THERMAL ENGINEERING	工程技术	57	Shandong Technology & Business University; Peking University; King Abdulaziz University

5	Renewable energy electricity, environmental taxes, and sustainable development: empirical evidence from E7 economies	Ameer, Waqar; Sibt e Ali, Muhammad; Farooq, Fatima; Ayub, Bakhtawer; Waqas, Muhammad	ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH	环境科学与生态学	14	Shandong Technology & Business University; Zhengzhou University; Bahauddin Zakariya University; International Islamic University, Pakistan; Bahauddin Zakariya University
6	An enhanced distributed differential evolution algorithm for portfolio optimization problems	Song, Yingjie; Zhao, Gaoyang; Zhang, Bin; Chen, Huayue; Deng, Wuquan; Deng, Wu	ENGINEERING APPLICATIONS OF ARTIFICIAL INTELLIGENCE	计算机科学	20	Shandong Technology & Business University; China West Normal University; Chongqing University; Civil Aviation University of China
7	Bioconvection effect in the Carreau nanofluid with Cattaneo-Christov heat flux using stagnation point flow in the entropy generation: Micromachines level study	Li, Shuguang; Ali, Farhan; Zaib, A.; Loganathan, K.; Eldin, Sayed M.; Khan, M. Ijaz	OPEN PHYSICS	物理与天体物理	31	Shandong Technology & Business University; Manipal University Jaipur; Egyptian Knowledge Bank (EKB); Future University in Egypt; Lebanese American University
8	Effects of activation energy and chemical reaction on unsteady MHD dissipative Darcy-Forchheimer squeezed flow of Casson fluid over horizontal channel	Li, Shuguang; Raghunath, Kodi; Alfaleh, Ayman; Ali, Farhan; Zaib, A.; Khan, M. Ijaz; EIDin, Sayed M. M.; Puneeth, V.	SCIENTIFIC REPORTS	综合性期刊	36	Shandong Technology & Business University; Umm Al Qura University; Lebanese American University; Egyptian Knowledge Bank (EKB); Future University in Egypt

9	Numerical bio-convective assessment for rate type nanofluid influenced by Nield thermal constraints and distinct slip features	Liu, Zhimeng; Li, huguang; Sadaf, Tooba; Khan, Sami Ullah; Alzahrani, Faris; Khan, M. Ijaz; Eldin, Sayed M.	CASE STUDIES IN THERMAL ENGINEERING	工程技术	36	Shandong Technology & Business University; COMSATS University Islamabad (CUI); King Abdulaziz University; Lebanese American University; Egyptian Knowledge Bank (EKB); Future University in Egypt
10	Analysis of the Thomson and Troian velocity slip for the flow of ternary nanofluid past a stretching sheet	Li, Shuguang; Puneeth, V.; Saeed, A. M.; Singhal, A.; Al-Yarimi, Fuad A.M.; Khan, M. Ijaz; Eldin, Sayed M.	SCIENTIFIC REPORTS	综合性期刊	57	Shandong Technology & Business University; Christ University; Qassim University; King Khalid University; Lebanese American University; Egyptian Knowledge Bank (EKB); Future University in Egypt

数据来源：Web of Science 数据库，更新时间为 2023 年 11 月 10 日，下载时间为 2023 年 12 月 13 日。

表 4 列出了 2023 年我校 268 篇 WOS 论文中有 10 篇高被引论文。其所属学科（中科院 JCR 期刊分区数据）分别是化学、数学、工程技术、环境科学与生态学、计算机科学、物理与天体物理、综合性期刊。

2.4 WOS 热点论文统计

表 5 我校 2023 年热点论文一览表

序号	论文题名	作者	来源期刊	领域	被引频次	作者机构
1	Heat and mass transport analysis in radiative time dependent flow in the presence of Ohmic heating and chemical reaction, viscous dissipation: An entropy modeling	Li, Shuguang; Khan, M. Ijaz; Alzahrani, Faris; Eldin, Sayed M.	CASE STUDIES IN THERMAL ENGINEERING	工程技术	57	Shandong Technology & Business University; Peking University; King Abdulaziz University
2	Renewable energy electricity, environmental taxes, and sustainable development: empirical evidence from E7 economies	Ameer, Waqar; Sibt e Ali, Muhammad; Farooq, Fatima; Ayub, Bakhtawer; Waqas, Muhammad	ENVIRONMEN TAL SCIENCE AND POLLUTION RESEARCH	环境科学 与生态学	14	Shandong Technology & Business University; Zhengzhou University; Bahauddin Zakariya University; International Islamic University, Pakistan; Bahauddin Zakariya University
3	Bioconvection effect in the Carreau nanofluid with Cattaneo-Christov heat flux using stagnation point flow in the entropy generation: Micromachines level study	Li, Shuguang; Ali, Farhan; Zaib, A.; Loganathan, K.; Eldin, Sayed M.; Khan, M. Ijaz	OPEN PHYSICS	物理与天 体物理	31	Shandong Technology & Business University; Manipal University Jaipur; Egyptian Knowledge Bank (EKB); Future University in Egypt; Lebanese American University

4	Effects of activation energy and chemical reaction on unsteady MHD dissipative Darcy-Forchheimer squeezed flow of Casson fluid over horizontal channel	Li, Shuguang; Raghunath, Kodi; Alfaleh, Ayman; Ali, Farhan; Zaib, A.; Khan, M. Ijaz; EIDin, Sayed M. M.; Puneeth, V.	SCIENTIFIC REPORTS	综合性期刊	36	Shandong Technology & Business University; Umm Al Qura University; Lebanese American University; Egyptian Knowledge Bank (EKB); Future University in Egypt
5	Numerical bio-convective assessment for rate type nanofluid influenced by Nield thermal constraints and distinct slip features	Liu, Zhimeng; Li, Shuguang; Sadaf, Tooba; Khan, Sami Ullah; Alzahrani, Faris; Khan, M. Ijaz; Eldin, Sayed M.	CASE STUDIES IN THERMAL ENGINEERING	工程技术	36	Shandong Technology & Business University; COMSATS University Islamabad (CUI); King Abdulaziz University; Lebanese American University; Egyptian Knowledge Bank (EKB); Future University in Egypt
6	Analysis of the Thomson and Troian velocity slip for the flow of ternary nanofluid past a stretching sheet	Li, Shuguang; Puneeth, V.; Saeed, A. M.; Singhal, A.; Al-Yarimi, Fuad A. M.; Khan, M. Ijaz; Eldin, Sayed M.	SCIENTIFIC REPORTS	综合性期刊	57	Shandong Technology & Business University; Christ University; Qassim University; King Khalid University; Lebanese American University; Egyptian Knowledge Bank (EKB); Future University in Egypt

数据来源：Web of Science 数据库，更新时间为 2023 年 11 月 10 日，下载时间为 2023 年 12 月 13 日。

表 5 所示为 2023 年我校 268 篇 WOS 论文中有 6 篇热点论文。其所属学科（中科院 JCR 期刊分区数据）分别是工程技术、环境科学与生态学、物理与天体物理、综合性期刊

3. 中文核心期刊论文快报

指标说明

北大核心发文量：作者发表的学术性期刊论文属于北京大学研制的《中文核心期刊要目总览》收录刊范畴中的论文数量。

南大核心发文量：作者发表的学术性期刊论文属于南京大学研制的《中文社会科学引文索引（CSSCI）》收录刊范畴中的论文数量。

中科院收录刊发量：作者发表的论文属于中国科学院图书馆公布的《中国科学引文数据库（CSCD）》收录刊范畴中的论文数量。

知网学科分类：以教育部 2011 年《学位授予和人才培养学科目录》与《中国图书馆图书分类法》（第五版）为基础，结合高校院系专业设置，将文献划分为 13 个学科门、103 个一级学科和 359 个二级学科。

3.1 中文核心期刊论文统计

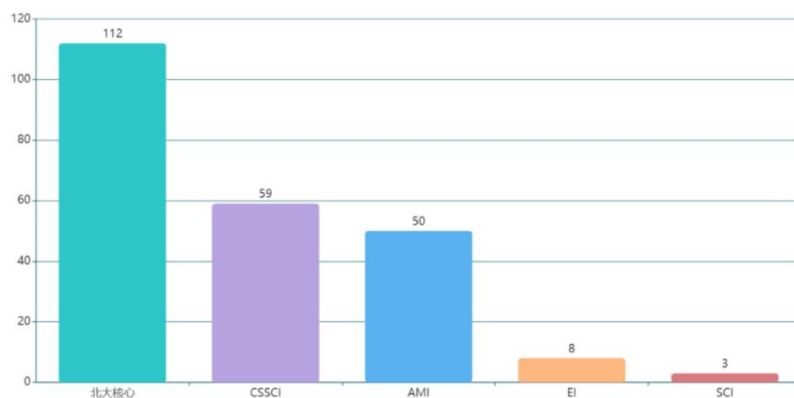


图 5 我校 2023 年中文核心期刊论文来源类别分布

数据来源：CNKI 数据库，更新时间为 2023 年 11 月 10 日，下载时间为 2023 年 12 月 13 日。

如图 5 所示，2023 年我校 232 篇核心期刊论文中，112 篇被北大核心索引期刊收录，59 篇被南大核心索引期刊（CSSCI）收录，50 篇被中国人文社会科学核心期刊（AMI）收录。《工程索引》（EI）和《科学引文索引》（SCI）收录的文章分别为 8 篇和 3 篇。

3.2 中文核心期刊论文学科分布统计

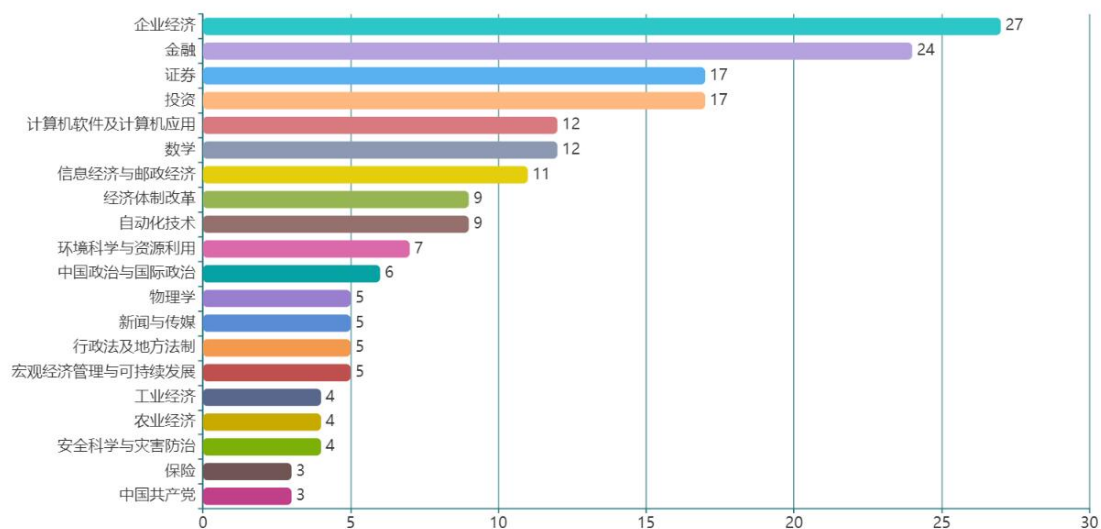


图6 我校2023年中文核心期刊论文学科学科分布

数据来源：CNKI 数据库，更新时间为2023年11月10日，下载时间为2023年12月13日。

图6所示2023年我校中文核心期刊论文发文量排名前五位的学科（知网学科分类）分别是企业经济（27篇）、金融（24篇）、证券（17篇）、投资（17篇）、计算机软件及计算机应用（12篇）、数学（12篇）、信息经济与邮政经济（11篇）。

优秀文献荐读

工程技术领域

题名: 深层常压页岩气工程技术新进展与发展建议

作者: 张文平^{1,2}, 李双明^{1,2}, 张金成^{1,2}, 张彦仪^{1,2}, 闵文宣^{1,2}

机构: 1. 中国石化石油工程技术研究院有限公司, 2. 页岩油气富集机理与高效开发全国重点实验室

摘要: 与中浅层页岩气勘探开发相比, 深层页岩气埋藏深、构造复杂、压力体系多变, 钻井提速难; 储层可压性差、体积改造难。如何提高钻完井效率、降低钻完井成本, 是实现深层页岩气经济效益开发最大的挑战。为明确当前深层常压页岩气钻完井技术水平和存在的问题, 总结分析国内外深层页岩气钻完井工程新进展, 指出了当前存在的问题并提出了发展建议。在四川盆地威荣、永川等区块已经实现了深层常压页岩气的经济效益开发, 基本形成了以低成本高性能油基钻井液、强化钻井参数、配套大扭矩螺杆和个性化钻头、长水平井精准导向和高效控制、钻井实时监测与智能优化为核心的深层页岩气长水平井高效钻井技术体系, 水平段最长长度达 4 386 m, 最长一趟钻进尺达 4 225 m。但与北美地区先进钻井指标相比, 国产螺杆寿命、旋转导向工具稳定性和可靠性、超级一趟钻技术与比率、近钻头推靠工具还存在一定差距, 需进一步加大核心配套工具和技术研发, 进一步提高深层页岩气井的钻井效率。北美地区受经济开发效益限制而较少开发 4 200 m 以深的深层页岩气, 国内已经突破了 4 700 m 深层页岩气体积压裂技术, 形成了以压裂工艺、分段工具、主体材料和监测技术为核心的独立自主的 4 700 m 以浅深层页岩气压裂技术体系。但在复杂构造区深层和超深层页岩储层中形成复杂裂缝网难度大, 还需进一步完善裂缝扩展机理研究, 研发降阻性能更好的压裂液体系和 175 MPa 压裂装备, 以尽快突破 4 700~6 000 m 埋深页岩气井高效压裂瓶颈。

关键词: 深层页岩气; 超级一趟钻; 体积压裂; 175 MPa 压裂装备

原文出处: 石油实验地质. 2023, 45 (06)

文章链接:

https://kns.cnki.net/kcms2/article/abstract?v=z-q19lQZUWHcKK9hpNCr1rpSN_M1bZD-TKr4Z6f1PATQxz79257EtxfLZPhordRJxJNtrLp_WD0vn4cNPpq-sx5BiNhcP9v

_zepRU6rCzC71qAmpTPelxsXQUK3w7-N749fDfFtDxe4=&uniplatform=NZKPT&language=CHS

Title:

Chinese engineering geological named entity recognition by fusing multi-features and data enhancement using deep learning

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Abstract:

The engineering geology report serves as a comprehensive portrayal of the geological conditions and information within a surveyed region, making it highly valuable for extracting and mining engineering geology-related knowledge. Geological Named Entity Recognition (GNER), as a pivotal technology for information extraction and knowledge discovery, aims to identify geological objects that convey significant meanings within textual data. While general NER tools and existing approaches are commonly employed for recognizing generic entities, their effectiveness is constrained by the diverse language irregularities inherent in natural language texts, including nested entities, lengthy entities, and a scarcity of domain-specific annotated corpora. Adhering to established standards and principles governing engineering geology reports, we undertake an analysis of text structures and characteristics, as well as the linguistic descriptions and data

attributes. By employing an Electronic Design Automation (EDA) enhancement method in conjunction with manual annotation, we construct an engineering GNER dataset. To address these linguistic irregularities, we propose a novel deep learning model that combines both the geological pre-training model (GeoBERT) and multiple features (pinyin, radical, and position vectors) to generate representations from byte sequences. These representations are subsequently fused and passed through a BiLSTM-Attention model for training. Finally, entity classification results are obtained using conditional random fields (CRF). Experimental evaluation demonstrates that the proposed model achieves an impressive F1 value of 79.60% on the constructed datasets, outperforming ten baseline models analyzed in this study.

Keywords:

Named Entity Recognition;Engineering Geology;Pre-trained Models;Multi-feature Fusion;Deep Learning

Source:

EXPERT SYSTEMS WITH APPLICATIONS, Volume238,PartD

Link:

<https://webofscience.clarivate.cn/wos/woscc/full-record/WOS:001097384200001>

Title:

Camera, LiDAR, and IMU Based Multi-Sensor Fusion SLAM: A Survey

Author:

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Institution:

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Abstract:

In recent years, Simultaneous Localization And Mapping (SLAM) technology has prevailed in a wide range of applications, such as autonomous driving, intelligent robots, Augmented Reality (AR), and Virtual Reality (VR). Multi-sensor fusion using the most popular three types of sensors (e.g., visual sensor, LiDAR sensor, and IMU) is becoming ubiquitous in SLAM, in part because of the complementary sensing capabilities and the inevitable shortages (e.g., low precision and long-term

drift) of the stand-alone sensor in challenging environments. In this article, we survey thoroughly the research efforts taken in this field and strive to provide a concise but complete review of the related work. Firstly, a brief introduction of the state estimator formation in SLAM is presented. Secondly, the state-of-the-art algorithms of different multi-sensor fusion algorithms are given. Then we analyze the deficiencies associated with the reviewed approaches and formulate some future research considerations. This paper can be considered as a brief guide to newcomers and a comprehensive reference for experienced researchers and engineers to explore new interesting orientations.

Keywords:

multi-sensor fusion; Simultaneous Localization And Mapping(SLAM);
Navigation; localization

Source:

TSINGHUA SCIENCE AND TECHNOLOGY, Volume 29, Issue2, Page415-429

Link:

<https://webofscience.clarivate.cn/wos/woscc/full-record/WOS:001072585600011>

计算机科学

题名: 智能时代国际中文教育研究的基本框架

作者: 郑艳群

机构: 北京语言大学国际中文教育研究院

摘要: 在智能时代的大背景下,思考国际中文教育学科的未来发展问题至关重要。文章旨在探讨本学科在智能时代面临的挑战和发展问题。通过综合已有的认知和文献研究,采用自上而下和自下而上相结合的方法,归纳和提炼出了语言学、教育学和教育心理学及计算机科学等三大核心领域的基础研究内容,并构建了智能时代国际中文教育研究的基本框架,详细阐述了框架的结构及其对学科发展的重要作用。考证了该框架在智能国际中文教学模式设计、教学实践、数据驱动决策等领域的实际应用价值。这一基本框架强调了智能时代国际中文教育学科发展的关键性,有望提高国际中文教学效果、鼓励教学研究方法和应用的创新,以及促进技术的广泛应用,并推动学科交叉与合作,以满足智能时代不断发展的国际中文教育的多方面需求。

关键词: 智能时代; 国际中文教育; 基本框架; 学科发展; 技术应用

原文出处: 电化教育研究. 2023, 44(12)

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Title:

Wire melted mark metallographic image recognition and classification based on semantic segmentation

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Abstract:

The recognition and classification of wire melted marks is crucial in modern fire investigation. The existing technology mainly uses physical or chemical methods to deal with wire melted marks and draws conclusions through manual observation, or manually extracts the features and train classification model, both of which consume excessive manpower and resources. The research on automatic feature extraction and recognition of wire weld marks by artificial intelligence technology is still blank. Based on the data set of wire melted mark metallographic images provided by a city fire research institute, we proposed an algorithm to recognize the type of wire melted mark metallographic images based on artificial intelligence which can help fire fighters efficiently speculate the cause of fire. In the algorithm, the TransUnet network is used to segment the melted zone by semantic segmentation to extract the melted zone containing the main features, and the mIOU reaches 92.2%. Then, the features of wire melted mark are extracted based

on the melted zone image. Finally, XGBoost is used for feature modeling for classification. The F1 Score of model is 82.9%.

Keywords:

Fire science; Computer vision; Semantic segmentation; Neural networks;
Machine learning

Source:

EXPERT SYSTEMS WITH APPLICATIONS, Volume 238, Part E, 15 March 2024,
122146

Link:

<https://webofscience.clarivate.cn/wos/woscc/full-record/WOS:001098249800001>

Title:

Current advances in imaging spectroscopy and its state-of-the-art applications

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9. University of Adelaide, Australia

Abstract:

Imaging spectroscopy integrates traditional computer vision and spectroscopy into a single system and has gained widespread acceptance as a non-destructive scientific instrument for a wide range of applications. The current state of imaging spectroscopy spans diverse applications including but not limited to air-borne and ground-based computer vision systems. This paper presents the current state of research and industrial applications including precision agriculture, material classification, medical science, forensic science, face recognition and document image analysis, environment monitoring, and remote sensing, which can be aided through imaging spectroscopy. In this regard, we further discuss a comprehensive list of applications of imaging spectroscopy, pre-processing techniques, and spectral image acquisition systems. Likewise, publicly available databases and current software tools for spectral data analysis are also documented in this review. This review paper, therefore, could potentially serve as a reference and roadmap for people looking for literature, databases, applications, and tools to undertake additional research in imaging spectroscopy.

Keywords:

Imaging spectroscopy; Hyperspectral imaging; Image processing; Computer vision; Remote sensing; Deep learning

Source:

Expert Systems with Applications, Volume 238, Part E, 15 March 2024, 122172

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<https://webofscience.clarivate.cn/wos/woscc/full-record/WOS:001096441800001>



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