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中国热点论文榜

中国科学院文献情报中心科学计量中心

“热点论文”在科学界已经是耳熟能详的名词。顾名思义，热点论文即为众人所关注的论文。这种关注度在科学计量学领域可以用论文被引用的次数来量化和测度。我们以2018－2022年中国科学家的SCI论文为数据基础，分领域统计了自发表以来被引频次最高的论文，以展现颇具显示度的中国科技成果。本期发布的热点论文榜涉及数学、物理学、化学、生物学、医学、农学、地学、空间科学、材料科学、计算机科学、环境科学和工程技术12个领域。

表 1　中国数学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000432625800013	Optimally cstimating the sample mean from the sample size, median, mid-range, and/or mid-quartile range. Statistical Methods in Medical Research, 2018, 27(6), 1785-1805.	Tong, Tiejun (香港浸会大学); Wan Xiang (香港浸会大学)	1176
2	000442351000038	Solving high-dimensional partial differential equations using deep learning. Proceedings of the National Academy of Sciences of The United States of America. 2018, 115(34), 8505-8510.	E, Weinan (北京大数据研究院)	587
3	000424123600006	Lump solutions to nonlinear partial differential equations via hirota bilinear forms. Journal of Differential Equations, 2018, 264(4), 2633-2659.	Ma, Wenxiu (浙江师范大学，山东科技大学，上海电力大学)	537
4	000456969200002	Global convergence of ADMM in nonconvex nonsmooth optimization. Journal of Scientific Computing, 2019, 78(1), 29-63.	Zeng, Jinshan (江西师范大学)	483
5	000637433100001	Artificial neural networking (ANN) analysis for heat and entropy generation in flow of non-Newtonian fluid between two rotating disks. Mathematical Methods in the Applied Sciences, 2021, 46(3), 3012-3030.	Chu, Yuming (湖州师范学院，长沙理工大学)	444
6	000700247100001	Enhancement in thermal energy and solute particles using hybrid nanoparticles by engaging activation energy and chemical reaction over a parabolic surface via finite element approach. Fractal and Fractional, 2021,5(3).	Chu, Yuming (杭州师范大学，湖州师范学院)	431
7	000426076300001	The deep Ritz method: A deep learning-based numerical algorithm for solving variational problems. Communications in Mathematics and Statistics, 2018, 6(1), 44938.	Yu, Bing (北京大学)	337
8	000478968600005	A new class of efficient and robust energy stable schemes for gradient flows. SIAM Review, 2019, 61(3), 474-506.	Shen, Jie (厦门大学)	274
9	000425483000020	Diversity of interaction solutions to the (2+1)-dimensional Ito equation. Computers and Mathematics with Applications, 2018, 75(1), 289-295.	Ma, Wenxiu (上海电力大学，山东科技大学)	264
10	000645568100010	A fuzzy-based strategy to suppress the novel coronavirus (2019-nCoV) massive outbreak. Applied and Computational Mathematics, 2021, 20(1), 160-176.	Chu, Yuming (湖州师范学院，长沙理工大学)	255

表 2　中国物理学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000472545400013	Surface passivation of perovskite film for efficient solar cells. Nature Photonics, 2019, 13(7), 460-466.	You, Jingbi (中国科学院半导体研究所，中国科学院大学)	2963
2	000444513300035	Organic and solution-processed tandem solar cells with 17.3% efficiency. Science, 2018, 361(6407),1094-1098.	Wan, Xiangjian (南开大学); Chen, Yongsheng (南开大学); Ding, Liming (中国科学院国家纳米科学中心)	2038
3	000426153800012	Next-generation organic photovoltaics based on non-fullerene acceptors. Nature Photonics, 2018, 12(3), 131-142.	Li, Gang (香港理工大学); Zhan Xiaowei (北京大学)	1364
4	000678508900017	VASPKIT: A user-friendly interface facilitating high-throughput computing and analysis using VASP code. Computer Physics Communications, 2021, 267.	Wang, Vei (西安理工大学)	1311
5	000448900900051	Gate-tunable room-temperature ferromagnetism in two-dimensional Fe3GeTe2. Nature, 2018, 563(7729), 94-99.	Zhang, Yuanbo (复旦大学，南京大学)	1291
6	000450960000050	Efficient and stable emission of warm-white light from lead-free halide double perovskites. Nature, 2018, 563(7732), 541-545.	Tang, Jiang (华中科技大学)	1128
7	000446187900045	Integrated lithium niobate electro-optic modulators operating at CMOS-compatible voltages. Nature, 2018, 562(7725), 101-104.	Wang, Cheng (香港城市大学)	1042
8	000443755200037	All-inorganic perovskite nanocrystal scintillators. Nature, 2018, 561(7721), 88-93.	Liu, Xiaogang (深圳大学，新加坡国立大学苏州研究院); Yang, Huanghao (福州大学); Huang, Wei (南京工业大学，南京邮电大学，西北工业大学)	1003
9	000442348000009	Edge states and topological invariants of non-hermitian systems. Physical Review Letters, 2018, 121(8).	Wang, Zhong (清华大学，量子物质科学协同创新中心)	900
10	000599959400045	Quantum computational advantage using photons. Science, 2020, 370(6523), 1460-1463.	Pan, Jianwei (中国科学技术大学); Lu, Chaoyang (中国科学技术大学)	854

注：1. 中国作者定义：指论文中标注了中国（含港澳地区）机构的作者，可能包含来华访问的外国人。

2. 作者统计口径：为突出中国作者的贡献，排行榜的论文均为中国作者作为通信作者或第一作者的论文。如果论文的通信作者和第一作者同为中国作者，优先标注通信作者相关信息。

3. 作者机构：排行榜中只标注了作者所属的中国机构。

4. 统计时间窗：2018 － 2022 年。

5. 数据下载时间：2023 年 8 月 8 日。

表 3　中国化学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000459939700006	Nanomaterials with enzyme-like characteristics (nanozymes): Next-generation artificial enzymes (II). Chemical Society Reviews, 2019, 48(4), 1004-1076.	Wei, Hui (南京大学)	2285
2	000434871000005	Heterogeneous single-atom catalysis. Nature Reviews Chemistry, 2018, 2(6), 65-81.	Wang, Aiqin (中国科学院大连化学物理研究所); Zhang, Tao (中国科学院大连化学物理研究所，中国科学院大学); Li, Jun (清华大学)	2134
3	000446142400015	Design and Mechanisms of Asymmetric Supercapacitors. Chemical Reviews, 2018, 118(18), 9233-9280.	Shao, Yuanlong (东华大学); Wang, Hongzhi (东华大学)	1725
4	000464383500004	Photothermal therapy and photoacoustic imaging via nanotheranostics in fighting cancer. Chemical Society Reviews, 2019, 48(7), 2053-2108.	Dai, Zhifei (北京大学)	1643
5	000453616800057	Ultrathin 2D/2D WO_3/g-C_3N_4 step-scheme H-2-production photocatalyst. Applied Catalysis B-Environmental. 2019, 243, 556-565.	Yu, Jiaguo (武汉理工大学)	1535
6	000558678900011	S-scheme heterojunction photocatalyst. Chem, 2020, 6(7), 1543-1559.	Yu, Jiaguo (武汉理工大学)	1506
7	000462950700011	Nanozymes: Classification, catalytic mechanisms, activity regulation, and applications. Chemical Reviews, 2019, 119(6), 4357-4412.	Qu, Xiaogang (中国科学院长春应用化学研究所)	1441
8	000426143800034	Core-shell ZIF-8@ZIF-67-derived CoP nanoparticle-embedded N-doped carbon nanotube hollow polyhedron for efficient overall water splitting. Journal of the American Chemical Society, 2018, 140(7), 2610-2618.	Chen, Chen (清华大学)	1309
9	000566663800016	Covalent organic frameworks: Design, synthesis, and functions. Chemical Reviews, 2020, 120(16), 8814-8933.	Jiang, Donglin (天津大学)	1294
10	000472226400005	Carbon capture and conversion using metal-organic frameworks and MOF-based materials. Chemical Society Reviews, 2019, 48(10), 2783-2828.	Jiang, Hai-Long (中国科学技术大学)	1279

表 4　中国生物学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000444317200035	fastp: An ultra-fast all-in-one FASTQ preprocessor. Bioinformatics, 2018, 34(17), 884-890.	Chen, Shifu (深圳市海普洛斯生物科技有限公司，中国科学院深圳先进技术研究院)	6079
2	000518098100002	A new coronavirus associated with human respiratory disease in China. Nature, 2020, 579(7798), 265-269.	Zhang, Yongzhen (复旦大学，中国疾病预防控制中心)	5359
3	000529597900002	Antibody responses to SARS-CoV-2 in patients with COVID-19. Nature Medicine, 2020, 26(6), 845-848.	Hu, Jieli (重庆医科大学)；Chen Juan (重庆医科大学); Huang Ailong (重庆医科大学)	5271
4	000557422800016	TBtools: An integrative toolkit developed for interactive analyses of big biological data. Molecular Plant, 2020, 13(8), 1194-1202.	Xia, Rui (华南农业大学)	4649
5	000530819400001	Structure of the SARS-CoV-2 spike receptor-binding domain bound to the ACE2 receptor. Nature, 2020, 581(7807), 215-220.	Wang, Xinquan (清华大学); Zhang Linqi(清华大学)	3392
6	000523251600029	Structural basis for the recognition of SARS-CoV-2 by full-length human ACE2. Science, 2020, 367(6485), 1444-1448.	Zhou, Qiang (浙江西湖高等研究院，西湖大学)	3045
7	000458510700009	Origin and evolution of pathogenic coronaviruses. Nature Reviews Microbiology. 2019,17(3), 181-192.	Shi, Zhengli (中国科学院武汉病毒研究所)	2771
8	000575705700003	Characteristics of SARS-CoV-2 and COVID-19. Nature Reviews Microbiology, 2020, 19(3), 141-154.	Shi, Zhengli (中国科学院武汉病毒研究所)	2189
9	000481862800001	Identification of genetic markers associated with milk production traits in Chinese Holstein cattle based on post genome-wide association studies. Animal Biotechnology, 2019, 32(1), 67-76.	Li, Yaokun (华南农业大学)	2153
10	000526227300001	Temporal dynamics in viral shedding and transmissibility of COVID-19. Nature Medicine, 2020, 26(5).	Lau, Eric H. Y. (香港大学，广州医科大学)	1870

表 5　中国医学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000514576900032	Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet, 2020, 395(10223), 497-506.	Wang, Jianwei (中国医学科学院北京协和医学院); Cao, Bin (中日友好医院)	17689
2	000517119800008	A novel coronavirus from patients with pneumonia in China, 2019. New England Journal of Medicine, 2020, 382(8), 727-733.	Wu, Guizhen (中国疾病预防控制中心); Tan, Wenjie (中国疾病预防控制中心); Gao, George F. (中国疾病预防控制中心)	15732
3	000522650100033	Clinical course and risk factors for mortality of adult inpatients with Covid-19 in Wuhan, China: A Retrospective Cohort Study. Lancet, 2020, 395(10229), 1054-1062.	Chen, Hua (武汉市金银潭医院); Cao, Bin (中日友好医院)	15476
4	000531351300014	Clinical characteristics of coronavirus disease 2019 in China. New England Journal of Medicine, 2020, 382(18), 1708-1720.	Zhong, Nanshan (广州医科大学)	11850
5	000514576900033	Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: A descriptive study. Lancet, 2020, 395(10223), 507-513.	Zhang, Li (武汉市金银潭医院); Zhang, Xinxin (上海交通大学)	8206
6	000514849400027	Genomic characterisation and epidemiology of 2019 novel coronavirus: Implications for virus origins and receptor binding. Lancet, 2020, 395(10224), 565-574.	Tan, Wenjie (中国疾病预防控制中心); Shi, Weifeng (山东第一医科大学，山东省医学科学院)	6759
7	000521968800018	Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA, 2020, 323(11), 1061-1069.	Peng, Zhiyong (武 汉 大 学); Wang, Xinghuan (武汉大学)	5703
8	000514576900034	A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: A study of a family cluster. Lancet, 2020, 395(10223), 514-523.	Yuen, Kwok-Yung (香港大学深圳医院)	5279
9	000542138800006	Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. JAMA Neurology, 2020, 77(6), 683-690.	Li, Yanan (华中科技大学); Hu Bo (华中科技大学)	5208
10	000552103500005	Risk factors associated with acute respiratory distress syndrome and death in patients with coronavirus disease 2019 pneumonia in Wuhan, China. JAMA Internal Medicine, 2020, 180(7), 934-943.	Song, Yuanlin (复旦大学，上海市呼吸病研究所); Zheng, Junhua (上海交通大学)	4707

表 6　中国农业科学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000578741000001	Dietary nutrients shape gut microbes and intestinal mucosa via epigenetic modifications. Critical Reviews in Food Science and Nutrition, 2020, 62(3), 783-797.	Ma, Xi (中国农业大学)	467
2	000423012900002	Emerging chitosan-based films for food packaging applications. Journal of Agricultural and Food Chemistry, 2018, 66(2), 395-413.	Qan, Jun (武汉大学); Ding, Fuyuan (武汉大学)	386
3	000477009600007	Bioactive compounds and bioactivities of ginger (Zingiber officinale Roscoe). Foods, 2019, 8(6).	Li, Huabin (中山大学); Gan, Renyou (上海交通大学)	356
4	000434894500001	Effect of fermentation processing on the flavor of Baijiu. Journal of Agricultural and Food Chemistry, 2018, 66(22), 5425-5432.	Sun, Baoguo (北京工商大学)	350
5	000430777000020	The distribution and morphology of microplastics in coastal soils adjacent to the Bohai Sea and the Yellow Sea. Geoderma, 2018, 322, 201-208.	Luo, Yongming (中国科学院烟台海岸带研究所，中国科学院大学)	332
6	000427332000034	Landslide susceptibility mapping using J48 Decision Tree with AdaBoost, Bagging and Rotation Forest ensembles in the Guangchang area (China). CATENA, 2018, 163, 399-413.	Zhu, Axing (南京师范大学); Chen, Wei (西安科技大学)	301
7	000430031900012	Decreasing soil microbial diversity is associated with decreasing microbial biomass under nitrogen addition. Soil Biology & Biochemistry, 2018, 120, 126-133.	Bai, Edith (中国科学院沈阳应用生态研究所，东北师范大学)	299
8	000419417900033	Exposure of soil collembolans to microplastics perturbs their gut microbiota and alters their isotopic composition. Soil Biology & Biochemistry, 2018, 116, 302-310.	Zhu, Yongguan (中国科学院城市环境研究所，中国科学院生态环境研究中心)	296
9	000437110500004	Food packaging: A comprehensive review and future trends. Comprehensive Reviews in Food Science and Food Safety, 2018, 17(4), 860-877.	Qian, Jianping (国家农业信息化工程技术研究中心，北京市农林科学院)	285
10	000438312200007	Development Strategies and Prospects of Nano-based Smart Pesticide Formulation. Journal of Agricultural and Food Chemistry, 2018, 66(26), 6504-6512.	Cui, Haixin (中国农业科学院)	284

表 7　中国地学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000446368900004	Trends in China's anthropogenic emissions since 2010 as the consequence of clean air actions. Atmospheric Chemistry and Physics, 2018, 18(19), 14095-14111.	Zhang, Qiang (清华大学)	1254
2	000500804600020	Drivers of improved PM2.5 air quality in China from 2013 to 2017. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116(49), 24463-24469.	Zhang, Qiang (清华大学); He, Kebin (清华大学); Hao, Jiming (清华大学)	1066
3	000469158200013	Deep learning in remote sensing applications: A meta-analysis and review. ISPRS Journal of Photogrammetry and Remote Sensing, 2019, 152, 166-177.	Ma, Lei (南京大学)	931
4	000430130800003	A review of global precipitation data sets: Data sources, estimation, and intercomparisons. Reviews of Geophysics, 2018, 56(1), 79-107.	Miao, Chiyuan (北京师范大学)	881
5	000430739600024	When deep learning meets metric learning: Remote sensing image scene classification via learning discriminative cnns. IEEE Transactions on Geoscience and Remote Sensing, 2018, 56(5), 2811-2821.	Han, Junwei (西北工业大学)	870
6	000455086900016	Anthropogenic drivers of 2013-2017 trends in summer surface ozone in China. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116(2), 422-427.	Liao, Hong (南京信息工程大学)	821
7	000665167500041	Graph convolutional networks for hyperspectral image classification. IEEE Transactions on Geoscience and Remote Sensing, 2021, 59(7), 5966-5978.	Gao, Lianru (中国科学院空天信息创新研究院)	730
8	000430730200023	Road extraction by deep residual U-Net. IEEE Geoscience and Remote Sensing Letters, 2018, 15(5), 749-753.	Liu, Qingjie (北京航空航天大学)	676
9	000484209000032	Deep learning for hyperspectral image classification: An overview. IEEE Transactions on Geoscience and Remote Sensing, 2019, 57(9), 6690-6709.	Fang, Leyuan (湖南大学，视觉感知与人工智能湖南省重点实验室)	671
10	000649235000011	Characteristics, drivers and feedbacks of global greening. Nature Reviews Earth & Environment, 2020, 1(1), 14-27.	Piao, Shilong (北京大学，中国科学院青藏高原研究所，中国科学院青藏高原地球科学卓越创新中心)	620

表 8　中国空间科学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000452386600008	Gaps and rings in an ALMA survey of disks in the Taurus star-forming region. Astrophysical Journal, 2018, 869(1), 17.	Long, Feng (北京大学)	266
2	000424117300036	The clustering of the SDSS-IV extended Baryon Oscillation Spectroscopic Survey DR14 quasar sample: First measurement of Baryon Acoustic Oscillations between redshift 0.8 and 2.2. Monthly Notices of the Royal Astronomical Society, 2018, 473(4), 4773-4794.	Zhao, Gongbo (中国科学院国家天文台)	262
3	000444460600001	Tale of stable interacting dark energy, observational signatures, and the H-0 tension. Journal of Cosmology and Astroparticle Physics, 2018, (9), 019.	Yang, Weiqiang (辽宁师范大学)	204
4	000470703700002	The optical to mid-infrared extinction law based on the APOGEE, Gaia DR2, Pan-STARRS1, SDSS, APASS, 2MASS, and WISE surveys. Astrophysical Journal, 2019, 877(2), 116.	Wang, Shu (中国科学院国家天文台，北京大学)	191
5	000651348600001	Ultrahigh-energy photons up to 1.4 petaelectronvolts from 12 gamma-ray Galactic sources. Nature, 2021, 594(7861), 33-36.	Cao, Zhen (中国科学院高能物理研究所，天府宇宙线研究中心，中国科学院大学); Chen, Songzhan (中国科学院高能物理研究所，天府宇宙线研究中心); Yang, Ruizhi (中国科学技术大学); Liu, Ruoyu (南京大学)	179
6	000590412400003	The assembly of the first massive black holes. Annual Review of Astronomy and Astrophysics, 2020, 58, 27-97.	Inayoshi, Kohei (北京大学)	177
7	000428051200002	Hubble parameter and baryon acoustic oscillation measurement constraints on the hubble constant, the deviation from the spatially flat lambda CDM model, the deceleration-acceleration transition redshift, and spatial curvature. Astrophysical Journal, 2018, 856(1).	Yu, Hai (南京大学)	171
8	000424011300024	Compositional imprints in density-distance-time: A rocky composition for close-in low-mass exoplanets from the location of the valley of evaporation. Astrophysical Journal, 2018, 853(2).	Jin, Sheng (中国科学院紫金山天文台)	156
9	000518771900009	A catalog of newly identified star clusters in GAIA DR2. Astrophysical Journal Supplement Series, 2019, 245(2).	Pang, Xiaoying (西交利物浦大学，上海应用技术学院，上海师范大学)	126
10	000423674100003	A peculiar low-luminosity short gamma-ray burst from a double neutron star merger progenitor. Nature Communications, 2018, 9.	Zhang, Binbin (南京大学); Zhang, Bing (北京大学)	120

表 9　中国材料科学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000446920400048	Perovskite light-emitting diodes with external quantum efficiency exceeding 20 per cent. Nature, 2018, 562(7726), 245-248.	Wei, Zhanhua (华侨大学)	2232
2	000423153800009	Organic solar cells based on non-fullerene acceptors. Nature Materials, 2018, 17(2), 119-128.	Hou, Jianhui (中国科学院化学研究所)	2098
3	000517774500006	18% efficiency organic solar cells. Science Bulletin, 2020, 65(4), 272-275.	Ding, Liming (中国科学院国家纳米科学中心); Yang, Shangfeng (中国科学技术大学); Xiao, Zuo (中国科学院国家纳米科学中心); Zhang, Xiaotao (天津大学)	2078
4	000427559200007	Non-fullerene acceptors for organic solar cells. Nature Reviews Materials, 2018, 3(3).	Zhan, Xiaowei (北京大学)	1932
5	000423342400005	g-C3N4-based heterostructured photocatalysts. Advanced Energy Materials, 2018, 8(3).	Yu, Jiaguo (武汉理工大学); Jiang, Chuanjia (武汉理工大学)	1666
6	000418533600027	Thermal runaway mechanism of lithium ion battery for electric vehicles: A review. Energy Storage Materials, 2018, 10, 246-267.	Ouyang, Minggao (清华大学)	1386
7	000446550700004	Recent advances in Zn-ion batteries. Advanced Functional Materials, 2018, 28(41).	Song, Ming (徐州工程学院)	1385
8	000446920400049	Perovskite light-emitting diodes based on spontaneously formed submicrometre-scale structures. Nature, 2018, 562(7726), 249-253.	Wang, Jianpu (南京工业大学); Huang, Wei (西北工业大学，南京工业大学，南京邮电大学)	1361
9	000447581500028	Recent advances in aqueous zinc-ion batteries. ACS Energy Letters, 2018, 3(10), 2480-2501.	Zhou, Jiang (中南大学); Liang, Shuquan (中南大学)	1271
10	000522060400001	Single-junction organic photovoltaic cells with approaching 18% efficiency. Advanced Materials, 2020, 32(19).	Yao, Huifeng (中国科学院化学研究所)	1208

表 10　中国计算机科学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000459804500001	Federated machine learning: Concept and applications. ACM Transactions on Intelligent Systems and Technology, 2019, 10(2), 1-19.	Tong, Yongxin (北京航空航天大学)	3989
2	000469154500064	Harris hawks optimization: Algorithm and applications. Future Generation Computer Systems-The International Journal of eScience, 2019, 97, 849-872.	Chen, Huiling (温州大学)	2375
3	000494702100001	Object detection with deep learning: A review. IEEE Transactions on Neural Networks and Learning Systems, 2019, 30(11), 3212-3232.	Zhao, Zhongqiu (合肥工业大学)	2095
4	000439644100006	Recent trends in deep learning based natural language processing. IEEE Computational Intelligence Magazine, 2018, 13(3), 55-75.	Young, Tom (北京理工大学)	1618
5	000447671100002	Blockchain challenges and opportunities: A survey. International Journal of Web and Grid Services, 2018, 14(4), 352-375.	Chen, Xiangping (中山大学)	1303
6	000541155100024	Slime mould algorithm: A new method for stochastic optimization. Future Generation Computer Systems, 2020, 111, 300-323.	Chen, Huiling (温州大学)	1214
7	000519700800005	Achieving multi-hop PRE via branching program. IEEE Transactions on Cloud Computing, 2020, 8(1), 45-58.	Wang, Ding (北京大学)	1094
8	000471704300001	A review of recurrent neural networks: LSTM cells and network architectures. Neural Computation, 2019, 31(7), 1235-1270.	Yu, Yong (西安高新技术研究所，中国航天科工集团第二研究院二十五所)	968
9	000438668100012	Deep visual domain adaptation: A survey. Neurocomputing, 2018, 312, 135-153.	Deng, Weihong (北京邮电大学)	875
10	000582586400018	Generalizing from a few examples: A survey on few-shot learning. ACM Computing Surveys, 2020, 53(3).	Yao, Quanming (香港 4Paradigm Inc)	813

表 11　中国环境科学领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000522389200269	Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. International Journal of Environmental Research and Public Health, 2020, 17(5), 1729.	Ho, Roger C. (淮北师范大学)	4494
2	000580962800001	Coastal haze pollution, economic and financial performance, and sustainable transformation in coastal cities. Journal of Coastal Research, 2020, 109(S1), 1-7.	Wang, Dongwu (广州工程技术职业学院)	1562
3	000494565200001	PhyloSuite: An integrated and scalable desktop platform for streamlined molecular sequence data management and evolutionary phylogenetics studies. Molecular Ecology Resources, 2019, 20(1), 348-355.	Wang, Guitang (中国科学院水生生物研究所，农业农村部淡水养殖病害防治重点实验室); Li, Wenxiang (中国科学院水生生物研究所，农业农村部淡水养殖病害防治重点实验室)	1207
4	000423017000003	Rational design of electrocatalysts and photo(electro) catalysts for nitrogen reduction to ammonia (NH3) under ambient conditions. Energy & Environmental Science, 2018, 11(1), 45-56.	Qiao, Shizhang (天津大学)	1058
5	000435351000002	CdS-Based photocatalysts. Energy & Environmental Science, 2018,11(6), 1362-1391.	Xiang, Quanjun (电子科技大学，华中农业大学); Zhang, Huaiwu (电子科技大学)	977
6	000494816300004	Issues and opportunities facing aqueous zinc-ion batteries. Energy & Environmental Science, 2019, 12(11), 3288-3304.	Zhou, Jiang (中南大学); Liang, Shuquan (中南大学)	975
7	000471283100013	Long-life and deeply rechargeable aqueous Zn anodes enabled by a multifunctional brightener-inspired interphase. Energy & Environmental Science, 2019, 12(6), 1938-1949.	Zhao, Jingwen (中国科学院青岛生物能源与过程研究所); Cui, Guanglei (中国科学院青岛生物能源与过程研究所)	930
8	000457194500021	Defect-rich and ultrathin N doped carbon nanosheets as advanced trifunctional metal-free electrocatalysts for the ORR, OER and HER. Energy & Environmental Science, 2019, 12(1), 322-333.	Li, Jie (中南大学); Li, Wenzhang (中南大学)	910
9	000439405600069	A review of soil heavy metal pollution from industrial and agricultural regions in China: Pollution and risk assessment. Science of the Total Environment, 2018, 642,690-700.	Huang, Lei (南京大学); Bi, Jun (南京大学)	899
10	000542785300001	Removal of ten pesticide residues on/in kumquat by washing with alkaline electrolysed water. International Journal of Environmental Analytical Chemistry, 2020,102(15), 3638-3651.	Pan, Canping (中国农业大学)	898

表 12　中国工程技术领域热点论文（2018－2022 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000545415400015	Squeeze-and-excitation networks. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2020, 42(8), 2011-2023.	Hu, Jie (中国科学院软件研究所，中国科学院大学，北京魔门塔科技有限公司)	11160
2	000465149000023	Single-junction organic solar cell with over 15% efficiency using fused-ring acceptor with electron-deficient core. Joule, 2019, 3(4),1140-1151.	Zou, Yingping (中南大学)	3521
3	000418533400150	Activation of persulfate (PS) and peroxymonosulfate (PMS) and application for the degradation of emerging contaminants. Chemical Engineering Journal, 2018, 334, 1502-1517.	Wang, Jianlong (清华大学)	1966
4	000442341000003	VINS-Mono: A robust and versatile monocular visual-inertial state estimator. IEEE Transactions on Robotics, 2018, 34(4), 1004-1020.	Qin, Tong (香港科技大学)	1459
5	000600848500003	A comprehensive survey on transfer learning. Proceedings of the IEEE, 2021,109(1), 43-76.	Qi, Zhiyuan (中国科学院计算技术研究所，中国科学院大学); Zhuang, Fuzhen (中国科学院计算技术研究所，中国科学院大学)	1381
6	000439698900009	Single-atom catalysts: Synthetic strategies and electrochemical applications. Joule, 2018, 2(7), 1242-1264.	Wang, Dingsheng (清华大学); Li, Yadong (清华大学)	1315
7	000425866500015	Atomically dispersed Ni(i) as the active site for electrochemical CO2 reduction. Nature Energy, 2018, 3(2), 140-147.	Huang, Yanqiang (中国科学院大连化学物理研究所); Zhang, Tao (中国科学院大连化学物理研究所)	1254
8	000447085500015	Deep learning and its applications to machine health monitoring. Mechanical Systems and Signal Processing, 2019, 115, 213-237.	Yan, Ruqiang (西安交通大学)	1235
9	000511807100001	Deep learning for generic object detection: A survey. International Journal of Computer Vision, 2020, 128(2), 261-318.	Liu, Li (国防科技大学)	1122
10	000436462700001	FFDNet: Toward a fast and flexible solution for CNN-based image denoising. IEEE Transactions on Image Processing, 2018, 27(9), 4608-4622.	Zuo, Wangmeng (哈尔滨工业大学)	1103