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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2017－2021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、农业科学、地球科学、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（2017－2021 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)	700
2	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)	472
3	000401780500025	Error analysis of a finite difference method on graded meshes for a time-fractional diffusion equation. Siam Journal on Numerical Analysis, 2017, 55(2), 1057-1079.	Stynes Martin (北京计算科学研究中心)	373
4	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)	334
5	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)	327
6	000388551100014	Initial-boundary value problems for the general coupled nonlinear schrodinger equation on the interval via the fokas method. Journal of Differential Equations, 2017, 262(1), 506-558.	Tian Shoufu (中国矿业大学)	249
7	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)	242
8	000452424900009	Existence and multiplicity of solutions for p(x)-Laplacian equations in R-N. Mathematische Nachrichten, 2018, 291(16), 2476-2488.	Chen Haibo (中南大学)	236
9	000393000400003	Exact travelling wave solutions for the local fractional two-dimensional burgers-type equations. Computers and Mathematics with Applications, 2018, 73(2), 203-210.	Yang Xiaojun (中国矿业大学)	208
10	000411773600019	Mixed hump-kink solutions to the KP equation. Computers and Mathematics with Applications, 2017, 74(6), 1399-1405.	Zhao Haiqiong (上海对外经贸大学)	203

表 2　中国物理学领域热点论文（2017－2021 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)	2224
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)	1847
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)	1126
4	000407994800003	The AME2016 atomic mass evaluation (II). Tables, graphs and references. Chinese Physics C, 2017, 41(3), 131-142.	Wang Meng (中国科学院近代物理研究所，兰州大学)	1106
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)	912
6	000405661100003	Battery-supercapacitor hybrid devices: Recent progress and future prospects. Advanced Science, 2017, 4(7), 1600539.	Liu Jinping (武汉理工大学); Li Yuanyuan (华中科技大学)	894
7	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)	765
8	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)	732
9	000443755200037	All-inorganic perovskite nanocrystal scintillators. Nature, 2018, 562(7721), 88-93.	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); Liu Xiaogang (深圳大学，新加坡国立大学苏州研究院)	688
10	000413903200006	Dark matter results from 54-ton-day exposure of PandaX-II experiment. Physical Review Letters, 2017, 119(18), 181302.	Liu Jianglai (中国科学院上海应用物理研究所，李政道研究所-上海交通大学); Wang Qiuhong (中国科学院上海应用物理研究所)	657

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：2017－2021 年。

5. 数据下载时间：2022 年 7 月 18 日。

表 3　中国化学领域热点论文（2017－2021 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000394561900003	Electrocatalysis for the oxygen evolution reaction: recent development and future perspectives. Chemical Society Reviews, 2017, 46(2), 337-365.	Xu Yijun (福州大学)	2958
2	000407540500012	Toward safe lithium metal anode in rechargeable batteries: A review. Chemical Reviews, 2017, 117(15), 10403-10473.	Zhang Qiang (清华大学)	2775
3	000402691800005	Molecular optimization enables over 13% efficiency in organic solar cells. Journal of the American Chemical Society, 2017, 139(21), 7148-7151.	Yao Huifeng (中国科学院化学研究所，中国科学院大学); Hou Jianhui (中国科学院化学研究所，中国科学院大学)	2144
4	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)	1555
5	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)	1540
6	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)	1331
7	000395629200010	Recent advances in organic thermally activated delayed fluorescence materials. Chemical Society Reviews, 2017, 46(3), 915-1016.	Zhang Yi (中山大学); Zhao Juan (中山大学); Chi Zhenguo (中山大学)	1250
8	000391955700006	Multifunctional metal-organic framework catalysts: Synergistic catalysis and tandem reactions. Chemical Society Reviews, 2017, 46(1), 126-157.	Cao Rong (中国科学院福建物质结构研究所)	1189
9	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)	1178
10	000402523900044	Isolated single iron atoms anchored on N-doped porous carbon as an efficient electrocatalyst for the oxygen reduction reaction. Angewandte Chemie International Edition, 2017, 56(24), 6937-6941.	Wang Dingsheng (清华大学); Li Yadong (清华大学)	1147

表 4　中国生物学领域热点论文（2017－2021 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	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)	4501
2	000518098100001	A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature, 2020, 579(7798), 270-273.	Shi Zhengli (中国科学院武汉病毒研究所)	4431
3	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)	4151
4	000404427000015	GEPIA: a web server for cancer and normal gene expression profiling and interactive analyses. Nucleic Acids Research, 2017, 45(W1), W98-W102.	Zhang Zemin (北京大学)	4149
5	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)	2961
6	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)	2500
7	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)	2445
8	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)	2282
9	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)	2067
10	000537932300001	Structure of M-pro from SARS-CoV-2 and discovery of its inhibitors. Nature, 2020, 582(7811), 289-293.	Jiang Hualiang (上海科技大学，中国科学院上海药物研究所)；Rao Zihe (上海科技大学，清华大学，南开大学)；Yang Haitao (上海科技大学)	1699

表 5　中国医学领域热点论文（2017－2021 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)	18366
2	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)	12979
3	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)	12907
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)	11797
5	000595479200001	Antibody responses to SARS-CoV-2 in patients with novel coronavirus disease 2019. Clinical Infectious Diseases, 2020, 71(16), 2027-2034.	Zhang Zheng (深圳市第三人民医院)	10766
6	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)	7830
7	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)	7486
8	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)	7248
9	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)	5783
10	000518992100001	A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (standard version). Military Medical Research, 2020, 7(1), 4.	Zeng Xiantao (武汉大学); Wang Xinghuan (武汉大学); Wang Yongyan (中国中医科学院)	5383

表 6　中国农业科学领域热点论文（2017－2021 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000408536000041	Temperature increase reduces global yields of major crops in four independent estimates. Proceedings of the National Academy of Sciences, 2017, 114(35), 9326-9331.	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)	689
2	000393723300014	A comparative study of logistic model tree, random forest, and classification and regression tree models for spatial prediction of landslide susceptibility. Catena, 2017,151, 147-160.	Hong Haoyuan (江西省气象局)	404
3	000396781200009	Dietary flavonoid aglycones and their glycosides: Which show better biological significance? Critical Reviews in Food Science and Nutrition, 2017, 57(9), 1874-1905.	Xiao Jianbo (澳门大学)	286
4	000423012900002	Emerging chitosan-based films for food packaging applications. Journal of Agricultural and Food Chemistry, 2018, 86(2), 395-413.	Qan Jun (武汉大学); Ding Fuyuan (武汉大学)	281
5	000390746800002	Improving agricultural water productivity to ensure food security in China under changing environment: From research to practice. Agricultural Water Management, 2017, 179, 5-17.	Kang Shaozhong (中国农业大学)	280
6	000402054500099	Antioxidant properties of probiotic bacteria. Nutrients, 2017, 9, 521.	Wang Yibing (浙江大学); Li Weifen (浙江大学)	279
7	000395181700042	Epigenetic regulation of antagonistic receptors confers rice blast resistance with yield balance. Science, 2017, 355(6328), 962-965.	He Zuhua (中国科学院上海生命科学研究院，浙江大学)	258
8	000418136900038	A combination of quercetin and resveratrol reduces obesity in high-fat diet-fed rats by modulation of gut microbiota. Food & Function, 2017, 8(12), 4644-4656.	Zhou Mingmei (上海中医药大学)	256
9	000392664800001	Novel metabolic and physiological functions of branched chain amino acids: A review. Journal of Animal Science and Biotechnology, 2017, 8, 10.	Zeng Xiangfang (中国农业大学)	253
10	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)	238

表 7　中国地球科学领域热点论文（2017－2021 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000500804600020	Drivers of improved PM2.5 air quality in China from 2013 to 2017. Proceedings of the National Academy of Sciences.2019, 116(49), 24463-24469.	Zhang Qiang (清华大学）；He Kebin (清华大学）；Hao Jiming (清华大学)	3715
2	000477569700002	A further study on the simulation of cloud-radiative feedbacks in the ENSO cycle in the tropical pacific with a focus on the asymmetry. Asia-Pacific Journal of Atmospheric Sciences, 2019, 55(3), 303-316.	Chen Lin (南京信息工程大学，青岛海洋科学与技术试点国家实验室)	1512
3	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)	887
4	000394594500006	MIX: A mosaic Asian anthropogenic emission inventory under the international collaboration framework of the MICS-Asia and HTAP. Atmospheric Chemistry and Physics, 2017, 17(2), 935-963.	Zhang Qiang (清华大学，区域环境质量协同创新中心)	726
5	000404300900027	AID: A benchmark data set for performance evaluation of aerial scene classification. IEEE Transactions on Geoscience and Remote Sensing, 2017, 55(7), 3965-3981.	Xia Guisong (武汉大学)	715
6	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)	688
7	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)	645
8	000455086900016	Anthropogenic drivers of 2013-2017 trends in summer surface ozone in China. Proceedings of the National Academy of Sciences, 2019, 116(2), 422-427.	Liao Hong (南京信息工程大学)	624
9	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)	610
10	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)	537

表 8　中国空间科学领域热点论文（2017－2021 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000393455400029	A new electron-density model for estimation of pulsar and FRB distances. Astrophysical Journal, 2017, 835(1), 29.	Yao Juming (中国科学院新疆天文台，中国科学院大学)	444
2	000415268900002	Dynamical dark energy in light of the latest observations. Nature Astronomy, 2017, 1(9), 627-632.	Zhao Gongbo (中国科学院国家天文台)	262
3	000397309900002	The Chandra Deep Field-South survey: 7 Ms source catalogs. Astrophysical Journal Supplement series, 2017, 228(1), 2.	Luo Bin (南京大学，现代天文与空间探测协同创新中心)	251
4	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)	240
5	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)	202
6	000417714500001	BAT AGN Spectroscopic Survey. V. X-Ray properties of the Swift/BAT 70-month AGN catalog. Astrophysical Journal Supplement Series, 2017, 233(2), 17.	Ricci Claudio (北京大学，中国科学院南美天文研究中心 / 中国科学院中智天文联合研究中心)	188
7	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)	169
8	000413280800002	The DArk Matter Particle Explorer mission. Astroparticle Physics, 2017, 95, 6-24.	Chang Jin (中国科学院紫金山天文台)	137
9	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)	136
10	000411930000043	The close environments of accreting massive black holes are shaped by radiative feedback. Nature, 2017, 549(7673), 488-491.	Ricci Claudio (中国科学院南美天文研究中心 / 中智天文联合研究中心，北京大学)	128

表 9　中国材料科学领域热点论文（2017－2021 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000401563200004	Heterojunction photocatalysts. Advanced Materials, 2017, 29(20), 1601694	Yu Jiaguo (武汉理工大学)	1933
2	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)	1753
3	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)	1741
4	000390622100002	A review on g-C_3N_4-based photocatalysts. Applied Surface Science, 2017, 391, 72-123.	Li Xin (华南农业大学)	1642
5	000427559200007	Non-fullerene acceptors for organic solar cells. Nature Reviews Materials, 2018, 3(3), 18003.	Zhan Xiaowei (北京大学)	1601
6	000423342400005	g-C_3N_4-based heterostructured photocatalysts. Advanced Energy Materials, 2018, 8(3), 1701503.	Yu Jiaguo (武汉理工大学); Jiang Chuanjia (武汉理工大学)	1278
7	000418382500007	Review on high-loading and high-energy lithium-sulfur batteries. Advanced Energy Materials, 2017, 7(24), 1700260.	Zhang Qiang (清华大学)	1225
8	000403280600006	Metal-organic framework (MOF)-based drug/cargo delivery and cancer therapy. Advanced Materials, 2017, 29(23), 1606134.	Yang Yingwei (吉林大学)	1118
9	000400024500015	Alkali-assisted synthesis of nitrogen deficient graphitic carbon nitride with tunable band structures for efficient visible-light-driven hydrogen evolution. Advanced Materials, 2017, 29(16), 1605148.	Zhang Tierui (中国科学院理化技术研究所)	1109
10	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 (南京工业大学，南京邮电大学，西北工业大学)	1072

表 10　中国计算机科学领域热点论文（2017－2021 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)	3661
2	000416509900010	A survey on mobile edge computing: The communication perspective. IEEE Communications Surveys and Tutorials, 2017, 19(4), 2322-2358.	You Changsheng (香港大学)	1390
3	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)	1346
4	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)	1325
5	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)	1142
6	000412362300003	A survey on internet of things: Architecture, enabling technologies, security and privacy, and applications. IEEE Internet of Things Journal, 2017, 4(5), 1125-1142.	Lin Jie (西安交通大学)	1043
7	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)	915
8	000430319600003	A resource allocation model based on double-sided combinational auctions for transparent computing. Peer-to-Peer Networking and Applications, 2018, 11(4), 679-696.	Zeng Zhiwen (中南大学)	869
9	000396404600004	Energy-efficient resource allocation for mobile-edge computation offloading. IEEE Transactions on Wireless Communications, 2017, 16(3), 1397-1411.	You Changsheng (香港大学)	807
10	000541155100024	Slime mould algorithm: A new method for stochastic optimization. Future Generation Computer Systems, 2020, 111, 300-323.	Chen Huiling (温州大学)	628

表 11　中国环境科学领域热点论文（2017－2021 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)	2767
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)	2048
3	000393305300004	ggtree: an R package for visualization and annotation of phylogenetic trees with their covariates and other associated data. Methods in Ecology and Evolution, 2017, 8(1), 28-36.	Lam Tommy Tsan-Yuk (香港大学)	1367
4	000423017000003	Rational design of electrocatalysts and photo(electro) catalysts for nitrogen reduction to ammonia (NH_3) under ambient conditions. Energy and Environmental Science, 2018, 11(1), 45-56.	Qiao Shizhang (天津大学)	858
5	000401557600033	Occurrences and removal of pharmaceuticals and personal care products (PPCPs) in drinking water and water/ sewage treatment plants: A review. Science of the Total Environment, 2017, 596, 303-320.	Tsang Yiufai (香港教育大学)	759
6	000400879800053	Mechanisms of metal sorption by biochars: Biochar characteristics and modifications. Chemosphere, 2017, 178, 466-478.	Chen Yanshan (南京大学); Ma Lena Q (南京大学)	749
7	000435351000002	CdS-based photocatalysts. Energy and 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)	743
8	000530763300291	Impacts of drought on maize and soybean production in northeast China during the past five decades. International Journal of Environmental Research and Public Health, 2020, 17(7), 2459.	Wang Chunyi (中国气象科学研究院)	735
9	000407211200013	Cu nanowires shelled with NiFe layered double hydroxide nanosheets as bifunctional electrocatalysts for overall water splitting. Energy and Environmental Science, 2017, 10(8), 1820-1827.	Yu Ying (华中师范大学)	716
10	000529342300222	The impact of COVID-19 epidemic declaration on psychological consequences: A study on active weibo users. International Journal of Environmental Research and Public Health, 2020, 17(6), 2032.	Zhao Nan (中国科学院心理研究所); Zhu Tingshao (中国科学院心理研究所)	672

表 12　中国工程技术领域热点论文（2017－2021 年）

序号	WOS 号	论文题目	作者及机构	被引频次
1	000401091200007	Faster R-CNN: Towards real-time object detection with region proposal networks. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2017, 39(6), 1137-1149.	Ren Shaoqing (中国科学技术大学)	3248
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)	2634
3	000401297400005	Beyond a gaussian denoiser: Residual learning of deep CNN for image denoising. IEEE Transactions on Image Processing, 2016, 26(7), 3142-3155.	Zhang Kai (哈尔滨工业大学)	2115
4	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)	1384
5	000394793600001	Enhanced electron extraction using SnO_2 for high-efficiency planar-structure $HC(NH_2)_2PbI_3$-based perovskite solar cells. Nature Energy, 2017, 2(1), 1-7.	Zhang Xingwang (中国科学院半导体研究所); You Jingbi (中国科学院半导体研究所)	1291
6	000406818800002	Lignocellulosic biomass pyrolysis mechanism: A state-of-the-art review. Progress in Energy and Combustion Science, 2017, 62, 33-86.	Wang Shurong (浙江大学)	1103
7	000425866500015	Atomically dispersed Ni(I) as the active site for electrochemical CO_2 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)	968
8	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)	962
9	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)	934
10	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)	918