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ESI 中能源领域热点论文信息快报

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ESI 中能源领域热点论文信息快报
——基于 2021 年 7 月更新数据

ESI（Essential Science Indicators）热点论文指近两个月内被引次数高居前千分之一的 SCI 文章，即最近两个月内最受关注的文章。

本期入榜文章是 2021 年 6 月至 7 月两个月内被引次数排名前千分之一的文章，数据更新时间为 2021 年 7 月 15 日。

本期 ESI 发布的能源领域热点论文共计 221 篇，其中首次入榜文章 130 篇。单篇最高被引 455 次，最低被引 8 次。被引 1544 次的文章标题为“**Methylammonium Chloride Induces Intermediate Phase Stabilization for Efficient Perovskite Solar Cells**”，发表在 Cell Press 旗下的能源旗舰期刊 *JOULE*（2019 年影响因子 41.248）上。文章的第一作者为韩国能源研究院的 Kim, Minjin，系统地研究了甲基氯化铵(MACI)添加剂在甲眯碘化铅(FAPbl3）钙钛矿中的作用。添加 MACI 制备的薄膜晶粒尺寸增大了 6 倍。有趣的是，在没有退火的情况下，MACI 仅通过阳离子位点取代就能有效地稳定 FAPbl3 中间体的 c 相，从而制造出具有超纯 α 相的高结晶度 FAPbl3 钙钛矿，光致发光寿命增加了 4.3 倍。密度泛函理论(DFT）得出钙钛矿结构的形成与 MACI 的掺入量有关。当添加 40 摩尔%MACl 时优化的太阳能电池获得了 24.02%的最高效率，认证效率为 23.48%。

首次入榜的文章[1]有：

9．类石墨相氮化碳半导体材料用于可见光催化析氢反应

21. 含氟和酯取代的单二烯装置，使非全聚乙烯太阳能电池具有 16.4%的效率，具有高性能的供体聚合物

[1] 按照被引频次排序，仅列举排名 TOP15 文章

25．高曲率碳负载铂原子高效析氢

26．用于钾离子电池的先进碳基阳极

34．锂硫电池原位构建的 TiO2-MXene 异质结构捕获并催化转化多硫化物

37．全无机钙钛矿太阳能电池的最新进展

46．储能用固定式钠离子电化学电池特征探讨

47．膨胀水合钒酸盐在高性能水性锌离子电池中的应用

50．通过生态城市指标治理促进可持续发展：多空间视角

53．具有微孔结构的碳泡沫，用于高性能对称钾双离子电容器

56．Ni-Fe 氢氧化物(壳)锚定 Ni-Fe 合金纳米线(芯)阵列的优异性能

58．咖啡因改善钙钛矿型太阳能电池的性能和热稳定性

59．100% 可再生能源系统的现状和前景

61．木质素利用：木质素解聚的多方面综述

63．高效的有机太阳能电池，具有精细的受体结晶和形态，可实现16.88%的效率，并具有改善的电荷转移和传输性能

该领域所有热点文章的详细信息请见附表（按文章被引次数排列）。

附表：ESI 中能源领域热点论文列表（2021 年 7 月更新）

注：红色为首次入榜文章，黑色在往期亦是热点文章

序号	题目	第一作者及其单位	期刊及其影响因子[2]	原文或摘要链接	单篇被引
1	Methylammonium Chloride Induces Intermediate Phase Stabilization for Efficient Perovskite Solar Cells	Kim, Minjin KIER	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/S2542435119303058	455
2	Solar cell efficiency tables (version 54)	Green, Martin A. Univ New South Wales	PROGRESS IN PHOTOVOLTAICS 7.953	https://onlinelibrary.wiley.com/doi/full/10.1002/pip.3171	417
3	Hydrogen energy, economy and storage: Review and recommendation	Abe, J. O. Tshwane Univ Technol	INTERNATIONAL JOURNAL OF HYDROGEN ENERGY 5.816	http://www.sciencedirect.com/science/article/pii/S036031991931465X	344
4	Advances and challenges in understanding the electrocatalytic conversion of carbon dioxide to fuels	Birdja, Yuvraj Y. Leiden Univ	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0450-y	313

[2] 数据来源：2019 年 Journal Citation Report（JCR）公布的影响因子数据

5	Issues and opportunities facing aqueous zinc-ion batteries	Tang, Boya Cent S Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee02526j#!	301
6	Solar cell efficiency tables (Version 55)	Green, Martin A. Univ New South Wales	PROGRESS IN PHOTOVOLTAICS 7.953	https://onlinelibrary.wiley.com/doi/10.1002/pip.3228	299
7	Challenges and opportunities towards fast-charging battery materials	Liu, Yayuan Stanford Univ	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0405-3	291
8	Alkyl Chain Tuning of Small Molecule Acceptors for Efficient Organic Solar Cells	Jiang, Kui Cent S Univ	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/S2542435119304702	288
9	Semiconductor polymeric graphitic carbon nitride photocatalysts: the holy grail for the photocatalytic hydrogen evolution reaction under visible light	Liao, Guangfu Sun Yat Sen Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee00717b	277
10	Cation and anion immobilization through chemical bonding enhancement with fluorides for stable halide perovskite solar cells	Li, Nengxu Peking Univ	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0382-6	274

11	Over 17% efficiency ternary organic solar cells enabled by two non-fullerene acceptors working in an alloy-like model	Zhan, Lingling Zhejiang Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2020/ee/c9ee03710a#!	261
12	Recent progress made in the mechanism comprehension and design of electrocatalysts for alkaline water splitting	Hu, Congling Tianjin Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee01202h	258
13	Optimal sizing and location based on economic parameters for an off-grid application of a hybrid system with photovoltaic, battery and diesel technology	Cai, Wei Ningbo Univ Technol	ENERGY 7.147	http://www.sciencedirect.com/science/article/pii/S0360544220305879	254
14	Cd-Free Cu(In,Ga)(Se,S)(2) Thin-Film Solar Cell With Record Efficiency of 23.35%	Nakamura, Motoshi Idemitsu Kosan Co Ltd	IEEE JOURNAL OF PHOTOVOLTAICS 3.887	https://ieeexplore.ieee.org/document/8825469	248
15	Monolithic all-perovskite tandem solar cells with 24.8% efficiency exploiting comproportionation to suppress Sn(II) oxidation in precursor ink	Lin, Renxing Nanjing Univ	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-019-0466-3	245
16	Managing grains and interfaces via ligand anchoring enables 22.3%-efficiency inverted perovskite solar cells	Zheng, Xiaopeng KAUST	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0538-4?utm_source=other&utm_medium=other&utm_content=null	236

17	Long-life and deeply rechargeable aqueous Zn anodes enabled by a multifunctional brightener-inspired interphase	Zhao, Zhiming Chinese Acad Sci	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee00596j#!divAbstract	232
18	CO2 reduction on gas-diffusion electrodes and why catalytic performance must be assessed at commercially-relevant conditions	Burdyny, Thomas Delft Univ Technol	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c8ee03134g	225
19	Biomass-derived porous carbon materials with different dimensions for supercapacitor electrodes: a review	Bi, Zhihong Chinese Acad Sci	JOURNAL OF MATERIALS CHEMISTRY A 12.732	https://pubs.rsc.org/en/content/articlelanding/2019/ta/c9ta04436a	211
20	Building aqueous K-ion batteries for energy storage	Jiang, Liwei Chinese Acad Sci	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0388-0	209
21	A monothiophene unit incorporating both fluoro and ester substitution enabling high-performance donor polymers for non-fullerene solar cells with 16.4% efficiency	Sun, Huiliang Southern Univ Sci & Technol SUSTech	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee01890e#!divAbstract	208
22	Data-driven prediction of battery cycle life before capacity degradation	Severson, Kristen A. MIT	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0356-8/	207

23	Solid-state polymer electrolytes with in-built fast interfacial transport for secondary lithium batteries	Zhao, Qing Cornell Univ	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0349-7	205
24	An interface stabilized perovskite solar cell with high stabilized efficiency and low voltage loss	Yoo, Jason J. MIT	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee00751b#!divAbstract	203
25	Atomically dispersed platinum supported on curved carbon supports for efficient electrocatalytic hydrogen evolution	Li, Daobin Univ Sci & Technol China	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0402-6	186
26	Advanced Carbon-Based Anodes for Potassium-Ion Batteries	Wu, Xuan Macau Univ Sci & Technol	ADVANCED ENERGY MATERIALS 29.368	http://onlinelibrary.wiley.com/doi/10.1002/aenm.201900343	175
27	A review of lithium ion battery failure mechanisms and fire prevention strategies	Wang, Qingsong Univ Sci & Technol China	PROGRESS IN ENERGY AND COMBUSTION SCIENCE 29.394	http://www.sciencedirect.com/science/article/pii/S0360128518301801?via=ihub	174
28	The impact of energy alignment and interfacial recombination on the internal and external open-circuit voltage of perovskite solar cells	Stolterfoht, Martin Univ Potsdam	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee02020a	173

29	A Metal-Organic Framework Host for Highly Reversible Dendrite-free Zinc Metal Anodes	Wang, Zhuo Fudan Univ	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/S2542435119300923	170
30	Solar cell efficiency tables (version 56)	Green, Martin A. Univ New South Wales Sydney	PROGRESS IN PHOTOVOLTAICS 7.953	https://onlinelibrary.wiley.com/doi/abs/10.1002/pip.3303	167
31	High-energy long-cycling all-solid-state lithium metal batteries enabled by silver-carbon composite anodes	Lee, Yong-Gun Samsung Elect Co Ltd	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-020-0604-y?utm_source=other&utm_medium=other&utm_content=null	166
32	Consensus statement for stability assessment and reporting for perovskite photovoltaics based on ISOS procedures	Khenkin, Mark V. Ben Gurion Univ Negev	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0529-5	166
33	Selective visible-light-driven photocatalytic CO2 reduction to CH4 mediated by atomically thin CuIn5S8 layers	Li, Xiaodong Univ Sci & Technol China	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0431-1	164
34	Capture and Catalytic Conversion of Polysulfides by In Situ Built TiO2-MXene Heterostructures for Lithium-Sulfur Batteries	Jiao, Long Tianjin Univ	ADVANCED ENERGY MATERIALS 29.368	https://www.onlinelibrary.wiley.com/doi/full/10.1002/aenm.201900219	164

35	Current understanding and challenges of solar-driven hydrogen generation using polymeric photocatalysts	Wang, Yiou UCL	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-019-0456-5	163
36	Trace doping of multiple elements enables stable battery cycling of LiCoO2 at 4.6V	Zhang, Jie-Nan Chinese Acad Sci	NATURE ENERGY 60.858	http://www.iop.cas.cn/xwzx/kydt/201906/P020190624426073511729.pdf	162
37	Recent progress of inorganic perovskite solar cells	Tai, Qidong Hong Kong Polytech Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	http://pubs.rsc.org/en/content/articlelanding/2019/EE/C9EE01479A	161
38	Long cycle life and dendrite-free lithium morphology in anode-free lithium pouch cells enabled by a dual-salt liquid electrolyte	Weber, Rochelle Dalhousie Univ	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0428-9	161
39	High-energy lithium metal pouch cells with limited anode swelling and long stable cycles	Niu, Chaojiang Pacific Northwest Natl Lab	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0390-6	160
40	High-nickel layered oxide cathodes for lithium-based automotive batteries	Manthiram, Arumugam Univ Texas Austin	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0513-0	157

41	Intercalation-conversion hybrid cathodes enabling Li-S full-cell architectures with jointly superior gravimetric and volumetric energy densities	Xue, Weijiang MIT	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0351-0	153
42	Monolithic solid-electrolyte interphases formed in fluorinated orthoformate-based electrolytes minimize Li depletion and pulverization	Cao, Xia Pacific Northwest Natl Lab	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0464-5	152
43	Scientific Challenges for the Implementation of Zn-Ion Batteries	Blanc, Lauren E. Univ Waterloo	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/S2542435120300945	151
44	Impact of renewable energy consumption and financial development on CO2 emissions and economic growth in the MENA region: A panel vector autoregressive (PVAR) analysis	Charfeddine, Lanouar Qatar Univ	RENEWABLE ENERGY 8.001	http://www.sciencedirect.com/science/article/pii/S0960148119300102	149
45	Wide-gap non-fullerene acceptor enabling high-performance organic photovoltaic cells for indoor applications	Cui, Yong Chinese Acad Sci	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0448-5	148
46	Exploring competitive features of stationary sodium ion batteries for electrochemical energy storage	Liu, Tiefeng Zhejiang Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	http://pubs.rsc.org/en/content/articlelanding/2019/ee/c8ee03727b	148

47	Expanded hydrated vanadate for high-performance aqueous zinc-ion batteries	Liu, Chaofeng Univ Washington	ENERGY & ENVIRONMENTAL SCIENCE 38.532	http://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee00956f/unauth	146
48	Manipulating the ion-transfer kinetics and interface stability for high-performance zinc metal anodes	Xie, Xuesong Cent South Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2020/ee/c9ee03545a	144
49	Hydrogen production for energy: An overview	Dawood, Furat Murdoch Univ	INTERNATIONAL JOURNAL OF HYDROGEN ENERGY 5.816	http://www.sciencedirect.com/science/article/pii/S0360319919345926	143
50	Promoting sustainability through governance of eco-city indicators: a multi-spatial perspective	Deng, Wu Univ Nottingham Ningbo China	INTERNATIONAL JOURNAL OF LOW-CARBON TECHNOLOGIES 2.455	https://academic.oup.com/ijlct/article/16/1/61/5856903	141
51	A review of deep learning for renewable energy forecasting	Wang, Huaizhi Shenzhen Univ	ENERGY CONVERSION AND MANAGEMENT 9.709	http://www.sciencedirect.com/science/article/pii/S0196890419307812	141
52	Large-scale storage of hydrogen	Andersson, Joakim KTH Royal Inst Technol	INTERNATIONAL JOURNAL OF HYDROGEN	http://www.sciencedirect.com/science/article/pii/S0360319919310195	140

			ENERGY 5.816		
53	Carbon foam with microporous structure for high performance symmetric potassium dual-ion capacitor	Feng, Yanhong Hunan Univ	JOURNAL OF ENERGY CHEMISTRY 9.676	https://www.zhangqiaokeyan.com/academic-journal-cn_journal-energy-chemistry_thesis/0201278707064.html	139
54	Benchmarking the performance of all-solid-state lithium batteries	Randau, Simon Justus Liebig Univ Giessen	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-020-0565-1	137
55	New Phase for Organic Solar Cell Research: Emergence of Y-Series Electron Acceptors and Their Perspectives	Li, Shuixing Zhejiang Univ	ACS ENERGY LETTERS 23.101	https://pubs.acs.org/doi/10.1021/acsenergylett.0c00537	136
56	Exceptional performance of hierarchical Ni-Fe oxyhydroxide@NiFe alloy nanowire array electrocatalysts for large current density water splitting	Liang, Caiwu Tsinghua Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2020/ee/c9ee02388g#!divAbstract	135
57	How much does financial development contribute to renewable energy growth and upgrading of energy structure in China?	Ji, Qiang Shandong Normal Univ	ENERGY POLICY 6.142	http://www.sciencedirect.com/science/article/pii/S0301421518308516	135

58	Caffeine Improves the Performance and Thermal Stability of Perovskite Solar Cells	Wang, Rui Univ Calif Los Angeles	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/S2542435119301734	134
59	Status and perspectives on 100% renewable energy systems	Hansen, Kenneth Aalborg Univ	ENERGY 7.147	https://www.sciencedirect.com/science/article/pii/S0360544219304967	134
60	Recent Progresses on Defect Passivation toward Efficient Perovskite Solar Cells	Gao, Feng Chinese Acad Sci	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/abs/10.1002/aenm.201902650	133
61	Lignin utilization: A review of lignin depolymerization from various aspects	Chio, Chonlong Lakehead Univ	RENEWABLE & SUSTAINABLE ENERGY REVIEWS 14.982	http://www.sciencedirect.com/science/article/pii/S136403211930142X	129
62	Recent progress in the synthesis of graphene and derived materials for next generation electrodes of high performance lithium ion batteries	Kumar, Rajesh Toyohashi Univ Technol	PROGRESS IN ENERGY AND COMBUSTION SCIENCE 29.394	http://www.sciencedirect.com/science/article/pii/S0360128519300619	126
63	Efficient Organic Solar Cell with 16.88% Efficiency Enabled by Refined Acceptor Crystallization and Morphology with Improved Charge Transfer and Transport Properties	Zhu, Lei Shanghai Jiao Tong Univ	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/pdf/10.1002/aenm.201904234	125

64	A review on feedstocks, production processes, and yield for different generations of biodiesel	Singh, Digambar Malaviya Natl Inst Technol	FUEL 6.609	http://www.sciencedirect.com/science/article/pii/S0016236119319076	124
65	Predicting residential energy consumption using CNN-LSTM neural networks	Kim, Tae-Young Yonsei Univ	ENERGY 7.147	http://www.sciencedirect.com/science/article/pii/S0360544219311223	124
66	Ligand-assisted cation-exchange engineering for high-efficiency colloidal Cs(1-x)FA(x)PbI(3) quantum dot solar cells with reduced phase segregation	Hao, Mengmeng Univ Queensland	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0535-7/	123
67	Poly(aryl piperidinium) membranes and ionomers for hydroxide exchange membrane fuel cells	Wang, Junhua Univ Delaware	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0372-8	123
68	Fine-Tuning Energy Levels via Asymmetric End Groups Enables Polymer Solar Cells with Efficiencies over 17%	Luo, Zhenghui Hong Kong Univ Sci & Technol	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/S2542435120301380	120
69	Atomically dispersed metal catalysts for the oxygen reduction reaction: synthesis, characterization, reaction mechanisms and electrochemical energy applications	Liu, Minmin Shanghai Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee01722d	120

70	Densely Populated Isolated Single Co-N Site for Efficient Oxygen Electrocatalysis	Wu, Jiabin Huazhong Univ Sci & Technol	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/10.1002/aenm.201900149	120
71	Transition Metal Oxide Anodes for Electrochemical Energy Storage in Lithium- and Sodium-Ion Batteries	Fang, Shan HIU	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/full/10.1002/aenm.201902485	118
72	Patent landscape review on biodiesel production: Technology updates	Mahlia, T. M. I. Univ Technol Sydney	RENEWABLE & SUSTAINABLE ENERGY REVIEWS 14.982	http://www.sciencedirect.com/science/article/pii/S1364032119307348	117
73	Advanced Electrocatalysts for the Oxygen Reduction Reaction in Energy Conversion Technologies	Tian, Xinlong HUST	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/s2542435119306294	117
74	Recent Advances on Water-Splitting Electrocatalysis Mediated by Noble-Metal-Based Nanostructured Materials	Li, Yingjie Peking Univ	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/abs/10.1002/aenm.201903120	114
75	Lattice Strain Advances Thermoelectrics	Wu, Yixuan Tongji Univ	JOULE 41.248	https://www.sciencedirect.com/science/article/pii/S2542435119300881	114

76	Hydrogen storage and delivery: Review of the state of the art technologies and risk and reliability analysis	Moradi, Ramin Univ Maryland	INTERNATIONAL JOURNAL OF HYDROGEN ENERGY 5.816	http://www.sciencedirect.com/science/article/pii/S0360319919309656	114
77	Additive Engineering for Efficient and Stable Perovskite Solar Cells	Zhang, Fei Natl Renewable Energy Lab	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/abs/10.1002/aenm.201902579	113
78	A review of energy storage types, applications and recent developments	Koohi-Fayegh, S. Univ Ontario Inst Technol	JOURNAL OF ENERGY STORAGE 6.583	http://www.sciencedirect.com/science/article/pii/S2352152X19306012	111
79	Modeling and forecasting building energy consumption: A review of data-driven techniques	Bourdeau, Mathieu Shanghai Jiao Tong Univ	SUSTAINABLE CITIES AND SOCIETY 7.587	http://www.sciencedirect.com/science/article/pii/S2210670718323862	111
80	Flow regime aspects in determining environmental flows and maximising energy production at run-of-river hydropower plants	Kuriqi, Alban Univ Lisbon	APPLIED ENERGY 9.746	http://www.sciencedirect.com/science/article/pii/S0306261919316678	110
81	Continuous production of pure liquid fuel solutions via electrocatalytic CO2 reduction using solid-electrolyte devices	Xia, Chuan Rice Univ	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-019-0451-x/	109

82	Enabling High-Voltage Lithium-Metal Batteries under Practical Conditions	Ren, Xiaodi Pacific Northwest Natl Lab	JOULE 41.248	https://www.sciencedirect.com/science/article/pii/S2542435119302181	109
83	Alkali-induced 3D crinkled porous Ti3C2 MXene architectures coupled with NiCoP bimetallic phosphide nanoparticles as anodes for high-performance sodium-ion batteries	Zhao, Danyang Shandong Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	http://pubs.rsc.org/en/content/articlelanding/2019/ee/c9ee00308h	105
84	Covalent-Organic Frameworks: Advanced Organic Electrode Materials for Rechargeable Batteries	Sun, Tao Nanyang Technol Univ	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/full/10.1002/aenm.201904199	101
85	Building ultraconformal protective layers on both secondary and primary particles of layered lithium transition metal oxide cathodes	Xu, Gui-Liang Argonne Natl Lab	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0387-1	101
86	An updated review on application of nanofluids in heat exchangers for saving energy	Pordanjani, Ahmad Hajatzadeh Shahrekord Univ	ENERGY CONVERSION AND MANAGEMENT 9.709	http://www.sciencedirect.com/science/article/pii/S0196890419308684	100
87	All-Small-Molecule Organic Solar Cells with an Ordered Liquid Crystalline Donor	Chen, Haiyan Univ Chinese Acad Sci UCAS Chongqing	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/S2542435119304696	99

88	Advances in two-dimensional organic-inorganic hybrid perovskites	Zhang, Fei Natl Renewable Energy Lab	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2020/ee/c9ee03757h	98
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90	Advanced materials and technologies for hybrid supercapacitors for energy storage - A review	Afir, Ahmed Univ Brunei Darussalam	JOURNAL OF ENERGY STORAGE 6.583	https://www.sciencedirect.com/science/article/pii/S2352152X19302610	97
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92	Recent advancements in PV cooling and efficiency enhancement integrating phase change materials based systems - A comprehensive review	Ali, Hafiz Muhammad King Fahd Univ Petr & Minerals	SOLAR ENERGY 5.742	http://www.sciencedirect.com/science/article/pii/S0038092X19311752	95
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94	Fluorinated Solid-Electrolyte Interphase in High-Voltage Lithium Metal Batteries	Li, Tao Tsinghua Univ	JOULE 41.248	http://www.sciencedirect.com/science/article/pii/S2542435119304829	94
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102	New Strategies for Defect Passivation in High-Efficiency Perovskite Solar Cells	Akin, Seckin Ecole Polytech Fed Lausanne	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/10.1002/aenm.201903090	85
103	Light-driven methane dry reforming with single atomic site antenna-reactor plasmonic photocatalysts	Zhou, Linan Rice Univ	NATURE ENERGY 60.858	http://www.nature.com/articles/s41560-019-0517-9	84
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105	Soot formation in laminar counterflow flames	Wang, Yu Wuhan Univ Technol	PROGRESS IN ENERGY AND COMBUSTION SCIENCE 29.394	http://www.sciencedirect.com/science/article/pii/S0360128518301734	83

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120	Bimolecular Additives Improve Wide-Band-Gap Perovskites for Efficient Tandem Solar Cells with CIGS	Kim, Dong Hoe Natl Renewable Energy Lab	JOULE 41.248	https://www.sciencedirect.com/science/article/pii/S2542435119302107	72
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126	Molecular design for electrolyte solvents enabling energy-dense and long-cycling lithium metal batteries	Yu, Zhiao Stanford Univ	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-020-0634-5?utm_source=other&utm_medium=other&utm_content=null&utm_campaign=JRCN_2_DD01_CN_NatureRJ_article_paid_XMOL	67
127	Evaluating the global potential of aquifer thermal energy storage and determining the potential worldwide hotspots driven by socio-economic, geo-hydrologic and climatic conditions	Lu, Hongwei North China Elect Power Univ	RENEWABLE & SUSTAINABLE ENERGY REVIEWS 14.982	https://www.sciencedirect.com/science/article/pii/S136403211930406X	67
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129	Understanding and applying coulombic efficiency in lithium metal batteries	Xiao, Jie Pacific Northwest Natl Lab	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-020-0648-z	65

130	Energy management of hybrid electric vehicles: A review of energy optimization of fuel cell hybrid power system based on genetic algorithm	Lu, Xueqin Shanghai Univ Elect Power	ENERGY CONVERSION AND MANAGEMENT 9.709	https://www.sciencedirect.com/science/article/pii/S0196890420300108	64
131	The efficacy of social distance and ventilation effectiveness in preventing COVID-19 transmission	Sun, Chanjuan Univ Shanghai Sci & Technol	SUSTAINABLE CITIES AND SOCIETY 7.587	https://www.sciencedirect.com/science/article/pii/S2210670720306119	63
132	Iron-based phosphides as electrocatalysts for the hydrogen evolution reaction: recent advances and future prospects	Xu, Siran Hubei Normal Univ	JOURNAL OF MATERIALS CHEMISTRY A 12.732	https://pubs.rsc.org/en/content/articlelanding/2020/ta/d0ta05628f/unauth#!divAbstract	63
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134	Defect Engineering in Manganese-Based Oxides for Aqueous Rechargeable Zinc-Ion Batteries: A Review	Xiong, Ting Natl Univ Singapore	ADVANCED ENERGY MATERIALS 29.368	https://onlinelibrary.wiley.com/doi/10.1002/aenm.202001769	63
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137	Solidification enhancement with multiple PCMs, cascaded metal foam and nanoparticles in the shell-and-tube energy storage system	Mahdi, Jasim M. Univ Baghdad	APPLIED ENERGY 9.746	https://www.sciencedirect.com/science/article/pii/S0306261919316800	62
138	CCGPA-MPPT: Cauchy preferential crossover-based global pollination algorithm for MPPT in photovoltaic system	Sundararaj, Vinu Anna Univ	PROGRESS IN PHOTOVOLTAICS 7.953	https://onlinelibrary.wiley.com/doi/full/10.1002/pip.3315	61
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140	Battery Lifetime Prognostics	Hu, Xiaosong Chongqing Univ	JOULE 41.248	https://www.sciencedirect.com/science/article/pii/S2542435119305859	60
141	High-purity pyrrole-type FeN4 sites as a superior oxygen reduction electrocatalyst	Zhang, Nan Univ Sci & Technol China	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlehtml/2020/ee/c9ee03027a?page=search	60

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143	Realizing high zinc reversibility in rechargeable batteries	Ma, Lin US Army	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-020-0674-x	59
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145	Efficient electrically powered CO2-to-ethanol via suppression of deoxygenation	Wang, Xue Univ Toronto	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-020-0607-8?proof=t	58
146	Water-energy-ecosystem nexus: Balancing competing interests at a run-of-river hydropower plant coupling a hydrologic-ecohydraulic approach	Kuriqi, Alban Univ Lisbon	ENERGY CONVERSION AND MANAGEMENT 9.709	https://www.sciencedirect.com/science/article/pii/S0196890420308098	56
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149	Highly Efficient Thermally Co-evaporated Perovskite Solar Cells and Mini-modules	Li, Jia Nanyang Technol Univ	JOULE 41.248	https://www.sciencedirect.com/science/article/pii/S2542435120300970	55
150	Effect analysis on thermal behavior enhancement of lithium-ion battery pack with different cooling structures	Wang, Jianguo Northeast Elect Power Univ	JOURNAL OF ENERGY STORAGE 6.583	https://www.sciencedirect.com/science/article/pii/S2352152X20316376	53
151	Hetero-nanostructured metal oxide-based hybrid photocatalysts for enhanced photoelectrochemical water splitting - A review	Reddy, Ch Venkata Yeungnam Univ	INTERNATIONAL JOURNAL OF HYDROGEN ENERGY 5.816	https://www.sciencedirect.com/science/article/pii/S0360319919306950	53
152	Performance of solar collector with turbulator involving nanomaterial turbulent regime	Sheikholeslami, M. Babol Noshirvani Univ Technol	RENEWABLE ENERGY 8.001	https://www.sciencedirect.com/science/article/pii/S0960148120313902	52
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156	An enhanced productivity prediction model of active solar still using artificial neural network and Harris Hawks optimizer	Essa, F. A. Kafrelsheikh Univ	APPLIED THERMAL ENGINEERING 5.295	https://www.sciencedirect.com/science/article/pii/S135943111935478X	51
157	A review of polymer electrolyte membrane fuel cell durability for vehicular applications: Degradation modes and experimental techniques	Zhao, Jian Univ Waterloo	ENERGY CONVERSION AND MANAGEMENT 9.709	https://www.sciencedirect.com/science/article/pii/S0196890419310283	51
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161	Surface/interface nanoengineering for rechargeable Zn-air batteries	Zhou, Tianpei Univ Sci & Technol China	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2020/ee/c9ee03634b#!divAbstract	50
162	Local Crystal Misorientation Influences Non-radiative Recombination in Halide Perovskites	Jariwala, Sarthak Univ Washington	JOULE 41.248	https://www.cell.com/joule/pdf/S2542-4351(19)30429-5.pdf	48
163	Structural transformation of highly active metal-organic framework electrocatalysts during the oxygen evolution reaction	Zhao, Shenlong Natl Ctr Nanosci & Technol	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-020-00709-1?utm_source=other&utm_medium=other&utm_content=null	47
164	Heterointerface engineering for enhancing the electrochemical performance of solid oxide cells	Zhao, Chenhuan Tsinghua Univ	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlehtml/2020/ee/c9ee02230a?page=search	47
165	Highly selective electrocatalytic CO(2)reduction to ethanol by metallic clusters dynamically formed from atomically dispersed copper	Xu, Haiping Argonne Natl Lab	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-020-0666-x?proof=t	45

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167	Improving renewable energy policy planning and decision-making through a hybrid MCDM method	Alizadeh, Reza Univ Oklahoma	ENERGY POLICY 6.142	https://www.sciencedirect.com/science/article/pii/S0301421519307608	43
168	Recent progress and remaining challenges in post-combustion CO2 capture using metal-organic frameworks (MOFs)	Younas, Mohammad Univ Engn & Technol	PROGRESS IN ENERGY AND COMBUSTION SCIENCE 29.394	https://www.sciencedirect.com/science/article/pii/S0360128520300599	42
169	MPPCEDE: Multi-population parallel co-evolutionary differential evolution for parameter optimization	Song, Yingjie Shandong Technol & Business Univ	ENERGY CONVERSION AND MANAGEMENT 9.709	https://www.sciencedirect.com/science/article/pii/S0196890420311882	41
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171	A comprehensive review of battery modeling and state estimation approaches for advanced battery management systems	Wang, Yujie Univ Sci & Technol China	RENEWABLE & SUSTAINABLE ENERGY REVIEWS 14.982	https://www.sciencedirect.com/science/article/pii/S1364032120303063	41

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173	Experimental investigation of energy storage properties and thermal conductivity of a novel organic phase change material/MXene as A new class of nanocomposites	Aslfattahi, Navid Univ Malaya	JOURNAL OF ENERGY STORAGE 6.583	https://www.sciencedirect.com/science/article/pii/S2352152X1930739X	40
174	The relationship between air pollution and COVID-19-related deaths: An application to three French cities	Magazzino, Cosimo Roma Tre Univ	APPLIED ENERGY 9.746	https://www.sciencedirect.com/science/article/pii/S030626192031312X	39
175	A holistic approach to interface stabilization for efficient perovskite solar modules with over 2,000-hour operational stability	Liu, Zonghao Okinawa Inst Sci & Technol Grad Univ OIST	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-020-0653-2	39
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177	Molecular engineering of dispersed nickel phthalocyanines on carbon nanotubes for selective CO2 reduction	Zhang, Xiao Southern Univ Sci & Technol	NATURE ENERGY 60.858	https://www.nature.com/articles/s41560-020-0667-9	38

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180	Two compatible polymer donors contribute synergistically for ternary organic solar cells with 17.53% efficiency	An, Qiaoshi Beijing Inst Technol	ENERGY & ENVIRONMENTAL SCIENCE 38.532	https://pubs.rsc.org/en/content/articlelanding/2020/ee/d0ee02516j#!divAbstract	34
181	Amino acid assisted-synthesis and characterization of magnetically retrievable ZnCo2O4-Co3O4 nanostructures as high activity visible-light-driven photocatalyst	Heidari-Asil, Seyed Ali Univ Kashan	INTERNATIONAL JOURNAL OF HYDROGEN ENERGY 5.816	https://www.sciencedirect.com/science/article/abs/pii/S0360319920322606	34
182	Pyrolysis temperature effect on compositions of basic nitrogen species in Huadian shale oil using positive-ion ESI FT-ICR MS and GC-NCD	Cui, Da Northeast Elect Power Univ	JOURNAL OF ANALYTICAL AND APPLIED PYROLYSIS 5.541	https://www.sciencedirect.com/science/article/pii/S0165237020307956	33
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185	A comprehensive review of Thermoelectric Generators: Technologies and common applications	Jaziri, Nesrine Univ Sfax	ENERGY REPORTS 6.87	https://www.sciencedirect.com/science/article/pii/S2352484719306997	31
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187	Improving the trays solar still performance using reflectors and phase change material with nanoparticles	Abdullah, A. S. Prince Sattam Bin Abdulaziz Univ	JOURNAL OF ENERGY STORAGE 6.583	https://www.sciencedirect.com/science/article/pii/S2352152X20315814	30
188	Surface Engineering of Ambient-Air-Processed Cesium Lead Triiodide Layers for Efficient Solar Cells	Yoon, So Me Ulsan Natl Inst Sci & Technol	JOULE 41.248	https://www.sciencedirect.com/science/article/abs/pii/S2542435120305663	29
189	A review of studies using hydrocarbon adsorption material for reducing hydrocarbon emissions from cold start of gasoline engine	Han, Dandan Hunan Univ	RENEWABLE & SUSTAINABLE ENERGY REVIEWS 14.982	https://www.sciencedirect.com/science/article/pii/S1364032120303701	29

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