

Тема: Environmental problems of battery recycling

Ключевые слова: battery recycling, ecology and batteries, environmental damage of batteries.

1. battery recycling

☰ Google Академия

Статьи

За все время

С 2024

С 2023

С 2020

Выбрать даты

По релевантности

По дате

Любые статьи

Обзорные статьи

☐ включая патенты

☒ показать цитаты

☒ Создать оповещение

battery recycling

Результатов: примерно 461 000 (0,10 сек.)

The importance of design in lithium ion **battery recycling—a critical review**

DL Thompson, JM Hartley, SM Lambert, M Shiref... - Green ..., 2020 - pubs.rsc.org

... **battery recycling** and discusses the aspects of pack, module and cell design that can simplify **battery** dismantling and **recycling**. ... the appropriate direction for **recycling**. It also shows that ...

☆ Сохранить Цитировать Цитируется: 336 Похожие статьи Все версии статьи (14)

Current and prospective Li-ion **battery recycling and recovery processes**

J Heelan, E Gratz, Z Zheng, Q Wang, M Chen... - Jom, 2016 - Springer

... -ion **battery** gets US\$300/kWh then the actually **recycling** rate ... ion **battery recycling** industry is dominated by laptop **batteries**... **batteries** are the heaviest and have the highest **recycling** rate...

☆ Сохранить Цитировать Цитируется: 321 Похожие статьи Все версии статьи (8)

Lithium-ion **battery recycling— overview of techniques and trends**

ZJ Baum, RE Bird, X Yu, J Ma - 2022 - ACS Publications

... **recycling** may be able to decrease the effects and costs of **battery recycling**, the materials used in **batteries** ... materials and **recycling** used materials for **batteries** exact environmental costs...

☆ Сохранить Цитировать Цитируется: 330 Похожие статьи Все версии статьи (3)

Key issues for Li-ion **battery recycling**

L Gaines, K Richa, J Spangenberg - MRS Energy & Sustainability, 2018 - cambridge.org

... , so **recycling** can reduce material and disposal costs, leading to reduced EV costs. **Battery recycling** ... Several companies are finding ways to commercialize **recycling** of the increasingly ...

☆ Сохранить Цитировать Цитируется: 203 Похожие статьи Все версии статьи (3)

2. ecology and batteries

Google Академия

ecology and batteries

Статьи

Результатов: примерно 292 000 (0,13 сек.)

За все время

C 2024

C 2023

C 2020

Выбрать даты

По релевантности

По дате

Любые статьи

Обзорные статьи

☐ включая патенты

☒ показывать цитаты

☒ Создать оповещение

[PDF] The ecological impact of batteries

C Dillon - 1994 - kilthub.cmu.edu

... How **battery** residue escapes from landfills to the ... **Ecological** risks that materials in **batteries** present to humans ... that compose **batteries** pose no real risk to humans while the **batteries** are ...

☆ Сохранить

🔗 Цитировать

Цитируется: 8

Похожие статьи

Все версии статьи (2)

🔗

[PDF] cmu.edu

Ecological recycling of lithium-ion batteries from electric vehicles with focus on mechanical processes

J Diekmann, C Hanisch, L Froböse... - Journal of the ..., 2016 - iopscience.iop.org

... non-aged lithium-ion **batteries** during dry crushing, ... **batteries** and its challenges and hazard potential in regards to the applied materials. The outlined results show a safe and **ecological** ...

☆ Сохранить

🔗 Цитировать

Цитируется: 322

Похожие статьи

Все версии статьи (4)

[PDF] iop.org

The industrial ecology of lead and electric vehicles

R Socolow, V Thomas - Journal of Industrial Ecology, 1997 - Wiley Online Library

... peak-power **batteries** emerging from this research are leadacid **batteries** (Juergens and ... **batteries** for **battery**only electric vehicles, the cost advantage enjoyed by the lead **battery** will ...

☆ Сохранить

🔗 Цитировать

Цитируется: 71

Похожие статьи

Все версии статьи (6)

[PDF] academia.edu

[ЦИТИРОВАНИЕ] Ecological batteries

L Campanella, R Dragone, R Grossi... - Annali di Chimica ..., 2004 - Wiley Online Library

... The building of the **batteries** was modified during last years so that they result to be more ... whole **battery** is tested. So we proceeded in cutting in small pieces the broken **batteries** before ...

☆ Сохранить

🔗 Цитировать

Похожие статьи

Все версии статьи (6)

3. environmental damage of batteries

Google Академия

environmental damage of batteries

Статьи

Результатов: примерно 627 000 (0,13 сек.)

За все время

C 2024

C 2023

C 2020

Выбрать даты

По релевантности

По дате

Любые статьи

Обзорные статьи

☐ включая патенты

☒ показывать цитаты

☒ Создать оповещение

Environmental impacts, pollution sources and pathways of spent lithium-ion batteries

[W Mroził, MA Rajaeifar, O Heidrich...](#) - Energy & Environmental ..., 2021 - pubs.rsc.org

... of the **environmental** impact and hazards of spent **batteries**. ... area, the data on the **environmental** impact of EoL LIBs is ... the possible **environmental** impacts associated with **battery** EoL. ...

☆ Сохранить Цитировать Цитируется: 466 Похожие статьи Все версии статьи (7)

Key issues of lithium-ion batteries—from resource depletion to environmental performance indicators

[L Oliveira, M Messagie, S Rangaraju, J Sanfelix...](#) - Journal of cleaner ..., 2015 - Elsevier

... key **environmental** performance indicators and are taken into account. The dominant differences between the two **batteries** ... opportunities for eventual **environmental damage** reductions. ...

☆ Сохранить Цитировать Цитируется: 216 Похожие статьи Все версии статьи (8)

Study of energy storage systems and environmental challenges of batteries

[AR Dehghani-Sanji, E Tharumalingam...](#) - ... and Sustainable Energy ..., 2019 - Elsevier

... -scale **battery** use remain a major challenge that requires further study. In this paper, **batteries** from ... , disadvantages, and **environmental** impacts are assessed. This review reaffirms that ...

☆ Сохранить Цитировать Цитируется: 814 Похожие статьи Все версии статьи (7)

Towards more environmentally and socially responsible batteries

[SS Sharma, A Manthiram](#) - Energy & Environmental Science, 2020 - pubs.rsc.org

... We show that such a **battery** would contain a cobalt-free cathode, ... The insights of this work will help to steer **battery** research/... of study for detrimental **environmental** and social impacts. ...

☆ Сохранить Цитировать Цитируется: 115 Похожие статьи Все версии статьи (2)

[PDF] rsc.org

[PDF] researchgate.net

[PDF] aalto.fi

Статьи

1.



WIREs ENERGY AND ENVIRONMENT

Overview | Open Access |

Technological options and design evolution for recycling spent lithium-ion batteries: Impact, challenges, and opportunities

Rumana Hossain Montajar Sarkar, Veena Sahajwalla

First published: 26 May 2023 | <https://doi.org/10.1002/wene.481>

Edited by: Georgianna Doffek, Managing Editor and Peter Lund, Co-Editor-in-Chief

SECTIONS



PDF



TOOLS



SHARE

Abstract

The lithium-ion battery (LIB) market is growing, driven by consumer demand and the imperative to reduce greenhouse gas (GHG) emissions. The socio-environmental impacts of LIBs production are vast; thus, it is of paramount importance to acquire knowledge about the consequences of lithium metal mining on human health, farming and the overall ecosystem. The materials embedded in spent LIBs have high industrial value. To

Volume 12, Issue 5
September/October 2023
e481

Figures



References



Related



Inform

Recommended

[Sodium ion batteries: a newer electrochemical storage](#)

C. Nithya, S. Gopukumar

WIREs Energy and Environment

[A comprehensive review on recent advances of polyanionic cathode materials in Na-ion batteries for cost effective energy storage applications](#)

Авторы



Rumana Hossain

Lecturer, SMaRT@UNSW, UNSW Australia

Подтвержден адрес электронной почты в домене unsw.edu.au

[Sustainability](#) [Recycling waste](#) [Circular economy](#)

ПОДПИСАТЬСЯ

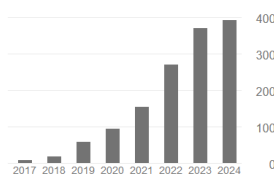
СОЗДАТЬ СВОЙ ПРОФИЛЬ

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
A global review of consumer behavior towards e-waste and implications for the circular economy MT Islam, N Huda, A Baumber, R Shumon, A Zaman, F Ali, R Hossain, ... Journal of Cleaner Production 316, 126297	158	2021
Recycle, recover and repurpose strategy of Spent Li-ion Batteries and catalysts: current status and future opportunities DJ Garole, R Hossain, VJ Garole, V Sahajwalla, J Nerkar, DP Dubal ChemSusChem 13 (12), 3079-3100	143	2020
Stability of retained austenite in high carbon steel under compressive stress: an investigation from macro to nano scale R Hossain, F Pahlevani, MZ Quadir, V Sahajwalla Scientific reports 6	104	2016
Full circle: Challenges and prospects for plastic waste management in Australia to achieve circular economy R Hossain, MT Islam, A Ghose, V Sahajwalla Journal of Cleaner Production 368, 133127	103	2022
Plastic waste management in India: Challenges, opportunities, and roadmap for circular economy R Hossain, MT Islam, R Shanker, D Khan, KES Locock, A Ghose, ...	70	2022

Процитировано

Все Начиная с 2019 г.

Статистика цитирования	1387	1356
h-индекс	20	20
i10-индекс	35	35



Общий доступ

ПРОСМОТРЕТЬ ВСЕ

10 статей недоступно 24 статьи доступны

На основе финансирования



Montajar Sarkar

PhD candidate (MSE/SMART, UNSW Sydney) (montajar.sarkar@unsw.edu.au)
Подтвержден адрес электронной почты в домене unsw.edu.au
[Renewable energy](#) [sustainable materials](#) [e-waste recycling](#) [electrochemistry](#)

ПОДПИСАТЬСЯ

СОЗДАТЬ СВОЙ ПРОФИЛЬ

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
Surface, mechanical and shape memory properties of biodegradable polymers and their applications M Sarkar, M Hasanuzzaman, F Gulshan, A Rashid Elsevier	25	2022
Technological options and design evolution for recycling spent lithium-ion batteries: impact, challenges, and opportunities R Hossain, M Sarkar, V Sahajwalla Wiley Interdisciplinary Reviews: Energy and Environment 12 (5), e481	13	2023
Sustainable recovery and resynthesis of electroactive materials from spent Li-ion batteries to ensure material sustainability M Sarkar, R Hossain, V Sahajwalla Resources, Conservation and Recycling 200, 107292	12	2024
Hard carbons from automotive shredder residue (ASR) as potential anode active material for sodium ion battery M Sarkar, R Hossain, V Sahajwalla Journal of Power Sources 584, 233577	9	2023
Unravelling the properties of microzonal carbon from waste hard rubber by selective thermal transformation via conventional heating and microwave irradiation M Sarkar, R Hossain, V Sahajwalla Carbon 213, 118374	5	2023

Процитировано

	Все	Начиная с 2019 г.
Статистика цитирования	79	78
h-индекс	5	5
i10-индекс	3	3

Общий доступПРОСМОТРЕТЬ ВСЕ

0 статей2 статьи

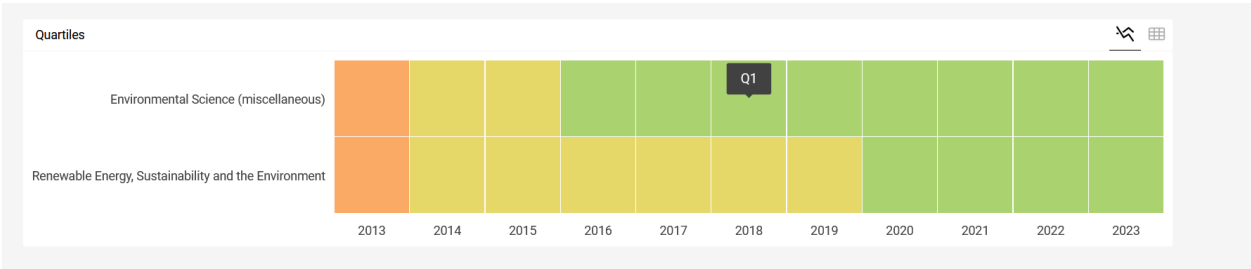
недоступнодоступно

На основе финансирования

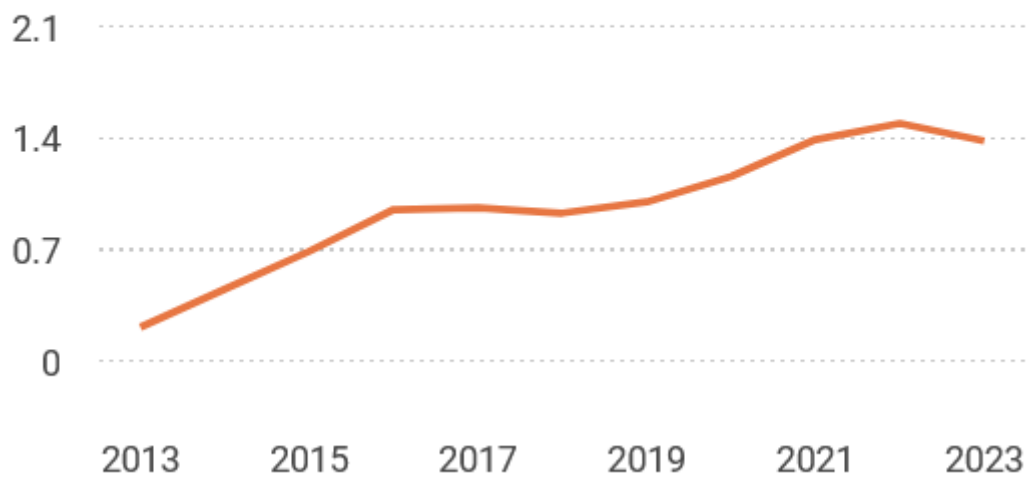
Показатели журнала

Wiley Interdisciplinary Reviews: Energy and Environment

COUNTRY United Kingdom Universities and research Institutions in United Kingdom Media Ranking in United Kingdom	SUBJECT AREA AND CATEGORY Energy - Renewable Energy, Sustainability and the Environment Environmental Science - Environmental Science (miscellaneous)	PUBLISHER John Wiley and Sons Ltd	H-INDEX 51
PUBLICATION TYPE Journals	ISSN 20418396, 2041840X	COVERAGE 2012-2023	INFORMATION Homepage How to publish in this journal energy@wiley.com



● SJR



2.

ADVANCED MATERIALS

Review | [Full Access](#)

Towards Sustainable All Solid-State Li-metal Batteries: Perspectives on Battery Technology and Recycling Processes

Xiaoxue Wu, Guanjun Ji, Junxiong Wang, Guangmin Zhou, Zheng Liang

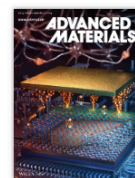
First published: 16 May 2023 | <https://doi.org/10.1002/adma.202301540> | Citations: 1

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as <https://doi.org/10.1002/adma.202301540>

[PDF](#) [TOOLS](#) [SHARE](#)

Abstract

Lithium (Li)-based batteries are gradually evolving from the liquid to the solid state in terms of safety and energy density, where all solid-state Li-metal batteries (ASSLMBs) are considered the most promising candidates. This was demonstrated by the Bluecar electric vehicle produced by the Bolloré Group, which is utilized in car-sharing services in several cities worldwide. Despite impressive progress in the development of ASSLMBs,



Accepted Articles

Accepted, unedited articles published online and citable. The final edited and typeset version of record will appear in the future.
2301540

[Related](#)

[Information](#)

Recommended

Benign Recycling of Spent Batteries towards All-Solid-State Lithium Batteries

Yao-Yao Wang, Wan-Yue Diao, Chao-Ying Fan, Xing-Long Wu, Jing-Ping Zhang

Chemistry – A European Journal

Solid-State Plastic Crystal Electrolytes: Effective Protection Interlayers for Sulfide-Based All-Solid-State Lithium Metal Batteries

Авторы

[Google Академия](#)



Guanjun Ji

Ph.D. at Shanghai Jiao Tong University and Tsinghua SIGS
Подтвержден адрес электронной почты в домене sjtu.edu.cn

[battery recycling](#) [cathode materials](#) [high performance LIBs](#) [in-situ characterizations](#)

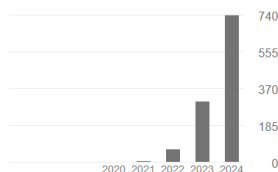
[ПОДПИСАТЬСЯ](#)

[СОЗДАТЬ СВОЙ ПРОФИЛЬ](#)

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
Direct regeneration of degraded lithium-ion battery cathodes with a multifunctional organic lithium salt G Ji, J Wang, Z Liang, K Jia, J Ma, Z Zhuang, G Zhou, HM Cheng Nature communications 14 (1), 584	165	2023
Long-Life Regenerated LiFePO₄ from Spent Cathode by Elevating the d-Band Center of Fe K Jia, J Ma, J Wang, Z Liang, G Ji, Z Piao, R Gao, Y Zhu, Z Zhuang, ... Advanced Materials 35 (5), 2208034	129	2023
Adaptable eutectic salt for the direct recycling of highly degraded layer cathodes J Ma, J Wang, K Jia, Z Liang, G Ji, Z Zhuang, G Zhou, HM Cheng Journal of the American Chemical Society 144 (44), 20306-20314	109	2022
Efficient extraction of lithium from anode for direct regeneration of cathode materials of spent Li-ion batteries J Wang, J Ma, K Jia, Z Liang, G Ji, Y Zhao, B Li, G Zhou, HM Cheng ACS energy letters 7 (8), 2816-2824	93	2022
Ultrahigh-Voltage LiCoO₂ at 4.7 V by Interface Stabilization and Band Structure Modification Z Zhuang, J Wang, K Jia, G Ji, J Ma, Z Han, Z Piao, R Gao, H Ji, X Zhong, ... Advanced Materials 35 (22), 2212059	80	2023
Closed-loop regeneration of LiFePO₄ from spent lithium-ion batteries: A "feed three birds with	71	2021

Процитировано

	Все	Начиная с 2019 г.
Статистика цитирования	1130	1130
h-индекс	16	16
i10-индекс	19	19



Общий доступ

[ПРОСМОТРЕТЬ ВСЕ](#)

15 статей
1 статья
недоступно
доступно



Junxiong Wang

Shanghai Jiao Tong University; Tsinghua University; Huazhong University of Science and Technology

Подтвержден адрес электронной почты в домене sjtu.edu.cn

Battery recycling High-Performance Cathode

ПОДПИСАТЬСЯ

СОЗДАТЬ СВОЙ ПРОФИЛЬ

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
A critical review on secondary lead recycling technology and its prospect W Zhang, J Yang, X Wu, Y Hu, W Yu, J Wang, J Dong, M Li, S Liang, J Hu, ... Renewable and Sustainable Energy Reviews 61, 108-122	228	2016
Lithium fluoride in electrolyte for stable and safe lithium-metal batteries YH Tan, GX Lu, JH Zheng, F Zhou, M Chen, T Ma, LL Lu, YH Song, ... Advanced Materials 33 (42), 2102134	173	2021
Direct regeneration of degraded lithium-ion battery cathodes with a multifunctional organic lithium salt G Ji, J Wang, Z Liang, K Jia, J Ma, Z Zhuang, G Zhou, HM Cheng Nature communications 14 (1), 584	165	2023
Direct conversion of degraded LiCoO2 cathode materials into high-performance LiCoO2: a closed-loop green recycling strategy for spent lithium-ion batteries J Wang, Z Liang, Y Zhao, J Sheng, J Ma, K Jia, B Li, G Zhou, HM Cheng Energy Storage Materials 45, 768-776	136	2022
Long-Life Regenerated LiFePO4 from Spent Cathode by Elevating the d-Band Center of Fe K Jia, J Ma, J Wang, Z Liang, G Ji, Z Piao, R Gao, Y Zhu, Z Zhuang, ... Advanced Materials 35 (5), 2208034	129	2023
Direct and green repairing of degraded LiCoO2 for reuse in lithium-ion batteries	125	2022

Процитировано

Все

Начиная с 2019 г.

Статистика цитирования	2898	2816
h-индекс	29	29
i10-индекс	41	41

Общий доступ

ПРОСМОТРЕТЬ ВСЕ

24 статьи

8 статей

недоступно

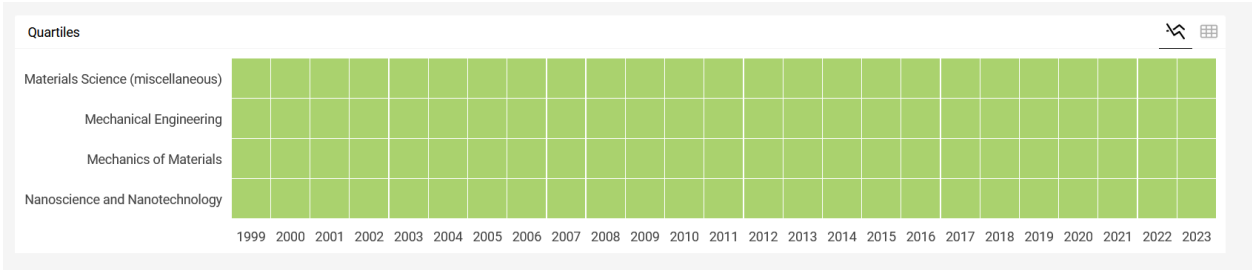
доступно

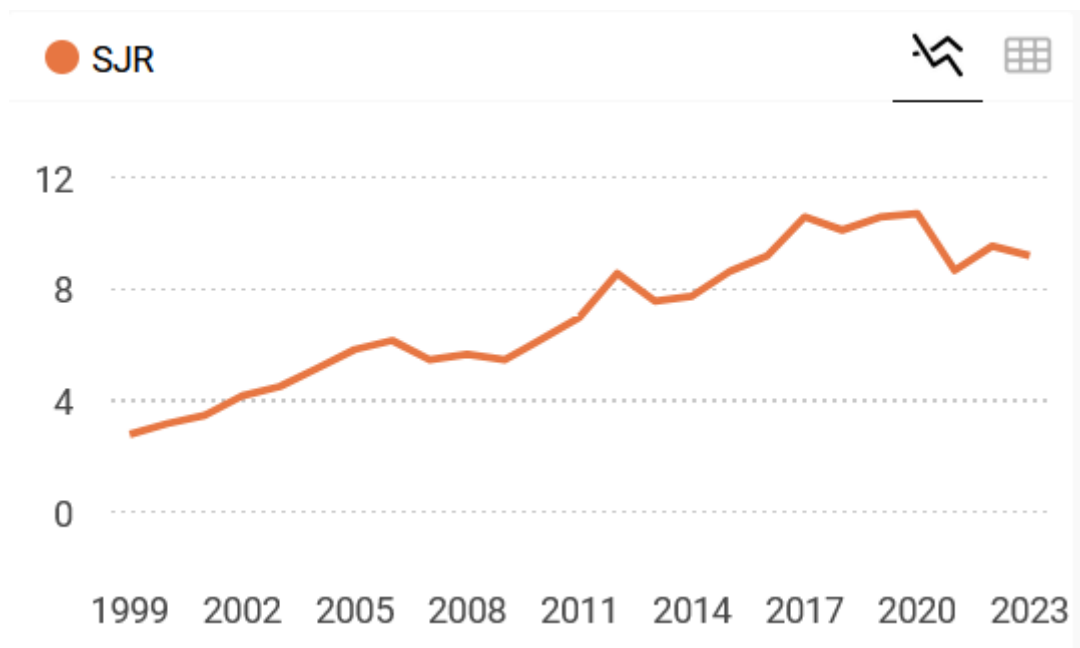
На основе публикации

Показатели журнала

Advanced Materials

COUNTRY United States Universities and research institutions in United States Media Ranking in United States	SUBJECT AREA AND CATEGORY Engineering - Mechanical Engineering - Mechanics of Materials Materials Science - Materials Science (miscellaneous) - Nanoscience and Nanotechnology	PUBLISHER Wiley-Blackwell	H-INDEX 640
PUBLICATION TYPE Journals	ISSN 09359648, 15214095	COVERAGE 1989-2023	INFORMATION Homepage How to publish in this journal advmat@wiley-vch.de





Are future recycling benefits misleading? Prospective life cycle assessment of lithium-ion batteries

Joris Šimaitis✉ Stephen Allen, Christopher Vagg

First published: 22 June 2023 | <https://doi.org/10.1111/jiec.13413>

Editor Managing Review: Mark Huijbregts

SECTIONS

PDF TOOLS SHARE

Abstract

Life cycle assessment (LCA) quantifies the whole-life environmental impacts of products and is essential for helping policymakers and manufacturers transition toward sustainable practices. However, typical LCA estimates future recycling benefits as if it happens today. For long-lived products such as lithium-ion batteries, this may be misleading since there is a considerable time gap between production and recycling. To explore this temporal mismatch problem, we apply future electricity scenarios from an integrated assessment model—IMAGE—using “premise” in Brightway2 to conduct a prospective LCA (pLCA) on the global warming potential of six battery chemistries and



Early View
Online Version of Record
before inclusion in an issue

Translations

- 《产业生态学》中文摘要 (JIE Chinese Abstracts)
- Resúmenes en Español de la Revista de Ecología Industrial (JIE Spanish Abstracts)

Figures References Related Information

Metrics

Full text views: 1,933

Details

© 2023 The Authors. *Journal of Industrial Ecology* published by Wiley Periodicals LLC on behalf of

Авторы

Google Академия



Stephen R Allen

University of Bath

Подтвержден адрес электронной почты в домене bath.ac.uk - Главная страница

life cycle assessment sustainable design sustainable materials sustainable energy

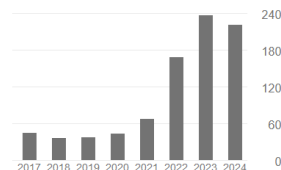
ПОДПИСАТЬСЯ

СОЗДАТЬ СВОЙ ПРОФИЛЬ

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
Prospects for and barriers to domestic micro-generation: A United Kingdom perspective SR Allen, GP Hammond, MC McManus <i>Applied energy</i> 85 (6), 528-544	311	2008
Life cycle assessment in the building design process—A systematic literature review M Roberts, S Allen, D Coley <i>Building and Environment</i> 185, 107274	159	2020
Integrated appraisal of a solar hot water system SR Allen, GP Hammond, HA Harajli, MC McManus, AB Winnett <i>Energy</i> 35 (3), 1351-1362	95	2010
Energy analysis and environmental life cycle assessment of a micro-wind turbine SR Allen, GP Hammond, MC McManus <i>Proceedings of the Institution of Mechanical Engineers, Part A: Journal of ...</i>	92	2008
A circular construction evaluation framework to promote designing for disassembly and adaptability B Dams, D Maskell, A Shea, S Allen, M Driesser, T Kretschmann, ... <i>Journal of Cleaner Production</i> 316, 128122	87	2021
Embodied carbon assessment using a dynamic climate model: Case-study comparison of a concrete, steel and timber building structure W Haidinger, S Connor, S Allen, J Dounay, T Hail	69	2021

ПРОЦИТИРОВАНО ПРОСМОТРЕТЬ ВСЕ

	Все	Начиная с 2019 г.
Статистика цитирования	1275	781
h-индекс	17	14
i10-индекс	19	18



Общий доступ ПРОСМОТРЕТЬ ВСЕ

1 статья 24 статьи
недоступно доступно

На основе финансирования



Chris Vagg

University of Bath

Подтвержден адрес электронной почты в домене bath.ac.uk - [Главная страница](#)

[Batteries](#) [Hybrid Vehicles](#) [Electric Vehicles](#) [Driver Behavior](#) [Eco-Driving](#)

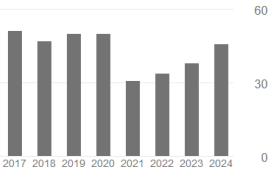
ПОДПИСАТЬСЯ

СОЗДАТЬ СВОЙ ПРОФИЛЬ

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
Stochastic dynamic programming in the real-world control of hybrid electric vehicles C Vagg, S Akehurst, C J Brace, L Ash IEEE Transactions on Control Systems Technology 24 (3), 853-866	94	2015
Development and field trial of a driver assistance system to encourage eco-driving in light commercial vehicle fleets C Vagg, C J Brace, D Hari, S Akehurst, J Poxon, L Ash IEEE Transactions on Intelligent Transportation Systems 14 (2), 796-805	88	2013
Heat transfer in turbocharger turbines under steady, pulsating and transient conditions RD Burke, CRM Vagg, D Chalet, P Chesse International Journal of Heat and Fluid Flow 52, 185-197	62	2015
Modelling and heuristic control of a parallel hybrid electric vehicle W Enang, C Bannister, C Brace, C Vagg Proceedings of the Institution of Mechanical Engineers, Part D: Journal of ...	37	2015
Analysis of a driver behaviour improvement tool to reduce fuel consumption D Hari, C J Brace, C Vagg, J Poxon, L Ash 2012 International Conference on Connected Vehicles and Expo (ICCVE), 208-213	36	2012
Development of a new method to assess fuel saving using gear shift indicators C Vagg, C J Brace, R Wijetunge, S Akehurst, L Ash Proceedings of the Institution of Mechanical Engineers, Part D: Journal of ...	34	2012

ПРОСМОТРЕТЬ ВСЕ

Протитировано	Все	Начиная с 2019 г.
Статистика цитирования	445	250
h-индекс	9	8
i10-индекс	8	7



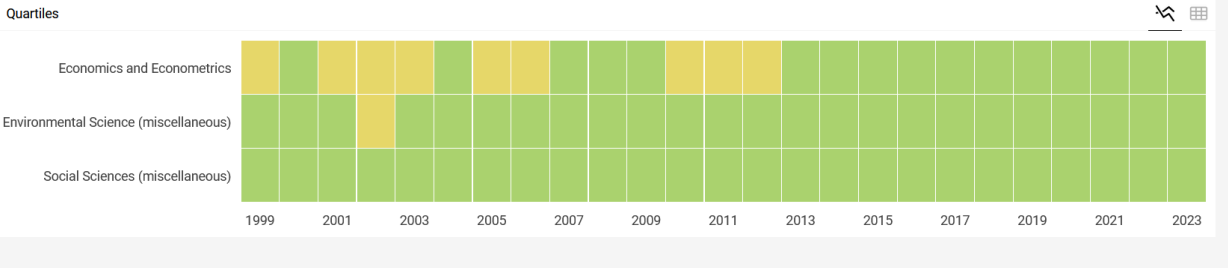
ПРОСМОТРЕТЬ ВСЕ

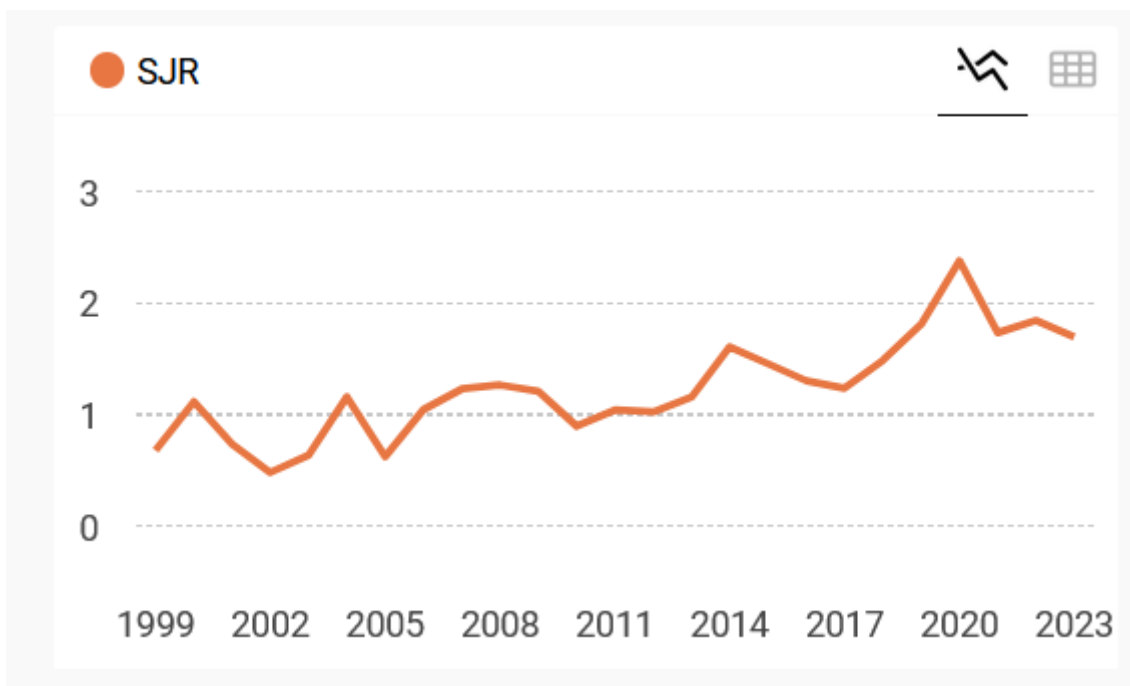
Общий доступ	7 статей
0 статей	7 статей
недоступно	доступно
На основе финансирования	

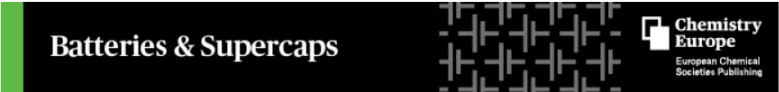
Показатели журнала

Journal of Industrial Ecology

COUNTRY	SUBJECT AREA AND CATEGORY	PUBLISHER	H-INDEX
United States Universities and research institutions in United States Media Ranking in United States	Economics, Econometrics and Finance └ Economics and Econometrics Environmental Science └ Environmental Science (miscellaneous) Social Sciences └ Social Sciences (miscellaneous)	Wiley-Blackwell	130
PUBLICATION TYPE	ISSN	COVERAGE	INFORMATION
Journals	10881980, 15309290	1997-2023	Homepage How to publish in this journal indecol@yale.edu







Volume 3, Issue 11
November 2020
Pages 1126-1136

Review | Full Access

Towards a More Sustainable Lithium-Ion Battery Future: Recycling LIBs from Electric Vehicles

Aniket Chitre, Daniel Freake, Dr. Laura Lander, Dr. Jacqueline Edge, Prof. Maria-Magdalena Titirici

First published: 21 July 2020 | <https://doi.org/10.1002/batt.202000146> | Citations: 19

SECTIONS

PDF TOOLS SHARE

Graphical Abstract

Sustainable mobility: There is an urgent need to develop and scale-out Li-ion battery recycling processes, for the upcoming transition to electric vehicles to truly deliver on its promise of enhanced sustainability and low-carbon emissions. This paper reviews current recycling technologies, their limitations and challenges and proposes improvements to facilitate more effective recovery from

Figures References Related Information

Recommended

[High-Capacity NiO-\(Mesocarbon Microbeads\) Conversion Anode for Lithium-Ion Battery](#)

Roberta Verrelli, Jusef Hassoun

ChemElectroChem

[A SiO₂-Based Anode in a High-Voltage Lithium-Ion Battery](#)

Авторы



Aniket Chitre

ПОДПИСАТЬСЯ

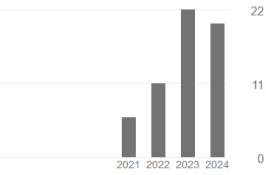
СОЗДАТЬ СВОЙ ПРОФИЛЬ

Unilever R&D, PhD (University of Cambridge), M.Eng (Imperial College London)
Подтвержден адрес электронной почты в домене unilever.com
[machine learning](#) [lab automation](#) [liquid formulation design](#) [chemical engineering](#)

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
Towards a more sustainable lithium-ion battery future: recycling libs from electric vehicles A Chitre, D Freake, L Lander, J Edge, MM Titirici Batteries & Supercaps 3 (11), 1126-1136	47	2020
Automated pipetting robot for proxy high-throughput viscometry of Newtonian fluids BW Soh, A Chitre, WY Lee, D Bash, JN Kumar, K Hippalgaonkar Digital Discovery 2 (2), 481-488	6	2023
pHbot: Self-Driven Robot for pH Adjustment of Viscous Formulations via Physics-informed-ML A Chitre, J Cheng, S Ahamed, RCM Querimit, B Zhu, K Wang, L Wang, ... Chemistry-Methods, e202300043	5	2023
Machine Learning-Guided Space-filling Designs for High Throughput Liquid Formulations Development A Chitre, D Woods, A Lapkin	1	2024
Mass Balance Integration with the Opentrons OT-2 Robot A Chitre, D Bash, J Cheng, AA Lapkin, K Hippalgaonkar Opentrons App. Notes	1	2023
Accelerating Formulation Design via Machine Learning: Generating a High-throughput Shampoo Formulations Dataset		2024

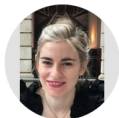
Процитировано

	Все	Начиная с 2019 г.
Статистика цитирования	60	60
h-индекс	3	3
i10-индекс	1	1



Общий доступ [ПРОСМОТРЕТЬ ВСЕ](#)

0 статей [3 статьи](#)
недоступно доступно



Laura Lander
[King's College London](#)
Подтвержден адрес электронной почты в домене kcl.ac.uk

ПОДПИСАТЬСЯ

СОЗДАТЬ СВОЙ ПРОФИЛЬ

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
Polyanionic Insertion Materials for Sodium-Ion Batteries P Barpanda, L Lander, S Nishimura, A Yamada Advanced Energy Materials 8 (17), 1703055	360	2018
Highly Reversible Oxygen-Redox Chemistry at 4.1 V in Na_{4/7-x}[□_{1/7}Mn_{6/7}]O₂ (□: Mn Vacancy) B Mortemard de Boisse, S Nishimura, E Watanabe, L Lander, ... Advanced Energy Materials 8 (20), 1800409	226	2018
Financial viability of electric vehicle lithium-ion battery recycling L Lander, T Cleaver, MA Rajaeifar, V Nguyen-Tien, RJR Elliott, O Heidrich, ... Iscience 24 (7), 102787	151	2021
Cost and carbon footprint reduction of electric vehicle lithium-ion batteries through efficient thermal management L Lander, E Kallitsis, A Hales, JS Edge, A Korre, G Offer Applied Energy 289, 116737	114	2021
Roadmap for a sustainable circular economy in lithium-ion and future battery technologies G Harper, PA Anderson, E Kendrick, W Mrozik, P Christensen, S Lambert, ... Journal of Physics: Energy	70	2022
Synthesis and Electrochemical Performance of the Orthorhombic Li₂Fe(SO₄)₂ Polymorph for Li-Ion Batteries	69	2014

Протитировано [ПРОСМОТРЕТЬ ВСЕ](#)

Все

Начиная с 2019 г.

Статистика цитирования	1453	1361
h-индекс	17	16
i10-индекс	20	19

Общий доступ [ПРОСМОТРЕТЬ ВСЕ](#)

1 статья

13 статей

недоступно

доступно

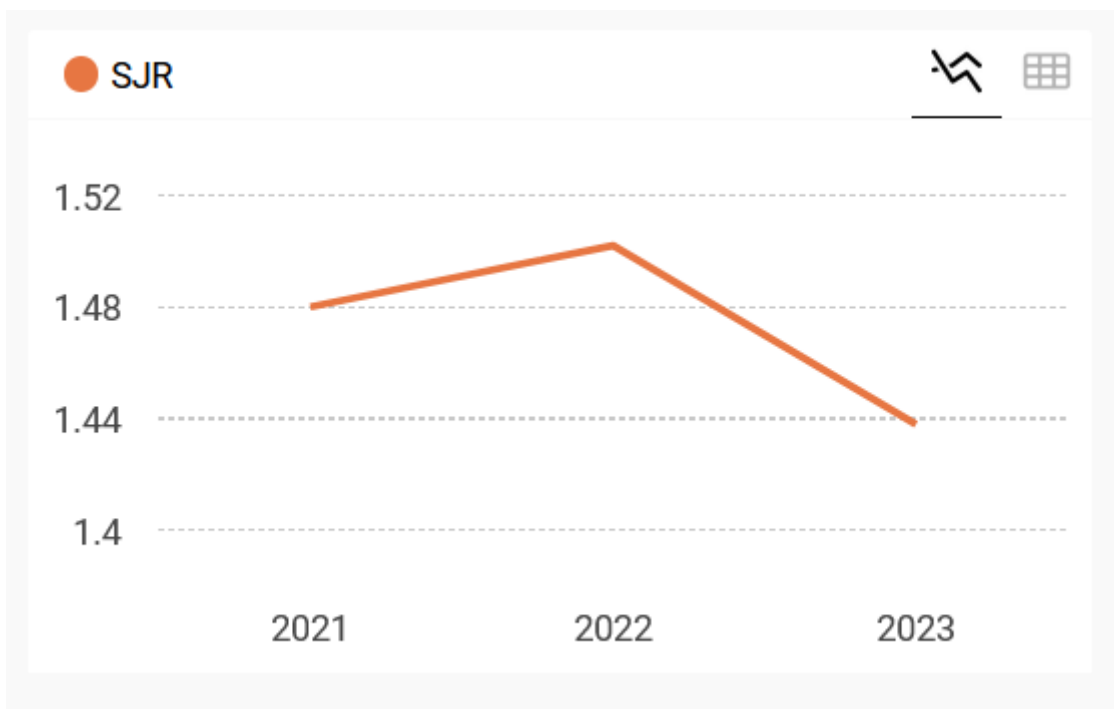
На основе финансирования

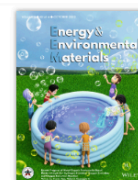
Показатели журнала

Batteries and Supercaps

COUNTRY Germany Universities and research institutions in Germany Media Ranking in Germany	SUBJECT AREA AND CATEGORY Chemistry └ Electrochemistry Energy └ Energy Engineering and Power Technology Engineering └ Electrical and Electronic Engineering	PUBLISHER Wiley-VCH Verlag	H-INDEX 37
PUBLICATION TYPE Journals	ISSN 25666223	COVERAGE 2018-2023	INFORMATION Homepage How to publish in this journal

Quartiles			
Electrical and Electronic Engineering			
Electrochemistry			
Energy Engineering and Power Technology			
	2021	2022	2023





Review | [Free Access](#)

Progresses in Sustainable Recycling Technology of Spent Lithium-Ion Batteries

Kaidi Du, Edison Huixiang Ang, Xinglong Wu, Yichun Liu

First published: 12 September 2021 | <https://doi.org/10.1002/eem2.12271> | Citations: 48

SECTIONS

PDF TOOLS SHARE

Abstract

The number of lithium-ion batteries (LIBs) is steadily increasing in order to meet the ever-growing demand for sustainable energy and a high quality of life for humankind. At the same time, the resulting large number of LIB waste certainly poses safety hazards if it is not properly disposed of and will seriously harm the environment due to its inherent toxicity due to the use of toxic substances. Moreover, the consumption of many scarce precious metal resources is behind the mass production of batteries. In the light of severe environmental, resources, safety and recycling problems, recycling spent LIBs have become an essential urgently needed action to achieve sustainable social

Figures References Related Information

Recommended

High-Performance 3D Pinecone-Like $\text{LiNi}_{1/3}\text{Co}_{1/3}\text{Mn}_{1/3}\text{O}_2$ Cathode for Lithium-Ion Batteries

Yijia Shao, Bin Huang, Zhiyuan Lu, Yanchen Liu, Xiangbo Meng, Li Du, Huiyu Song, Shijun Liao

Energy Technology

High-Capacity Spherical $\text{LiNi}_{0.82}\text{Co}_{0.15}\text{Al}_{0.03}\text{O}_2$ Cathode for Lithium-Ion Batteries

Guoliang Bai, Chunhua Wang, Jiaojiao Luo, Hongyu Xia, Dihe Luo, Junwei Wang

Авторы

Google Академия



Dr Edison H. ANG

ПОДПИСАТЬСЯ

Assistant Professor of [Nanyang Technological University](#)

Подтвержден адрес электронной почты в домене nie.edu.sg - [Главная страница](#)

2D Nanomaterials Energy Storage and Conve... Sensor Membrane Technology Catalysis

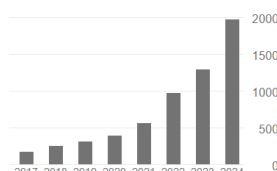
СОЗДАТЬ СВОЙ ПРОФИЛЬ

НАЗВАНИЕ	ПРОЦИТИРОВАНО	ГОД
Challenges in Material and Structure Design of Zinc Anode toward High-Performance Aqueous Zinc-Ion Batteries W Du, EH Ang, Y Yang, Y Zhang, M Ye, C Li Energy & Environmental Science	745	2020
Visible-light-driven removal of tetracycline antibiotics and reclamation of hydrogen energy from natural water matrices and wastewater by polymeric carbon nitride foam Hou Wang, Yan Wu, Mingbao Feng, Wenguang Tu, Tong Xiao, Ting Xiong, Huixiang ... Water Research 144, 215-225	526	2018
A high-energy lithium-ion capacitor by integration of a 3d interconnected titanium carbide nanoparticle chain anode with a pyridine-derived porous nitrogen-doped carbon cathode H Wang, Y Zhang, H Ang, Y Zhang, HT Tan, Y Zhang, Y Guo, JB Franklin, ... Advanced Functional Materials 26 (18), 3082-3093	360	2016
Ultrathin S-doped MoSe 2 nanosheets for efficient hydrogen evolution C Xu, S Peng, C Tan, H Ang, H Tan, H Zhang, Q Yan Journal of Materials Chemistry A 2 (16), 5597-5601	360	2014
Progresses in sustainable recycling technology of spent lithium-ion batteries K Du, EH Ang, X Wu, Y Liu Energy & Environmental Materials 5 (4), 1012-1036	220	2022

ПРОСМОТРЕТЬ ВСЕ

Все Начиная с 2019 г.

Статистика цитирования	6314	5665
h-индекс	41	39
i10-индекс	84	81



Общий доступ ПРОСМОТРЕТЬ ВСЕ

40 статей	30 статей
недоступно	доступно

Показатели журнала

Energy and Environmental Materials

COUNTRY United States Universities and research institutions in United States Media Ranking in United States	SUBJECT AREA AND CATEGORY Energy - Energy (miscellaneous) - Renewable Energy, Sustainability and the Environment Environmental Science - Environmental Science (miscellaneous) - Waste Management and Disposal - Water Science and Technology Materials Science - Materials Science (miscellaneous)	PUBLISHER John Wiley & Sons Inc.	H-INDEX 51
PUBLICATION TYPE Journals	ISSN 25750348, 25750356	COVERAGE 2018-2023	INFORMATION Homepage

Quartiles

Energy (miscellaneous)

Environmental Science (miscellaneous)

Materials Science (miscellaneous)

Renewable Energy, Sustainability and the Environment

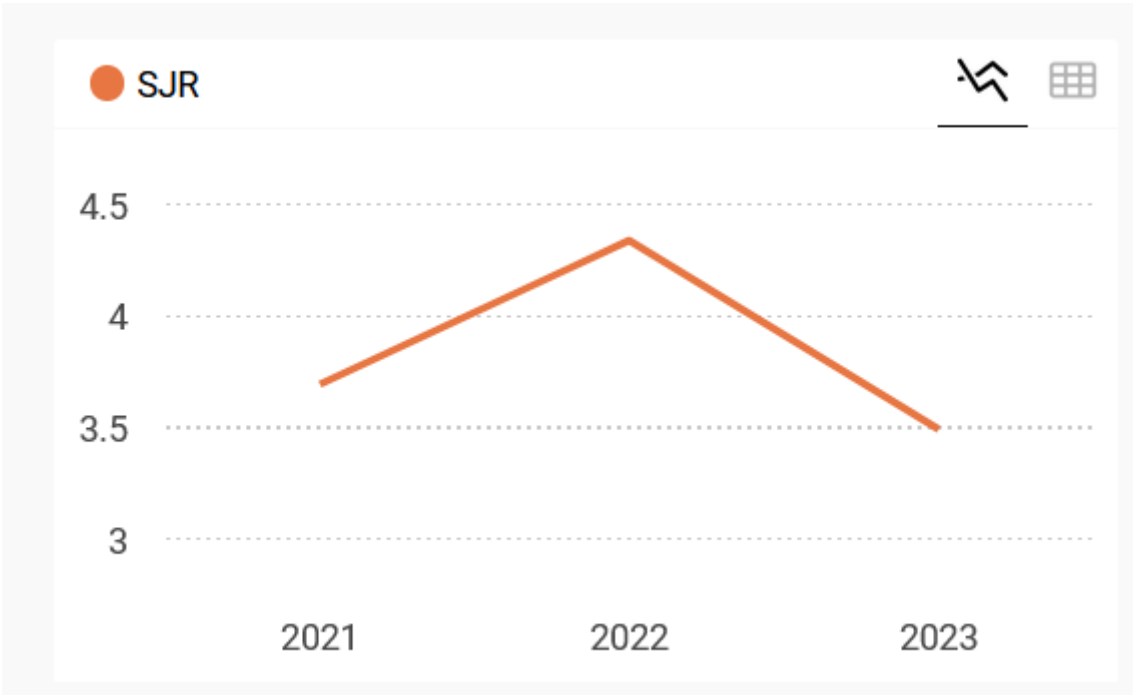
Waste Management and Disposal

Water Science and Technology

2021

2022

2023



Вывод:

Количество публикаций в англоязычных источниках сравнимо с числом статей в РИНЦ, что подчеркивает глобальную значимость проблемы утилизации батарей и аккумуляторов. Эти устройства содержат ряд металлов, которые могут накапливаться в живых организмах, включая человека, и наносить серьёзный вред здоровью. Актуальность данной темы подтверждается ростом показателей SJR для профильных журналов, что указывает на увеличение их цитируемости и повышение авторитетности, отражая растущий интерес научного сообщества к этой проблеме.