

SAMPLE ISSUE

We search through 100+ academic journals to bring you the best and most discussed **battery research** of the month.

SCIENCE *(published across November 2019)*

general	🔍 From solid solution electrodes and rocking-chair concept to today's batteries	H Zhang	ES	Wiley
general	🔍 Future of energy storage enabled by nanomaterials	Y Gogotsi	US	AAAS 🔒
general	★ Diffusion-limited C-rate: Fundamental principle quantifying limits of Li-ion batteries	A Michaelis	DE	Wiley 🔒
anod	Mechanistic elucidation of Si-C-graphite anode formation	V Pol	US	Wiley
anod	🔍 In situ structural characterizations of graphite intercalation 🏛️	D Su	CN	Wiley 🔒
anod	Electro-chemo-mechanics of Li dendrite growth	R Edwin Garcia	US	RSC
anod	Organophosphate dual-layered interface for air-stable Li-metal anodes	CL Yan	CN	Wiley
anod	Effect of external pressure on dendrite suppression in Li-metal batteries 🏛️	QJ Wang	US	ECS 🔒
anod	Computational screening of current collectors for anode-free Li-metal batteries	V Viswanathan	US	ACS
anod	🔍 TMO anodes for electrochemical energy storage in Li- and Na-ion batteries	S Passerini	DE	Wiley 🔒
elyte	Analytical study of electrolyte degradation of field-tested EV battery cells	S Nowak	DE	Elsevier
elyte	FSA solvent and fluorosulfonyl electrolyte for 4 V class NMC622//Li-metal battery	J Li	US	RSC 🔒
elyte	Electrolyte oxidation via carbonate dehydrogenation on Ni-based oxides	Y Shao-Horn	US	RSC 🔒
elyte	Catalyst-free dynamic networks for self-healing solid polymer electrolytes	C Evans	US	ACS
elyte (SS)	🔍 Stability issues and approaching practically accessible solid-state batteries 🏛️	H Li	CN	ACS
elyte (SS)	★ Unsupervised learning discovery of solid-state Li ⁺ conductors 🏛️	C Ling	US	Nature 🔒
elyte (SS)	Mixed conductive garnet interface for dendrite-free solid Li-metal batteries	XL Sun	CA	RSC
cath	Capacity fading and microcracking in Ni-rich NCA cathodes	YK Sun	KR	ACS
cath	Capacity fading mechanisms of NMC811 cathodes	H Gasteiger	DE	ECS 🔒
cath	★ Structural insights into formation and voltage degradation of Li- and Mn-rich oxides	S Indris	DE	Nature 🔒
cath	Voltage decay in Li-rich layered oxide cathode of no oxygen activity 🏛️	W Tong	US	Wiley
cath	Exploring bottlenecks of anionic redox in Li-rich layered sulfides	JM Tarascon	FR	Nature
cath (SS)	Li ₂ CO ₃ /LiNbO ₃ surface coating of NMC622 cathode for all-solid-state batteries	T Brezesinski	DE	ACS
Na-ion	🔍 Electrode engineering by atomic layer deposition for Na-ion batteries	SH Sun	CA	Wiley
Na-ion	Towards stable Na-rich layered TMOs for high energy density Na-ion batteries	YS Jung	KR	Elsevier
Na-ion	Structural water and disordered structure promote Na-ion storage in Na-birnessite	XW Teng	US	Nature 🔒
Na-ion	HV aqueous Na-ion battery enabled by inert cation-assisted water-in-salt electrolyte 🏛️	YS Hu	CN	Wiley
Na-ion	Tuning Na interfacial chemistry with mixed-anion ionic liquid electrolytes	M Hilder	AU	ACS

other	Voltage issue of aqueous rechargeable metal-ion batteries	CY Zhi	HK	RSC
other	Reversible epitaxial electrodeposition of metals in battery anodes	L Archer	US	AAAS

**ENGINEERING**

device	Linear and nonlinear aging of commercial 18650 cylindrical cells	A Jossen	DE	ECS
device	Detection of Li plating during thermally transient charging of batteries	C Love	US	Frontiers
device	Effects of mechanical compression on aging of Si-C//NMC cells in different formats	M W-Mehrens	DE	ECS
device	Effect of aging effects on thermal runaway behavior of Li-ion batteries	MG Ouyang	CN	Elsevier
BMS	Development of OCV-based model for SoH estimation of Li-ion batteries	JY Yan	SE	Elsevier
BMS	SoH estimation using ICA method and Gaussian process regression	ZP Wang	CN	Elsevier
BMS	Algorithm for detection of single cell contact loss within parallel-connected cells	KP Birke	DE	Elsevier
TMS	Computationally efficient thermal network model for PCM-based TMS	ZG Zhang	CN	Elsevier
EMS	Analysis of electric and hybrid vehicle powertrains: Topologies and integrated EMS	O Hegazy	BE	Elsevier
manuf	Effect of calendaring and temperature on electrolyte wetting in battery electrodes	C Jin	US	Elsevier
manuf	Environmental and economic evaluation of remanufacturing EV batteries	JP Ji	CN	Elsevier
recyc	Recycling Li-ion batteries from EVs	P Anderson	GB	Nature
recyc	Recovery of Li and Co from waste batteries via selective thermal isolation-suspension	V Sahajwalla	AU	Elsevier
recyc	Toxicity of thermolysis-driven gas emissions from cathodes of spent batteries	F Hu	CN	ACS
matls	Impact of heavy-duty transport electrification on critical metal sustainability	FQ Zhao	CN	Nature

**APPLICATIONS**

EVs	Battery warm-up methodologies at subzero temperatures for EV applications	M Pecht	US	Elsevier
EVs	Modeling perspective on future integrated mobility-energy systems	M Muratori	US	Elsevier
EVs	How much charging infrastructure do EVs need? International comparison	P Plotz	DE	Elsevier
EVs	Heterogeneity in economic and CO ₂ benefits of EV technology in US	E Williams	US	ACS
EVs	Global tipping points in rise of wind, solar, and EV to regime scale systems	Y Strauch	CA	Elsevier
BESS	Review of energy storage types, applications and recent developments	M Rosen	CA	Elsevier
BESS	SoH estimation for Li-ion batteries in PV systems	R Xiong	CN	Elsevier
BESS	Climate change impacts of production, use, and disposal of NMC batteries for PV storage	M Pihlatie	FI	Elsevier
BESS	Selected applications of battery/supercapacitor hybrid ESS for microgrids	M Khalid	SA	MDPI

LEGEND

- link to the article or website
- review or highlighted article
- open access article
- work led by industry/national lab

ABBREVIATIONS

LiM, TMO, NMC,... – electrode chemistries;
 SS – solid-state battery; BMS, TMS, EMS,... –
 battery management systems; SoC, SoH,... –
 state of charge/health
 US, CN,... – ISO country codes (USA, China)

*Other abbreviations are chemistry, materials, or engineering specific and commonly used throughout the field. If you are unclear, please click on the link and check.

**Mistakes are unavoidable, so please forgive us if you find any.

We pick the most **important news** to inform you on the latest trends in the battery industry – from EVs to grid storage.

NEWSWORTHY *(published across November 2019)*

Factbox: The world's biggest electric vehicle battery makers ([Reuters](#))

"China's Contemporary Amperex Technology (CATL), the world's biggest EV battery maker, counts BMW, Volkswagen, Daimler - which makes Mercedes cars - Volvo, Toyota Motor Corp and Honda Motor Co among its customers."



Growing demand for SUVs 'could negate electric car benefits' ([The Guardian](#))

"SUVs were the second biggest reason for global emissions growth in last 10 years, after the power sector and more than all the industrial sectors put together..."

Meet the Cybertruck, Tesla's Ford-fighting pickup ([Wired](#))

Ford Mustang Mach-E electric CUV debuts with up to 300 miles of range ([InsideEVs](#))

Volkswagen to spend €60 billion on switch to electric cars ([Deutsche Welle](#))

Lithium producers hit by first big downturn of electric vehicle era ([Reuters](#))

Feuding Korean firms risk disrupting electric car battery supplies ([Reuters](#))

World's second-largest ferry operator switching from diesel to batteries ([Greentech Media](#))



Flow batteries struggle in 2019 as lithium-ion marches on ([Greentech Media](#))

"Flow batteries are seen as ideal for large-scale, long-duration storage because they can store large amounts of energy using scalable tanks of relatively cheap electrolyte. The problem is that nobody seems to need this long-duration capacity just yet."

Supplying clean power is easier than storing it ([The Economist](#))

Will your EV keep the lights on when the grid goes down? ([Greentech Media](#))

"Nissan, as one example, estimates that its all-electric Leaf, when connected to a vehicle-to-home system, can power an average home in Japan for two to four days"

France's EDF buys UK electric vehicle infrastructure firm Pivot Power ([Reuters](#))

Australia's CEFC commits AU\$50m to expanding 'landmark' Tesla Hornsdale battery system ([Energy Storage News](#))

Moixa reaches 100 MWh of virtual power plant capacity in Japan ([PV Magazine](#))

We link you to the **newest reports** published by leading organizations, universities, government labs, and industry.

REPORTS *(published across November 2019)*



IEA World Energy Outlook 2019

[IEA](#)



MIT Mobility of the Future Study

[MIT Energy Initiative](#)

"Using a scenario-based approach, the diverse study team of MIT faculty, researchers, and students examined how different factors shape the future of personal mobility at different scales, from global and national markets to policy and mobility choices at the city and individual levels."



Energy Storage Monitor – Latest Trends in Energy Storage 2019

[World Energy Council](#) (pdf)

"Energy storage is growing rapidly globally. Falling costs and new deployment incentives are fuelling record investments in energy storage. Depending on the application, there is a 74% decline in costs since 2013 and these are projected to continue to decline at a steady 8% per year through the mid-2020s."



Lazard's Levelized Cost of Storage Analysis 2019

[Lazard](#)

We engage you with **relevant & interesting topics** to help you see the "bigger picture".

★ OUTSIDE THE BOX



Future of Solar Photovoltaic 2019 ([IRENA](#) | report)

"Solar PV is a fast-evolving industry, with innovations along the entire value chain driving further, rapid cost reductions. Floating PV is a prime example, with global cumulative installed capacity exceeding one gigawatt in 2018 and clear potential for rapid growth."

China's key role in scaling low-carbon energy technologies ([Science Magazine](#) | article)

"...we outline why engaging with China is the more promising path to accelerate the global deployment of low-carbon energy technologies and to rapidly bring new technologies to mass production."

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