

# EES Batteries

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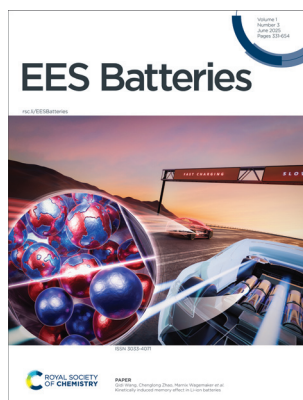
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ISSN 3033-4071 CODEN EBAA5 1(3) 331–654 (2025)



**Cover**  
See Xue-Qiang Zhang,  
Jia-Qi Huang *et al.*,  
pp. 340–363.

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**Inside cover**  
See Qidi Wang,  
Chenglong Zhao,  
Marnix Wagemaker *et al.*,  
pp. 437–449.

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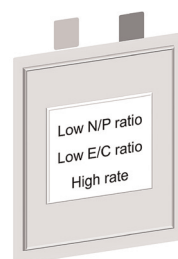
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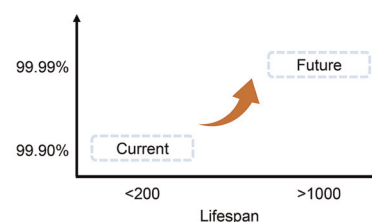
### Advances in high-coulombic-efficiency lithium metal anodes under practical conditions in liquid electrolytes

Shu-Yu Sun, Xue-Qiang Zhang,\* Xue-Yi Yan,  
Zhao Zheng, Qian-Kui Zhang and Jia-Qi Huang\*

Urgent requirement towards high-CE Li metal anodes under practical conditions



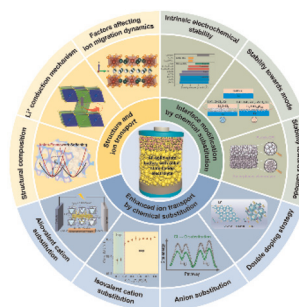
Coulombic efficiency



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### Insights into chemical substitution of metal halide solid-state electrolytes for all-solid-state lithium batteries

Chao Wu, Zhen Wang, Zhanhui Jia, Jiawu Cui,  
Chengyong Shu, Xiaowei Wang,\* Yuping Wu and  
Wei Tang\*



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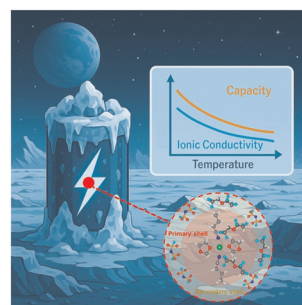
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## REVIEWS

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### Advances and future prospects of low-temperature electrolytes for lithium-ion batteries

Mehdi Shanbedi, Hossein Shahali,  
Andreas A. Polycarpou\* and Ahmad Amiri\*

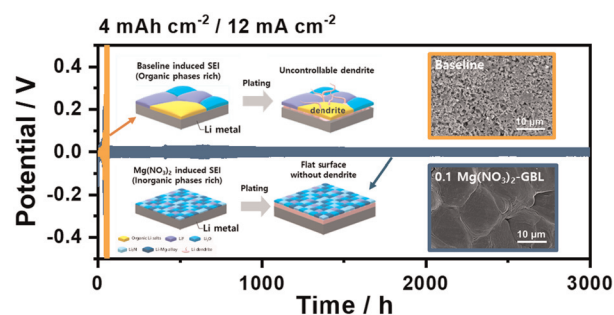


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### Synergetic effects of cation and anion of $Mg(NO_3)_2$ as electrolyte additives in stabilizing Li metal anode

Hyerim Kim, Jimin Park, Hyokyeong Kang,  
Sunggun Lim, Shivam Kansara, Zhaowei Sun,\*  
Shizhao Xiong,\* Yun-Chae Jung, Chihyun Hwang,  
Marco Agostini and Jang-Yeon Hwang\*

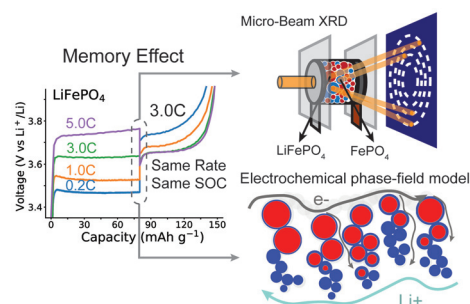


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### Kinetically induced memory effect in Li-ion batteries

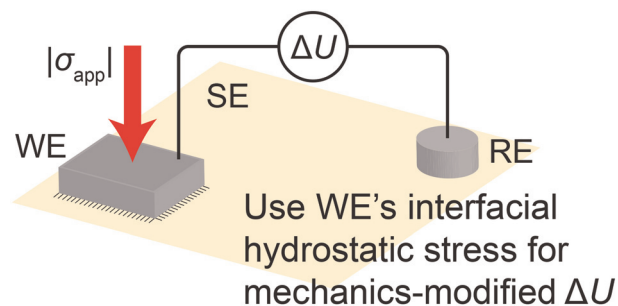
Pierfrancesco Ombrini, Qidi Wang,\*  
Alexandros Vasileiadis, Fangting Wu, Ziyao Gao, Xia Hu,  
Martijn van Hulzen, Baohua Li, Chenglong Zhao\* and  
Marnix Wagemaker\*



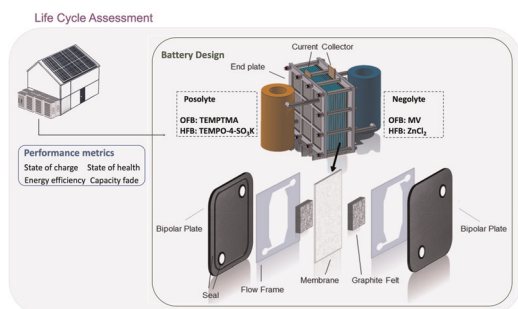
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### Mechanics-modified equilibrium potential for linear-elastic electrode materials

Taeho Jung, Yueming Song, Gianna M. Valentino and  
Paul Albertus\*



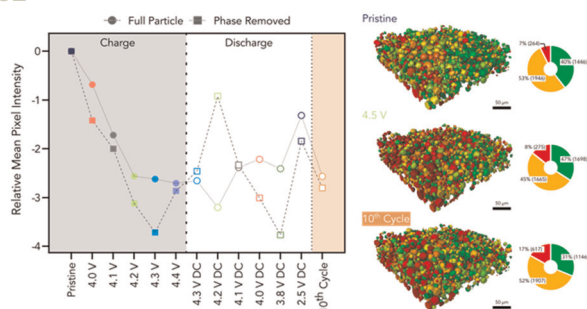
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## Prospective life cycle assessment of organic redox flow batteries

Shan Zhang,\* Athul Seshadri Ramanujam, Rickard Arvidsson, Alessandro Michieletto and Ulrich S. Schubert

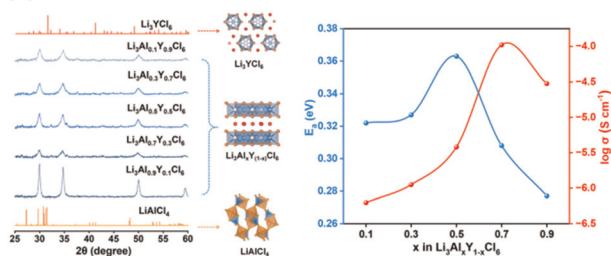
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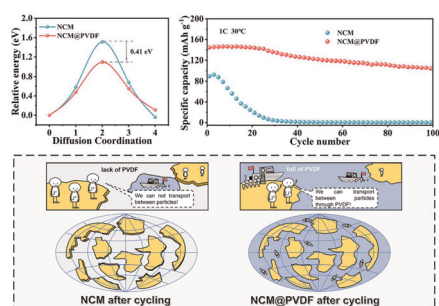
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## A high Al-doping ratio halide solid electrolyte with a 3D Li-ion transport framework

Yi-Xuan Li, Li-Ping Cui, Shu Zhang, Peng-Fei Sun, Cheng-Dong Fang, Yu-Hang Zhang, Liu-Bin Feng and Jia-Jia Chen\*

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## Dual-functional Li<sup>+</sup> diffusion network in high-nickel cathodes for solid-state Li metal batteries

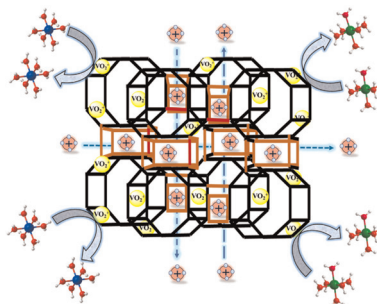
Meng Ye, Zhian Zhang, Jianhua Chen, Qiuyue Chen, Jiarui Hu, Lang Qiu, Fang Wan\* and Xiaodong Guo\*



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### Vanadium-encased zeolite based mixed matrix membrane for high-performance all-vanadium redox flow battery

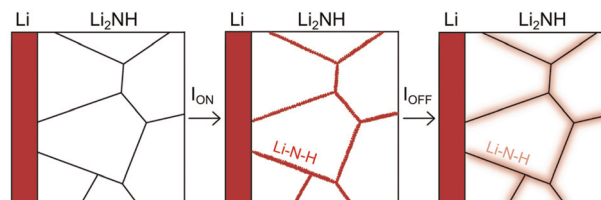
Chetan M. Pawar, Rahulbhai Parmar, Sooraj Sreenath, Jayesh C. Chaudhari, Govind Sethia\* and Rajaram K. Nagarale\*



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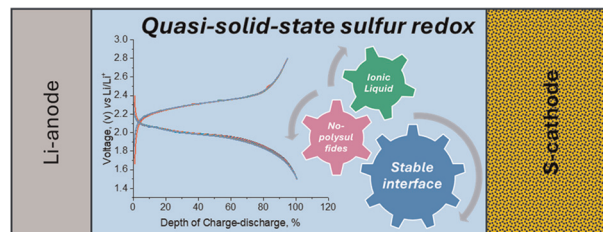
Jeremy P. Lowen, Teresa Insinna, Tharigopala V. Beatricevena, Mark P. Stockham, Bo Dong, Sarah J. Day, Clare P. Grey, Emma Kendrick, Peter R. Slater, Paul A. Anderson and Joshua W. Makepeace\*



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### Ionic liquid electrolytes for enhancing the performance of lithium–sulfur batteries: a new approach to mitigating polysulfide dissolution and shuttle effects

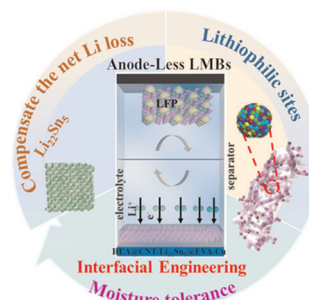
Ajit Kumar,\* Frederick Nti, Jenny Sun, Mahin Maleki, Steve Rowlands, Paul M. Bayley, Maria Forsyth\* and Patrick C. Howlett\*



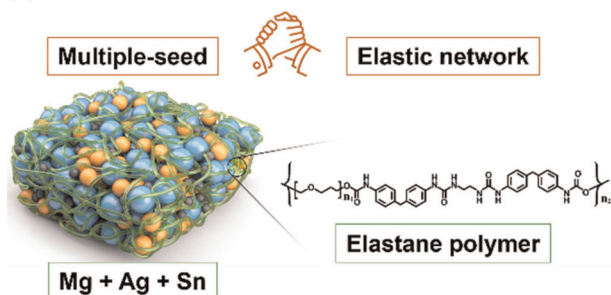
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### A lightweight, Li supplementary and lithiophilic interface enables anode-less lithium metal battery prototyping

Lu Cheng, Jiacheng Liu, Helin Wang, Yuxiang Guo, Ahu Shao, Yunsong Li, Zhiqiao Wang, Yaxin Zhang, Jiawen Tang, Chunwei Li and Yue Ma\*



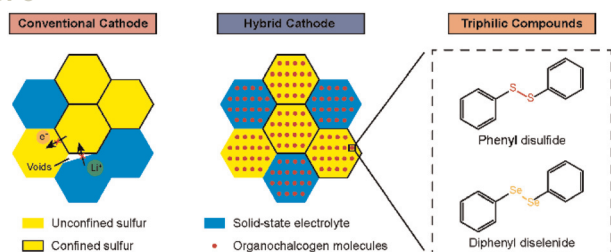
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### High-performance anode-less all-solid-state batteries enabled by multisite nucleation and an elastic network

Jihoon Oh, Yeeun Sohn and Jang Wook Choi\*

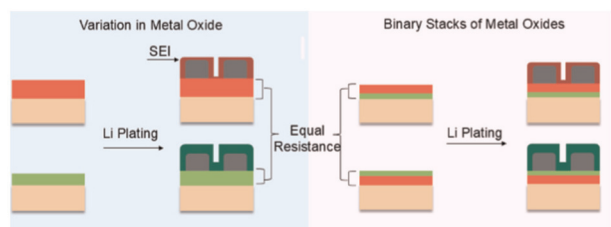
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### Triphilic organochalcogen compounds for high-capacity and stable solid-state lithium–sulfur batteries

Daiwei Wang, Mitsutoshi Otaki, Atif S. Alzahrani, Yue Gao, Jennifer L. Gray, Qian Lu, Meng Liao, Timothy S. Arthur and Donghai Wang\*

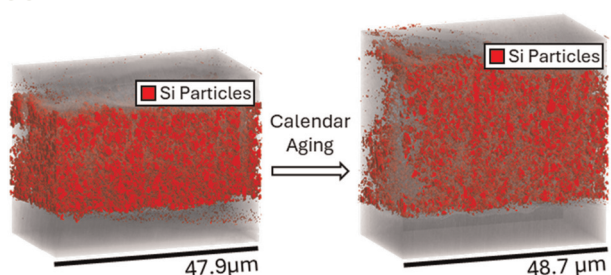
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### Equal resistance single and bilayer films decouple role of solid electrolyte interphase from lithium morphology in batteries

Sanzeeda Baig Shuchi, Kenzie M. Sanroman Gutierrez, Alexander B. Shearer, Solomon T. Oyakhire, Yi Cui\* and Stacey F. Bent\*

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### Quantifying silicon anode restructuring during calendar aging of lithium-ion batteries by plasma focused ion beam tomography and chemical mapping

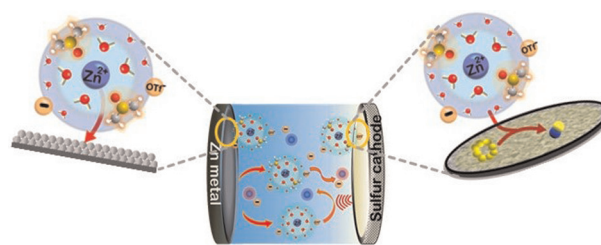
Joseph Quinn,\* Pavan Badami, Qian Huang, Chongmin Wang and Daniel P. Abraham\*



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### Achieving high capacity and long cycling life in aqueous zinc–sulfur batteries with improved kinetics through electrolyte solvation engineering

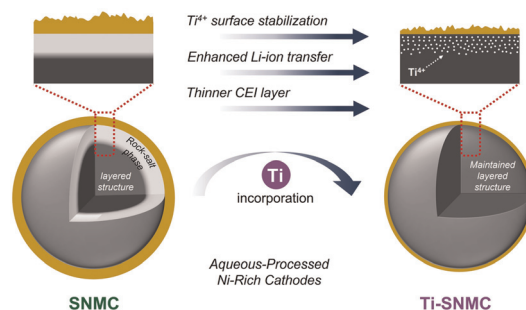
Tino S. Thomas, Aayushi Prakash Sinha and Debaprasad Mandal\*



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### Ti-induced surface stabilization for enhanced capacity of aqueous-processed Ni-rich cathodes

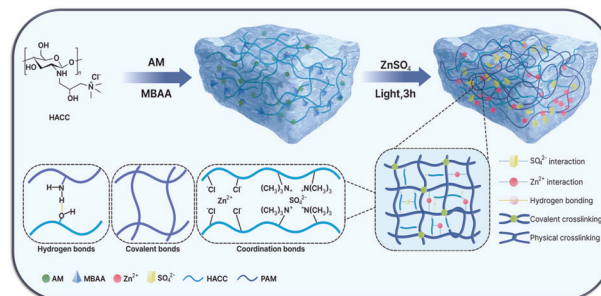
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Luyuan Yang, Chenyuan Xu, Lingyu Liu, Yunwei Li, Zheming Chen, Yue Deng, Jun Zhang, Zheyuan Liu, Yu Chao,\* Dewu Lin\* and Chengkai Yang\*



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### Superior sulfur infiltration into carbon mesosponge via chemical reaction for enhanced cycling stability in lithium–sulfur batteries

Tianshu Liu, Koki Fujita, Ayako Kawase,\* Zheng-Ze Pan, Takuma Kuroda, Shinichiroh Iwamura and Hirotomo Nishihara\*

