

# Energy & Environmental Science

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## IN THIS ISSUE

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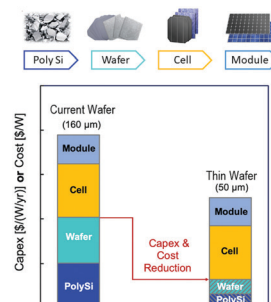
See Hong Jin Fan, Cheng Yang *et al.*, pp. 86–95.  
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Zhe Liu,\* Sarah E. Sofia, Hannu S. Laine, Michael Woodhouse, Sarah Wiegold, Ian Marius Peters and Tonio Buonassisi\*

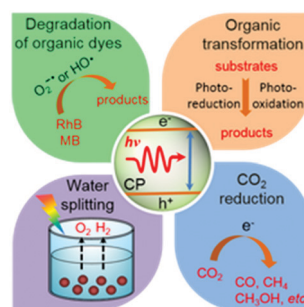


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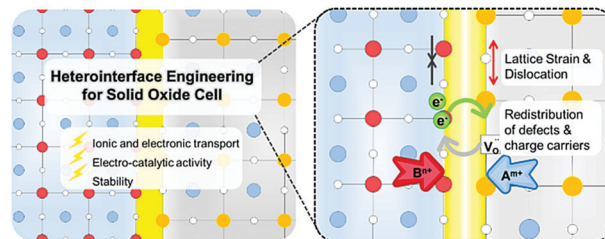
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## REVIEWS

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### Heterointerface engineering for enhancing the electrochemical performance of solid oxide cells

Chenhuan Zhao, Yifeng Li, Wenqiang Zhang, Yun Zheng, Xiaoming Lou, Bo Yu,\* Jing Chen,\* Yan Chen,\* Meilin Liu\* and Jianchen Wang

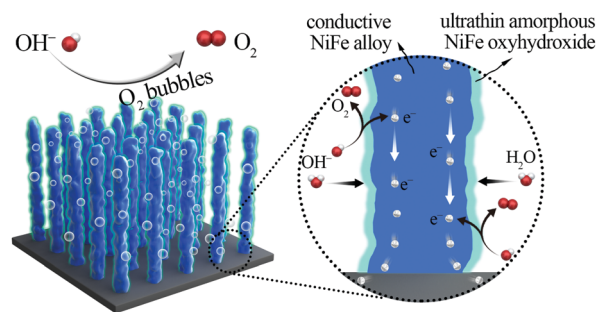


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### Exceptional performance of hierarchical Ni–Fe oxyhydroxide@NiFe alloy nanowire array electrocatalysts for large current density water splitting

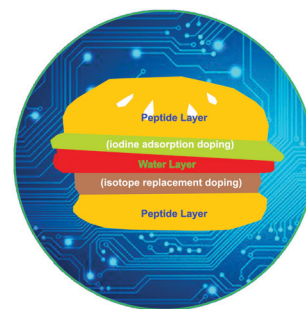
Caiwu Liang, Peichao Zou, Adeela Nairan, Yongqi Zhang, Jiaxing Liu, Kangwei Liu, Shengyu Hu, Feiyu Kang, Hong Jin Fan\* and Cheng Yang\*



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### Accelerated charge transfer in water-layered peptide assemblies

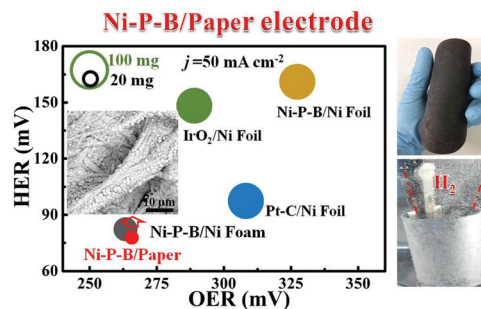
Kai Tao, Joseph O' Donnell, Hui Yuan, Ehtsham. U. Haq, Sarah Guerin, Linda J. W. Shimon, Bin Xue, Christophe Silien, Yi Cao, Damien Thompson, Rusen Yang, Syed A. M. Tofail\* and Ehud Gazit\*



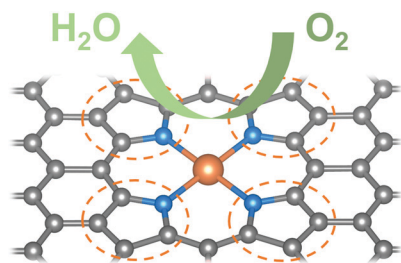
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### Fabrication of practical catalytic electrodes using insulating and eco-friendly substrates for overall water splitting

Weiju Hao, Renbing Wu, Hao Huang, Xin Ou,\* Lincui Wang, Dalin Sun, Xiaohua Ma and Yanhui Guo\*



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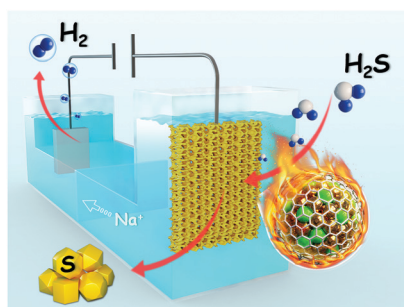


### High-purity Pyrrole-type FeN<sub>4</sub> Structure

#### High-purity pyrrole-type FeN<sub>4</sub> sites as a superior oxygen reduction electrocatalyst

Nan Zhang, Tianpei Zhou, Minglong Chen, Hu Feng, Ruilin Yuan, Cheng'an Zhong, Wensheng Yan, Yangchao Tian, Xiaojun Wu, Wangsheng Chu, Changzheng Wu\* and Yi Xie

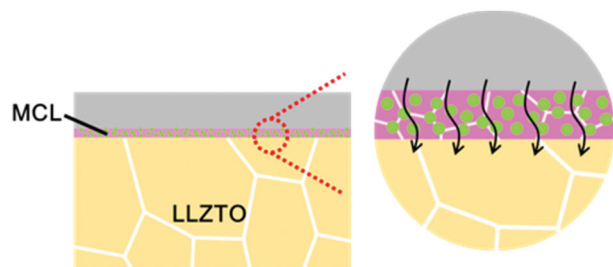
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#### Highly efficient H<sub>2</sub> production from H<sub>2</sub>S via a robust graphene-encapsulated metal catalyst

Mo Zhang, Jing Guan, Yunchuan Tu, Shiming Chen, Yong Wang, Suheng Wang, Liang Yu, Chao Ma, Dehui Deng\* and Xinhe Bao

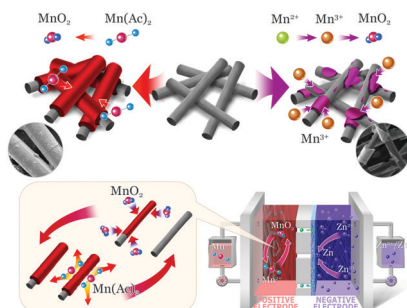
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#### Design of a mixed conductive garnet/Li interface for dendrite-free solid lithium metal batteries

Hanyu Huo, Yue Chen, Ruying Li, Ning Zhao, Jing Luo, João Gustavo Pereira da Silva, Robert Mücke, Payam Kaghazchi, Xiangxin Guo\* and Xueliang Sun\*

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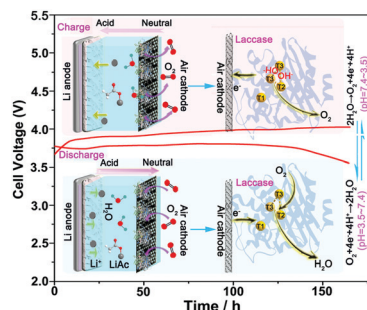
#### A highly reversible neutral zinc/manganese battery for stationary energy storage

Congxin Xie, Tianyu Li, Congzhi Deng, Yang Song, Huamin Zhang and Xianfeng Li\*

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### Superior efficient rechargeable lithium–air batteries using a bifunctional biological enzyme catalyst

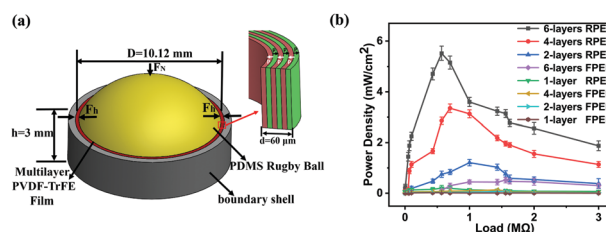
Linlin Wang, Yarong Wang, Yu Qiao, Shichao Wu, Xuanzhao Lu, Jun-Jie Zhu,\* Jian-Rong Zhang\* and Haoshen Zhou\*



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### The large piezoelectricity and high power density of a 3D-printed multilayer copolymer in a rugby ball-structured mechanical energy harvester

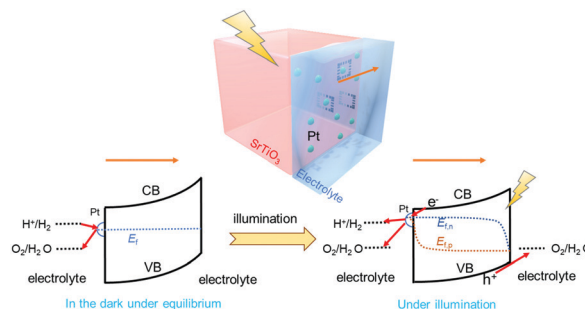
Xiaoting Yuan, Xiangyu Gao, Jikun Yang, Xinyi Shen, Zhanmiao Li, Sujian You, Zehuan Wang and Shuxiang Dong\*



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### Mutually-dependent kinetics and energetics of photocatalyst/co-catalyst/two-redox liquid junctions

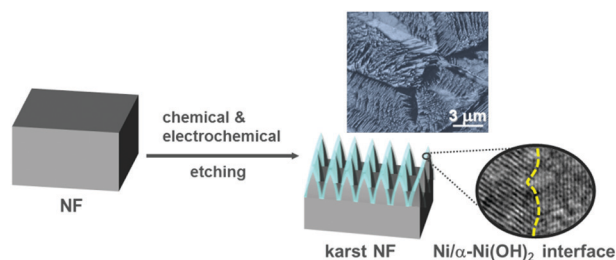
Zhenhua Pan, Rito Yanagi, Qian Wang, Xin Shen, Qianhong Zhu, Yudong Xue, Jason A. Röhr, Takashi Hisatomi, Kazunari Domen and Shu Hu\*



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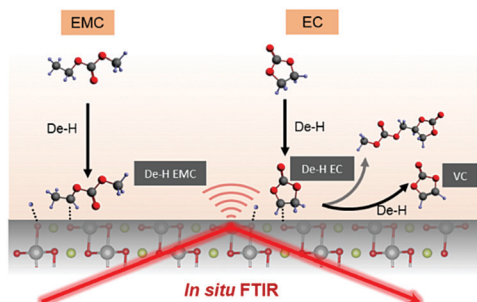
### Karst landform-featured monolithic electrode for water electrolysis in neutral media

Xueqing Gao, Yingdong Chen, Tong Sun, Jianmei Huang, Wei Zhang,\* Qiang Wang\* and Rui Cao\*





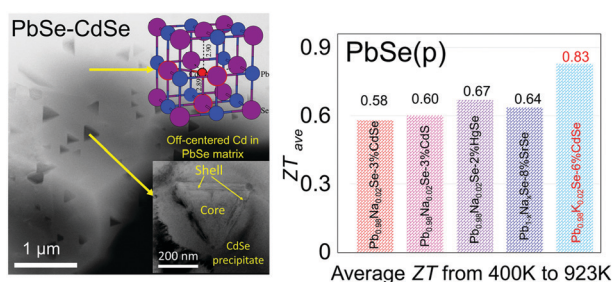
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### Revealing electrolyte oxidation *via* carbonate dehydrogenation on Ni-based oxides in Li-ion batteries by *in situ* Fourier transform infrared spectroscopy

Yirui Zhang,\* Yu Katayama, Ryoichi Tatara, Livia Giordano, Yang Yu, Dimitrios Fraggadakis, Jame Guangwen Sun, Filippo Maglia, Roland Jung, Martin Z. Bazant and Yang Shao-Horn\*

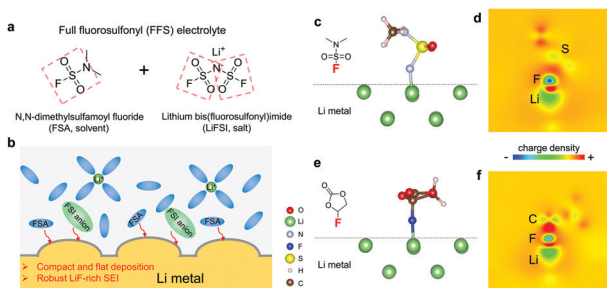
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Songting Cai, Shiqiang Hao, Zhong-Zhen Luo, Xiang Li, Ido Hadar, Trevor P. Bailey, Xiaobing Hu, Ctirad Uher, Yan-Yan Hu, Christopher Wolverton, Vinayak P. Dravid\* and Mercouri G. Kanatzidis\*

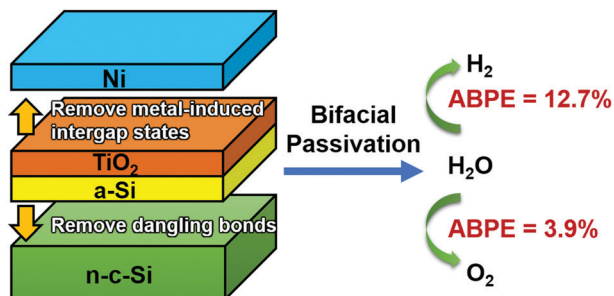
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### FSI-inspired solvent and "full fluorosulfonyl" electrolyte for 4 V class lithium-metal batteries

Weijiang Xue, Zhe Shi, Mingjun Huang, Shuting Feng, Chao Wang, Fei Wang, Jeffrey Lopez, Bo Qiao, Guiyin Xu, Wenxu Zhang, Yanhao Dong, Rui Gao, Yang Shao-Horn,\* Jeremiah A. Johnson\* and Ju Li\*

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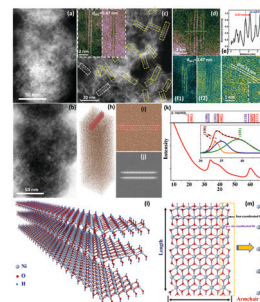
### Bifacial passivation of *n*-silicon metal-insulator-semiconductor photoelectrodes for efficient oxygen and hydrogen evolution reactions

Bin Liu, Shijia Feng, Lifei Yang, Chengcheng Li, Zhibin Luo, Tuo Wang\* and Jinlong Gong

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### Strain stabilized nickel hydroxide nanoribbons for efficient water splitting

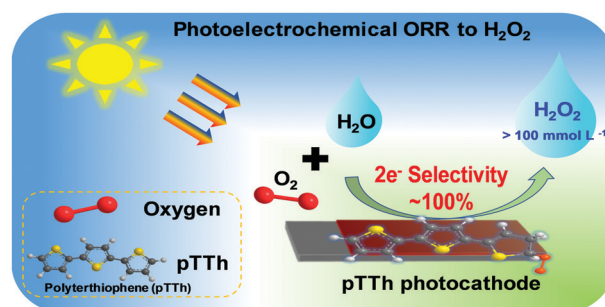
X. P. Wang, H. J. Wu, S. B. Xi, W. S. V. Lee, J. Zhang, Z. H. Wu, J. O. Wang, T. D. Hu, L. M. Liu, Y. Han, S. W. Chee, S. C. Ning, U. Mirsaidov, Z. B. Wang, Y. W. Zhang, A. Borgna, J. Wang, Y. H. Du,\* Z. G. Yu,\* S. J. Pennycook\* and J. M. Xue\*



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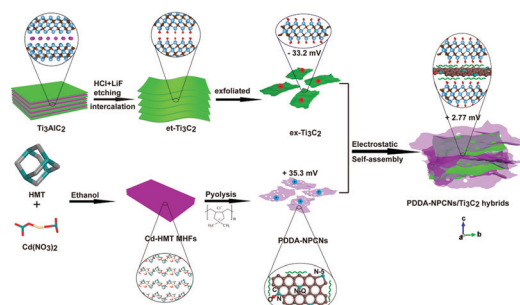
Wenjun Fan, Bingqing Zhang, Xiaoyu Wang, Weiguang Ma, Deng Li, Zhiliang Wang, Michel Dupuis, Jingying Shi,\* Shijun Liao\* and Can Li\*



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### Self-assembled Ti<sub>3</sub>C<sub>2</sub> MXene and N-rich porous carbon hybrids as superior anodes for high-performance potassium-ion batteries

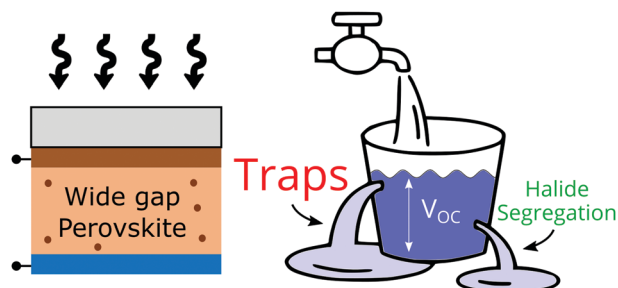
Ruizheng Zhao, Haoxiang Di, Xiaobin Hui, Danyang Zhao, Rutao Wang, Chengxiang Wang\* and Longwei Yin\*



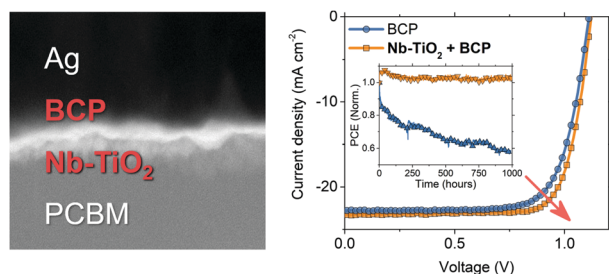
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### Revealing the origin of voltage loss in mixed-halide perovskite solar cells

Suhas Mahesh, James M. Ball, Robert D. J. Oliver, David P. McMeekin, Pabitra K. Nayak,\* Michael B. Johnston and Henry J. Snaith\*



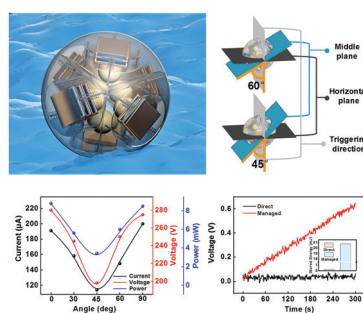
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### A universal solution processed interfacial bilayer enabling ohmic contact in organic and hybrid optoelectronic devices

J. Troughton,\* M. Neophytou,\* N. Gasparini, A. Seitkhan, F. H. Isikgor, X. Song, Y.-H. Lin, T. Liu, H. Faber, E. Yengel, J. Kosco, M. F. Oszajca, B. Hartmeier, M. Rossier, N. A. L  chinger, L. Tsetseris, H. J. Snaith, S. De Wolf, T. D. Anthopoulos, I. McCulloch and D. Baran

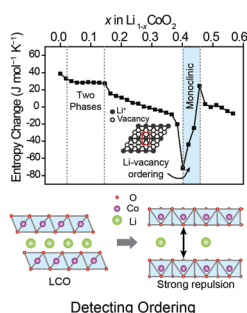
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### Spherical triboelectric nanogenerator integrated with power management module for harvesting multidirectional water wave energy

Xi Liang, Tao Jiang, Guoxu Liu, Yawei Feng, Chi Zhang\* and Zhong Lin Wang\*

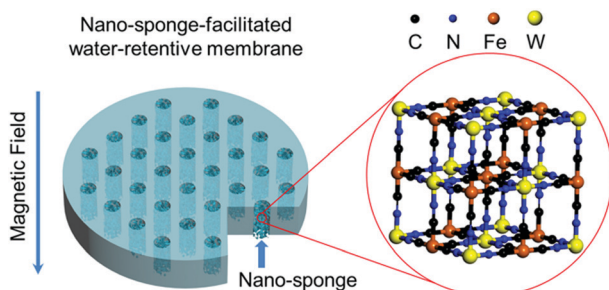
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### Entropymetry for non-destructive structural analysis of LiCoO<sub>2</sub> cathodes

Hye Jin Kim, Youngkyu Park, Yoonjin Kwon, Jaeho Shin, Young-Han Kim, Hyun-Seok Ahn, Rachid Yazami and Jang Wook Choi\*

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### Oriented proton-conductive nano-sponge-facilitated polymer electrolyte membranes

Xin Liu, Junfeng Zhang, Chenyang Zheng, Jiandang Xue, Tong Huang, Yan Yin,\* Yanzhou Qin, Kui Jiao, Qing Du and Michael D. Guiver\*

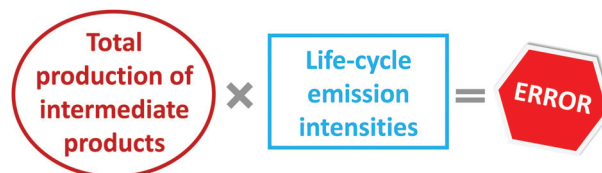


## COMMENTS

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Comment on “Powering sustainable development within planetary boundaries” by I. M. Algunaibet, C. Pozo, A. Galán-Martín, M. A. J. Huijbregts, N. Mac Dowell and G. Guillén-Gosálbez, *Energy Environ. Sci.*, 2019, 12, 1890

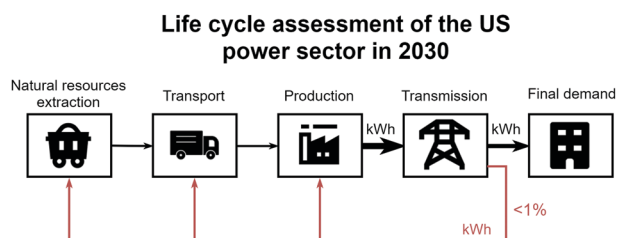
Yi Yang



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Reply to the ‘Comment on “Powering sustainable development within planetary boundaries”’ by Y. Yang, *Energy Environ. Sci.*, 2020, 13, DOI: 10.1039/C9EE01176E

Ibrahim M. Algunaibet, Carlos Pozo, Ángel Galán-Martín, Mark A. J. Huijbregts, Niall Mac Dowell and Gonzalo Guillén-Gosálbez\*



## CORRECTION

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Correction: A multi-objective optimization-based layer-by-layer blade-coating approach for organic solar cells: rational control of vertical stratification for high performance

Rui Sun, Jie Guo, Qiang Wu, Zhuohan Zhang, Wenyan Yang, Jing Guo, Mumin Shi, Yaohong Zhang, Simon Kahmann, Long Ye, Xuechen Jiao, Maria A. Loi, Qing Shen, Harald Ade, Weihua Tang, Christoph J. Brabec and Jie Min\*