

# Sustainable Energy & Fuels

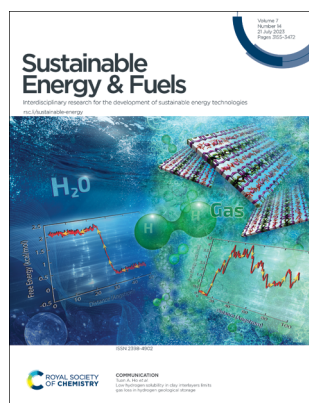
Interdisciplinary research for the development of sustainable energy technologies

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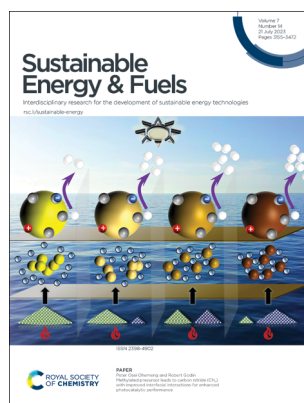
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See Peter Osei Ohemeng and Robert Godin, pp. 3250–3265. Image reproduced by permission of Peter Osei Ohemeng and Robert Godin from *Sustainable Energy Fuels*, 2023, 7, 3250.

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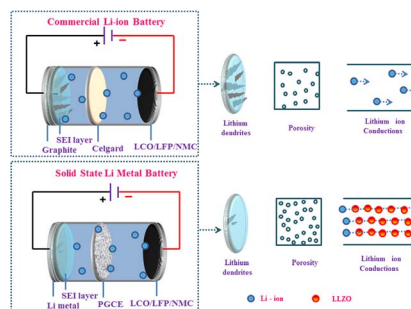
Rajesh Banu J and Godvin Sharmila V\*



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Arunkumar Rajamani,\* Thamayanthi Panneerselvam, Sona Elsin Abraham, Ramaswamy Murugan and Sivaraman Sivaprakasam



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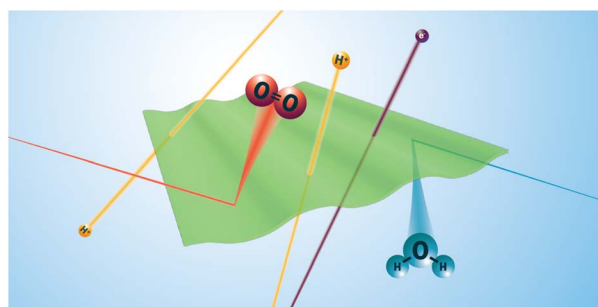


## PERSPECTIVE

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### Ultrathin electron and proton-conducting membranes for nanoscale integrated artificial photosystems

Heinz Frei

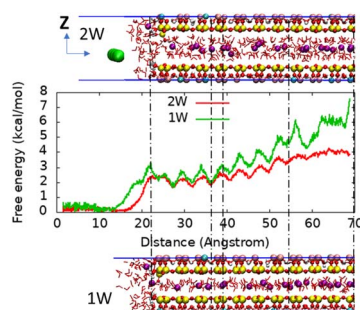


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### Low hydrogen solubility in clay interlayers limits gas loss in hydrogen geological storage

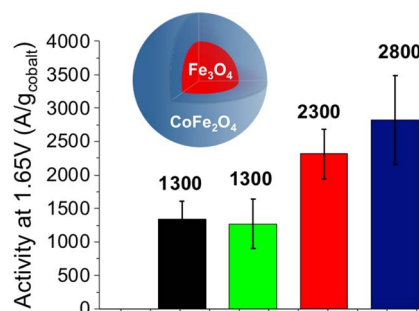
Tuan A. Ho,\* Carlos F. Jove-Colon and Yifeng Wang



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### Core-shell $\text{Fe}_3\text{O}_4@\text{CoFe}_2\text{O}_4$ nanoparticles as high-performance anode catalysts for enhanced oxygen evolution reaction

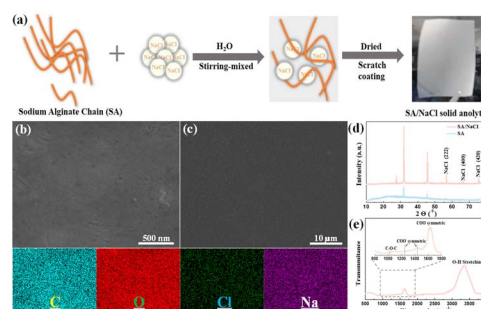
Lisa Royer, Iryna Makarchuk, Simon Hettler, Raul Arenal, Tristan Asset, Benjamin Rotonelli, Antoine Bonnefont, Elena Savinova and Benoit P. Pichon\*



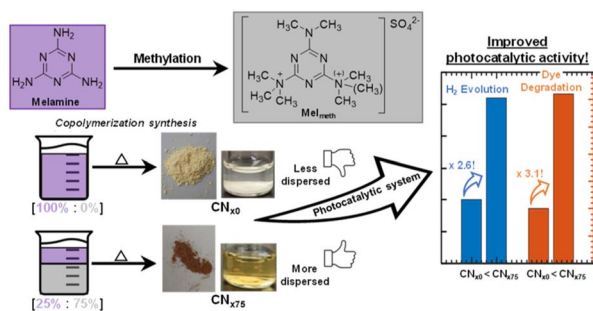
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### An ultrahigh energy density Mg–air battery with organic acid–solid anolyte biphasic electrolytes

Min Liu, Qiang Zhang, Xueliang Wang, Jianxin Gao, Qianfeng Liu, Erdong Wang\* and Zhenbo Wang\*



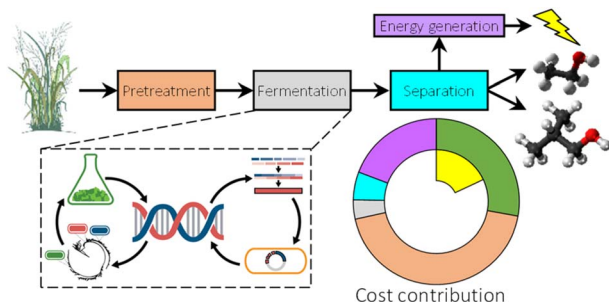
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### Methylated precursor leads to carbon nitride (CN<sub>x</sub>) with improved interfacial interactions for enhanced photocatalytic performance

Peter Osei Ohemeng and Robert Godin\*

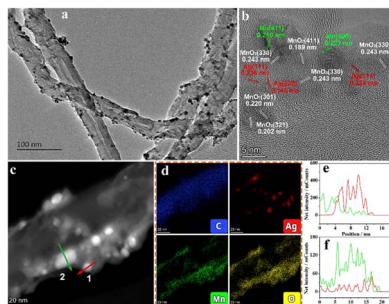
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### High yield co-production of isobutanol and ethanol from switchgrass: experiments, and process synthesis and analysis

Arthur E. Pastore de Lima, Russell L. Wrobel, Brandon Paul, Larry C. Anthony, Trey K. Sato, Yaoping Zhang, Chris Todd Hittinger and Christos T. Maravelias\*

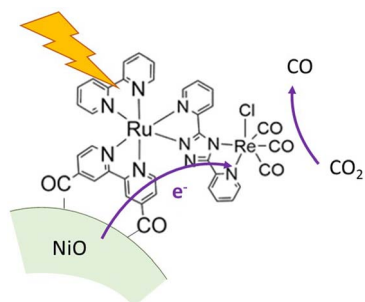
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### Construction of MWNT supported ultra-small Ag@MnO<sub>2</sub> nanoparticles for the ORR and Al-air batteries

Yansong Zhang, Liankun Yin, Zhihong Luo,\* Xiangqun Zhuge,\* Peng Wei, Zhou Song and Kun Luo

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### Ruthenium-rhenium and ruthenium-palladium supramolecular photocatalysts for photoelectrocatalytic CO<sub>2</sub> and H<sup>+</sup> reduction

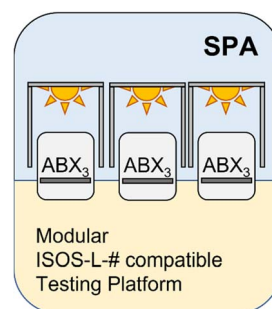
Joshua K. G. Karlsson, Florian J. R. Cerpentier, Ralte Lalrempuia, Martin V. Appleby, James D. Shipp, Dimitri Chekulaev, Owen Woodford, Julia A. Weinstein, Mary T. Pryce\* and Elizabeth A. Gibson\*



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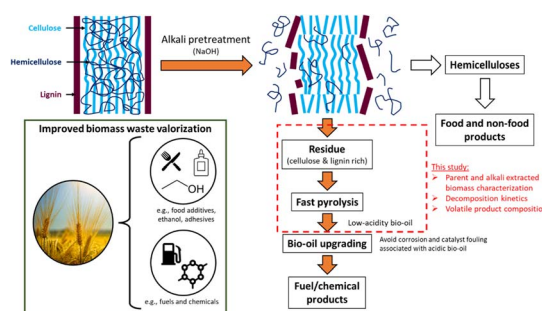
Sean P. Dunfield,\* Amy E. Louks, Jay Waxse, Robert Tirawat, Steve Robbins, Joseph J. Berry and Matthew O. Reese\*



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### Thermochemical behavior of alkali pretreated biomass – a thermogravimetric and Py-GC/FID study

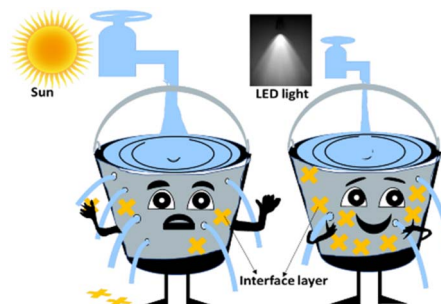
Candice Ellison,\* Manuel Garcia-Perez, Charles A. Mullen and Madhav P. Yadav



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### Effect of PEIE and polylysine as interfacial layers on the performance of air-processed organic solar cells under both indoor and 1 sun conditions

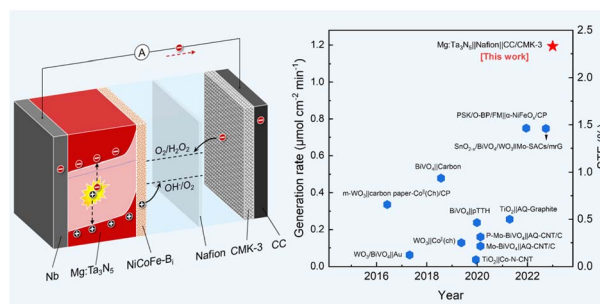
Hamed Javanbakht Lomeri, Giuseppina Polino, Suresh Podapangi, Thomas M. Brown\* and Francesca Brunetti\*



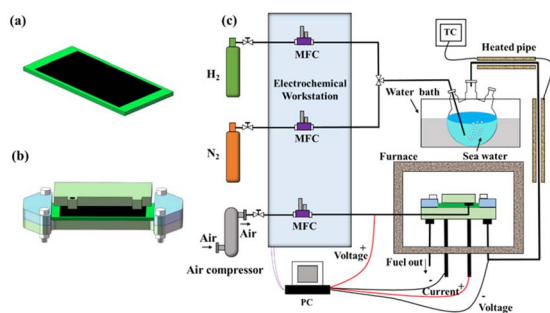
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### Bias-free photoelectrochemical H<sub>2</sub>O<sub>2</sub> production with a solar-to-fuel conversion efficiency of 2.33%

Dan Zhu, Chao Feng, Zeyu Fan, Beibei Zhang, Xin Luo and Yanbo Li\*



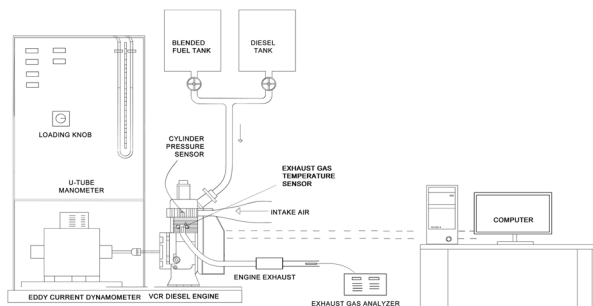
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### Effect of the steam/hydrogen ratio on the performance of flat-tube solid oxide electrolysis cells for seawater

Hu Pan, Anqi Wu,\* Siu Fai Au, Yiping Yang, Zihan Song, Zhao Liu, Xiwu Gong\* and Wanbing Guan

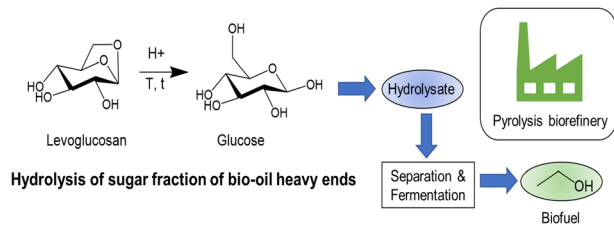
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### Determination of the sustainability index along with energy–exergy–emission–economic analysis of a VCR diesel engine fuelled with diesel–bioethanol–Al<sub>2</sub>O<sub>3</sub> nanoparticles

Taraprasad Mohapatra, Sudhansu S. Mishra\* and Sudhansu S. Sahoo

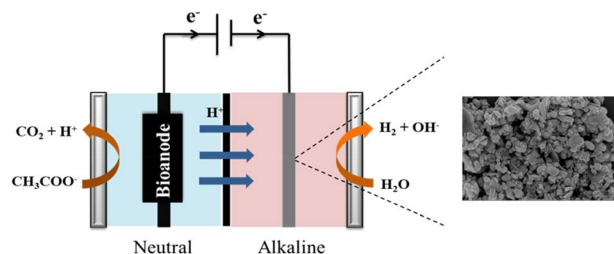
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### Hydrolysis of anhydrosugars derived from pyrolysis of lignocellulosic biomass for integration in a biorefinery

Arpa Ghosh, Jessica L. Brown, Ryan G. Smith and Robert C. Brown\*

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### N-doped Mo<sub>2</sub>C particles as a cathode catalyst of asymmetric neutral-alkaline microbial electrolysis cells for hydrogen production

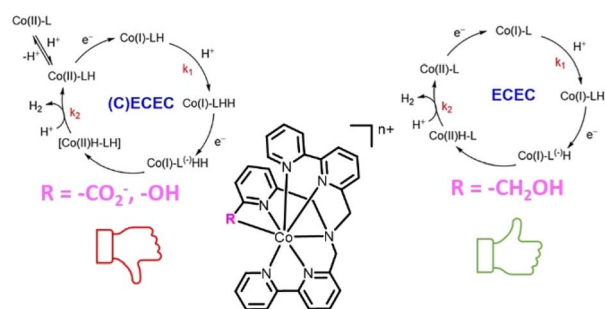
Chaoming Rao, Zhifeng Zhao, Zhenhai Wen,\* Qiuhua Xu, Kai Chen, Haiyan Chen and Suqin Ci\*



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### Electro- and photochemical H<sub>2</sub> generation by Co(II) polypyridyl-based catalysts bearing *ortho*-substituted pyridines

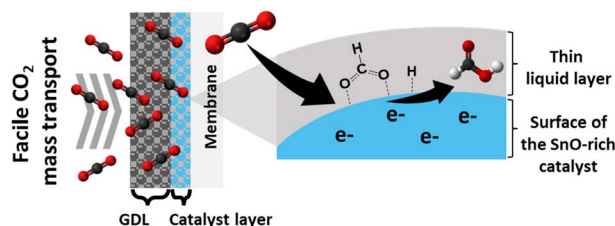
Fiorella Lucarini, Jennifer Fize, Adina Moroza, Federico Droghetti, Euro Solari, Rosario Scopelliti, Marco Marazzi,\* Mirco Natali,\* Mariachiara Pastore,\* Vincent Artero\* and Albert Ruggi\*



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### Tuning the oxidation state of SnO<sub>x</sub> and mass transport to enhance catholyte-free CO<sub>2</sub>-to-formate electrolysis

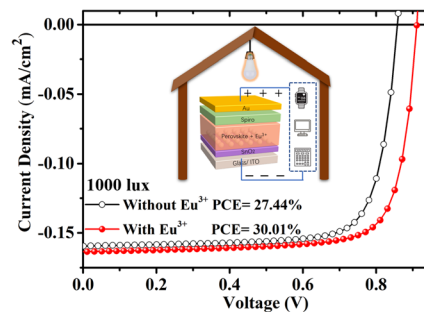
Taewoo Kim, Vivek Shastry Devalla, Sean P. Dunfield, Jack R. Palmer, Sara Dorr, Moses Kodur, Apoorva Gupta and David P. Fenning\*



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### 30% efficient triple-cation perovskite solar cells under indoor illumination enabled by rare earth EuCl<sub>3</sub> doping

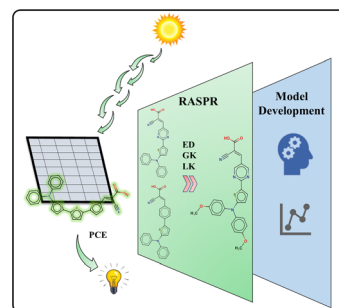
Jie Xu, Sathy Harshavardhan Reddy, Luigi Angelo Castriotta, Suresh Kumar Podapangi, Marco Luce, Antonio Cricenti, Aldo Di Carlo and Thomas M. Brown\*



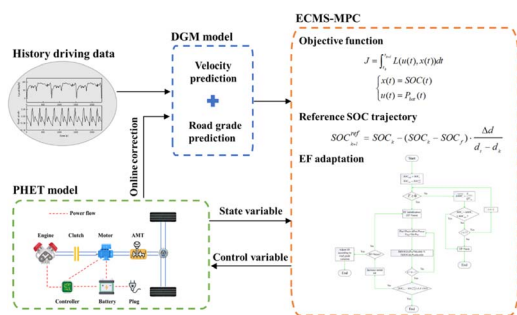
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### Machine learning-based q-RASPR modeling of power conversion efficiency of organic dyes in dye-sensitized solar cells

Souvik Pore, Arkaprava Banerjee and Kunal Roy\*



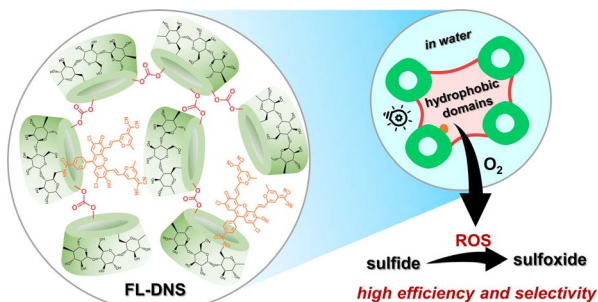
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### MPC-based energy management with short-term driving condition prediction for a plug-in hybrid electric truck

Hua Chai, Xuan Zhao, Peilong Shi,\* Qiang Yu, Qi Han and Zichen Zheng

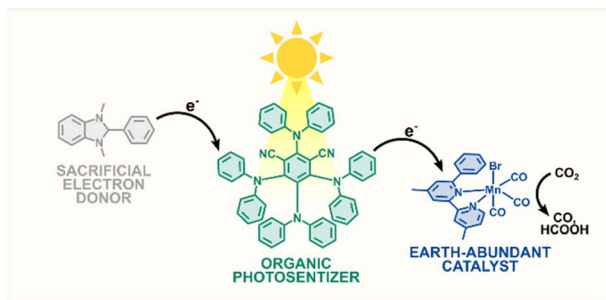
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### A TADF-based purely organic heterogeneous photocatalyst with hydrophobic domains for efficient oxidation of sulfide into sulfoxide in water

Gaobo Hong, Yingnan Wu, Jing An, Wenlong Chen, Fengling Song\* and Xiaojun Peng

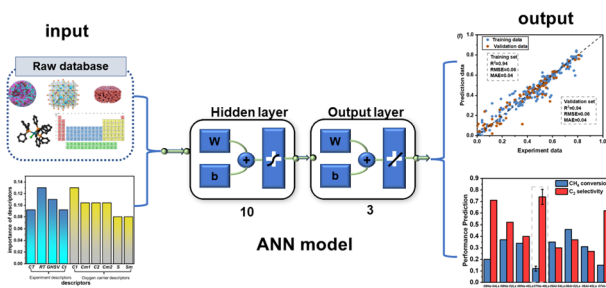
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### Visible-light driven photocatalytic CO<sub>2</sub> reduction promoted by organic photosensitizers and a Mn(I) catalyst

Elena Bassan, Rei Inoue, David Fabry, Francesco Calogero, Simone Potenti, Andrea Gualandi, Pier Giorgio Cozzi, Kei Kamogawa, Paola Ceroni,\* Yusuke Tamaki\* and Osamu Ishitani\*

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### A machine learning approach for predicting the performance of oxygen carriers in chemical looping oxidative coupling of methane

Dewang Zeng, Yiwen Song, Mengmeng Wang, Yingjie Lu, Zehua Chen and Rui Xiao\*

