

# Sustainable Energy & Fuels

Interdisciplinary research for the development of sustainable energy technologies

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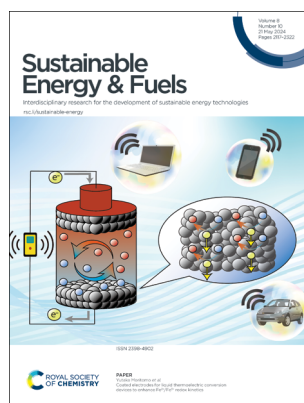
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## IN THIS ISSUE

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**Cover**  
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**Inside cover**  
See Yutaka Moritomo *et al.*, pp. 2138–2143. Image reproduced by permission of Yutaka Moritomo from *Sustainable Energy Fuels*, 2024, 8, 2138.

## PAPERS

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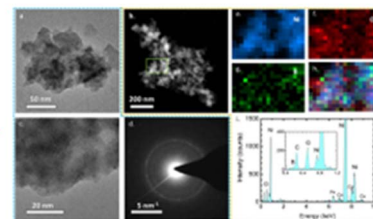
### Engineering 2D nickel boride/borate amorphous/amorphous heterostructures for electrocatalytic water splitting and magnetism

Xu Lin, Vasileios Tzitzios, Qiancheng Zhang, Brian J. Rodriguez, Aran Rafferty, Raman Bekarevich, Michael Pissas and M. Veronica Sofianos\*

**one-pot chemical reduction method**  
NaBH<sub>4</sub> and NaOH



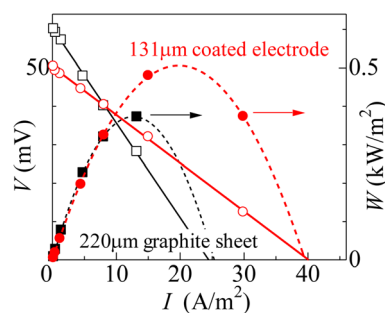
**amorphous/amorphous nickel boride/borate heterostructures**



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### Coated electrodes for liquid thermoelectric conversion devices to enhance Fe<sup>2+</sup>/Fe<sup>3+</sup> redox kinetics

Touya Aiba, Dai Inoue and Yutaka Moritomo\*



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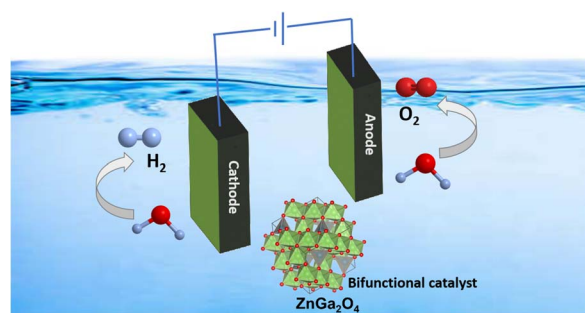


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### Improved catalytic activity on transitioning from inverse to normal spinel in $Zn_{2-x}Ga_{2x}Sn_{1-x}O_4$ : a robust bifunctional OER and HER electrocatalyst

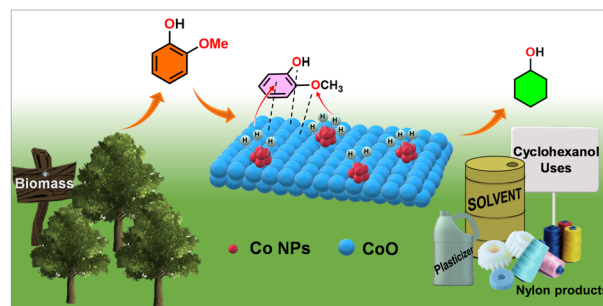
Reshmi T. Parayil, Santosh K. Gupta,\* Kalpana Garg, Shivangi Mehta, K. Sudarshan, M. Mohapatra and Tharamani C. Nagaiah\*



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### The cooperative effect of Co and CoO in Co/CoO enabled efficient catalytic hydrogenation and demethoxylation of guaiacol to cyclohexanol

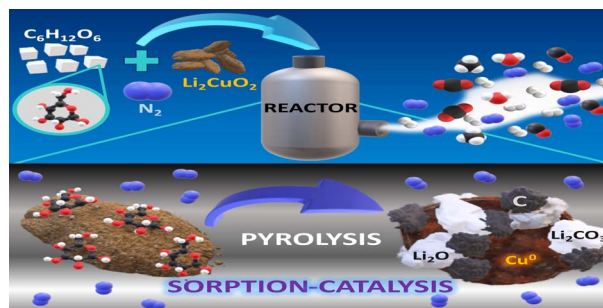
Bhupendra Pratap Singh, Ganesh Sunil More, Rajaram Bal and Rajendra Srivastava\*



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### Enhanced $H_2$ production through biomass pyrolysis by applying alkaline ceramic lithium cuprate ( $Li_2CuO_2$ ) as a bifunctional material

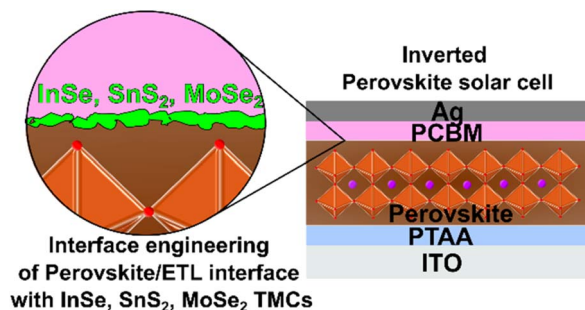
Fernando Plascencia-Hernández, Ana Yañez-Aulestia, Carlos Hernández-Fontes and Heriberto Pfeiffer\*



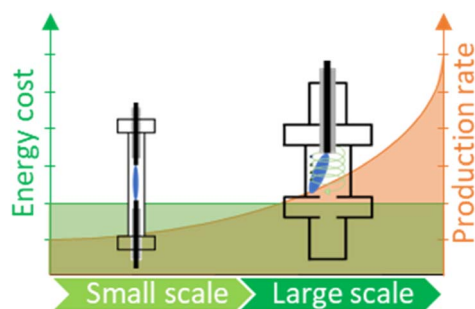
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Dimitris Tsikritzis, Konstantinos Chatzimanolis, Nikolaos Tzoganakis, Konstantinos Rogdakis, Marilena Isabella Zappia, Beatriz Martín-García, Ahmad Bagheri, Hossein Beydaghí, Lukáš Děkanovský, Zdeněk Sofer, Sebastiano Bellani, Francesco Bonaccorso and Emmanuel Kymakis



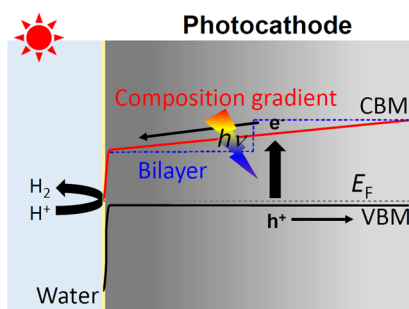
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### Importance of geometric effects in scaling up energy-efficient plasma-based nitrogen fixation

Ivan Tsonev,\* Hamid Ahmadi Eshtehardi,  
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### Efficient hydrogen evolution from water over a thin film photocathode composed of solid solutions with a composition gradient of ZnTe and CdTe

Lionel S. Veiga, Hiromu Kumagai, Masakazu Sugiyama  
and Tsutomu Minegishi\*

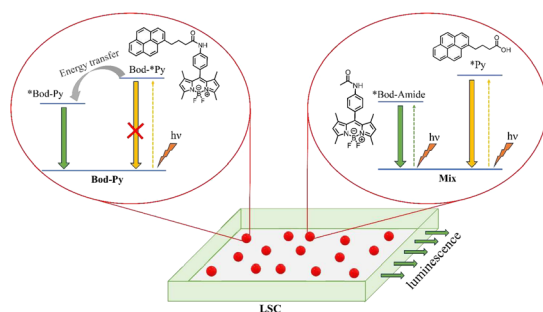
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### A mesoporous Ta<sub>2</sub>O<sub>5</sub>/Nb<sub>2</sub>O<sub>5</sub> nanocomposite with Lewis/Brønsted acid sites to enhance stepwise glucose conversion to 5-hydroxymethylfurfural

Sangeeta Mahala, Senthil Murugan Arumugam, Ravi  
Kumar Kunchala, Bhawana Devi and Sasikumar Elumalai\*

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### Comparing a covalently linked BODIPY–pyrene system versus the corresponding physical mixture as chromophores in luminescent solar concentrators

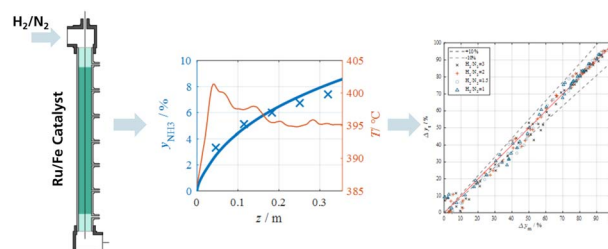
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Ambra M. Cancelliere, Antonio Santoro,  
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and Antonino Arrigo\*



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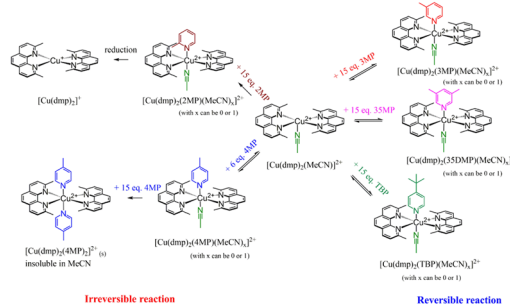
T. Cholewa,\* B. Steinbach, C. Heim, F. Nestler, T. Nanba, R. Güttel\* and O. Salem



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## Investigation on the coordination between methylpyridine additives and the $[\text{Cu}(\text{dmp})_2]^{2+/+}$ redox couple and its improvement towards the stability of the dye-sensitized solar cells

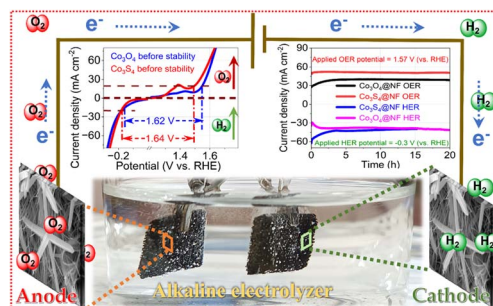
Vinh Son Nguyen, Kala Kannankutty, Yu-Hsuan Chen, Ding-Cheng Wang, Chen-Yu Yeh\* and Tzu-Chien Wei\*



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## Enhanced bifunctional electrocatalytic activities of hybrid $\text{Co}(\text{OH})_2/\text{MOF}$ -derived materials for green hydrogen production by electrochemical water splitting

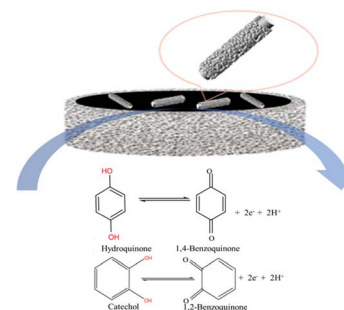
Apurba Borah, Sumit, Sathishkumar Palaniyappan and Gaddam Rajeshkhanna\*



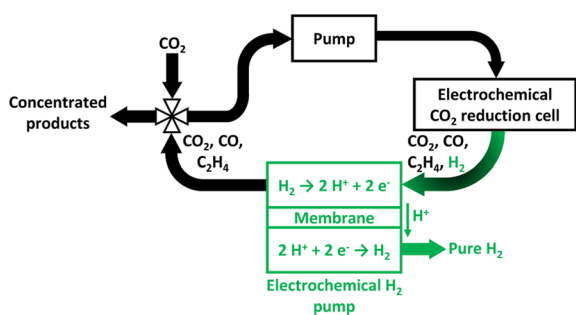
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## Simultaneous detection of hydroquinone and catechol by Cu/Bi-MOF-derived Cu/Bi@C nanocomposites

Yuting Wu, Keru Cao, Jun Yan, Yuheng Zhang, Biao Zhang, Yanan Wang, Yong Yang, Dacheng Zhou, Qi Wang\* and ChunXia Liu\*



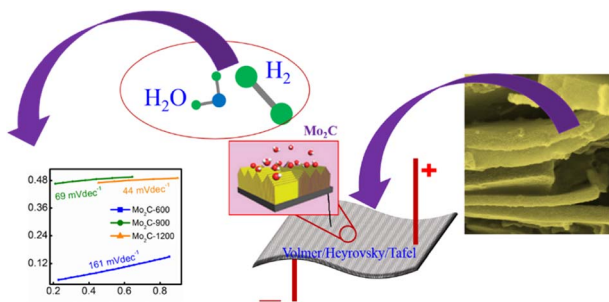
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### A recirculation system for concentrating CO<sub>2</sub> electrolyzer products

Tobias A. Kistler, Rajiv Ramanujam Prabhakar and Peter Agbo\*

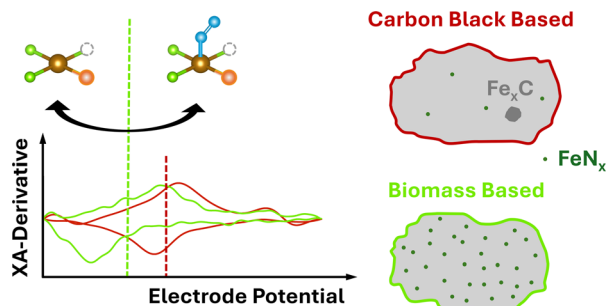
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### Enhancement of the characteristics and HER activity of molybdenum carbide nanosheets for hydrogen evolution reaction

Muhammad Faisal Iqbal, Muhammad Idrees, Muhammad Imran, Aamir Razaq, Guanming Zhu, Jing Zhang,\* Zahir Muhammad\* and Meng Zhang\*

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Garlef Wartner,\* Julia Müller-Hülstede, Hanna Trzesniowski, Michael Wark, Peter Wagner and Robert Seidel\*

