

# Sustainable Energy & Fuels

Interdisciplinary research for the development of sustainable energy technologies

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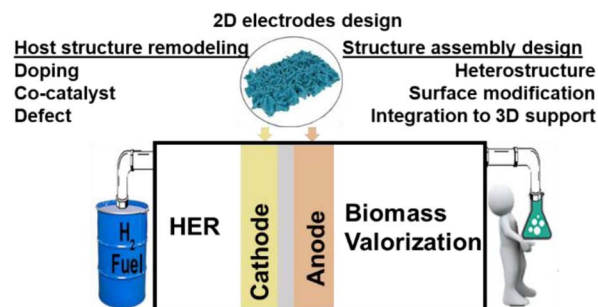
**Inside cover**  
See Bahareh Feizi Mohazzab, Dandan Gao *et al.*, pp. 5620–5637. Image reproduced by permission of Bahareh Feizi Mohazzab and Dandan Gao from *Sustainable Energy Fuels*, 2024, 8, 5620.

## REVIEWS

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### Design of nanostructured 2D (photo-) electrocatalysts for biomass valorization coupled with H<sub>2</sub> production

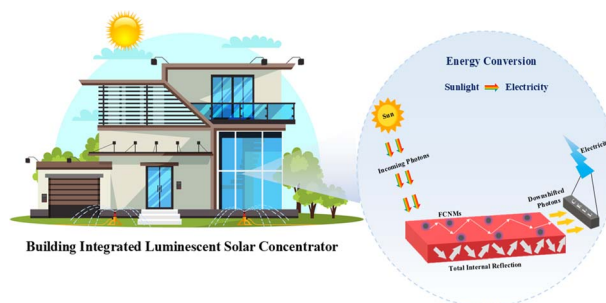
Bahareh Feizi Mohazzab,\* Kiarash Torabi and Dandan Gao\*



5638

### Emergence of carbon dots as luminescent solar concentrators for building integrated photovoltaics

Tuhin Mandal, Shiv Rag Mishra, Manish Kumar and Vikram Singh\*



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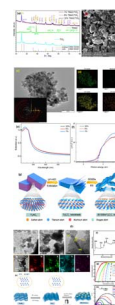
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## REVIEWS

5672

### Representative modeling of MXene-based hybrid nanocomposites for catalytic hydrogen evolution reactions: a comprehensive review

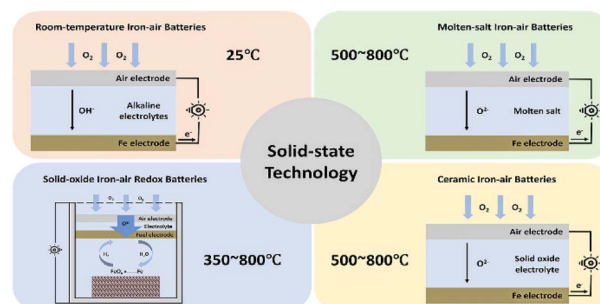
Latiful Kabir, Karna Wijaya, Jianjun Li, Junjuda Unruangsri and Won-Chun Oh\*



5711

### Harnessing solid-state technology for next-generation iron–air batteries

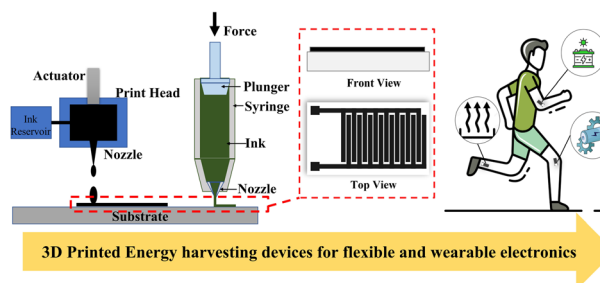
Bingqian Sun, Hao Wang and Cheng Peng\*



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### 3D-printed energy harvesting devices for flexible and wearable electronics

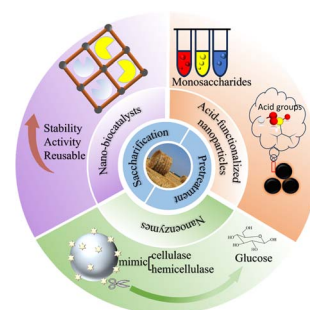
Ishant G. Patil, Kanik Thakur, Sudhansu Sekhar Nath and Poonam Sundriyal\*



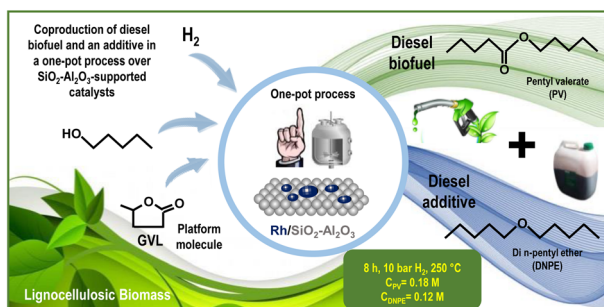
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### Advanced nanocatalytic strategies for pretreatment and saccharification of lignocellulosic biomass towards green-like processing

Rui Guo, Huan Long, Erzheng Su, Fuliang Cao and Jiahong Wang\*



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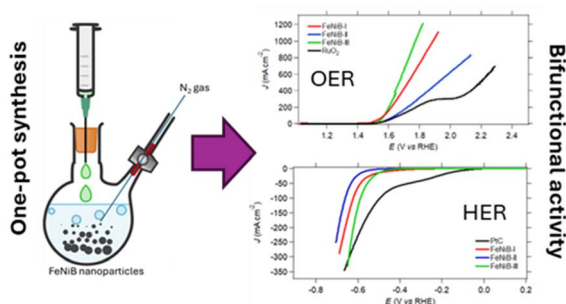


### Concurrent production of diesel valeric biofuel and a fuel additive in a one-pot process over $\text{SiO}_2\text{-Al}_2\text{O}_3$ -supported catalysts: influence of the Si/Al ratio

Francisco Agustín Martínez, Darío Jobino Segobia and Nicolás Maximiliano Bertero\*

## PAPERS

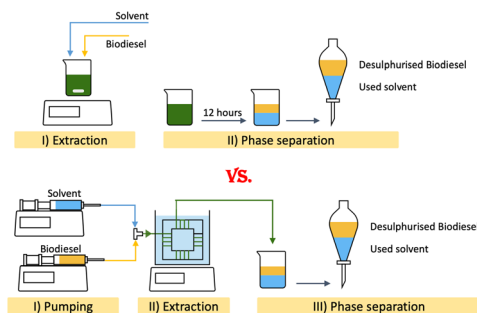
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### Scalable one-pot synthesis of amorphous iron-nickel-boride bifunctional electrocatalysts for enhanced alkaline water electrolysis

Bennett Schmitt, Eva Murphy, Sinny J. Trivedi, Qiancheng Zhang, Brian J. Rodriguez, Aran Rafferty, Raman Bekarevich, Gabor Ersek, Giuseppe Portale and M. Veronica Sofianos\*

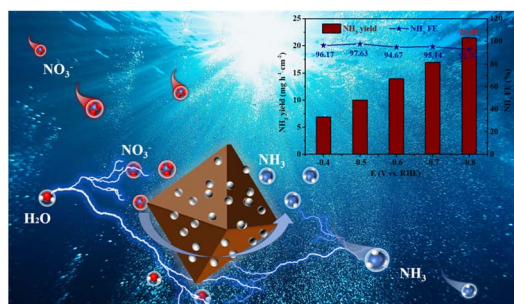
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### Developing microfluidic purification techniques for biodiesel production from recycled grease trap waste

Thanh K. N. Pham, Trang T. Nguyen, Nguyen Van Duc Long, Nam Nghiep Tran,\* Muhammad Yousof Arshad, Mohammad Mohsen Sarafraz and Volker Hessel

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### FeNi bimetallic oxides derived from MOFs as precursors promote efficient electrochemical synthesis of ammonia

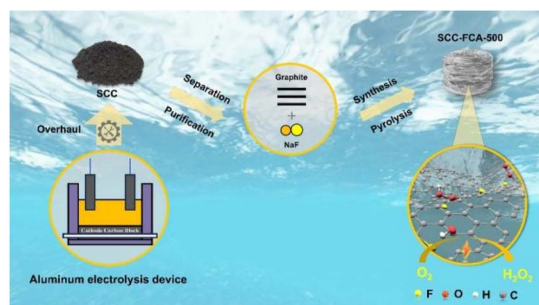
Jiuqing Xiong, Yanli Zhang, Yifan Wang, Haoyu Zhang, Shengwei Huang, Shihai Yan\* and Bingping Liu\*



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## A fluorine doped carbon aerogel prepared from the spent cathode carbon of aluminum electrolysis towards electrocatalytic synthesis of H<sub>2</sub>O<sub>2</sub>

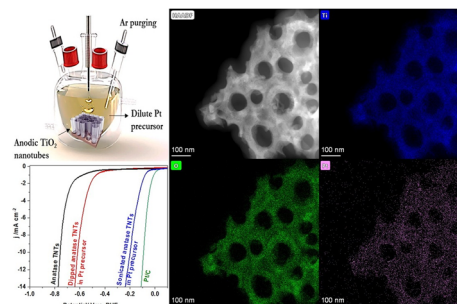
Zhaoxu Li, Yu Liu, Junlang Zhang, Chao Yang, Xintai Su, Chenyuan Zhu, Yongjun Jiang, Wenxin Zhao, Bo Zeng, Chenxi Zhao, Xueli Huang,\* Hongtao Xie\* and Yizhao Li\*



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## In situ Pt single-atom trapping on TiO<sub>2</sub> nanotubes via ultrasonication: a one-pot approach to produce active electrodes for electrocatalytic H<sub>2</sub> evolution

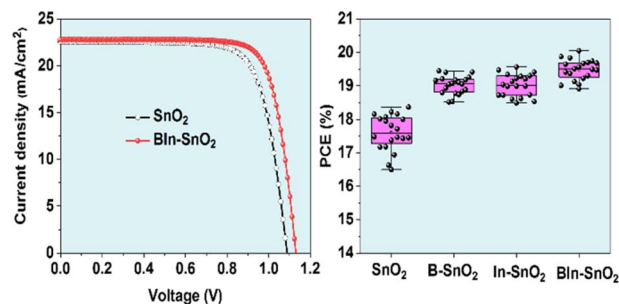
Sina Hejazi, Sadegh Pour-Ali, Ali Kosari, Nastaran Farahbakhsh, Manuela S. Killian\* and Shiva Mohajernia\*



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## Effects of co-doping the SnO<sub>2</sub> electron transport layer with boron and indium on the photovoltaic performance of planar perovskite solar cells

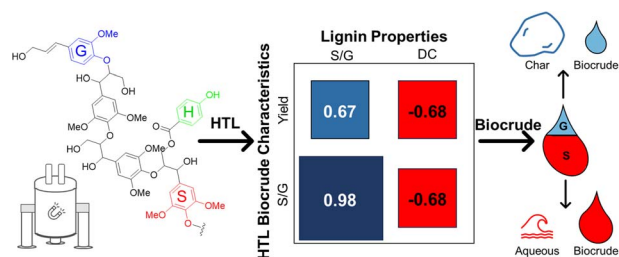
Pareena G. Wagle, M. Thambidurai, Herlina Arianita Dewi, Wang Xizu, Nripan Mathews, Annalisa Bruno, Hung D. Nguyen,\* Monica Katiyar\* and Cuong Dang\*



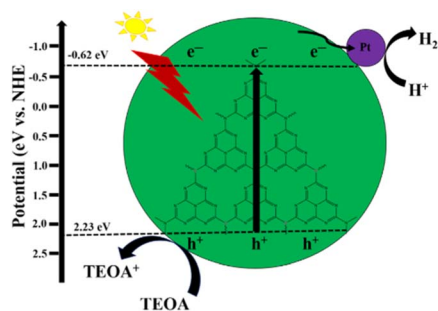
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## Structure–reactivity relationships governing hydrothermal liquefaction of lignin from co-solvent enhanced lignocellulosic fractionation (CELF)

Heather O. LeClerc, Ronish M. Shrestha, Feng Cheng, Alex R. Maag, Geoffrey A. Tompsett, Brent Scheidemantle, Zhaoxi Zheng, Klaus Schmidt-Rohr, Amy M. McKenna, Sydney Niles, Jialiang Zhang, Marcus Foston, Charles M. Cai, Andrew R. Teixeira and Michael T. Timko\*



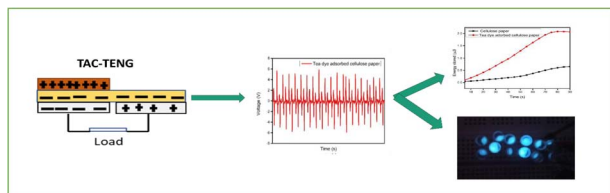
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### Improved charge separation and transport with L-aspartic acid derived carbon-doped g-C<sub>3</sub>N<sub>4</sub> for efficient visible-light photocatalytic H<sub>2</sub> production

Ikram Ullah, Ning Qin, Pei Zhao,\* Jing-Han Li, Shuai Chen and An-Wu Xu\*

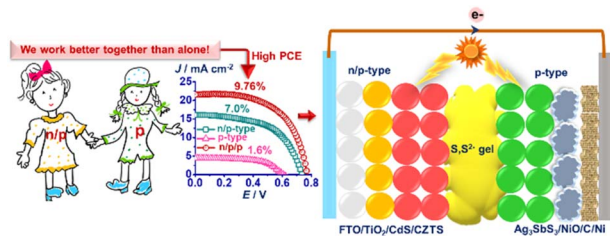
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### Catechin-induced cellulose: a new material for harvesting triboelectricity

P. A. Hisna and P. P. Pradyumnan\*

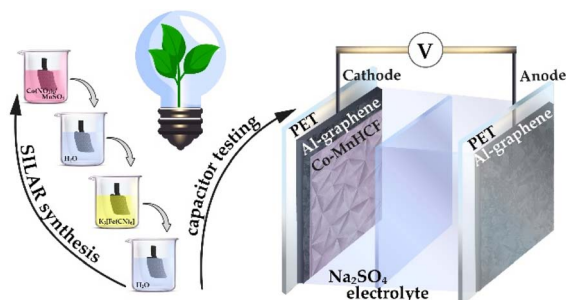
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### Tuning recombination and charge separation in a n/p/p heterojunction solar cell with CZTS, Ag<sub>3</sub>SbS<sub>3</sub> and a carbon interlayer

Ponnada Yallam Naidu, Manoranjan Ojha, Souvik Naskar and Melepurath Deepa\*

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### Flexible laser-induced graphene-based electrodes modified with cobalt-manganese hexacyanoferrate as cathode materials for asymmetric supercapacitors

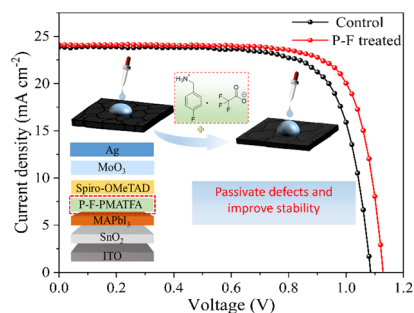
Evgeniia Khairullina,\* Alexandra Levshakova, Maxim Fatkullin, Maxim Tenevich, Alexandr Shmalko, Maxim Panov, Alina Manshina, Artem Lobinsky, Raul D. Rodriguez and Maria Kaneva\*



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## Efficient and stable perovskite solar cells via surface defect passivation using 4-fluorobenzamine trifluoroacetate

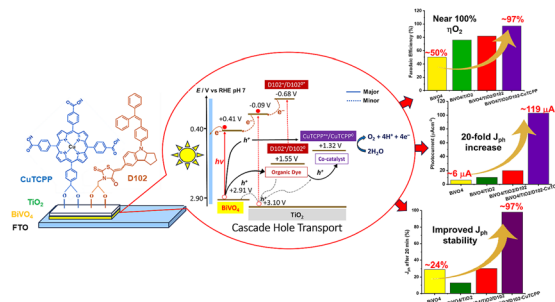
Zhongliang Chen, Chao Sun, Hong Wei Qiao,\*  
Jiyuan Chen, Xuelu Wang and Yefeng Yao\*



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## Light-driven water oxidation by a BiVO<sub>4</sub>/TiO<sub>2</sub> photoanode modified with D102 organic dye and copper(II) meso-tetra(4-carboxyphenyl)porphyrin

Andi Mauliana, Muhammad Iqbal Syauqi, Zico Alaia Akbar,  
Uji Pratomo, Jacob Yan Mulyana\*  
and Tribidasari A. Ivandini\*



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## Thermoelectrically polarized amorphous silica promotes sustainable carbon dioxide conversion into valuable chemical products

Marc Arnau, Isabel Teixidó, Jordi Sans,\* Pau Turon\*  
and Carlos Alemán\*

