

Sustainable Energy & Fuels

Interdisciplinary research for the development of sustainable energy technologies

rsc.li/sustainable-energy

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2398-4902 CODEN SEFUA7 8(24) 5611–5952 (2024)



Cover
See M. Veronica Sofianos *et al.*, pp. 5793–5805. Image reproduced by permission of M. Veronica Sofianos from *Sustainable Energy Fuels*, 2024, 8, 5793.



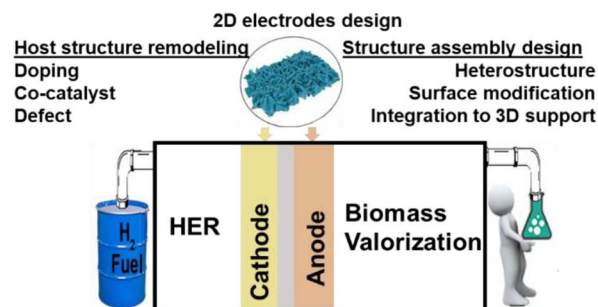
Inside cover
See Bahareh Feizi Mohazzab, Dandan Gao *et al.*, pp. 5620–5637. Image reproduced by permission of Bahareh Feizi Mohazzab and Dandan Gao from *Sustainable Energy Fuels*, 2024, 8, 5620.

REVIEWS

5620

Design of nanostructured 2D (photo-) electrocatalysts for biomass valorization coupled with H₂ production

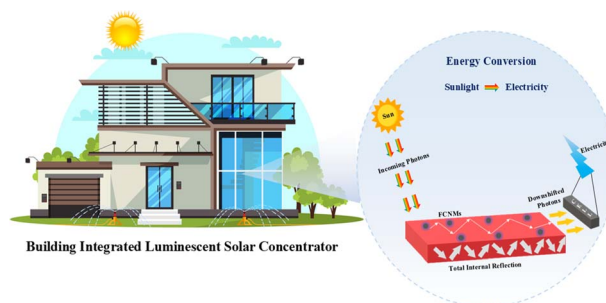
Bahareh Feizi Mohazzab,* Kiarash Torabi and Dandan Gao*



5638

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

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



**GOLD
OPEN
ACCESS**

EES Batteries

**Exceptional research on
batteries and energy storage**

Part of the EES family

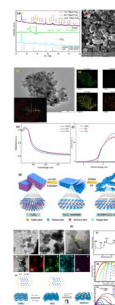
**Join
in** | Publish with us
rsc.li/EESBatteries

REVIEWS

5672

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

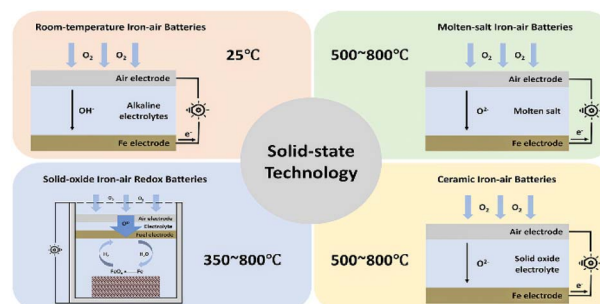
Latiful Kabir, Karna Wijaya, Jianjun Li, Junjuda Unruangsri and Won-Chun Oh*



5711

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

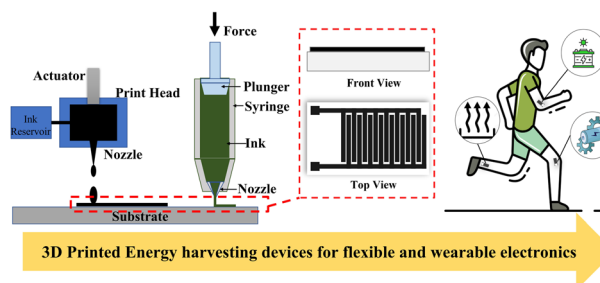
Bingqian Sun, Hao Wang and Cheng Peng*



5731

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

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

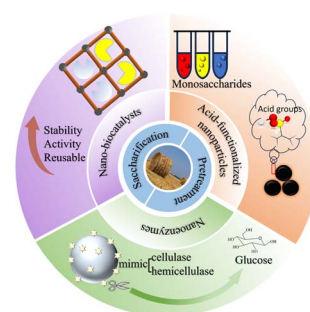


3D Printed Energy harvesting devices for flexible and wearable electronics

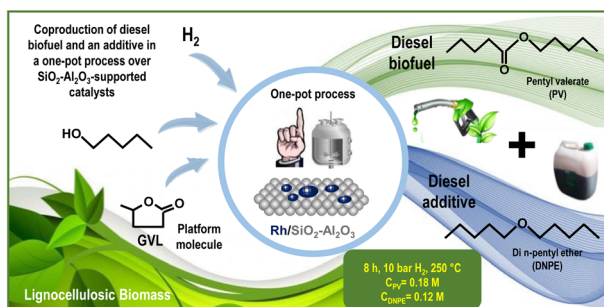
5768

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*



5785

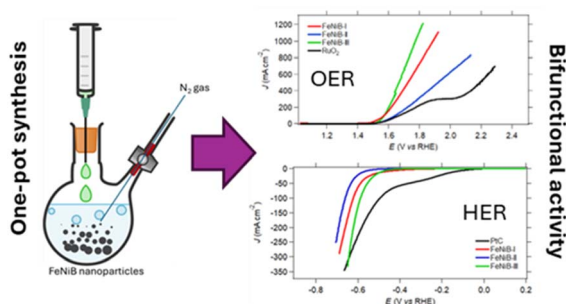


Concurrent production of diesel valeric biofuel and a fuel additive in a one-pot process over $\text{SiO}_2\text{-Al}_2\text{O}_3$ -supported catalysts: influence of the Si/Al ratio

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

PAPERS

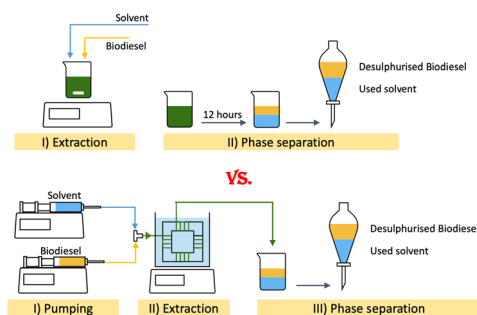
5793



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*

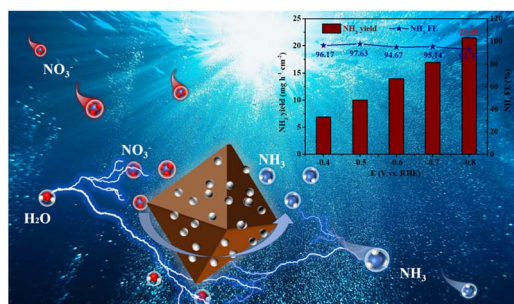
5806



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

5818



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

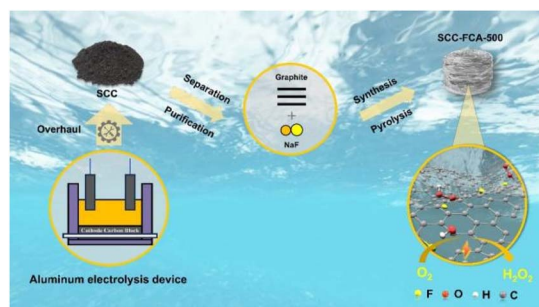
Jiuqing Xiong, Yanli Zhang, Yifan Wang, Haoyu Zhang, Shengwei Huang, Shihai Yan* and Bingping Liu*



5828

A fluorine doped carbon aerogel prepared from the spent cathode carbon of aluminum electrolysis towards electrocatalytic synthesis of H₂O₂

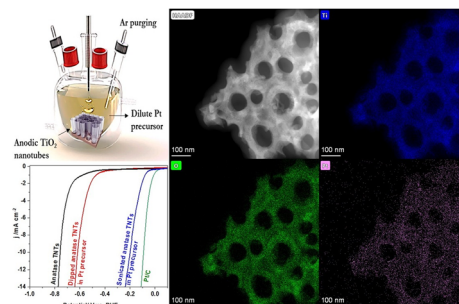
Zhaoxu Li, Yu Liu, Junlang Zhang, Chao Yang, Xintai Su, Chenyuan Zhu, Yongjun Jiang, Wenxin Zhao, Bo Zeng, Chenxi Zhao, Xueli Huang,* Hongtao Xie* and Yizhao Li*



5839

In situ Pt single-atom trapping on TiO₂ nanotubes via ultrasonication: a one-pot approach to produce active electrodes for electrocatalytic H₂ evolution

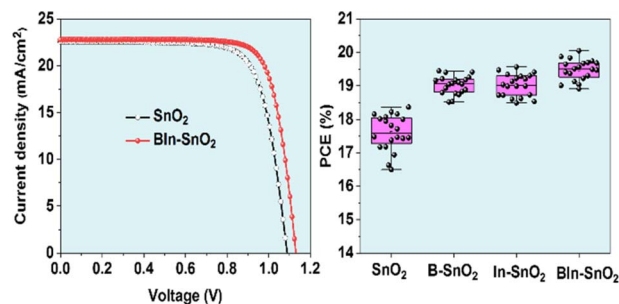
Sina Hejazi, Sadegh Pour-Ali, Ali Kosari, Nastaran Farahbakhsh, Manuela S. Killian* and Shiva Mohajernia*



5848

Effects of co-doping the SnO₂ electron transport layer with boron and indium on the photovoltaic performance of planar perovskite solar cells

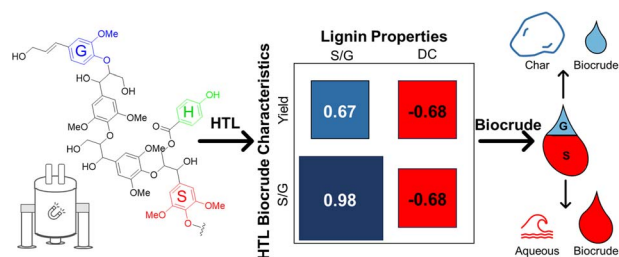
Pareena G. Wagle, M. Thambidurai, Herlina Arianita Dewi, Wang Xizu, Nripan Mathews, Annalisa Bruno, Hung D. Nguyen,* Monica Katiyar* and Cuong Dang*



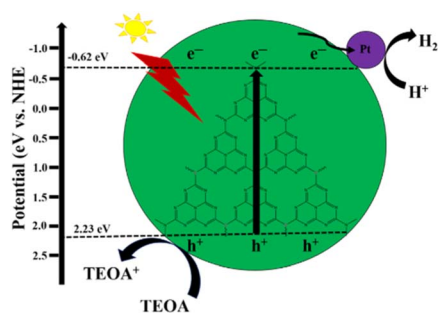
5856

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*



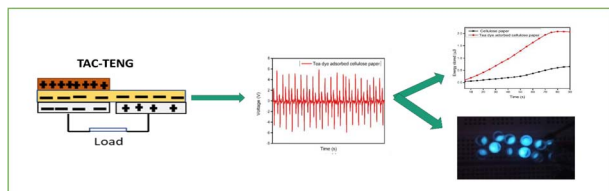
5868



Improved charge separation and transport with L-aspartic acid derived carbon-doped g-C₃N₄ for efficient visible-light photocatalytic H₂ production

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

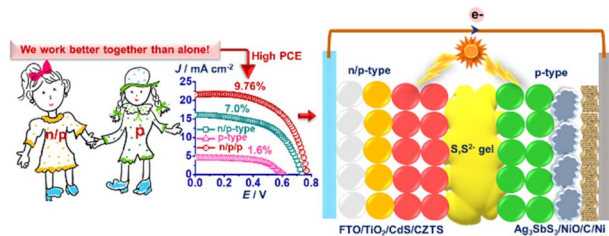
5877



Catechin-induced cellulose: a new material for harvesting triboelectricity

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

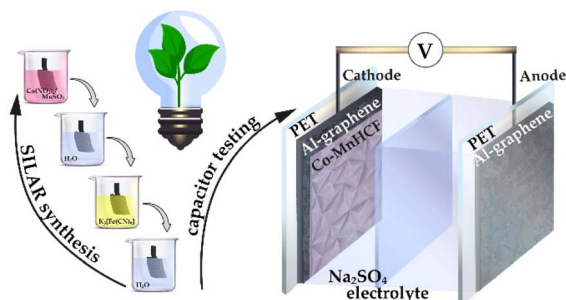
5887



Tuning recombination and charge separation in a n/p heterojunction solar cell with CZTS, Ag₃SbS₃ and a carbon interlayer

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

5906



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

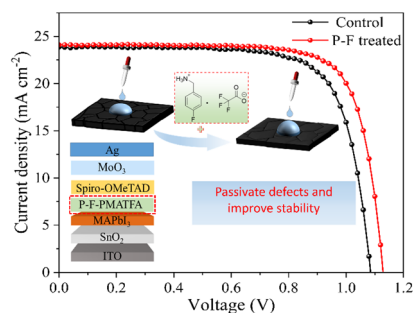
Evgeniia Khairullina,* Alexandra Levshakova, Maxim Fatkullin, Maxim Tenevich, Alexandr Shmalko, Maxim Panov, Alina Manshina, Artem Lobinsky, Raul D. Rodriguez and Maria Kaneva*



5917

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

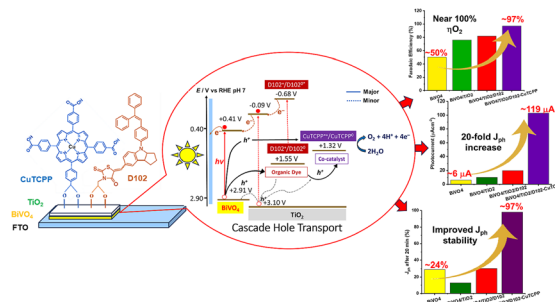
Zhongliang Chen, Chao Sun, Hong Wei Qiao,*
Jiyuan Chen, Xuelu Wang and Yefeng Yao*



5927

Light-driven water oxidation by a BiVO₄/TiO₂ 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*



5937

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

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

