Sustainable Energy & Fuels

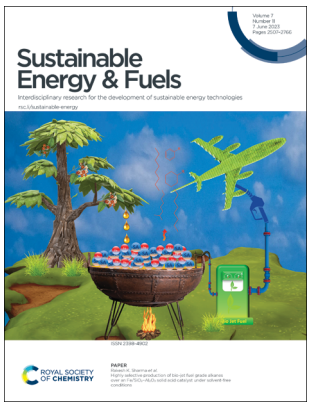
Interdisciplinary research for the development of sustainable energy technologies

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 7(11) 2507–2766 (2023)



Cover
See Rakesh K. Sharma *et al.*, pp. 2568–2581.
Image reproduced by permission of Rakesh K. Sharma from *Sustainable Energy Fuels*, 2023, **7**, 2568.

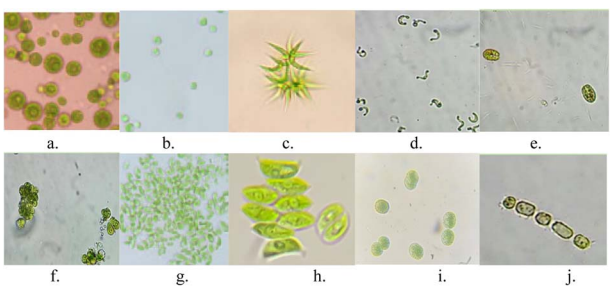
Inside cover
See Takahiro Ishizaki *et al.*, pp. 2582–2593.
Image reproduced by permission of Takahiro Ishizaki from *Sustainable Energy Fuels*, 2023, **7**, 2582.

REVIEWS

2515

Algae as a source of renewable energy: opportunities, challenges, and recent developments

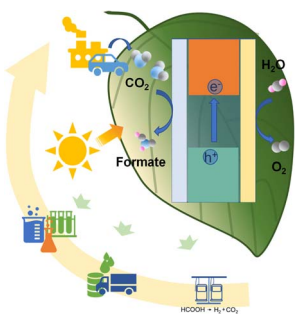
Javid Hussain* and Bruce E. Rittmann



2545

Photoelectrochemical and electrochemical CO_2 reduction to formate on post-transition metal block-based catalysts

Qixing Zhang, Zhongke Wang, Han He, Juan Wang, Ying Zhao* and Xiaodan Zhang*



Sustainable Energy & Fuels (electronic: ISSN 2398-4902) is published 24 times per year by the Royal Society of Chemistry,
Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK
Tel +44 (0)1223 432398; E-mail **orders@rsc.org**

2023 Annual (electronic) subscription price: £3218; US$5447. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at **www.rsc.org/ip**

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

ROYAL SOCIETY OF CHEMISTRY

Sustainable Energy & Fuels

rsc.li/sustainable-energy

Sustainable Energy & Fuels publishes high quality scientific research that will drive development of sustainable energy technologies, with a particular emphasis on innovative concepts and approaches.

Information for Authors

Full details on how to submit material for publication in Sustainable Energy & Fuels are given in the Instructions for Authors (available from http://**www.rsc.org/authors**). Submissions should be made via the journal's homepage: **rsc.li/sustainable-energy**

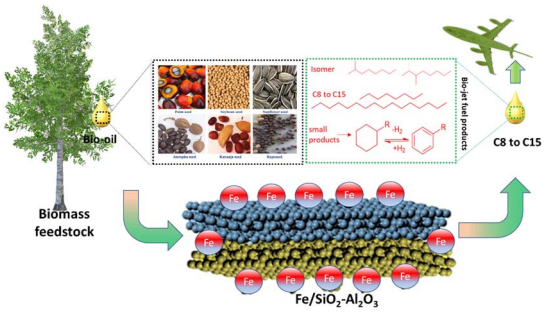
Registered charity number: 207890

PAPERS

2568

Highly selective production of bio-jet fuel grade alkanes over an $Fe/SiO_2–Al_2O_3$ solid acid catalyst under solvent-free conditions

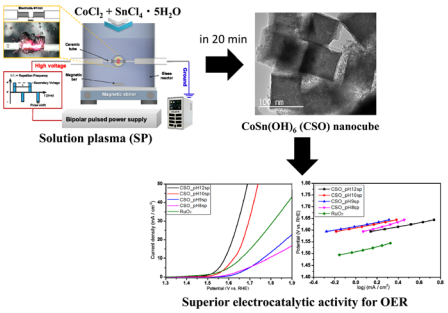
Bhagirath Saini, Meena Yadav, Shubham Kumar Jha, R. Krishnapriya, Preeti Kang, Vishav Kant, Rahul Singhal and Rakesh K. Sharma*



2582

Solution plasma synthesis of perovskite hydroxide $CoSn(OH)_6$ nanocube electrocatalysts toward the oxygen evolution reaction

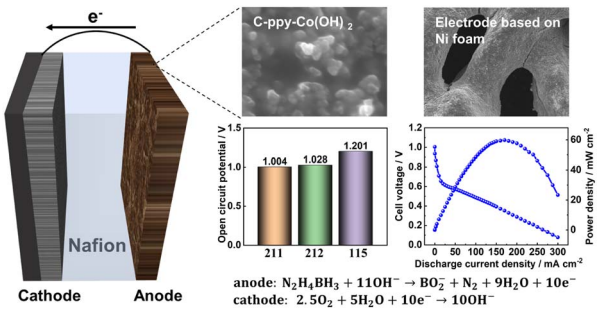
Masaki Narahara, So Yoon Lee, Kodai Sasaki, Kaito Fukushima, Kenichi Tanaka, Sangwoo Chae, Xiulan Hu, Gasidit Panomsuwan and Takahiro Ishizaki*



2594

Direct hydrazine borane fuel cells using non-noble carbon-supported polypyrrole cobalt hydroxide as an anode catalyst

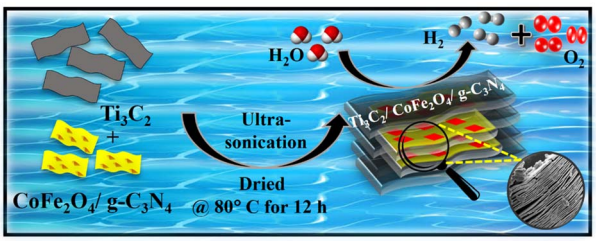
Yang Zhang, Gang Zhu, Zhenying Chen, Yingying Liu, Donghao Ye, Ao Wang, Wenxing Jiang, Chengwei Deng, Xiaodong Zhuang, Junliang Zhang and Changchun Ke*



2601

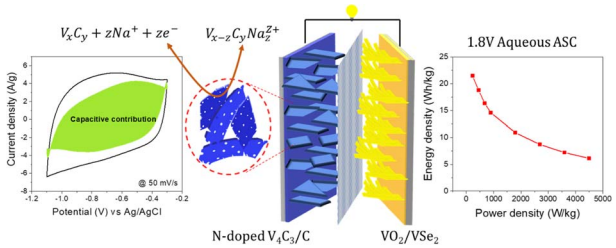
$CoFe_2O_4/g\text{-}C_3N_4$ intercalated Ti_3C_2 MXene for efficient electrocatalytic hydrogen evolution reaction

Sandra Mathew, Madhushree R. and Sunaja Devi K. R.*



PAPERS

2613



Understanding supercapacitive performance of a N-doped vanadium carbide/carbon composite as an anode material in an all pseudocapacitive asymmetric cell

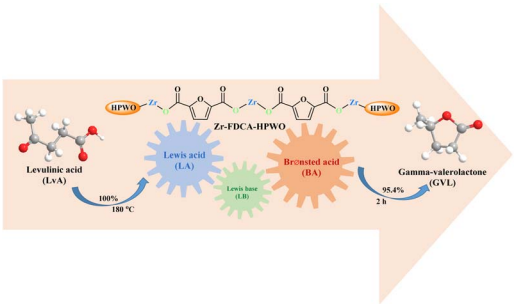
Hem Kanwar Rathore, Muruganandham Hariram, Mukhesh K. Ganesha, Ashutosh K. Singh, Debanjan Das, Manoj Kumar, Kamlendra Awasthi and Debasish Sarkar*

2627

Zinc-ion hybrid supercapacitor-batteries with a leaf-like ZIF-L/$MgNiO_2$ micro-sphere composite and a Zn^{2+}/sulfonated poly(ether ether ketone) gel

Ishita Naskar, Partha Ghosal and Melepurath Deepa*

2645



Catalytic transfer hydrogenation of levulinic acid to gamma-valerolactone over a zirconium-based FDCA hybrid: insights into the effect of heteropoly acids

Rulu Huang, Yuan Cheng, Huai Liu,* Lincai Peng and Junhua Zhang*

2653

Technical, economic, and environmental potential of glycerol hydrogenolysis: a roadmap towards sustainable green chemistry future

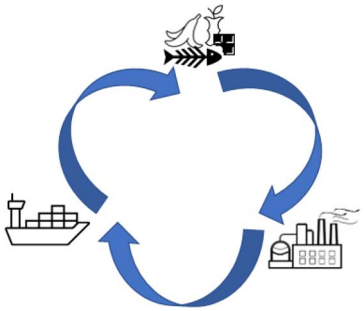
Adrian Chun Minh Loy, Wei Lin Ng, Shanthi Priya Samudrala and Sankar Bhattacharya*

PAPERS

2670

Desalting biocrude for improved downstream processing toward marine fuel application

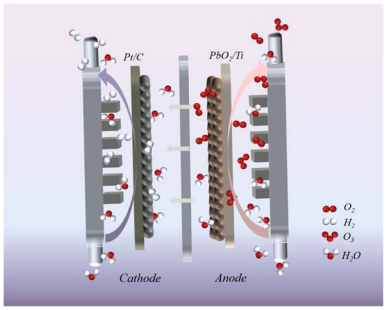
Uriah Kilgore, Daniel M. Santosa, Shuyun Li, Peipei Wang, Suh-Jane Lee, Michael R. Thorson and Karthikeyan Ramasamy*



2680

A long-term-stable continuous flow electrochemical ozone generator with high current efficiency

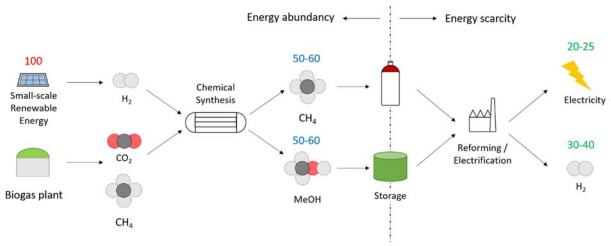
Xi Wang, Dandan Wu and Xu Wu*



2690

Techno-economic-environmental assessment of the integration of power-to-X and biogas utilization towards the production of electricity, hydrogen, methane and methanol

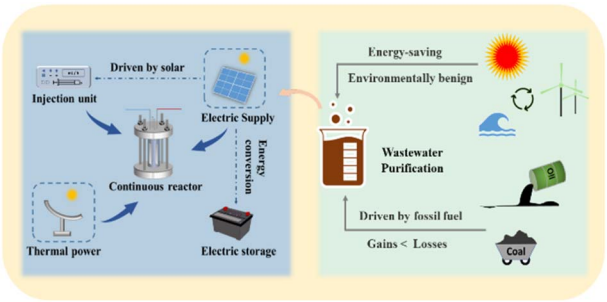
Emanuele Moioli* and Tilman Schildhauer



2707

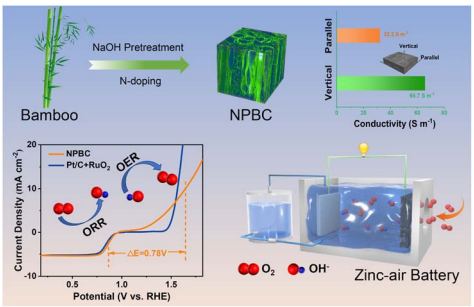
A rational strategy for substantially enhancing the solar-utilization efficiency and organic-pollutant-degradation rate *via* mediated central processing unit filling

Nana Li, Baohui Wang,* Meng Wang, Lei Tao, Chaoying Li, Zhiqiang Qiao, Di Gu, Lingyue Zhu, Dandan Yuan, Hongjun Wu and Xirui Wang*



PAPERS

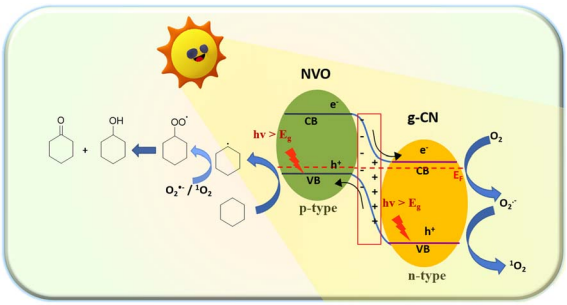
2717



Bamboo derived N-doped carbon as a bifunctional electrode for high-performance zinc–air batteries

Peng Cui, Tingzhen Li, Xiao Chi, Wu Yang, Zehong Chen, Wenjia Han, Ruidong Xia, Admassie Shimelis, Emmanuel Iheanyichukwu Iwuoha and Xinwen Peng*

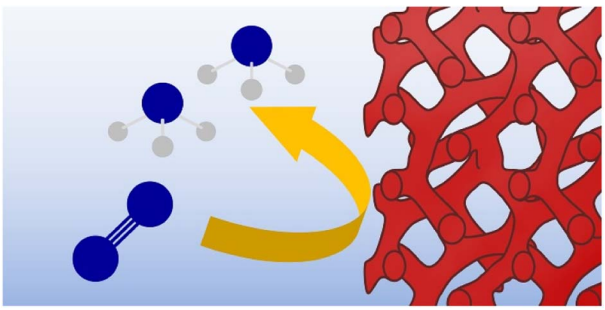
2727



A $Ni_3V_2O_8$@g-CN nanocomposite-based p-n heterojunction: mechanistic insights into photocatalytic activation of the inert C(sp^3)–H bond

Anjali Verma, Arpna Jaryal, Deepak Kumar Chauhan, Venugopala Rao Battula, Madhurima Sarkar, Abhijit Patra and Kamalakannan Kailasam*

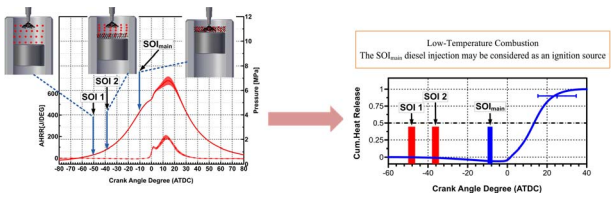
2740



Electrochemical nitrogen reduction to ammonia using mesoporous iron oxide with abundant oxygen vacancies

Toshihiro Takashima,* Takumi Mochida and Hiroshi Irie

2749



Statistical analysis of ethanol/diesel dual-fuel combustion of compression ignition engines in RCCI mode using multi-injection strategies

Ahmed Mohammed Elbanna, Xiaobei Cheng,* Can Yang, Medhat Elkelawy, Hagar Alm-Eldin Bastawissi and Haocheng Xu