

# Sustainable Energy & Fuels

Interdisciplinary research for the development of sustainable energy technologies

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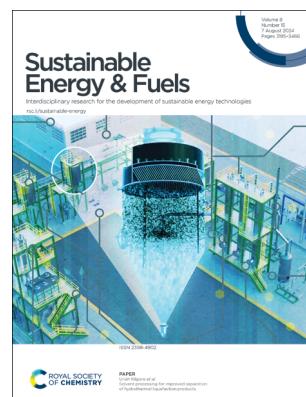
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ISSN 2398-4902 CODEN SEFUA7 8(15) 3195–3466 (2024)



### Cover

See Jack R. Ferrell et al., pp. 3266–3278. Image reproduced by permission of Alliance for Sustainable Energy, LLC from *Sustainable Energy Fuels*, 2024, 8, 3266.



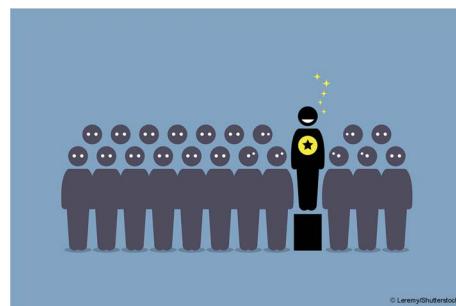
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See Uriah Kilgore et al., pp. 3279–3289. Image reproduced by permission of Battelle Memorial Institute from *Sustainable Energy Fuels*, 2024, 8, 3279.

## EDITORIAL

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Outstanding reviewers for *Sustainable Energy & Fuels* in 2023



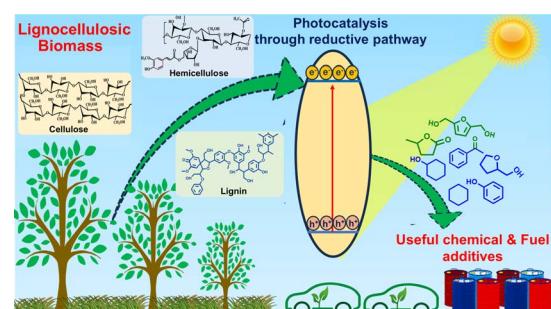
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## REVIEWS

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**Heterogeneous photocatalytic valorization of lignocellulosic biomass for chemical and fuel production via reductive pathways**

Rajat Ghalta, Arzoo Chauhan and Rajendra Srivastava\*



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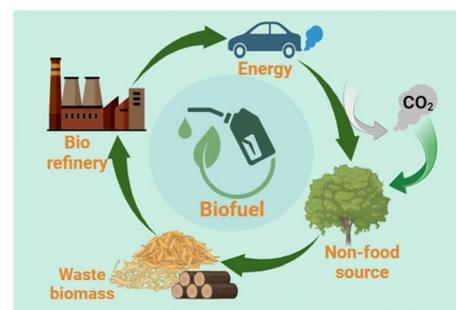
Fundamental questions  
Elemental answers

## REVIEWS

3247

## Advanced biofuels: a path to sustainable energy

Anoth Maharjan, Mi-Reu Kim, Wonho Choi,  
Hyoung-Chin Kim and Jung-Ho Park\*

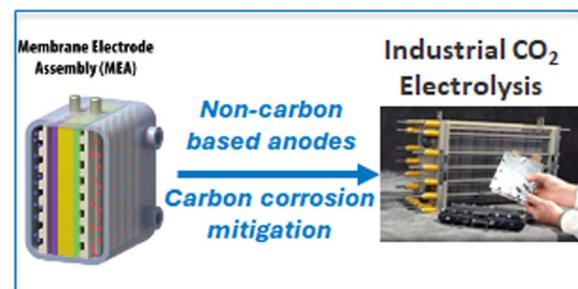


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Carbon corrosion in low-temperature CO<sub>2</sub> electrolysis systems

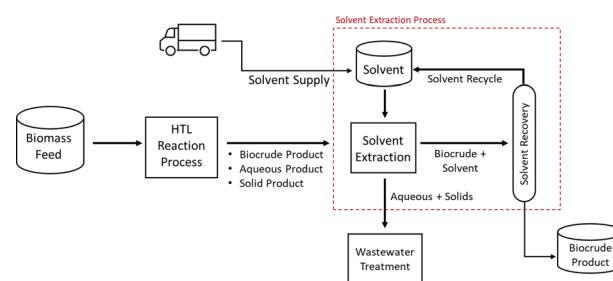
Jack R. Ferrell, III\* Mathew Rasmussen  
and W. Wilson McNeary



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## Solvent processing for improved separation of hydrothermal liquefaction products

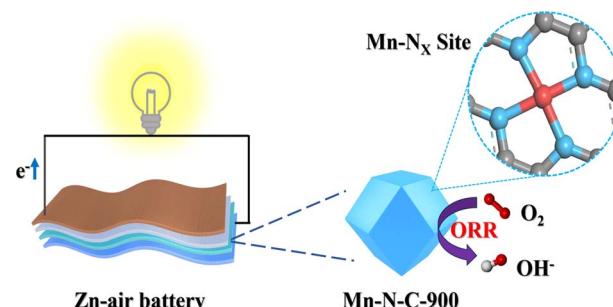
Uriah Kilgore,\* Emily Diaz, Ben Spry, Yuan Jiang,  
Shuyun Li, Andrew Schmidt and Michael R. Thorson



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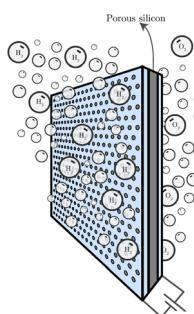
## Manganese, nitrogen co-doped porous carbon with high-loading active sites as the oxygen reduction catalyst for Zn-air batteries

Hao Xu,\* Yuxuan Gao, Ruopeng Li,\* Weiyan Sun,  
Xiangyu Lu, Jie Bai and Peixia Yang



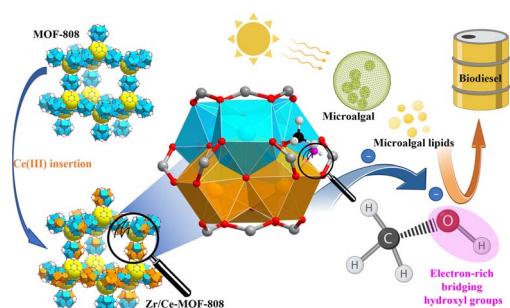
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**A zero-gap silicon membrane with defined pore size and porosity for alkaline electrolysis**

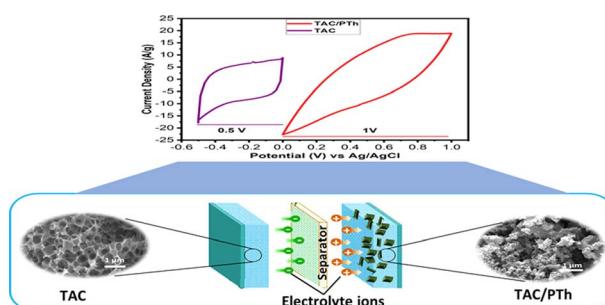
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**Enhanced hydroxyl bridge-mediated microalgal lipid conversion via mixed-valence Zr/Ce-MOF-808 catalysts at reduced temperatures**

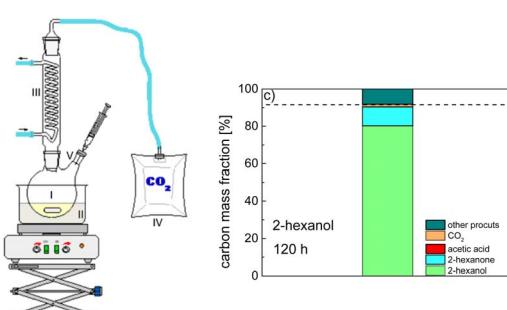
Lei Qian, Jun Cheng,\* Kai Xin, Hao Guo, Yuxiang Mao, Jiakan Tu and Weijuan Yang

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**Development of a high-performance asymmetrical supercapacitor based on conductive polythiophene and waste tissue paper-derived porous carbon**

Prashant Dubey, Rekha Yadav, Priyanka H. Maheshwari, R. K. Seth and Shashank Sundriyal\*

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**Thermo-oxidative aging of linear and branched alcohols as stability criterion for their use as e-fuels**

Anne Lichtinger, Maximilian J. Poller, Olaf Schröder, Julian Türck, Thomas Garbe, Jürgen Krahl, Markus Jakob and Jakob Albert\*

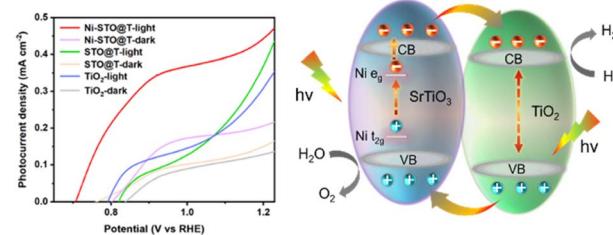


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## Coordination of $\text{Ti}^{3+}$ and $\text{Ni}^{3+}$ to promote the electrocatalytic OER properties of $\text{SrTiO}_3@\text{TiO}_2$ heterojunctions

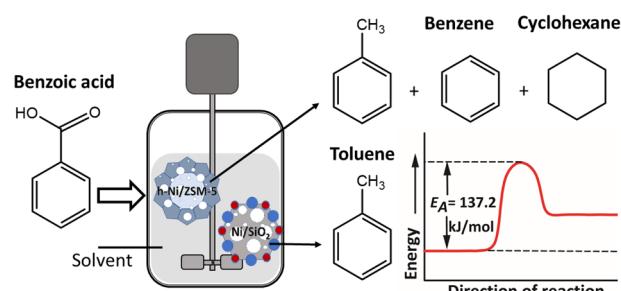
Yanqin Bi, Zenghua Zhao,\* Jianhua Qian, Liangliang Chen and Chunyang Duan\*



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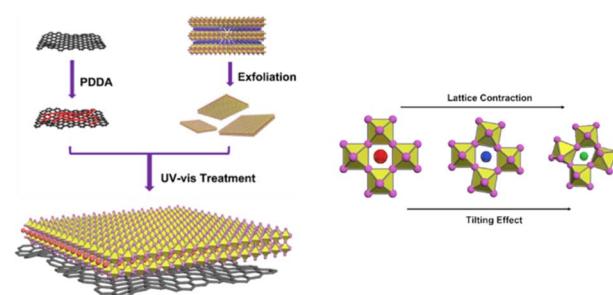
Mustapha Yusuf, Gary A. Leeke and Joseph Wood\*



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## Tuning 2D perovskite–graphene layered composite for photocatalysis

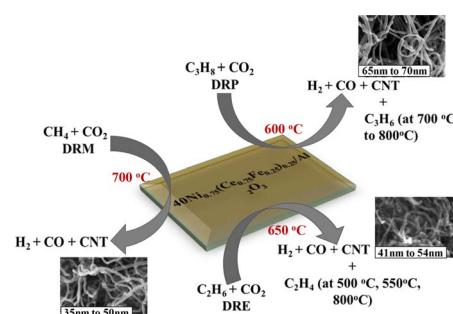
Haozhe Zhang, Yanjie Wang, Wentian Niu, Tatchamapan Yoskamtorn, Mingyu Luo, Robert Tayler, Sarah Day and Shik Chi Edman Tsang\*



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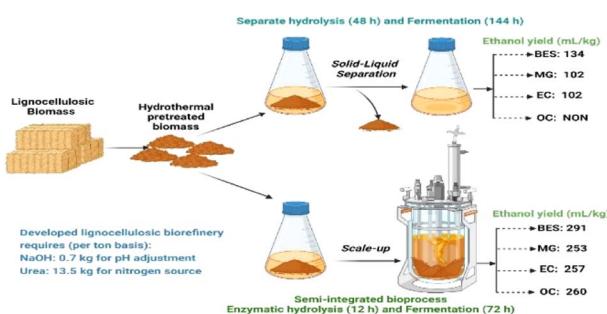
## Dry reforming of HCs (methane, ethane, and propane) over a $40\text{Ni}_{0.75}(\text{Ce}_{1-x}\text{Fe}_x)_{0.25}/\text{Al}_2\text{O}_3$ catalyst: a comparative study

Akanksha Singh Rajput and Taraknath Das\*



## PAPERS

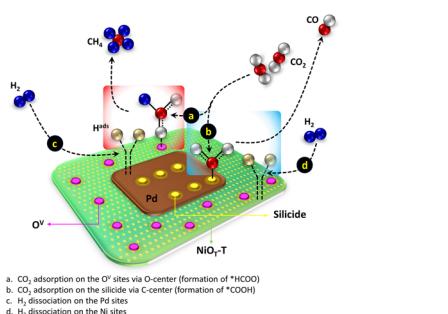
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## Sustainable strategies to achieve industrial ethanol titers from different bioenergy feedstocks: scale-up approach for better ethanol yield

Narendra Naik Deshavath, William Woodruff and Vijay Singh\*

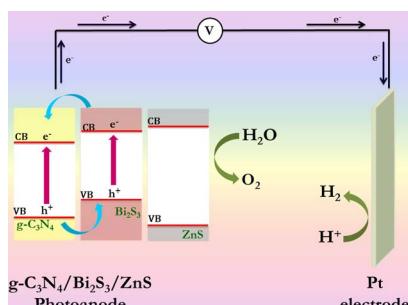
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## Oxygen vacancies coupled with surface silicide facilitate $\text{CO}_2$ activation at near-room temperature for efficient methane productivity on Ni-oxide supported Pd nanoparticles

Thomas Yang, Amisha Beniwal, Dinesh Bhalothia,\* Che Yan, Chia-Hsin Wang and Tsan-Yao Chen\*

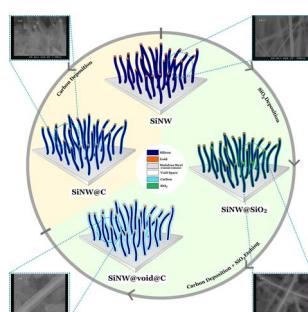
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## Rational design of a g-C<sub>3</sub>N<sub>4</sub>/Bi<sub>2</sub>S<sub>3</sub>/ZnS ternary heterojunction photoanode for improved solar water splitting

Merin Joseph, Bhagatram Meena, Rosmy Joy, Sneha Joseph, Rajesh Kumar Sethi, Sebastian Nybin Remello, Suja Haridas\* and Challapalli Subrahmanyam\*

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## Superior performance of silicon nanowires@void@carbon on a conductive substrate as a scalable binder-free anode electrode for lithium-ion batteries

Mohammadreza Yasoubi, Alireza Habibi, Soraya Hoornam, Zeinab Sanaee\* and Shams Mohajerzadeh

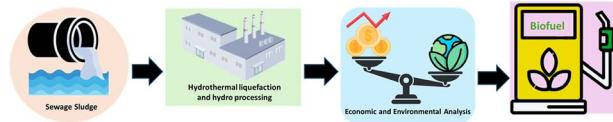


## PAPERS

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**Hydrothermal liquefaction integrated with wastewater treatment plants – life cycle assessment and technoeconomic analysis of process system options**

Paraskevi Karka,\* Ib Johannsen  
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**Synergistic construction of an iron nitride embedded graphitic carbon nitride heterostructure electrocatalyst as a potential candidate to accelerate overall water electrolysis**

Venkatachalam Ashok, Arunagiri Gayathri,  
Murugan Vijayarangan and Jayaraman Jayabharathi\*

