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## IN THIS ISSUE

ISSN 2753-1457 CODEN EANDBJ 3(7) 1461-1756 (2024)



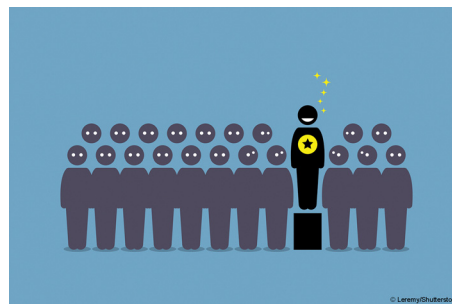
## Cover

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## EDITORIAL

1471

## Outstanding Reviewers for *Energy Advances* in 2023

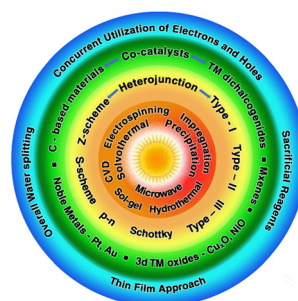


## REVIEWS

1472

# A review on the recent advances in the design and structure–activity relationship of TiO<sub>2</sub>-based photocatalysts for solar hydrogen production

Sunesh S. Mani, Sivaraj Rajendran, Thomas Mathew\* and Chinnakonda S. Gopinath\*



# RSC Sustainability

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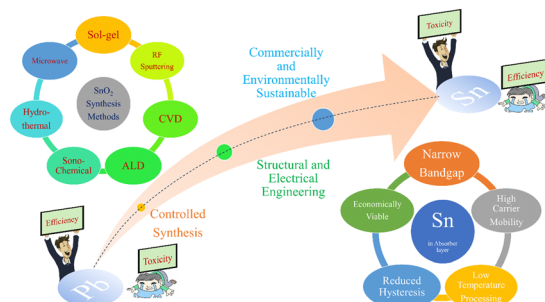
Fundamental questions  
Elemental answers

## REVIEWS

1505

### Dynamic synergy of tin in the electron-transfer layer and absorber layer for advancing perovskite solar cells: a comprehensive review

Azaharuddin Saleem Shaikh, Subhash Chand Yadav, Abhishek Srivastava, Archana R. Kanwade, Manish Kumar Tiwari, Shraddha Manohar Rajore, Jena Akash Kumar Satrughna, Mahesh Dhonde and Parasharam M. Shirage\*

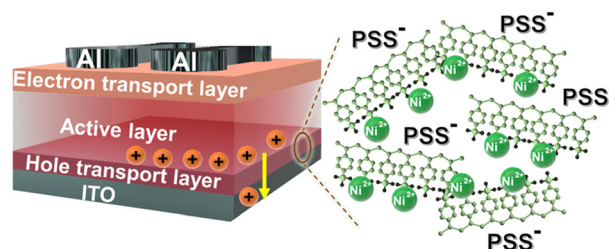


## PAPERS

1553

### Nickel polyelectrolytes as hole transporting materials for organic and perovskite solar cell applications

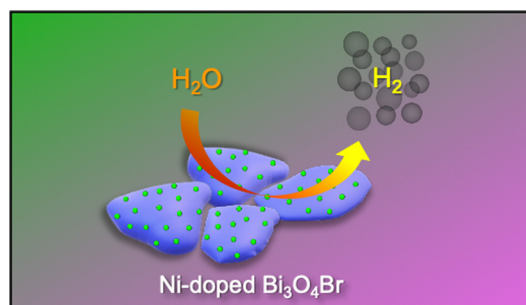
Jin Hee Lee, Kausar Ali Khawaja, Faiza Shoukat, Yeasin Khan, Do Hui Kim, Shinuk Cho,\* Bright Walker\* and Jung Hwa Seo\*



1562

### Strategic Ni-doping improved electrocatalytic H<sub>2</sub> production by Bi<sub>3</sub>O<sub>4</sub>Br in alkaline water

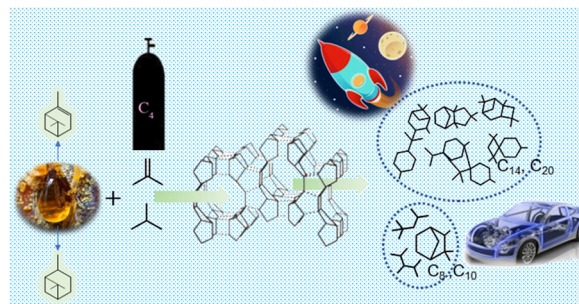
Manodip Pal, Rathindranath Biswas, Sanmitra Barman\* and Arnab Dutta\*



1571

### Alkylation of $\alpha$ -pinene with isobutene/isobutane over H $\beta$ zeolite

Zhaocai Jiao, Mingzu Liu, Ningbo Yang, Fengli Yu, Congxia Xie, Shitao Yu and Bing Yuan\*





Biomethane

Biogas  
40%  $\text{CO}_2$   
60%  $\text{CH}_4$

SAPO-34

Vacuum pressure swing adsorption  
Breakthrough tests – 5 cycles

$C/C_0$

Time (s)

Dina G. Boer, Henk H. van de Bovenkamp,  
Jort Langerak, Benny Bakker and Paolo P. Pescarmona\*

Dina G. Boer, Henk H. van de Bovenkamp,  
Jort Langerak, Benny Bakker and Paolo P. Pescarmona\*

FTIR

SANS

Water Uptake

Structure – functional properties relationships

Moisture sorption mechanism in catalyst layer

Emilie Planes,\* Joseph Peet, Jean-Blaise Brubach,  
Lionel Porcar, Gilles De Moor, Cristina Iojoiu\* and  
Sandrine Lyonnard\*

Emilie Planes,\* Joseph Peet, Jean-Blaise Brubach,  
Lionel Porcar, Gilles De Moor, Cristina Iojoiu\* and  
Sandrine Lyonnard\*

### Canada

Canola produced in crop producing regions

Sustainable Aviation Fuel (SAF) Plant

International Airports supplied with SAF from the plant

Praveen Siluvai Antony,\* Caroline Vanderghem,  
Heather L. MacLean, Bradley A. Saville and  
I. Daniel Posen

Praveen Siluvai Antony,\* Caroline Vanderghem,  
Heather L. MacLean, Bradley A. Saville and  
I. Daniel Posen

Deborah Eric,\* Jianliang Jiang,\* Ali Imran and  
Abbas Ahmad Khan

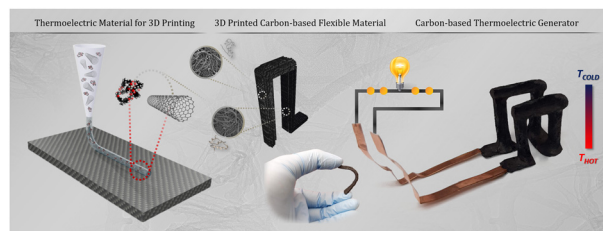
Deborah Eric,\* Jianliang Jiang,\* Ali Imran and  
Abbas Ahmad Khan

## PAPERS

1642

## Additive manufacturing of highly conductive carbon nanotube architectures towards carbon-based flexible thermoelectric generators

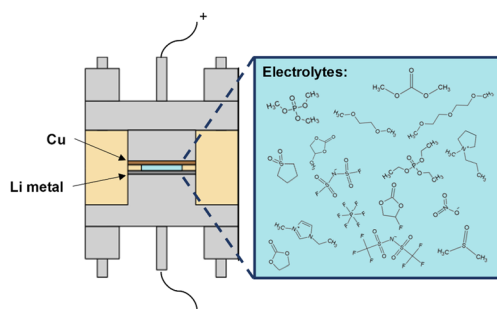
Christos K. Mytafides,\* William J. Wright, Raden Gustinvil, Lazaros Tzounis, George Karalis, Alkiviadis S. Paipetis and Emrah Celik\*



1653

## Intrinsic effects of electrolytes on lithium metal deposition and dissolution investigated through a separator-free cell

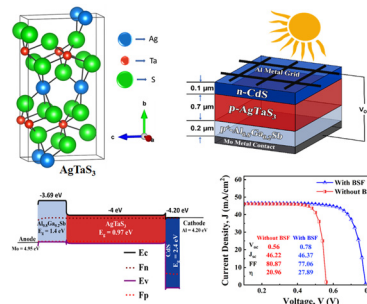
Tomoki Takahashi, Di Wang, Jinkwang Hwang\* and Kazuhiko Matsumoto\*



1662

## Design and performance evaluation of all-inorganic AgTaS<sub>3</sub> perovskite solar cells

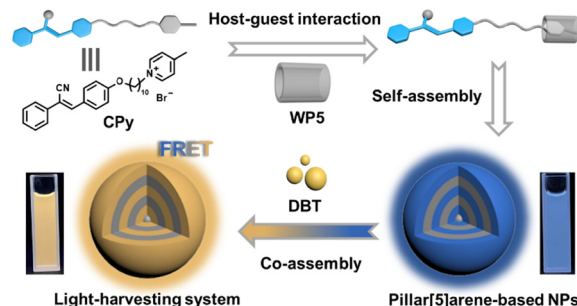
Tanvir Ahmed, Md. Choyon Islam, Md. Alamin Hossain Pappu, Md. Islahur Rahman Ebon, Sheikh Noman Shiddique, Mainul Hossain and Jaker Hossain\*



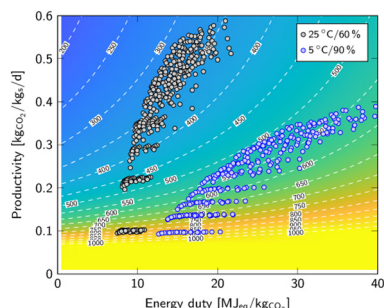
1672

## Construction of a supramolecular light-harvesting system based on pillar[5]arene-mediated nanoparticles in water

Xiuxiu Li, Qiaona Zhang, Xiaoman Dang, Fengyao Cui, Zheng-Yi Li, Xiao-Qiang Sun and Tangxin Xiao\*



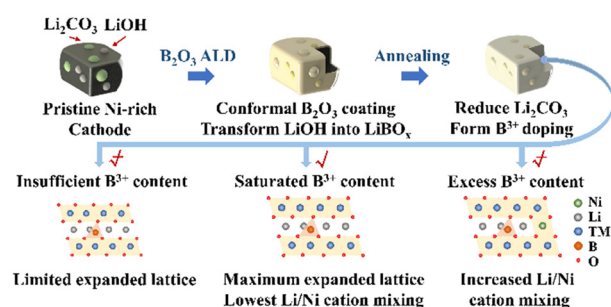
1678



### Optimizing direct air capture under varying weather conditions

H. M. Schellevis, J. D. de la Combé and D. W. F. Brilman\*

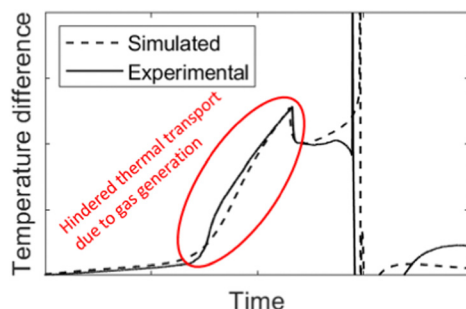
1688



### Stabilization of the surface and lattice structure for $\text{LiNi}_{0.83}\text{Co}_{0.12}\text{Mn}_{0.05}\text{O}_2$ via $\text{B}_2\text{O}_3$ atomic layer deposition and post-annealing

Jiawei Li, Junren Xiang, Ge Yi, Zhijia Hu, Xiao Liu\* and Rong Chen\*

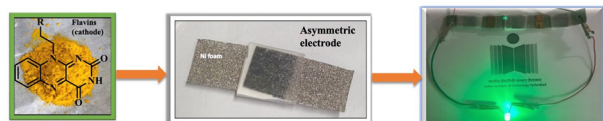
1697



### On the effect of gas generation on heat transfer during thermal runaway of pouch cells

Niklas Weber,\* Sebastian Schuhmann, Robert Löwe, Jens Tübke and Hermann Nirschl

1710



### Bioinspired flavin analogues as organic electrode materials for supercapacitor applications

Dipayan Mondal, Ishita Naskar, Melepurath Deepa\* and Ashutosh Kumar Mishra\*

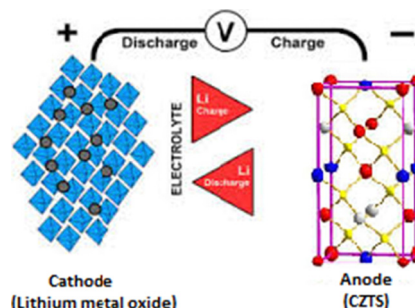


## PAPERS

1717

### Dual-functionality of CZTS nanoflakes: as an anode material for lithium-ion batteries and as a counter electrode in DSSCs – a DFT and experimental investigation

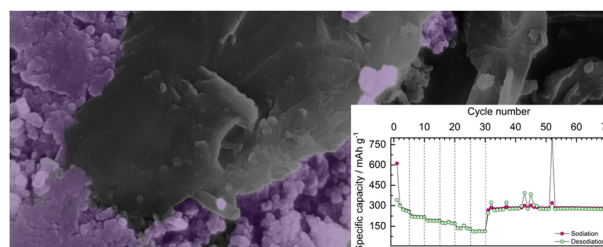
G. Rajesh,\* Jeyakiruba Palraj, Venkatraman M. R., Ramesh Sivasamy, Sreejith P. Madhusudanan, Helen Annal Therese and Marcos Flores



1726

### Electrochemical characterization of $\gamma$ -Fe<sub>2</sub>O<sub>3</sub> and a reduced graphene oxide composite as a sustainable anode material for Na-ion batteries

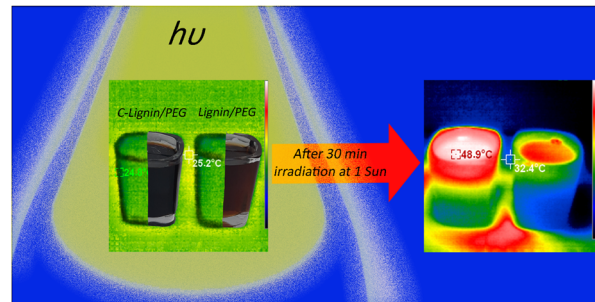
Antunes Staffolani,\* Leonardo Sbrascini, Luca Bottoni, Luca Minnetti, Hamideh Darjazi, Angela Trapananti, Francesco Paparoni, Seyed Javad Rezvani, Marco Minicucci, Messaoud Harfouche and Francesco Nobili



1737

### Photo-thermal conversion ability of PEG and H<sub>2</sub>O-based microfluids of sodium lignosulfonate and its carbonized form

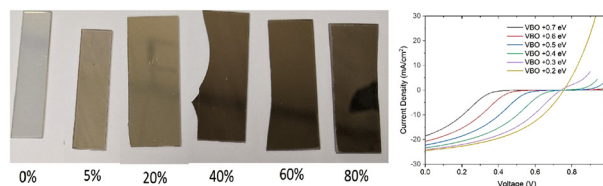
Fatemeh Seifikar, Saeid Azizian\* and Babak Jaleh



1746

### The effect of oxygen on NiO as a back buffer layer in CdTe solar cells

Nicholas Hunwick,\* Xiaolei Liu, Mustafa Togay, John M. Walls, Jake Bowers and Patrick J. M. Isherwood



## CORRECTION

1754

**Correction: Recent trends on the application of phytochemical-based compounds as additives in the fabrication of perovskite solar cells**

Naomy Chepngetich, Gloria M. Mumbi, Getnet Meheretu M., Koech K. Richard,\* Geoffrey K. Yegon, Sarah C. Chepkwony, Charles Rono K., Dahiru Sanni, Abdulhakeem Bello and Esidor Ntsoenzok

