

# RSC Sustainability

rsc.li/rscsus

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 2753-8125 CODEN RSSUAN 2(2) 251–570 (2024)



### Cover

See José C. S. dos Santos *et al.*, pp. 348–368. Image reproduced by permission of José C. S. dos Santos from *RSC Sustainability*, 2024, 2, 348.

## EDITORIAL

261

### Introduction to sustainable composites

Ian Hamerton,\* Lois Jane Hobson\* and Jonathan Wagner\*

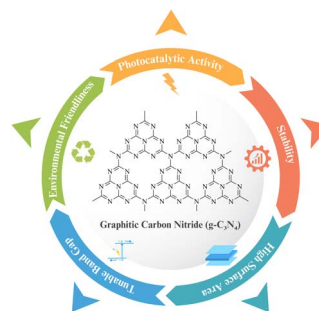


## CRITICAL REVIEWS

265

### Graphitic carbon nitride (g-C<sub>3</sub>N<sub>4</sub>) as an emerging photocatalyst for sustainable environmental applications: a comprehensive review

Dhaval Kumar Bhandari, Pratikkumar Lakhani and Chetan K. Modi\*



# Royal Society of Chemistry approved training courses

Explore your options.  
Develop your skills.  
Discover learning  
that suits you.

**Courses in the classroom,  
the lab, or online**

Find something for every  
stage of your professional  
development. Search our  
database by:

- subject area
- location
- event type
- skill level

Members **get at least 10% off**

Visit [rsc.li/cpd-training](https://rsc.li/cpd-training)



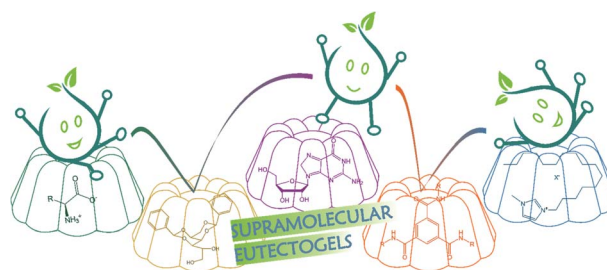
**SAVE  
10%**

## CRITICAL REVIEWS

288

### Eutectic solvents and low molecular weight gelators for next-generation supramolecular eutectogels: a sustainable chemistry perspective

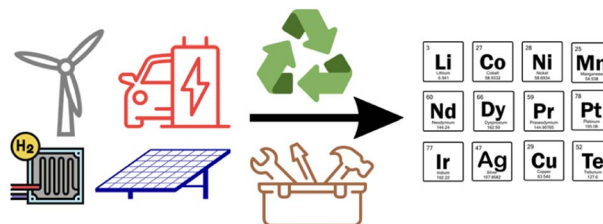
Giselle de Araujo Lima e Souza, Maria Enrica Di Pietro\* and Andrea Mele\*



320

### A toolbox for improved recycling of critical metals and materials in low-carbon technologies

Guillaume Zante, Christopher E. Elgar, Jennifer M. Hartley, Rudra Mukherjee, Jeff Kettle, Louise E. Horsfall, Allan Walton, Gavin D. J. Harper and Andrew P. Abbott\*

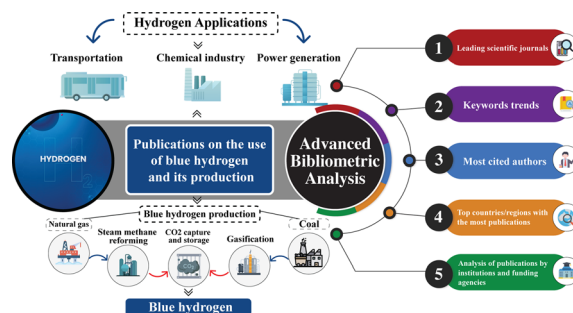


## PAPERS

348

### Evolving sustainable energy technologies and assessments through global research networks: advancing the role of blue hydrogen for a cleaner future

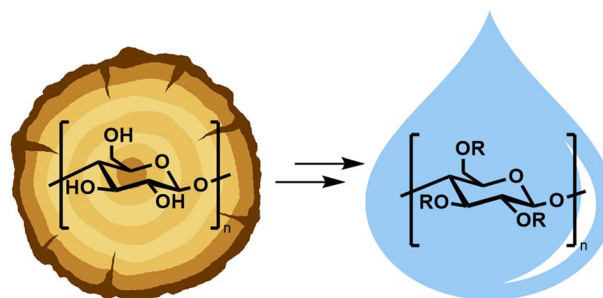
Israel Oliveira Cavalcante, Francisco Simão Neto, Patrick da Silva Sousa, Francisco Izaias da Silva Aires, Dayana Nascimento Dari, Rita Karolinny Chaves de Lima and José C. S. dos Santos\*



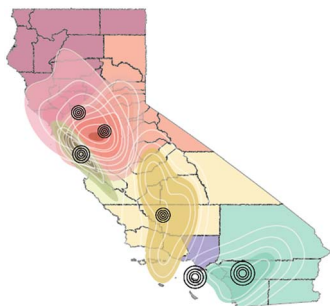
369

### Cellulose modification for sustainable polymers: overcoming problems of solubility and processing

Peter McNeice, Gert H. ten Brink, Ulrik Gran, Leif Karlson, Rolf Edvinsson and Ben L. Feringa\*



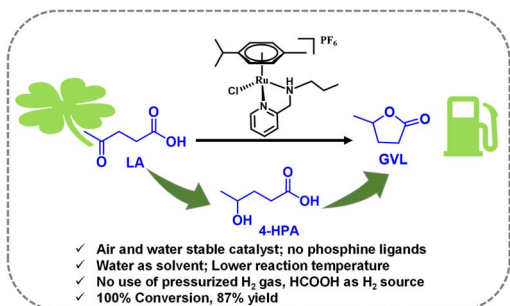
377



### Optimizing geographic locations for electric vehicle battery recycling preprocessing facilities in California

Megan W. Haynes, Rodrigo Cáceres González\* and Marta C. Hatzell\*

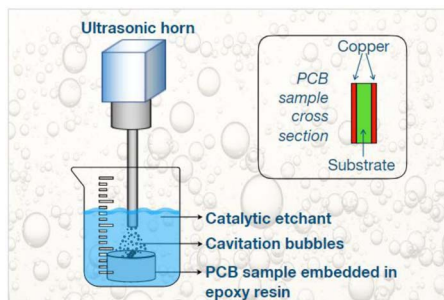
390



### Ruthenium catalyzed transformation of levulinic acid to $\gamma$ -valerolactone in water

Bhanu Priya, Vinod K. Sahu and Sanjay K. Singh\*

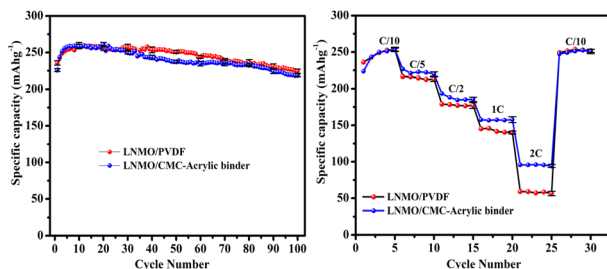
403



### Ultra-fast extraction of metals from a printed circuit board using high power ultrasound in a calcium chloride-based deep eutectic solvent

Rodolfo Marin Rivera,\* Christopher E. Elgar, Ben Jacobson, Andrew Feeney, Paul Prentice, Karl Ryder and Andrew P. Abbott

416



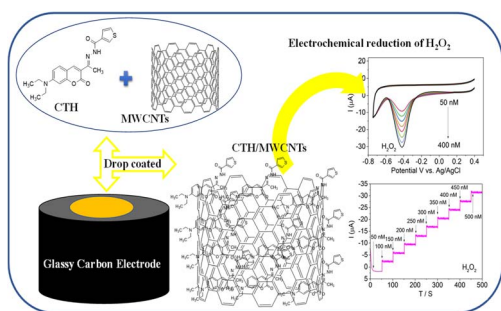
### A comparative study of aqueous- and non-aqueous-processed Li-rich Li<sub>1.5</sub>Ni<sub>0.25</sub>Mn<sub>0.75</sub>O<sub>2.5</sub> cathodes for advanced lithium-ion cells

M. Akhilash, P. S. Salini, Bibin John,\* S. Sujatha and T. D. Mercy





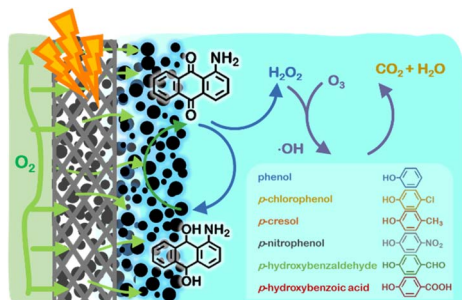
475



### Coumarin-based composite material for the latent fingerprint visualization and electrochemical sensing of hydrogen peroxide

Manjunatha B, Yadav D. Bodke,\* Mounesh and Sachin Ashok Bhat

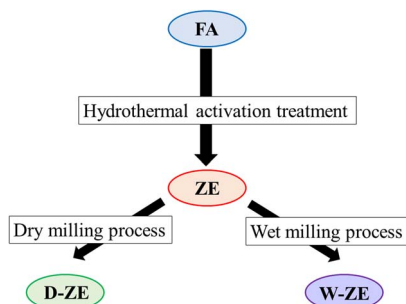
483



### Anthraquinone-catalyzed H<sub>2</sub>O<sub>2</sub> electro-synthesis coupled with an advanced oxidation process for water treatment

Pengdong Liu, Haixing Zhang, Yu Chen, Yajing Di, Zhilin Li, Baoning Zhu,\* Zheng Liu,\* Zhengping Zhang\* and Feng Wang

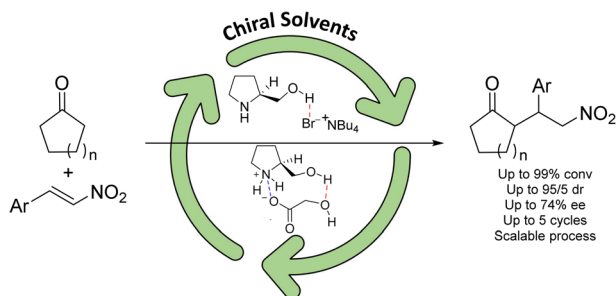
491



### Synthesis of fine Na-type zeolite grains from coal fly ash and the assessment of the adsorption capability of lead ions from aqueous solutions

Fumihiko Ogata, Noriaki Nagai, Yugo Uematsu, Yuhei Kobayashi, Nanako Kitamura, Chalermpong Saenjum and Naohito Kawasaki\*

499



### Synthesis and structural characterization of L-prolinol derived chiral eutectic mixtures as sustainable solvents in asymmetric organocatalysis

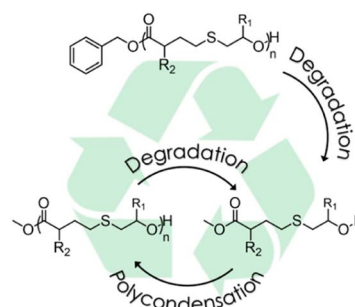
Jose A. Nuez, Sarah J. Burlingham, Rafael Chinchilla,\* Juana M. Perez,\* Ignacio Fernandez\* and Diego A. Alonso\*



510

### Complete depolymerization of poly(ester-*alt*-thioether)s under mild conditions into AB functional monomers

Simon Le Luyer, Philippe Guégan\* and Nicolas Illy\*



521

### Ammonium niobium oxalate (ANO) as an efficient catalyst in the Paal–Knorr synthesis of *N*-substituted pyrroles

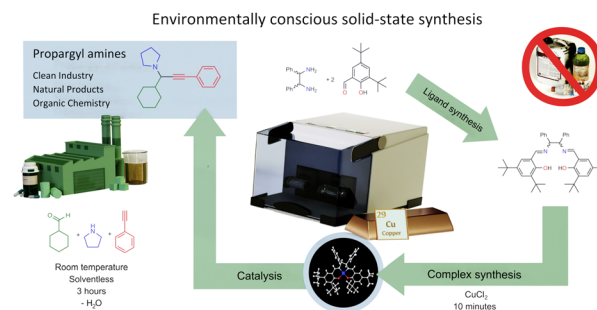
Luiz H. Dapper, Kethelyn M. da Rosa, Viviane T. Mena, Rodrigo O. M. A. de Souza, Felipe L. N. da Silva, Thiago Anjos, Filipe Penteadó\* and Eder J. Lenardão\*



528

### Mechanochemical Cu(II) complexes and propargylamine synthetic adventures

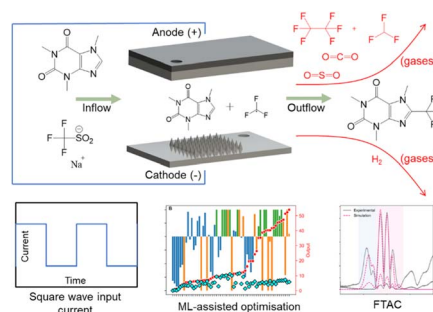
Ghadah Abdullah S. Al Jomeh, Andrew McGown, Emma Richards, Graham J. Tizzard, Simon J. Coles, Ramón González-Méndez, Chris Dadswell, John Spencer and George E. Kostakis\*



536

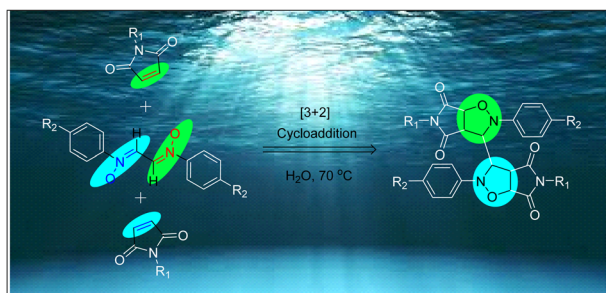
### Towards a greener electrosynthesis: pairing machine learning and 3D printing for rapid optimisation of anodic trifluoromethylation

Nipun Kumar Gupta, Yilin Guo, Soon Yee Chang, Jing Lin, Zi Hui Jonathan Khoo, Riko I. Made, Zi En Ooi, Carina Yi Jing Lim, Chow Hern Lee, M. Sivapaalan, Yee-Fun Lim, Edwin Khoo,\* Lu Wen Feng,\* Yanwei Lum\* and Albertus D. Handoko\*



## PAPERS

546



### Non-catalytic regioselective synthesis of *trans* bis-pyrrolo isoxazole cycloadducts in water

Alhussein Arkan Majhool, Assad Abbas Khalaf, Iman Sabeeh Hasan, Ranvijay Kumar, Sandeep Kaushal\* and Rahul Badru\*

558



### Semi-quantitative risk-based prioritisation scheme for chemicals of concern in the Nordic countries

Hans Sanderson,\* Patrik Fauser, Linda Bengtström and Katrin Vorkamp

## CORRECTION

567

### Correction: Ammonium niobium oxalate (ANO) as an efficient catalyst in the Paal–Knorr synthesis of *N*-substituted pyrroles

Luiz H. Dapper, Kethelyn M. da Rosa, Viviane T. Mena, Rodrigo O. M. A. de Souza, Felipe L. N. da Silva, Thiago Anjos, Filipe Penteadó\* and Eder J. Lenardão\*

