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See Melanie Kah, Lokesh P. Padhye, Erin M. Leitao *et al.*, pp. 3183–3201. Image reproduced by permission of Erin M. Leitao from *RSC. Sustainability.*, 2024, **2**, 3183.

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Carboxylation reactions for the sustainable manufacture of chemicals and monomers

Laura Faba and Salvador Ordóñez*

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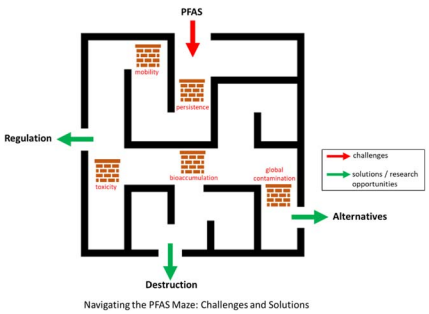
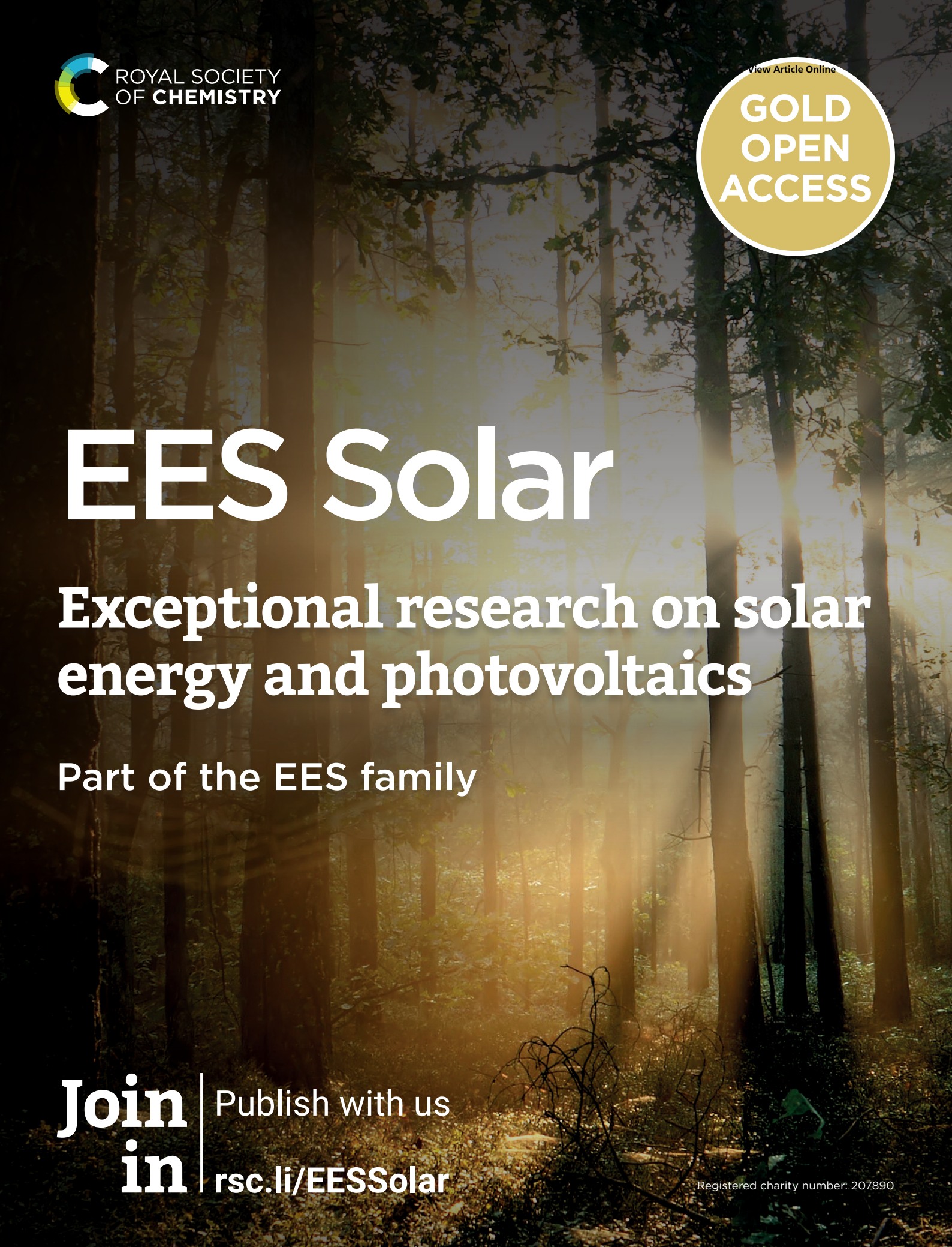
Addressing the persistence of per- and poly-fluoroalkyl substances (PFAS): current challenges and potential solutions

Emeka J. Itumoh, Shailja Data, Jack L.-Y. Chen, Melanie Kah,* Lokesh P. Padhye* and Erin M. Leitao*



Navigating the PFAS Maze: Challenges and Solutions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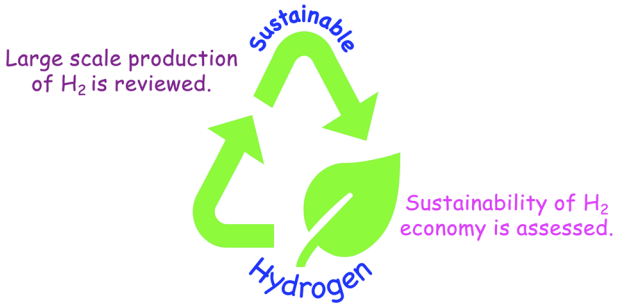
TUTORIAL REVIEWS

3202

Sustainability of hydrogen manufacturing: a review

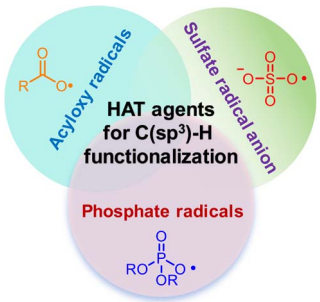
Satish Vitta



3222

Acyloxy, sulfate, and phosphate radicals as hydrogen atom transfer (HAT) agents for direct C(sp^3)–H functionalization

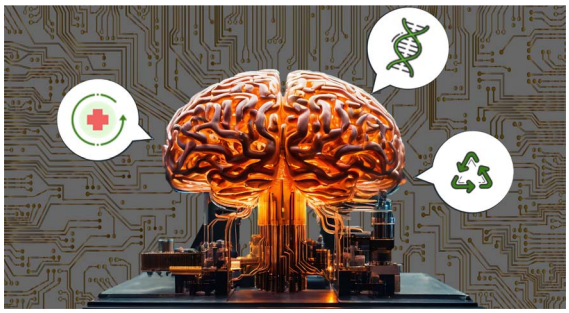
Jia-Lin Tu and Binbin Huang*



3235

Sustainable brain-inspired electronics: digging into natural biomaterials for healthcare applications

João V. Paulin* and Carlos C. B. Bufon*

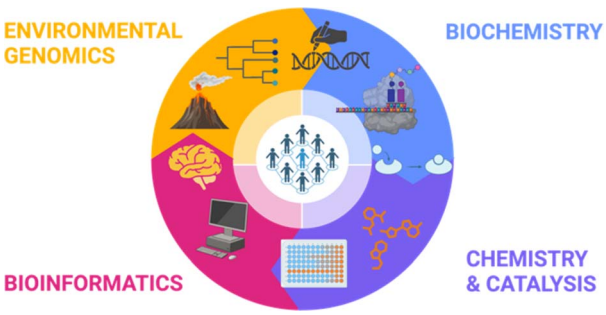


PERSPECTIVE

3264

Realities of the consortium approach in science: sustainable enzymatic production of C1 chemicals from carbon dioxide

Andrea Rodil, Ingemar von Ossowski, Mari Nyyssönen, Yufang Tian, Marleen Hallamaa, Jan Deska, Malin Bomberg and Silvan Scheller*



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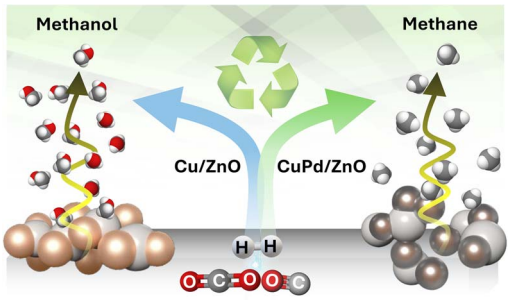
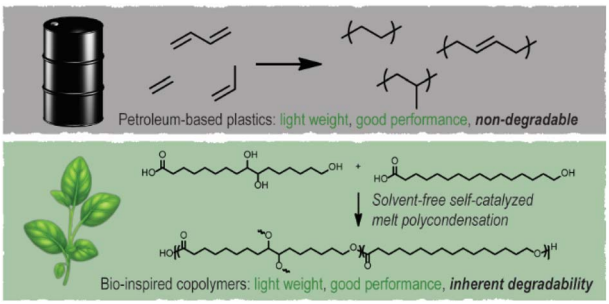


Bimetallic CuPd nanoparticles supported on ZnO or graphene for CO_2 and CO conversion to methane and methanol

Qaisar Maqbool, Klaus Dobrezberger, Julian Stropp, Martin Huber, Karl-Leopold Kontrus, Anna Aspalter, Julie Neuhauser, Thomas Schachinger, Stefan Löffler and Günther Rupprechter*

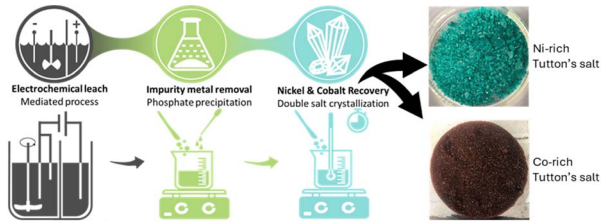
3289



High performance long chain polyesters *via* melt copolymerization of cutin-inspired monomers

Zewen Zhu, Joshua T. Damron, Jong K. Keum, Logan Kearney, Vera Bocharova* and Jeffrey C. Foster*

3298

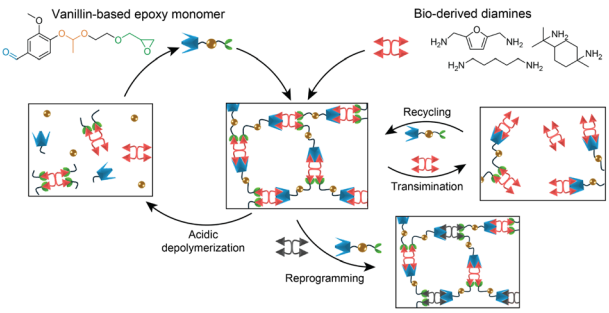


Lithium-ion battery black mass (LIBBM) processing through 3 Steps: EC-leach, phosphate impurity removal and Tutton's salt recovery of Ni and Co by fractional precipitation.

Fractional precipitation of Ni and Co double salts from lithium-ion battery leachates

John R. Klaehn,* Meng Shi, Luis A. Diaz, Daniel E. Molina, Reyixiati Repukaiti, Fazlollah Madani Sani, Margaret Lencka, Andre Anderko, Navamoney Arulsamy and Tedd E. Lister

3311



Chemically recyclable and reprogrammable epoxy thermosets derived from renewable resources

Tankut Türel, Özgün Dağlar, Christos Pantazidis and Željko Tomović*

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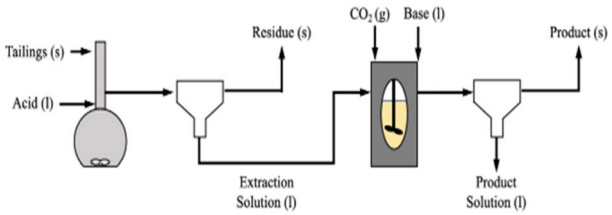
Tuning acid extraction of magnesium and calcium from platinum group metal tailings for CO_2 conversion and storage

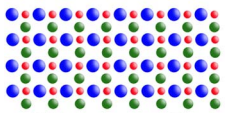
Caleb M. Woodall, Katherine Vaz Gomes,* Andreas Voigt, Kai Sundmacher and Jennifer Wilcox

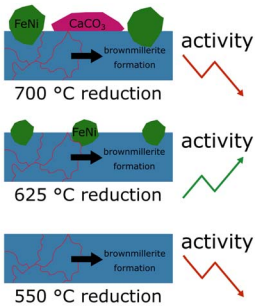


3334

How reduction temperature influences the structure of perovskite-oxide catalysts during the dry reforming of methane

Florian Schrenk, Lorenz Lindenthal, Hedda Drexler, Tobias Berger, Raffael Rameshan, Thomas Ruh, Karin Föttinger and Christoph Rameshan*





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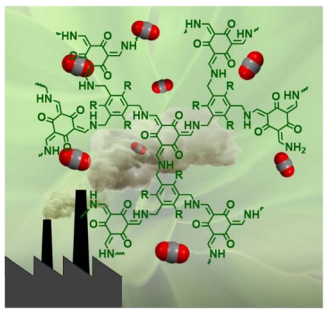
Novel CO_2-philic porous organic polymers synthesized in water: a leap towards eco-sustainability

Riccardo Mobili, Yue Wu, Charl Xavier Bezuidenhout, Sonia La Cognata, Silvia Bracco,* Mariolino Carta* and Valeria Amendola*



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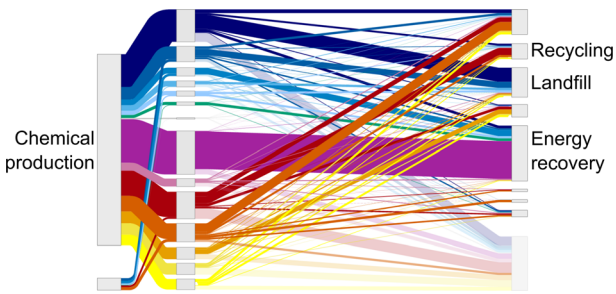
Mapping the end-of-life of chemicals for circular economy opportunities

Taylor Uekert*



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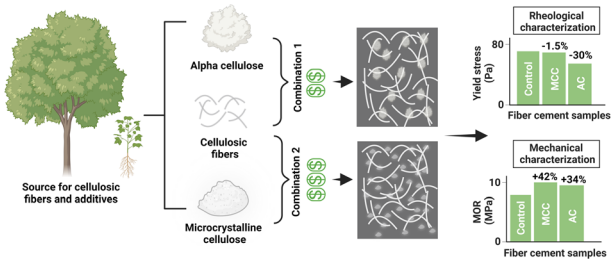

Sustainable micro-cellulosic additives for high-density fiber cement: emphasis on rheo-mechanical properties and cost–performance analysis

Sreenath Raghunath, Mahfuzul Hoque, Behzad Zakani, Akash Madhav Gondaliya and E. Johan Foster*

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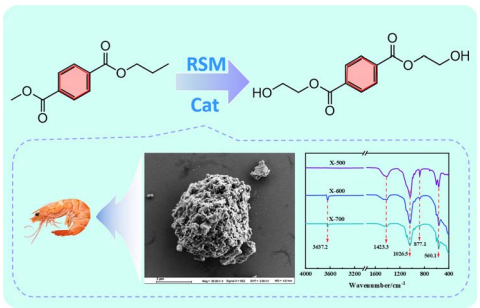

Using waste to treat waste: efficient alcoholysis of PET waste with a shrimp shell derived catalyst using the response surface method

Ruiyang Wen, Guoliang Shen,* Meiqi Zhang, Lejia Yang, Linlin Zhao, Haichen Wang and Xingzhu Han

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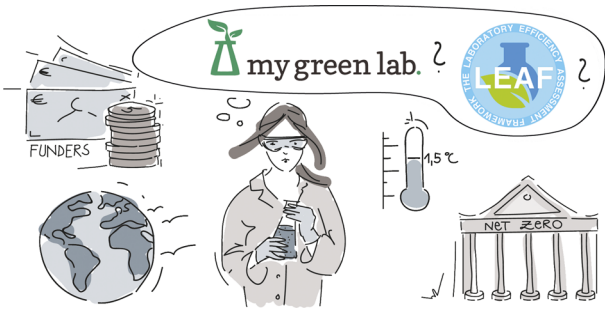

Lab sustainability programs LEAF and My Green Lab®: impact, user experience & suitability

Bianca R. Schell and Nico Bruns*

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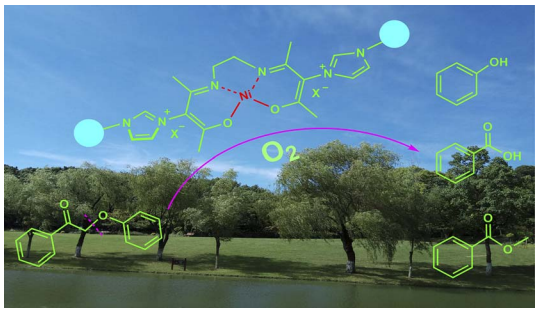

Oxidative cleavage of β-O-4 bonds in lignin model compounds with polymer-supported Ni–Salen catalysts

Qiongli Liu, Dianyong Yang, Xiuge Zhao, Zhiwei Xu, Ji Ding, Danqi Wu, Ning An, Huiying Liao and Zhenshan Hou*

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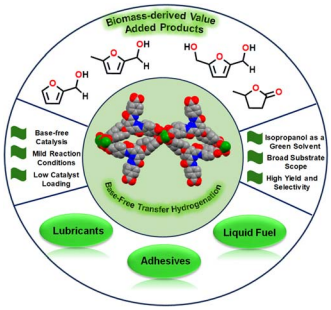
A cobalt-based metal–organic framework as a sustainable catalyst for base-free transfer hydrogenation of biomass-derived carbonyl compounds

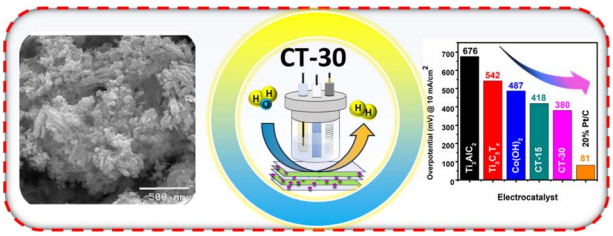
Aashish, Ruchika Gupta and Rajeev Gupta*



3424

$Ti_3C_2T_x$ MXene coupled $Co(OH)_2$: a stable electrocatalyst for the hydrogen evolution reaction in alkaline media

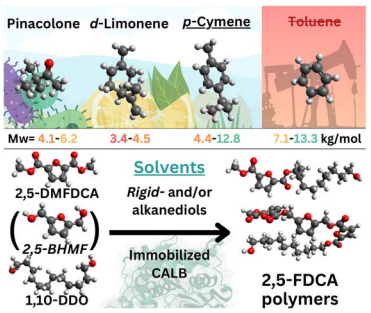
Muhammad Yameen Solangi, Aashiq Ali Lakhair, Farkhanda Zaman Dayo, Rehan Ali Qureshi, Abdulaziz Alhazaa, Muhammad Ali Shar, Abdul Jalil Laghari, Imtiaz Ali Soomro, Muhammad Nazim Lakhan, Abdul Hanan* and Umair Aftab*



3436

Enzymatic polymerization of furan-based polymers in biobased solvents

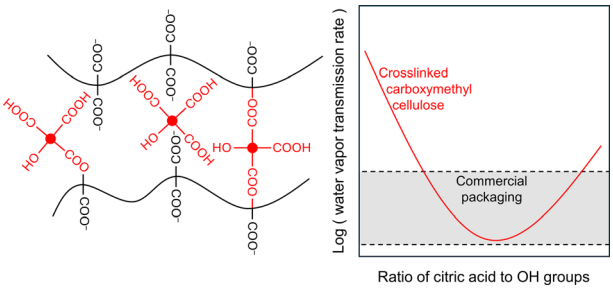
Fitrilia Silvianti, Dina Maniar, Tijn C. de Leeuw, Jur van Dijken and Katja Loos*



3451

Low-water-permeability foils based on bio-renewable cellulose derivatives

Tanner J. Hickman, Li Tao, Natalie Stingelin and J. Carson Meredith*



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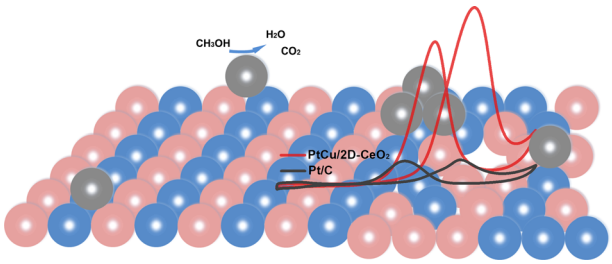

Ultra-thin order–disorder CeO_2 nanobelts as the non-carbon support of the PtCu catalyst towards methanol oxidation and oxygen reduction reactions

Han Zhi, Boda Dong, Xingxing Guo and Feng Xu*

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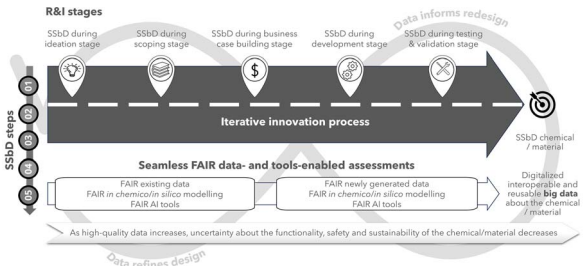
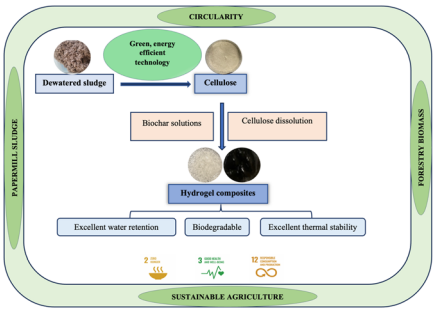


The FAIR principles as a key enabler to operationalize safe and sustainable by design approaches

Achilleas Karakoltzidis, Chiara Laura Battistelli, Cecilia Bossa, Evert A. Bouman, Irantzu Garmendia Aguirre, Ivo Iavicoli, Maryam Zare Jeddi, Spyros Karakitsios, Veruscka Leso, Magnus Løfstedt, Barbara Magagna, Denis Sarigiannis, Erik Schultes, Lya G. Soeteman-Hernández, Vrishali Subramanian and Penny Nymark*

3478



Incorporating biochar to make hydrogel composites with improved structural properties, valorized from waste-paper mill sludge and forestry residues using energy efficient protocols

Keerthana Ketheeswaran, Shegufta Shetranjiwalla,* Manokararajah Krishnapillai and Lakshman Galagedara*

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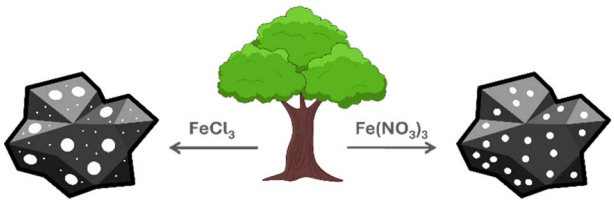

The effect of catalyst precursors on the mechanism of iron-catalysed graphitization of cellulose

Emily C. Hayward,* Glen J. Smales, Brian R. Pauw, Masaki Takeguchi, Alexander Kulak, Robert D. Hunter and Zoe Schnepp

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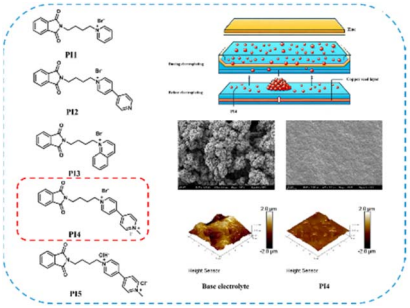
Promoting uniform zinc coatings through the use of quaternary ammonium salts based on phthalimide as electroplating additives

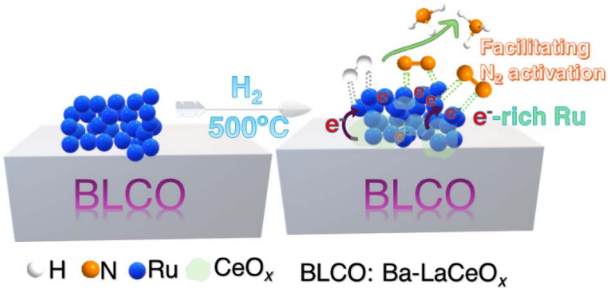
Kexin Du, Xuyang Li, Wenhao Zhou, Peikun Zou, Nayun Zhou, Xin Chen and Limin Wang*



3507

Atomic layer deposition of Ru nanoclusters on Ba–LaCeO$_x$: a highly efficient catalyst for ammonia synthesis under mild conditions

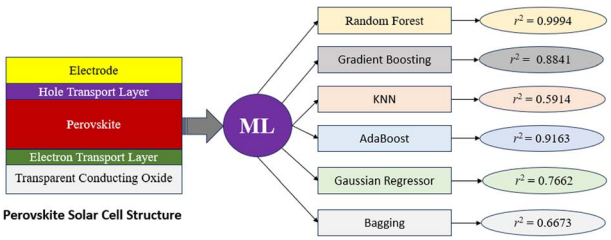
Kaiying Wang, Baitang Jin, Xiaoqing He and Xinhua Liang*



3520

Identifying the best ML model for predicting the bandgap in a perovskite solar cell

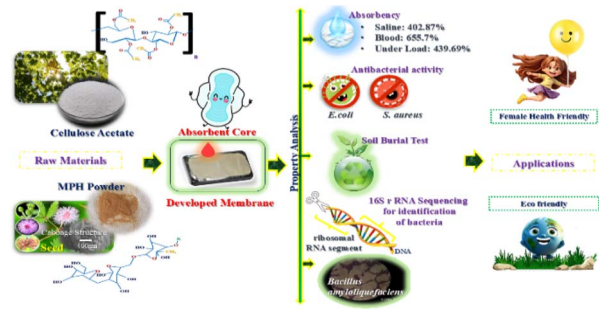
Nita Samantaray,* Arjun Singh* and Anu Tonk



3525

Utilization of green resource-based *Mimosa pudica* hydrogel powder in a cellulose acetate-based polymeric membrane as absorbent: a sustainable approach towards female hygiene application

Roshni Pattanayak, Sukanya Pradhan and Smita Mohanty*



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CORRECTION

3546

Correction: Hydrochar from *Sargassum muticum*: a sustainable approach for high-capacity removal of Rhodamine B dye

D. Spagnuolo, D. Iannazzo, T. Len, A. M. Balu, M. Morabito, G. Genovese, C. Espro and V. Bressi*

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