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See Yasushi Sekine *et al.*, pp. 1598–1628. Image reproduced by permission of Yasushi Sekine from *RSC Sustainability*, 2025, 3, 1598.



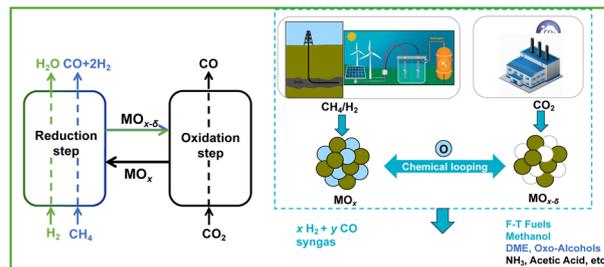
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CRITICAL REVIEWS

1598

CO₂ conversion to CO by reverse water gas shift and dry reforming using chemical looping

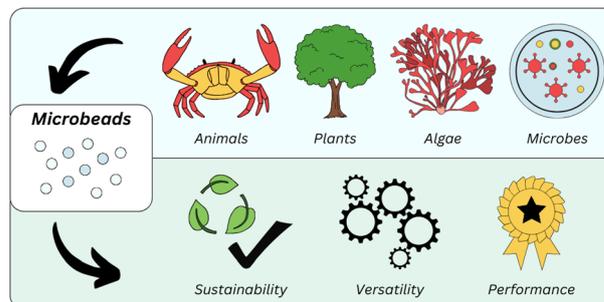
Keke Kang, Hiroshi Sampei and Yasushi Sekine*



1629

Carbohydrate-based alternatives to traditional synthetic plastic microbeads: a critical review

Amy McMackin and Sébastien Cardinal*



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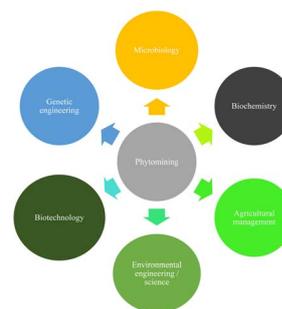
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Babatunde Joseph Akinbile* and Charles Mbohwa*



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Maria Franca Pitzalis and Joanna C. Sadler*

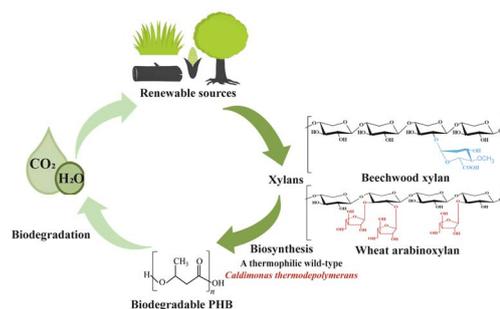


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Wen Zhou, Salvador Bertrán Llorens, Peter J. Deuss, Gert-Jan W. Euverink and Janneke Krooneman*

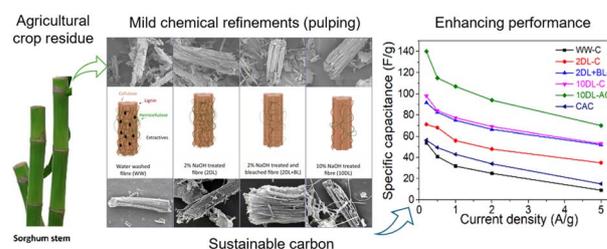


PAPERS

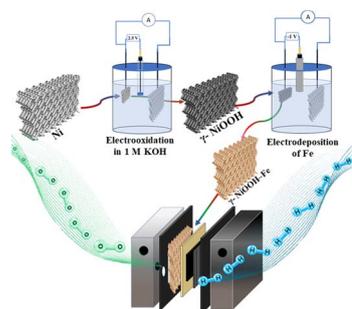
1691

Sustainable carbon for energy storage applications: investigation on chemical refinements of sorghum biomass for tuneability of carbon structures and supercapacitor performance

Rana Arslan Afzal, Pratheep K. Annamalai*, Mike Tebyetekerwa, Paulomi (Polly) Burey, John Bell, Ashok Kumar Nanjundan* and Darren J. Martin*



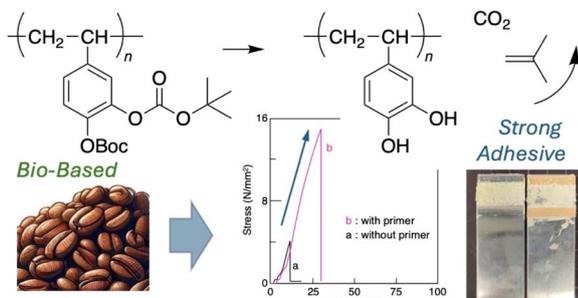
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An electrochemically engineered layer of γ -NiOOH with FeOOH on nickel foam for durable OER catalysis for anion exchange membrane water electrolysis

Sreekanth Narayanaru, Hidenori Kuroki, Takanori Tamaki, Gopinathan M. Anilkumar and Takeo Yamaguchi*

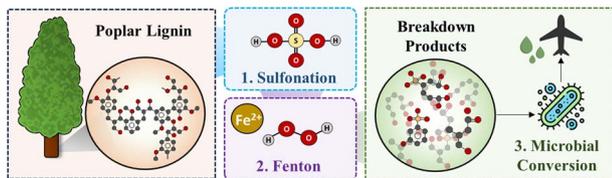
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Development of a bio-based adhesive by polymerization of Boc-protected vinyl catechol derived from caffeic acid

Shiho Tanizaki, Tomohiro Kubo, Yosuke Bito, Shigeki Mori, Hiroyuki Aoki and Kotaro Satoh*

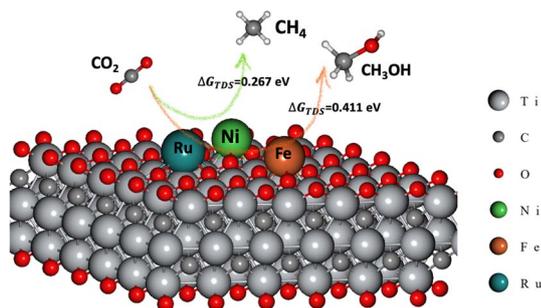
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Deconstructing poplar lignin from ionic liquid pretreatment for biological conversion through sulfonation and Fenton chemistry

Daniella V. Martinez, Alberto Rodriguez, Hemant Choudhary, Jay Salinas, Estevan J. Martinez, Oleg Davydovich, Gina M. Geiselman, John M. Gladden, Blake A. Simmons and Michael S. Kent*

1729



A MXene-supported single atom catalyst selectively converts CO₂ into methanol and methane

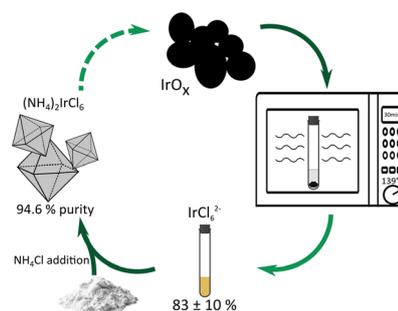
Hasan Al-Mahayni, Rongyu Yuan and Ali Seifitokaldani*



1741

An aqua regia-free chemical recovery and reprecipitation of Ir from IrO_x catalysts: optimisation of the extraction efficiency using surface response methodology

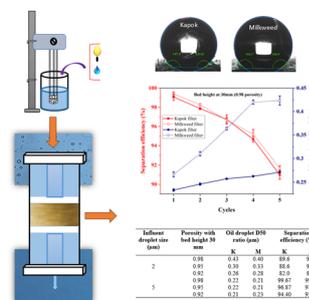
Sarah Turnbull, Delphine Clauss,* Vincent Martin, Jean-Pierre Magnin, Laetitia Dubau and Frédéric Maillard*



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Comparative analysis of *Calotropis procera* and *Ceiba pentandra* fibre-based filters used to separate oil from emulsified effluent

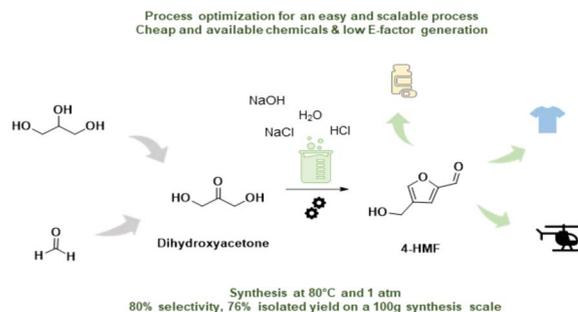
Chandra Jeet Singh,* Samrat Mukhopadhyay, Raju Seenivasan Rengasamy, Mayuri Srivastava and Ranjna Kumari



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Green and efficient one-pot synthesis of the bio-based platform molecule 4-hydroxymethyl-2-furfural on a multigram scale

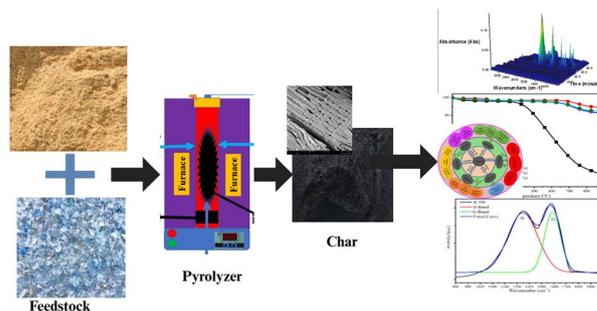
Kubilay Ceyhan, Mattis Rottmann and Harald Gröger*



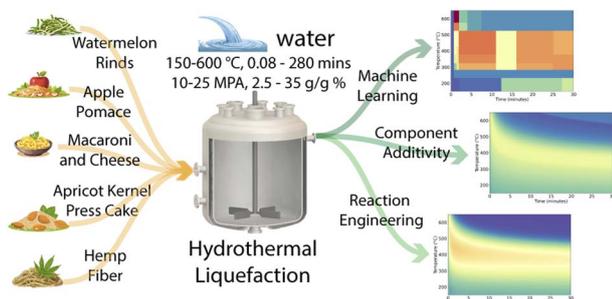
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Co-pyrolysis of low-value wood sawdust and non-recyclable plastics into char: effect of plastic loading on char yield and its properties

Ranjeet Kumar Mishra



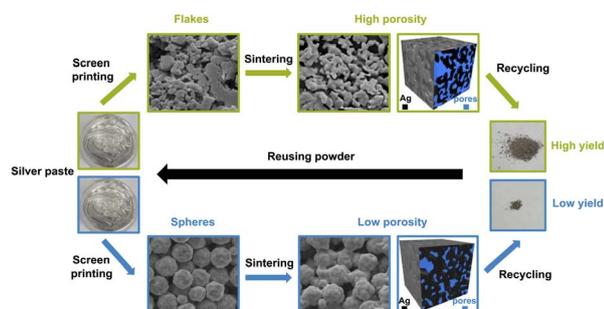
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General component additivity, reaction engineering, and machine learning models for hydrothermal liquefaction

Peter M. Guirguis and Phillip E. Savage*

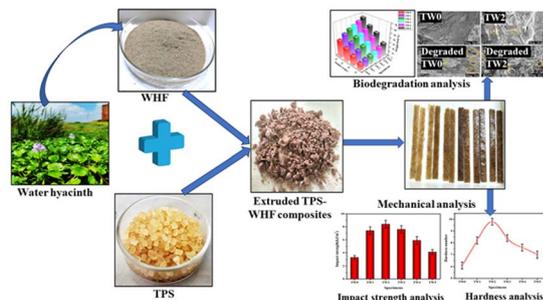
1800



The importance of shape: flakes and spheres in recyclable conductive pastes for printed electronics

David van Impelen, Dominik Perius, Lola González-García* and Tobias Kraus*

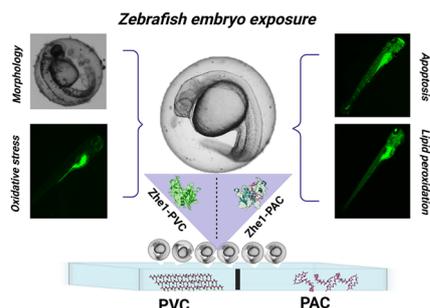
1807



Development and characterization of water hyacinth reinforced thermoplastic starch as sustainable biocomposites

Diptiranjana Behera, Shruti S. Pattnaik, Shubhendu S. Patra, Aruna K. Barick, Jyotsnarani Pradhan and Ajaya K. Behera*

1819



Eco-biocompatible periphyton-inhabited polyvinyl chloride (PVC) and polyacrylic acid (PAC) sheets indicate aquaculture bio-sustainability by oxidative stress and steatosis in zebrafish

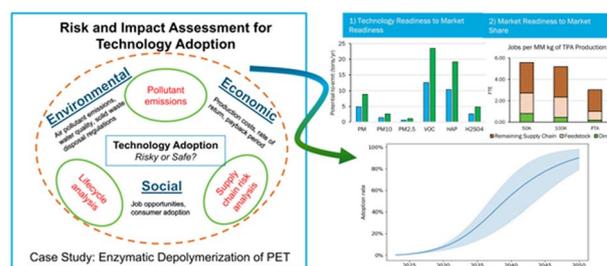
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Addressing adoption barriers and accelerating market deployment of new technologies

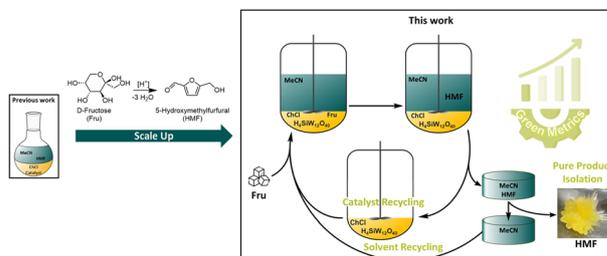
Greg Avery,* Arpit Bhatt,* Shubhankar Upasani, Julien Walzberg, Andre Fernandes Tomon Avelino, Jason DesVeaux, John Minh Quang Pham and Alberta Carpenter



1848

5-Hydroxymethylfurfural (HMF) synthesis in a deep eutectic solvent-based biphasic system: closing the loop of solvent reuse, product isolation and green metrics

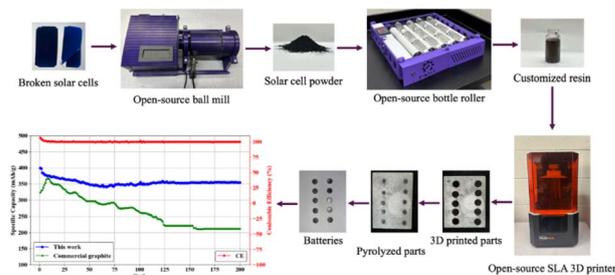
Nico Thanheuser, Leonie Schlichter, Walter Leitner, Jesús Esteban* and Andreas J. Vorholt*



1859

Recycling silicon photovoltaic cells into silicon anodes for Li-ion batteries using 3D printing

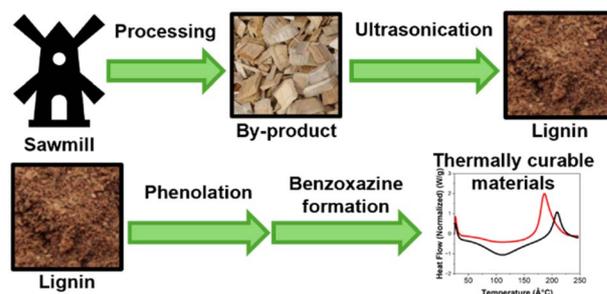
Maryam Mottaghi,* Apoorv Kulkarni and Joshua M. Pearce



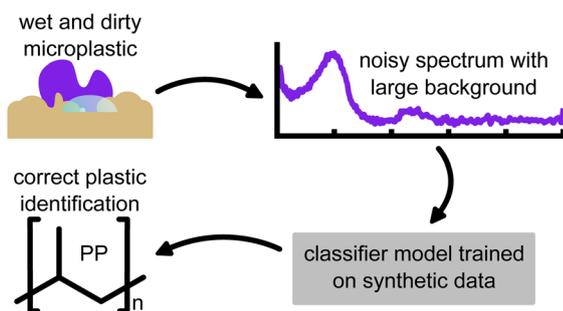
1870

Preparation of thermally curable materials using lignin extracted from sawmill co-product

Libby J. Marshall, Daniel J. Cheney, Jasmine A. Keith, Christopher Kelly, Frédéric Blanc, Andrew J. West and Dave J. Adams*



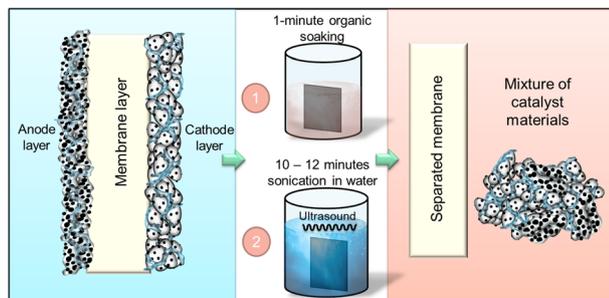
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Microplastics in the rough: using data augmentation to identify plastics contaminated by water and plant matter

Joseph C. Shirley, Kobiny Antony Rex, Hassan Iqbal, Christian G. Claudel and Carlos R. Baiz*

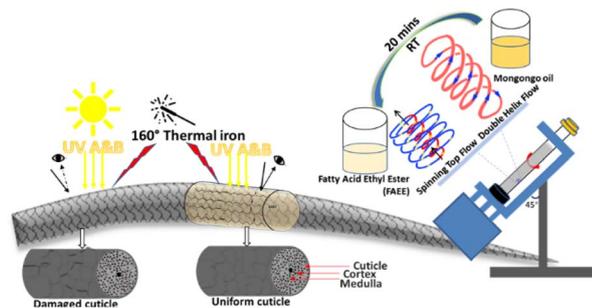
1900



Catalyst coated membranes for fuel cell and water electrolyser delamination induced by organic solution soaking and water ultrasonication

Tanongsak Yingnakorn, Jennifer Hartley, Molly E. Keal, Ross Gordon, Daniel Marin Florido, Andrew P. Abbott and Jake M. Yang*

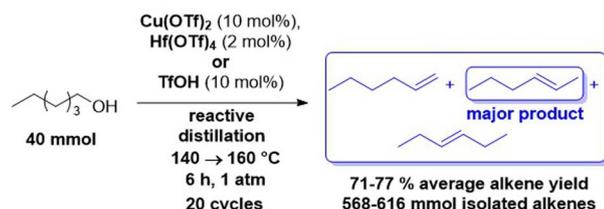
1909



Vortex fluidic-mediated transesterification enhancement of mongongo fatty acid ethyl ester production for haircare applications

Xuejiao Cao, Xuan Luo, Safira M. Barros, Wenjin Xing, Melanie MacGregor, Iliana Delcheva, Jonathan A. Campbell, Shan He, Bradley P. Kirk, Youhong Tang and Colin L. Raston*

1923



Reusability studies with Lewis and Brønsted acid catalysts for dehydration of the primary alcohol 1-hexanol under energy-saving conditions

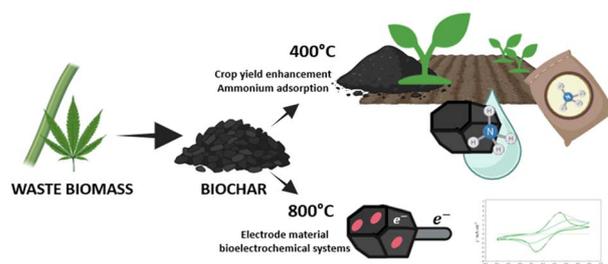
Adil Allahverdiyev and Harald Gröger*



1932

Cannabis sativa biochar: characterization and preliminary application in plant growth and adsorption, and as an electrode material

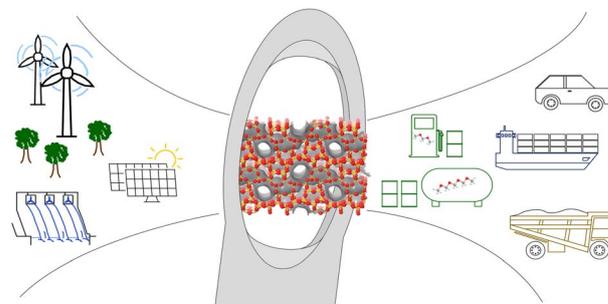
Maria Belen Ceretta, Sofia Antic Gorrazzi, Sebastian D'Ippolito, Julieta Mendieta, Debora Nercessian and Sebastian Bonanni*



1941

Production of oxymethylene ethers (OME) as sustainable diesel fuel substitutes: continuous synthesis from dimethyl ether and trioxane and evaluation of catalyst stability

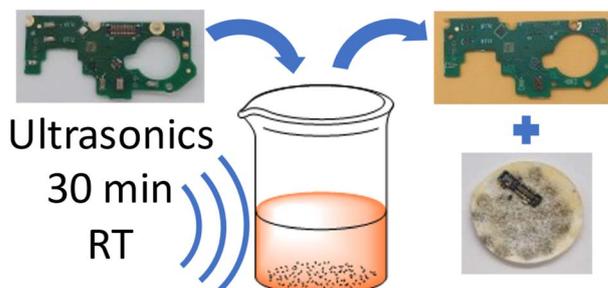
Marius Drexler, Victor Zaghini Francesconi, Ulrich Arnold,* Thomas A. Zevaco and Jörg Sauer



1957

Critical metal recovery from e-waste in concentrated ionic media using ultrasound

Christopher E. Elgar,* Kelsey Hall and Andrew P. Abbott



1966

A high-performance nanofiltration membrane synthesized by embedding amino acids and ionic liquids in cellulose acetate for heavy metal separation

D. Teja Nayak, Vinoth Kumar Raja, G. Arthanareeswaran,* Tran Dang Khoa and Wirach Taweepreda

