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See Dagmar R. D'hooge, Mariya Edeleva *et al.*, pp. 3596–3637. Image reproduced by permission of Mariya Edeleva from *RSC Sustainability.*, 2024, 2, 3596.



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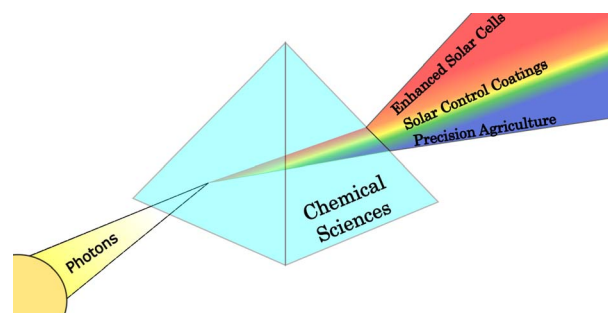
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ESSAYS

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Atoms and photons: how chemical sciences can catalyze the development of sustainable solutions powered by light

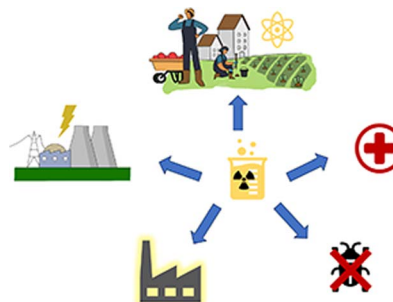
Govind Nanda*



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Chemical innovations in nuclear energy: paving the way for a carbon-neutral future

Sarah Geo

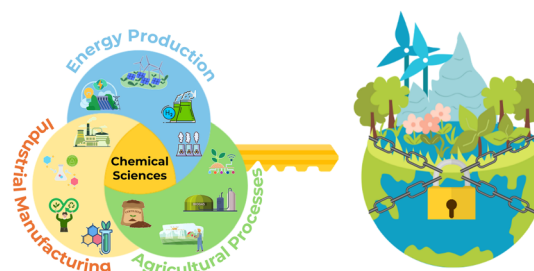


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Chemical sciences: the key to a carbon-neutral future

Alexandre M. S. Jorge*

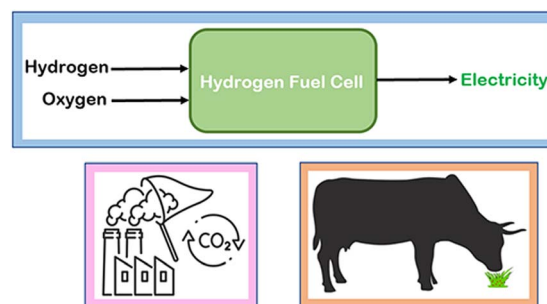
Chemical Sciences: The Key to a Carbon-Neutral Future



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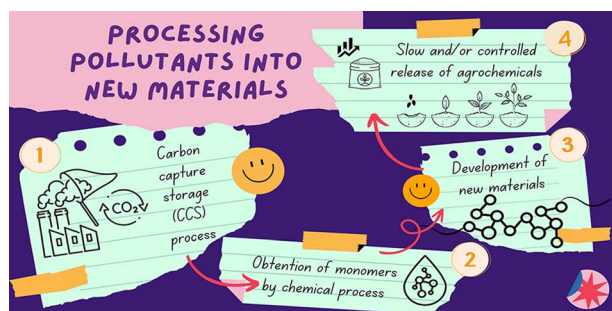
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ESSAYS

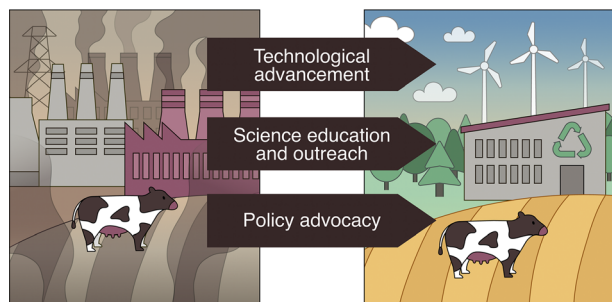
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Chemical advances in transforming pollutants into new materials

Tales da Silva Daitx*

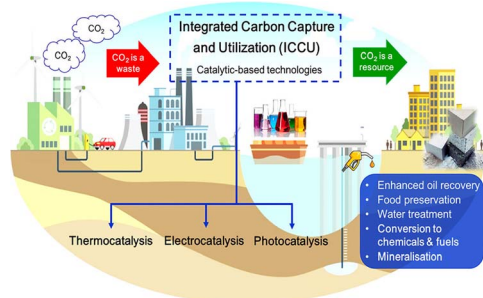
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Amanda Mikaela Celestine Tolentino

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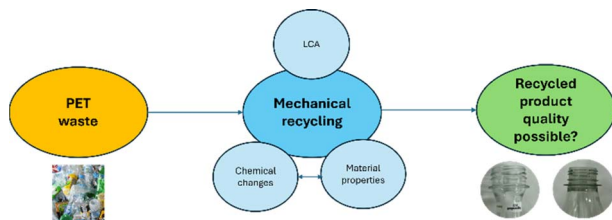


Utilizing advancements in chemical sciences for decarbonization: a pathway to sustainable emission and energy reduction

Faith Mwende Johnson

CRITICAL REVIEWS

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Molecular and material property variations during the ideal degradation and mechanical recycling of PET

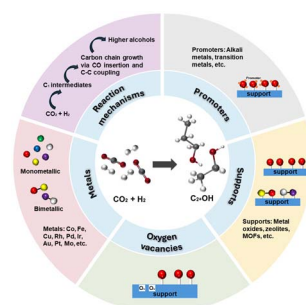
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The engineering of CO₂ hydrogenation catalysts for higher alcohol synthesis

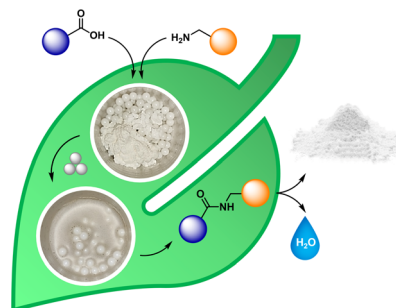
Angie F. J. Tan, Muhammad Dody Isnaini, Muenduen Phisalaphong and Alex C. K. Yip*



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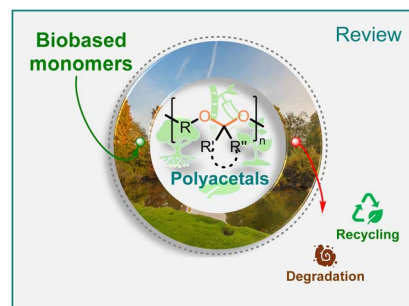
Emília P. T. Leitão*



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Synthesis of biobased polyacetals: a review

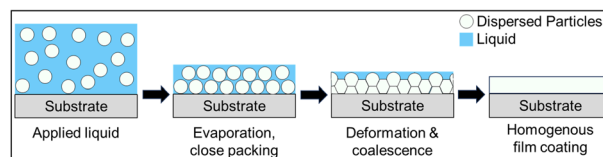
Anna C. Renner, Sagar S. Thorat and Mukund P. Sibi*



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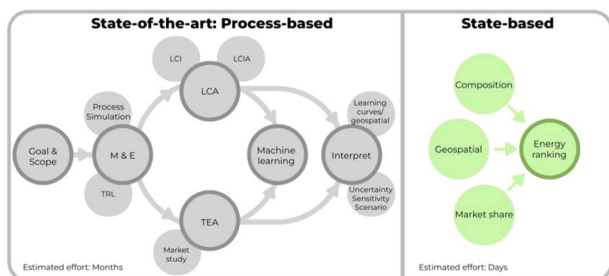
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Kyle Pieters and Tizazu H. Mekonnen*



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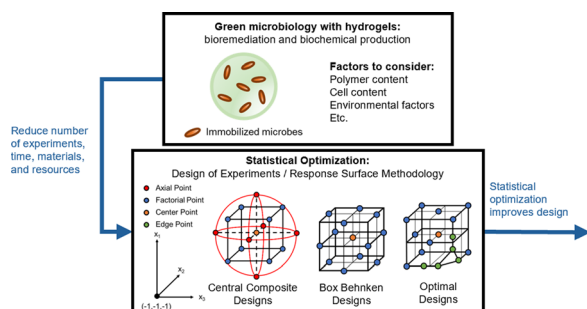
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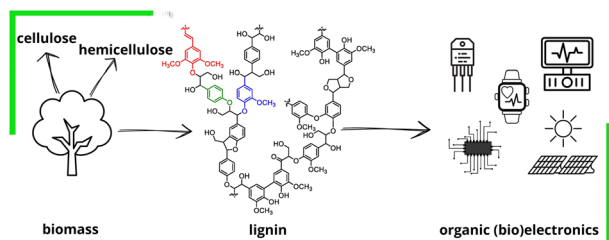


Statistical optimization of cell–hydrogel interactions for green microbiology – a tutorial review

Conor G. Harris, Lewis Semprini, Willie E. Rochefort and Kaitlin C. Fogg*

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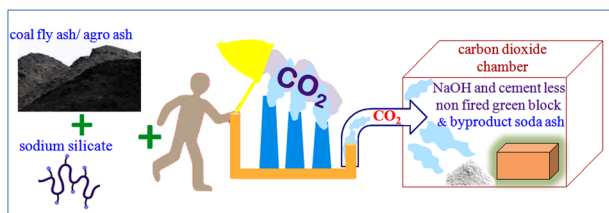


Green gold: prospects of lignin in organic electronics and bioelectronics

Laura Tronci and Assunta Marrocchi*

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CO₂ assisted geo-polymerization: a win-win pragmatic approach for the synthesis of soda ash leading to reversal of the climate clock

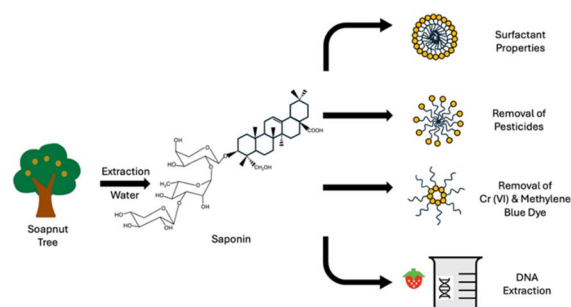
Sandeep Gupta*



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Using soapnut extract as a natural surfactant in green chemistry education: a laboratory experiment aligning with UN SDG 12 for general chemistry courses

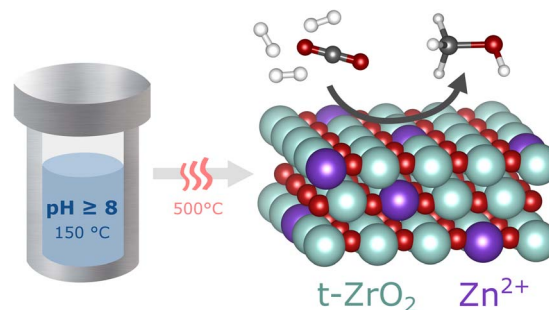
Zi Wang, Carter McLenahan and Liza Abraham*



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Hydrothermal synthesis of ZnZrO_x catalysts for CO_2 hydrogenation to methanol: the effect of pH on structure and activity

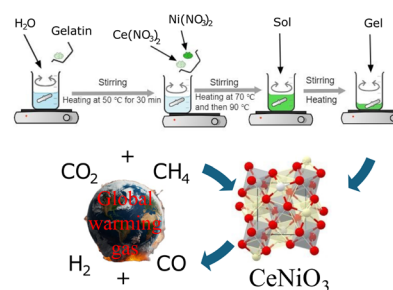
Issaraporn Rakngam, Gustavo A. S. Alves, Nattawut Osakoo, Jatuporn Wittayakun, Thomas Konegger and Karin Föttinger*



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CeNiO_3 perovskite nanoparticles synthesized using gelatin as a chelating agent for CO_2 dry reforming of methane

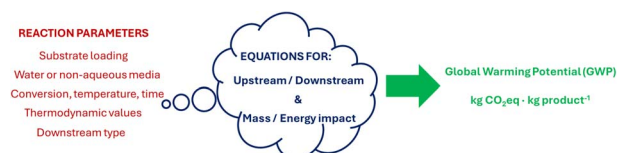
Usman Zahid, Wahid Sidik Sarifuddin, Abdul Hanif Mahadi, Holillah, Didik Prasetyoko and Hasliza Bahruji*

Dry reforming of methane on CeNiO_3 nanoparticles

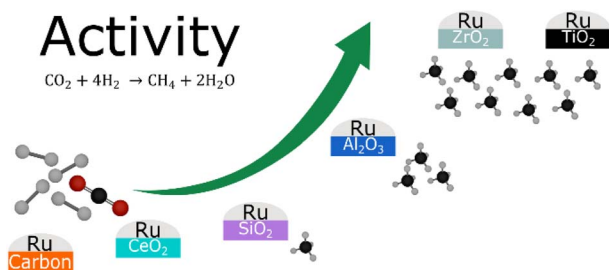
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General equations to estimate the CO_2 production of (bio)catalytic reactions in early development stages

Pablo Domínguez de María*



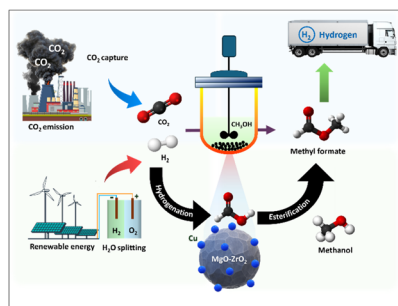
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CO₂ hydrogenation on ruthenium: comparative study of catalyst supports

Göran Baade, Jens Friedland, Koustuv Ray and Robert Güttel*

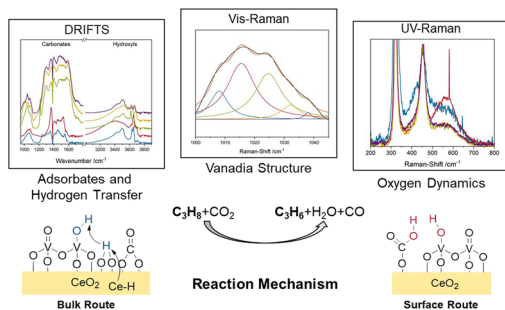
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Cu–Mg synergy enhanced synthesis of methyl formate over noble metal-free heterogeneous catalyst systems

Jyotishman Kaishyop, Arpan Mukherjee, Abhay Giri Goswami, Tuhin Suvra Khan and Ankur Bordoloi*

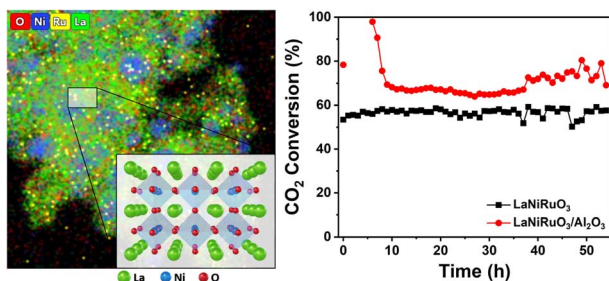
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Unraveling the mechanism of the CO₂-assisted oxidative dehydrogenation of propane over VO_x/CeO₂: an *operando* spectroscopic study

Leon Schumacher, Marius Funke and Christian Hess*

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Exsolved LaNiRuO₃ perovskite-based catalysts for CO₂ methanation reaction

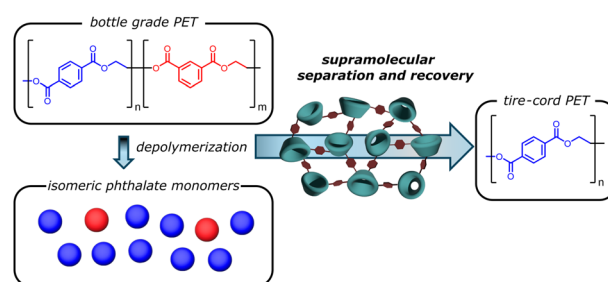
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Supramolecular purification of aromatic polyester monomers from chemical depolymerization

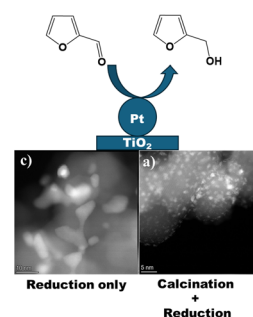
Gavan W. Lienhart, Thomas Palisin, William Gross, Amelia Moll and James M. Eagan*



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Controlling the nanoparticle size and shape of a Pt/TiO₂ catalyst for enhanced hydrogenation of furfural to furfuryl alcohol

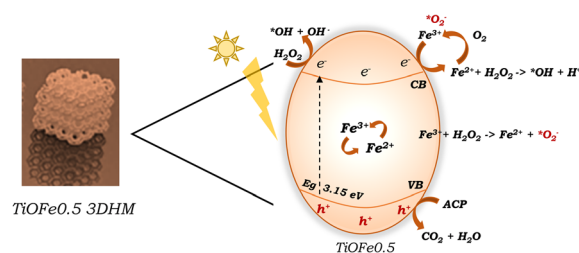
Heba Alsharif, Matthew B. Conway, David J. Morgan, Thomas E. Davies, Stuart H. Taylor and Meenakshisundaram Sankar*



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Additive manufacturing of hollow connected networks for solar photo-Fenton-like catalysis

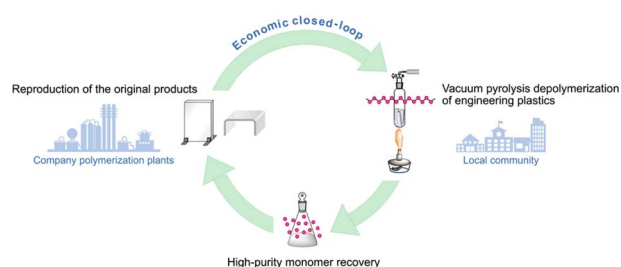
Miguel Ángel Gracia-Pinilla,* Norma Alicia Ramos-Delgado,* Cristian Rosero-Arias, Remco Sanders, Stephan Bartling, Jędrzej Winczewski, Han Gardeniers and Arturo Susarrey-Arcé*



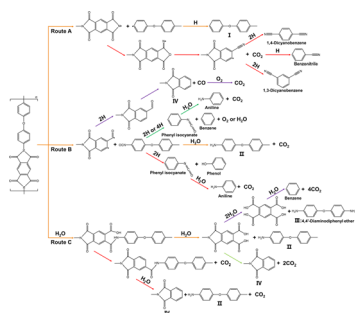
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High-purity monomer recovery from commercial engineering plastics by vacuum pyrolysis depolymerization

Eri Yoshida*



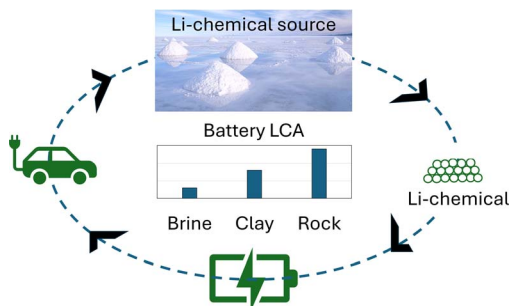
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The thermal behavior and pyrolysis mechanism of a polyimide gas separation membrane

Qinxu Li, Bo Chen, Songyuan Yao, Chao Sang, Lu Lu, Shilong Dong, Hui Cao, Zhihao Si* and Peiyong Qin*

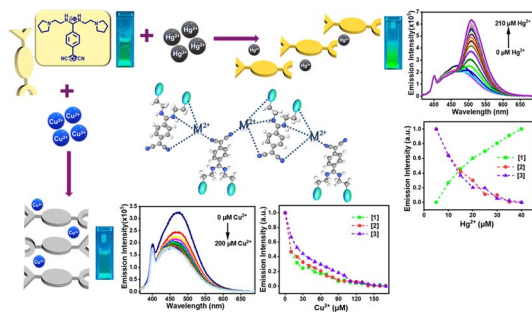
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Life-cycle analysis of lithium chemical production in the United States

Rakesh Krishnamoorthy Iyer* and Jarod C. Kelly

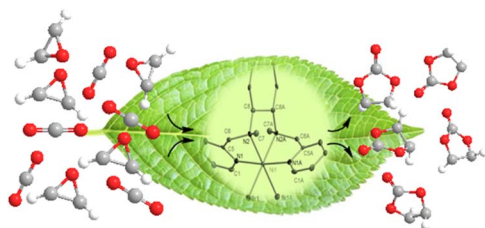
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Self-assembled tetracyanoquinodimethane derivatives: differential fluorescent responses on sensing copper and mercury ions in an aqueous medium

Anuradha Suresh Rao Mohitkar, Nilanjan Dey and Subbalakshmi Jayanty*

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Efficient single-component nickel catalysts with tetradentate aminopyridine ligands for cycloaddition reactions of CO₂ and epoxides under mild conditions

Congcong Zhang, Minghui Shi, Ning Yu, Bowen Zhang,* Feng Han* and Chengxia Miao*

- Single-component and efficient catalytic system
- Low amount of catalyst and 1 atm CO₂
- Solvent-free conditions



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Direct measurement of PFAS levels in surface water using an engineered biosensor

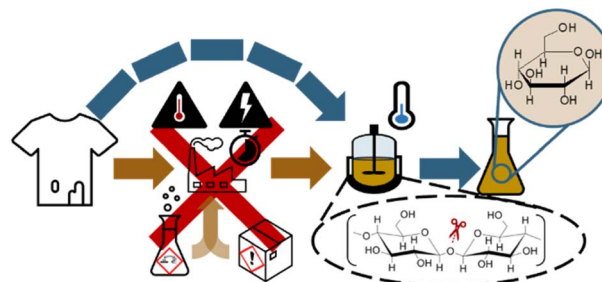
Madison Mann, Victoria Kartseva, Chelli Stanley, Maggie Blumenthal, Richard Silliboy and Bryan Berger*



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Effects of chemical pretreatment on the enzymatic hydrolysis of post-consumer waste viscose

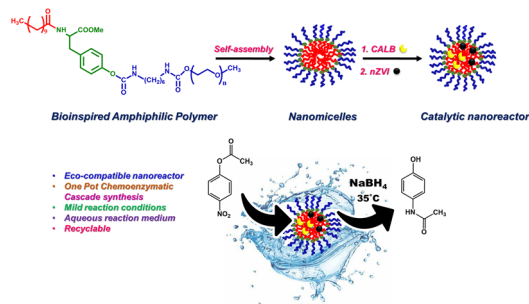
Edvin Bågenholm-Ruuth, Mahla Bagherigelvardi, Caroline Gustafsson, Miguel Sanchis-Sebastià* and Ola Wallberg



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Unifying *Candida antarctica* lipase B and nZVI in bioinspired polymer nanomicelles: a nanobiohybrid synergy for sustainable synthesis of acetaminophen

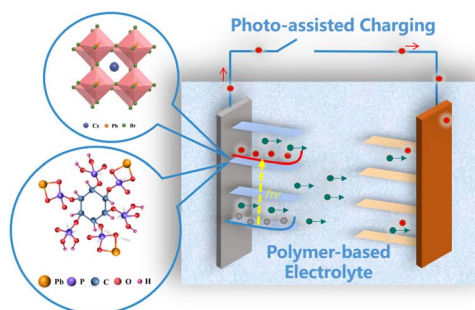
Falguni Shukla, Dilraj Singh and Sonal Thakore*



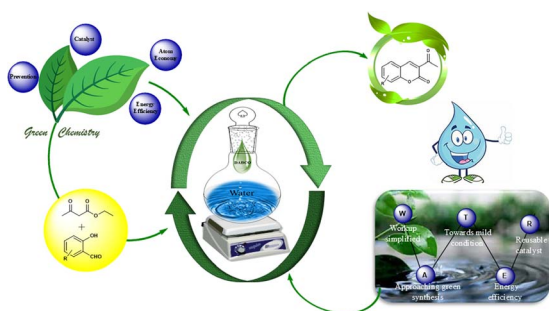
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Photo-assisted (de)lithiation to enhance photoelectrochemical storage in quasi-solid-state Li-ion batteries

Xin Mi, Jun Pan, Menglin Duan, Fuqiang Huang* and Peng Qin*



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Aqueous-mediated DABCO and DABCO-ionic liquid catalysed synthesis of 3-acetylcoumarins: exploration by kinetic, electrochemical and spectroscopic studies

Arpita A. Shanbhag, Lokesh A. Shastri* and Samundeeswari L. Shastri

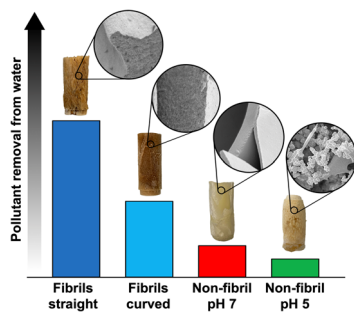
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Beyond waste: cellulose-based biodegradable films from bio waste through a cradle-to-cradle approach

Mai N. Nguyen, Minh T. L. Nguyen, Marcus Frank and Dirk Hollmann*

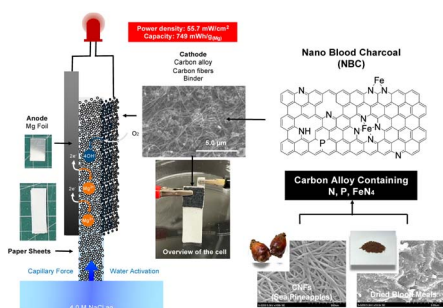
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Elucidating the role of the nanostructure in protein aerogels for removal of organic water pollutants

Rodrigo Sanches Pires, Antonio J. Capezza, David Jonsson, Jessica Lyrner Morén, Mikael S. Hedenqvist and Christofer Lendel*

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Sustainable water-activated metal-air paper batteries based on waste biomass-based electrocatalysts

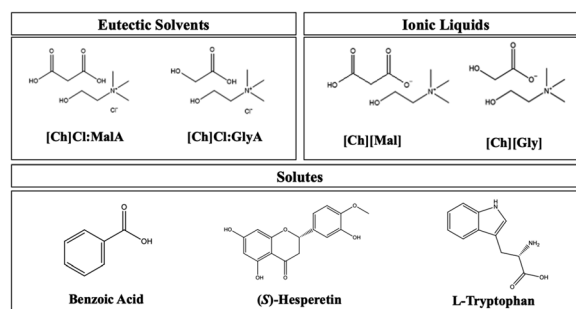
Kosuke Ishibashi and Hiroshi Yabu*



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What is better to enhance the solubility of hydrophobic compounds in aqueous solutions: eutectic solvents or ionic liquids?

Olga Ferreira,^{*} Liliana P. Silva, Heloísa H. S. Almeida, Jordana Benfica, Dinis O. Abranches, Simão P. Pinho and João A. P. Coutinho



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Correction: Hydrothermal synthesis of ZnZrO_x catalysts for CO₂ hydrogenation to methanol: the effect of pH on structure and activity

Issaraporn Rakngam, Gustavo A. S. Alves, Nattawut Osakoo, Jatuporn Wittayakun, Thomas Konegger and Karin Föttinger^{*}

