

Materials Advances

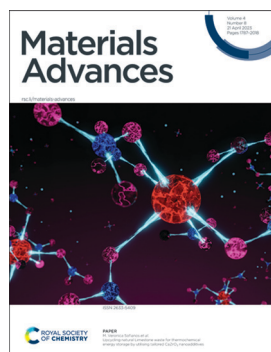
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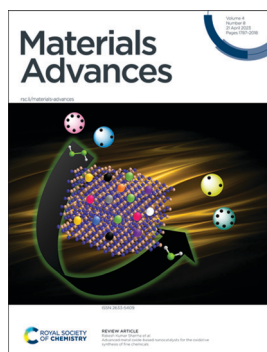
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Cover

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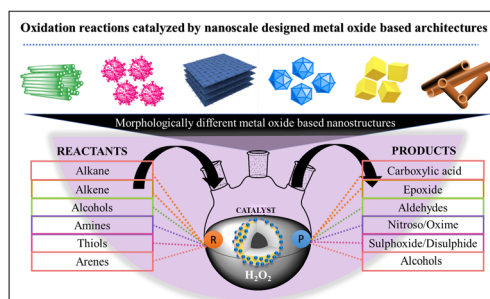
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REVIEWS

1795

Advanced metal oxide-based nanocatalysts for the oxidative synthesis of fine chemicals

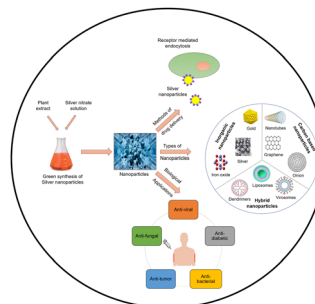
Rakesh Kumar Sharma,* Rakeshwar Bandichhor, Vishwesh Mishra, Shivani Sharma, Sneha Yadav, Shilpa Mehta, Bhavya Arora, Pooja Rana, Sriparna Dutta and Kanika Solanki



1831

Green synthesis of silver nanoparticles: methods, biological applications, delivery and toxicity

Vidyasagar, Ritu Raj Patel, Sudhir Kumar Singh and Meenakshi Singh*



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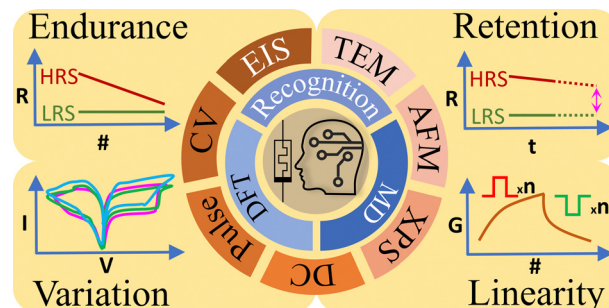


REVIEWS

1850

Enhancing memristor fundamentals through instrumental characterization and understanding reliability issues

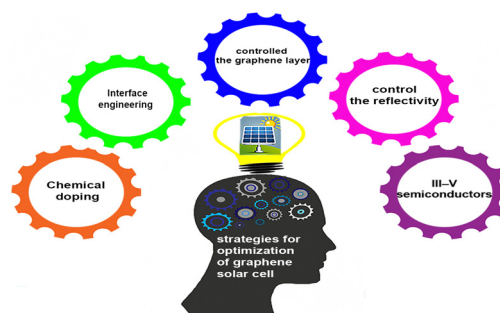
Fei Qin, Yuxuan Zhang, Han Wook Song and Sunghwan Lee*



1876

Rational and key strategies toward enhancing the performance of graphene/silicon solar cells

Parisa Fallahzad

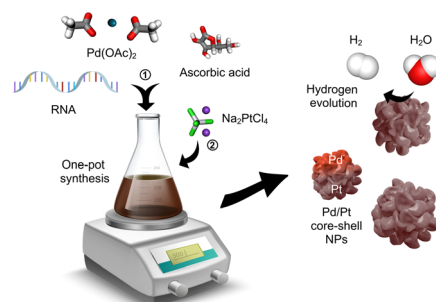


COMMUNICATION

1900

Green one-pot synthesis of bimetallic Pd–Pt nanospheres using biomolecules with enhanced catalytic activity for hydrogen evolution reactions

Fuat Topuz,* Bhushan Patil and Tamer Uyar*

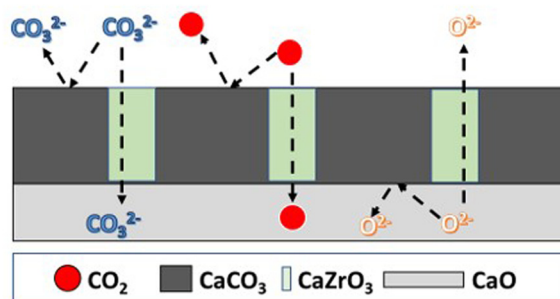


PAPERS

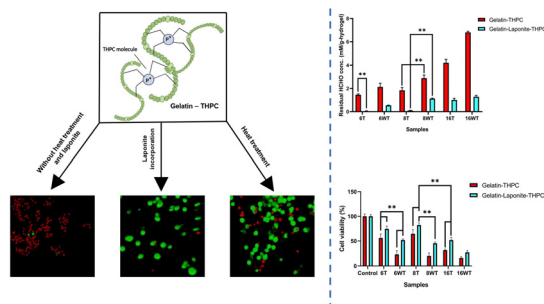
1905

Upcycling natural Limestone waste for thermochemical energy storage by utilising tailored CaZrO₃ nanoadditives

Rehan Anwar, Jan Navrátil, Rajani K. Vijayaraghavan, Patrick J. McNally, Michal Otyepka, Piotr Błoński and M. Veronica Sofianos*



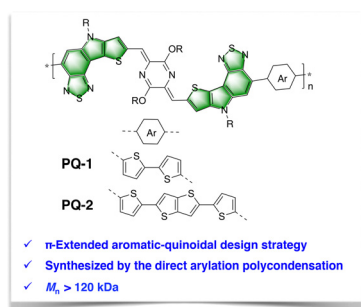
1916



Development of cytocompatible protein-based hydrogels crosslinked using tetrakis(hydroxymethyl)phosphonium chloride

Jatin Jawhir Pandit, Archita Shrivastava, Tanmay Bharadwaj and Devendra Verma*

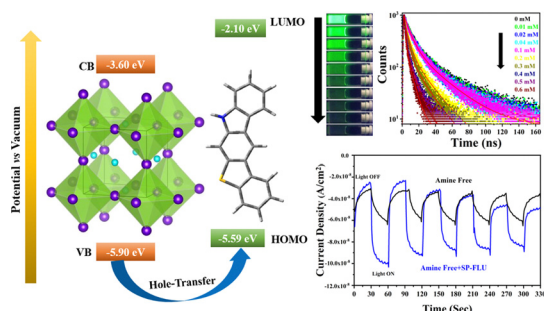
1927



6*H*-[1,2,5]Thiadiazolo[3,4-*e*]thieno[3,2-*b*]indole-flanked *para*-azaquinodimethane based aromatic-quinoidal polymer semiconductors with high molecular weights synthesized *via* direct arylation polycondensation

Yufa Xiao, Huajie Fu, Zefeng Li, Yingxuan Zheng, Ping Deng,* Yanlian Lei* and Yan Yu*

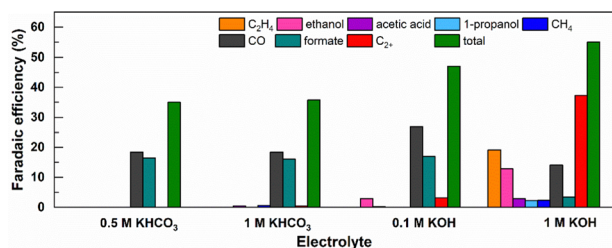
1935



Surface engineering of CsPbBr₃ perovskite nanocrystals: hole transfer dynamics and enhanced photocurrent response using a novel organic molecule

D. Venkateswarlu, T. Swetha, Syed Akhil, Manoj Palabathuni, Nimai Mishra and Surya Prakash Singh*

1941



Control of evolution of porous copper-based metal-organic materials for electroreduction of CO₂ to multi-carbon products

Lili Li, Lutong Shan, Alena M. Sheveleva, Meng He, Yujie Ma, Yiqi Zhou, Marek Nikiel, Laura Lopez-Odrozola, Louise S. Natrajan, Eric J. L. McInnes, Martin Schröder,* Sihai Yang* and Floriana Tuna*



Rational design of 2D/2D CS/SiC van der Waals type-II heterojunctions: a visible-light-driven photocatalyst for hydrogen production

Relation among absorbance shifts, mineralization morphology, and electronic conductivity of π -peptide aggregates with different amino acid residues

The figure displays the chemical structure of the polymers and their UV-Vis spectra. The chemical structure is a linear polymer with a repeating unit consisting of a thienothiophene core linked by amide bonds to a side chain containing a carboxylic acid group. The polymers are labeled as DLAG acidic, DGG acidic, DGA acidic, and Basic.

The UV-Vis spectra show the relative absorption versus wavelength (nm) for the polymers. The x-axis ranges from 300 to 550 nm, and the y-axis represents relative absorption. The spectra show a broad absorption band centered around 400 nm, with the Basic polymer exhibiting the highest absorption and the DLAG acidic polymer showing the lowest absorption.

Inset: The inset shows the UV-Vis spectra for the polymers in their deprotonated form (Basic). The x-axis ranges from 25 to 30 nm, and the y-axis represents relative absorption. The spectra show a sharp absorption peak around 28 nm, with the DLAG-4T polymer exhibiting the highest absorption and the DGG-4T polymer showing the lowest absorption.

An electrically stable and mechanically robust stretchable fiber conductor prepared by dip-coating silver nanowires on porous elastomer yarn

Figure 1 illustrates the fabrication of AgNWs@pSBS fiber. The process consists of two main steps:

- Step 1: electrospinning of SRS yarn**: A syringe moves to and fro, depositing a porous SRS yarn onto a metal wire collector. The resulting structure is labeled "Porous SRS yarn".
- Step 2: dip-coating of AgNWs**: The porous SRS yarn is dip-coated in a solution of AgNWs, resulting in the AgNWs@pSBS fiber.

The final product is shown as a fiber with inhibited cracking, even after 40% strain. The diagram includes a voltage source (V) connected to the metal wire collector and a scale bar of 200 μm.

Preparation of polyaspartamide-based adhesive hydrogels *via* Schiff base reaction with aldehyde-functionalized dextran

PhAm

Odex

Imine bond

Transition

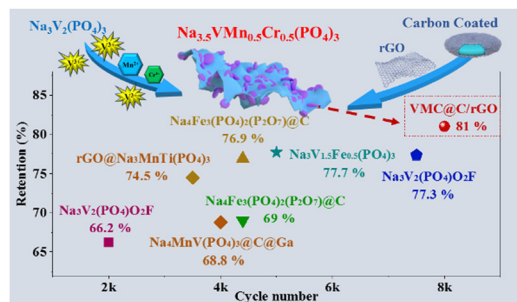
Sol

Gel

Adhesion Force

PAPERS

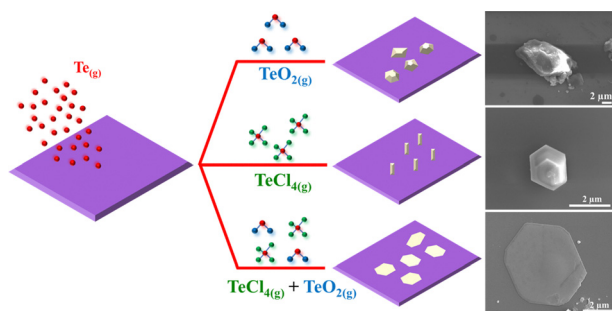
1998



Hierarchical cathode constructed by carbon coated $\text{Na}_{3.5}\text{VMn}_{0.5}\text{Cr}_{0.5}(\text{PO}_4)_3$ nanoparticles on rGO for high-capacity and long-cycle life sodium storage

Jinhao Wang, Longzhu Zhao and Fengqi Lu*

2008



Chloride-assisted synthesis of tellurene directly on SiO_2/Si substrates: growth mechanism, thermal properties, and device applications

Yi-Hsun Chan, Che-Yi Lin, Yu-Chang Chou, Alice Chinghsuan Chang, Yen-Fu Lin and Yu-Ze Chen*

