

Materials Advances

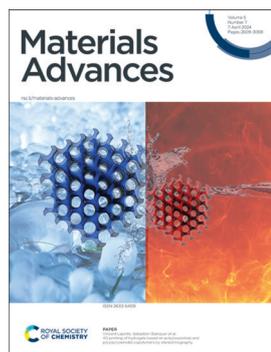
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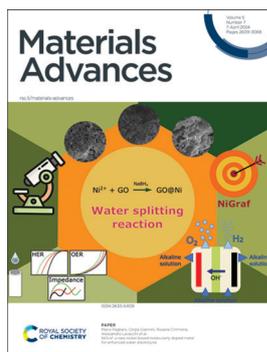
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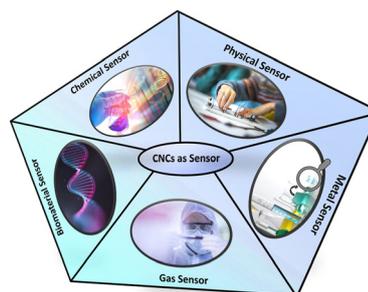
See Mario Pagliaro, Cinzia Giannini, Rosaria Ciriminna, Alessandro Lavacchi *et al.*, pp. 2759–2766. Image reproduced by permission of Mario Pagliaro from *Mater. Adv.*, 2024, 5, 2759.

REVIEWS

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Recent advances in cellulose nanocrystals-based sensors: a review

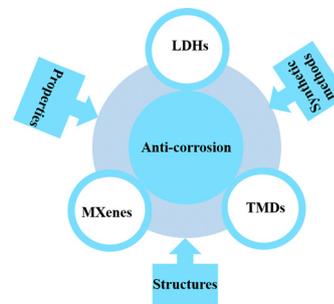
Shiva Singh, Shakshi Bhardwaj, Pragma Tiwari, Keshav Dev, Kaushik Ghosh and Pradip K. Maji*



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Anti-corrosion applications of 2D transition metal based layered materials

Yuqin Tian, Qiaoxin Yang, Wei Li, Yuan Gong, Qiuping Zhao, Chunlei Li* and Xinxin Sheng*



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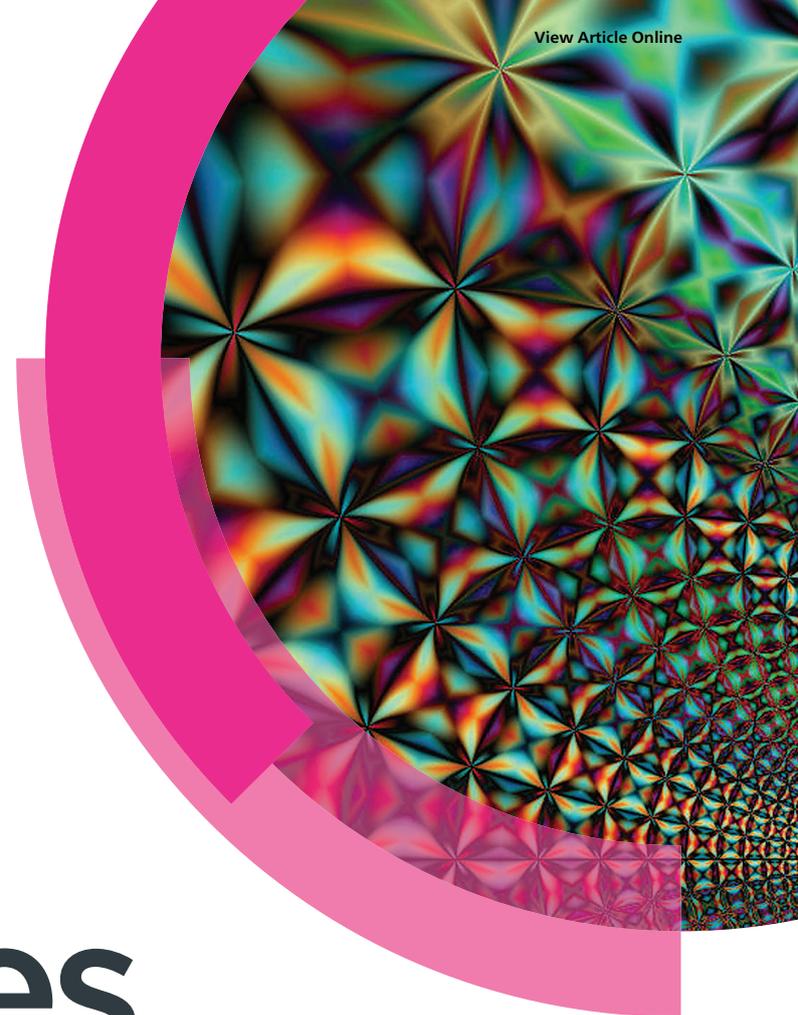


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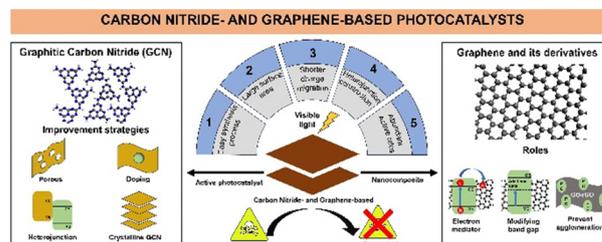


REVIEWS

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Carbon nitride- and graphene-based materials for the photocatalytic degradation of emerging water pollutants

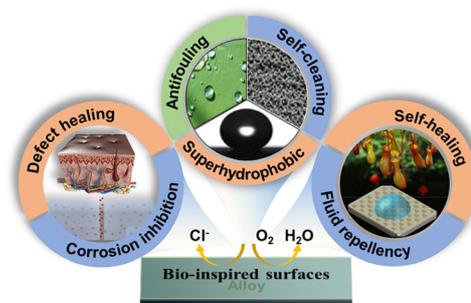
Indra Jaya Budiarmo, Valentinus Alphano Dabur, Riska Rachmanty, Hermawan Judawisastro, Chechia Hu and Arie Wibowo*



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Qingyun Ma, Qing Yang,* Jialiang Zhang, Fangzheng Ren, Chongxiao Xia and Feng Chen*



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Modifications of polyalkenoic acid and its effect on glass ionomer cement

Sreejith Sasidharan Lathikumari and Manju Saraswathy*

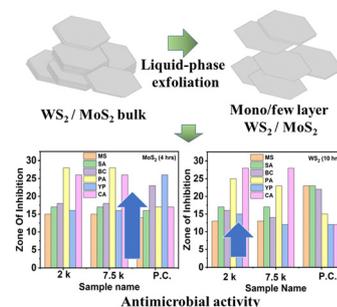


COMMUNICATION

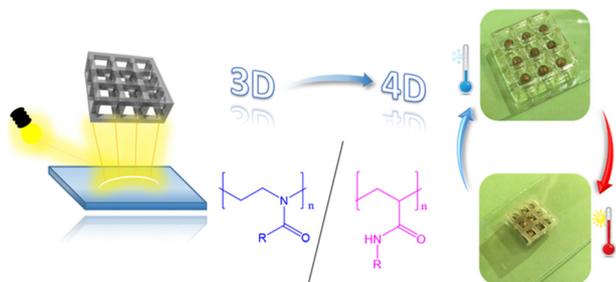
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Modulating mediation medium for few layered dichalcogenides enhances inhibition of common pathogens

Ashamoni Neog, Rajib Biswas,* Muzamil Ahmad Rather, Pritam Bardhan, Manabendra Mandal and Nirmal Mazumder*



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4D printing of hydrogels based on poly(oxazoline) and poly(acrylamide) copolymers by stereolithography

Thomas Brossier, Michel Habib, Belkacem Tarek Benkhald, Gael Volpi, Vincent Lapinte* and Sebastien Blanquer*

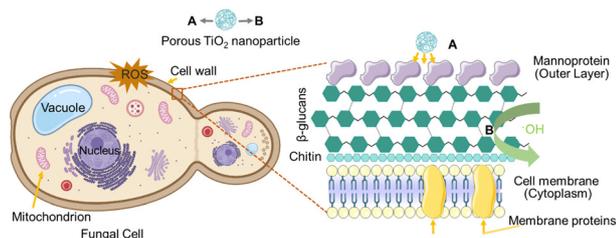
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NiGraf: a new nickel-based molecularly doped metal for enhanced water electrolysis

Mario Pagliaro,* Maria V. Pagliaro, Rocco Caliandro, Cinzia Giannini,* Rosaria Ciriminna* and Alessandro Lavacchi*

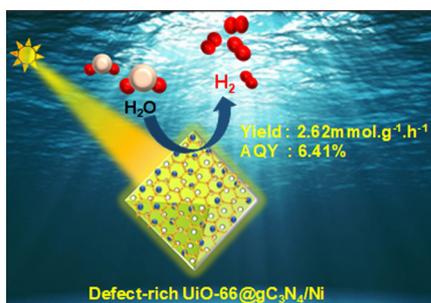
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Multifaceted properties of TiO₂ nanoparticles synthesized using *Mangifera indica* and *Azadirachta indica* plant extracts: antimicrobial, antioxidant, and non-linear optical activity investigation for sustainable agricultural applications

Archana Rana, Saurabh Pathak, Kapil Kumar, Anjali Kumari, Samridhi Chopra, Mahesh Kumar, Deeba Kamil, Ritu Srivastava, Sang-Koog Kim, Rajni Verma* and Shailesh Narain Sharma*

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Defect-rich UiO-66@g-C₃N₄/Ni frameworks as efficient water splitting photocatalysts

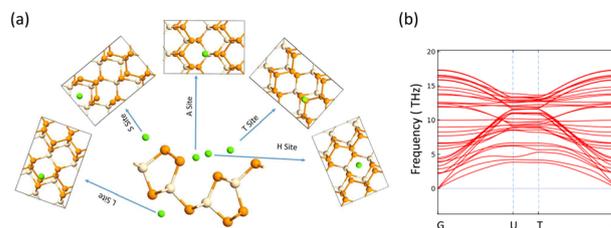
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Exploring pristine and transition metal doped SiP₂ monolayer as a promising anode material for metal (Li, Na, Mg) ion battery

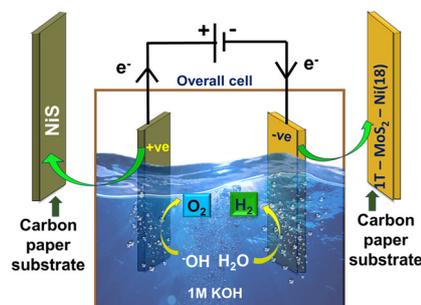
Shubham Sahoo, Puja Kumari and Soumya Jyoti Ray*



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Exploring the electrocatalytic prowess of a synergistic 1T-MoS₂-metallic Ni composite towards alkaline hydrogen evolution

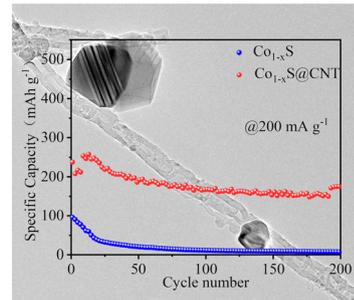
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Co_{1-x}S@CNT composite with a three-dimensional skeleton for high-performance magnesium–lithium hybrid batteries

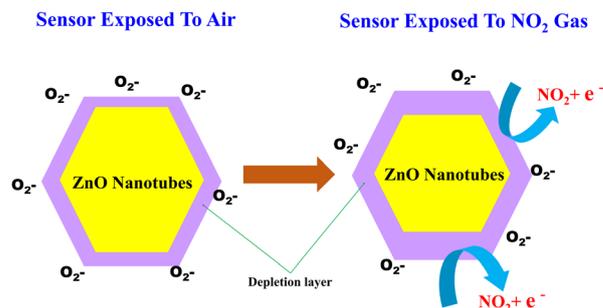
Changwei Shan, Wutao Wei,* Ximin Ling, Xuyan Qin, Zhao Liu, Mingjie Song and Liwei Mi*



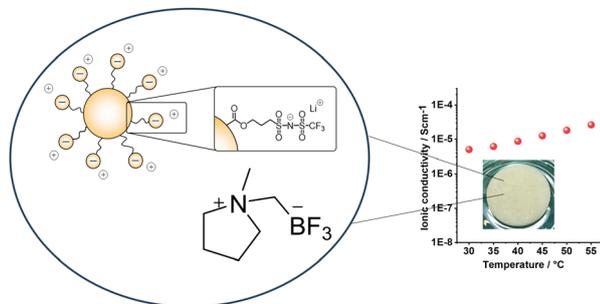
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Ultra-responsive and highly sensitive 1D ZnO nanotubes for detecting perilous low levels of NO₂ gas

Prasad R. Godse, Sujit A. Kadam,* Tanaji M. Nimbalkar, Yogesh M. Jadhav, Yuvraj B. Jadhao, Yuan-Ron Ma and Vikas B. Patil*



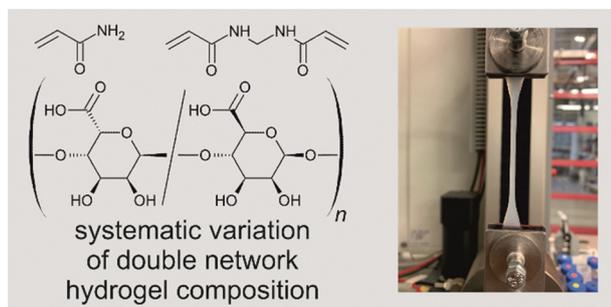
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Composite lithium conducting solid electrolytes based on zwitterionic plastic crystals and polymer nanoparticles

Faezeh Makhlooghiyad,* Luca Porcarelli, David Mecerreyes, Maria Forsyth, Luke A. O'Dell and Jennifer M. Pringle*

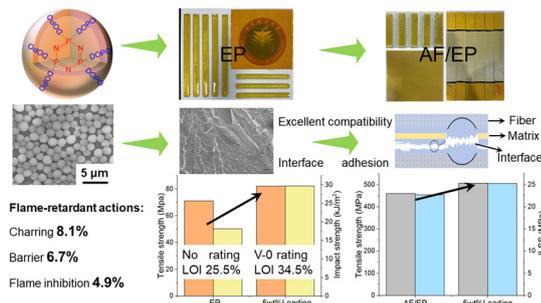
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Unravelling parameter interactions in calcium alginate/polyacrylamide double network hydrogels using a design of experiments approach for the optimization of mechanical properties

Oliver Gorke, Marc Stuhmüller, Günter E. M. Tovar and Alexander Southan*

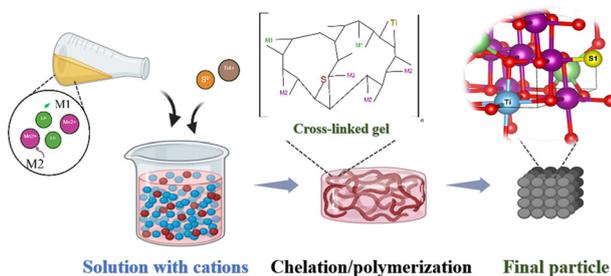
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Yunxian Yang,* Qi Zhang, Yiwen Hao, Xuke Lan, Laia Haurie, Dezhi Zheng and Guangyan Huang*

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Enhanced LiMn_2O_4 cathode performance in lithium-ion batteries through synergistic cation and anion substitution

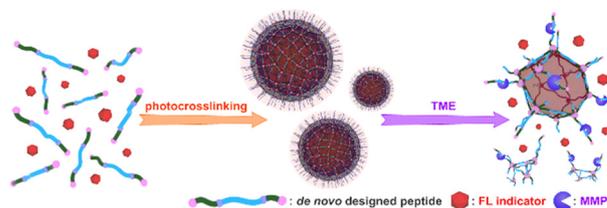
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Photofabrication of fluorescent nanospheres from *de novo* designed peptides, and their enzyme-responsive dissociation in living cells

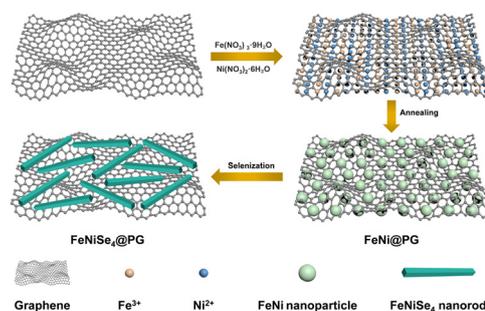
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Pliable electrode of porous graphene-encapsulated FeNiSe₄ binary-metal selenide nanorods as a binder-free anode for lithium-ion batteries

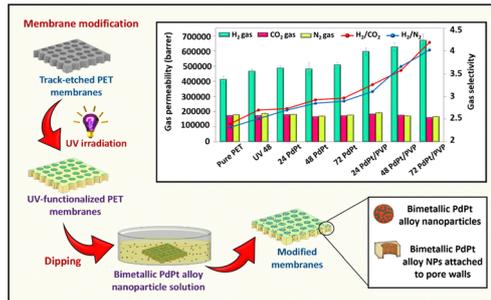
Mingming Hao, Caiyun Guo, Yuhui Wen, Liting Zhao, Xiaoting Zhang* and Rui Wang*



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Bimetallic PdPt alloy nanoparticle-decorated track-etched polyethylene terephthalate membranes for efficient H₂ separation

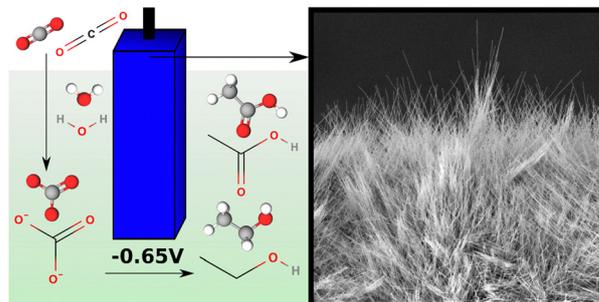
Nishel Saini, Sonalika Agarwal* and Kamleendra Awasthi*



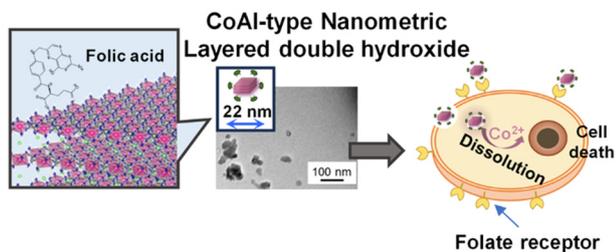
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A robust and high performance copper silicide catalyst for electrochemical CO₂ reduction

Vladislav Dřínek,* Pavel Dytrych, Radek Fajgar, Mariana Klementová, Jaroslav Kupčík, Jaromír Kopeček, Petr Svora, Martin Koštejn, Věra Jandová, Karel Soukup and Radim Beranek



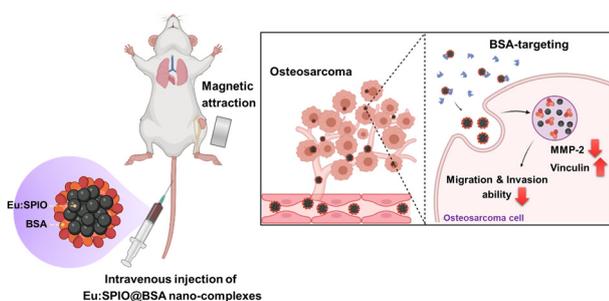
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Synthesis of 20-nm-sized CoAl-LDH nanoparticles modified with folic acid for enhanced cancer cell targeting

Yasuaki Tokudome,* Akiko Obata,* Nijika Kitagawa, Katsumi Nagatsuka, Eisuke Gorai, Yui Maehashi, Yojiro Kishida, Hidenobu Murata, Atsushi Nakahira and Toshihiro Kasuga

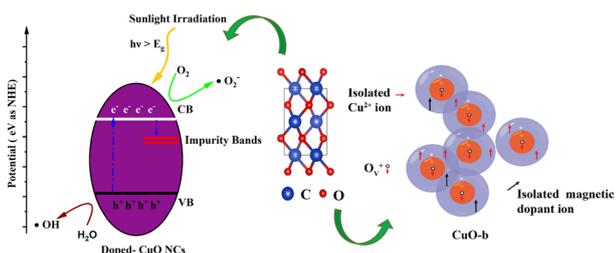
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Europium-doped hybrid nano-complexes: a potential strategy for metastasis prevention in osteosarcoma

Yu-Chi Wang, Fu-I Tung, Zheng-Ying Sung, Mei-Hsiu Chen, Ming-Hong Chen and Tse-Ying Liu*

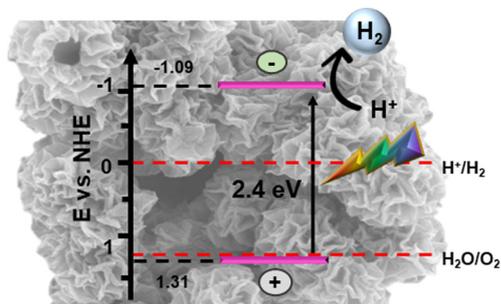
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Cationic and oxygen defect modulation for tailoring the bandgap and room temperature ferromagnetism of CuO via multiple d-block cations

Md Shafayatul Islam, Koushik Roy Chowdhury, Sheikh Manjura Hoque and Ahmed Sharif*

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Hierarchical nickel carbonate hydroxide nanostructures for photocatalytic hydrogen evolution from water splitting

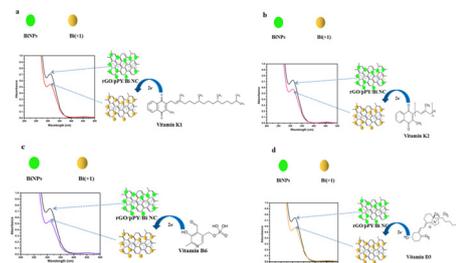
Parisa Talebi,* Rossella Greco,* Takashi Yamamoto, Mahdiyeh Zeynali, Saeid Asgharizadeh and Wei Cao



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Determination of vitamins K1, K2, B6, and D3 using reduced graphene oxide fabricated using a bismuth nanoparticle embedded polypyrrole nanocomposite based optical sensor

Zaib un Nisa Mughal, Huma Shaikh,*
Shahabuddin Memon and Sirajuddin

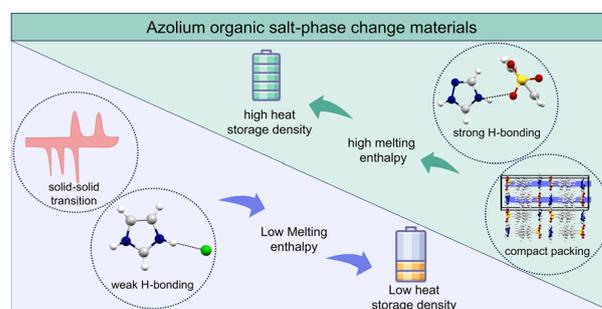


Interaction of (a) Vitamin K1 (b) Vitamin K2 (c) Vitamin B6 (d) Vitamin D3 with rGO/pPy/Bi NC in different mediums

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Investigation of the intermolecular origins of high and low heats of fusion in azolium salt phase change materials for thermal energy storage

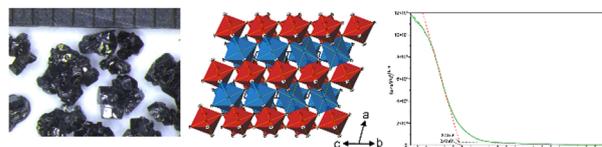
Saliha Saher, Samantha L. Piper, Craig M. Forsyth,
Mega Kar, Douglas R. MacFarlane,* Jennifer M. Pringle
and Karolina Matuszek*



3001

CoTeO₄ – a wide-bandgap material adopting the dirutile structure type

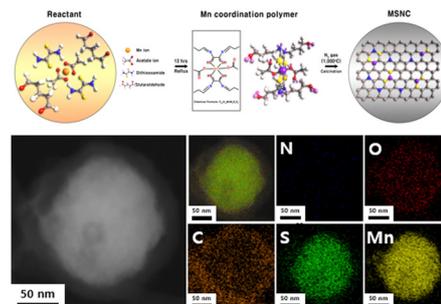
Matthias Weil,* Prativa Pramanik, Pierfrancesco Maltoni,
Rebecca Clulow, Andreas Rydh, Manfred Wildner,
Peter Blaha, Graham King, Sergey A. Ivanov,
Roland Mathieu and Harishchandra Singh



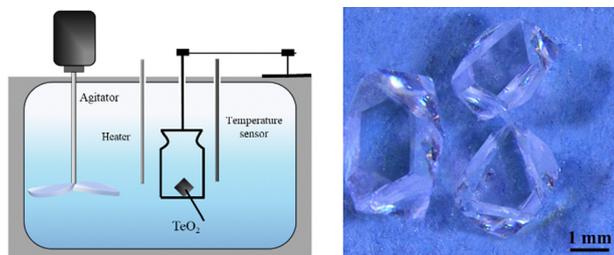
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A MnS/MnO-coated S,N-doped carbon anode obtained from a Mn(II)-coordinated polymer for long-cycle life Li-ion batteries

Kyubin Shim, Hyun Woo Kim, Sungwoo Park,
Kyeong-Deok Seo, Chang-Yeon Kim, Jin Bae Lee,
Jong Seong Bae and Hae Jin Kim*



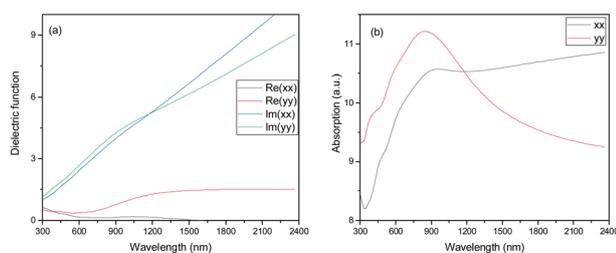
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Low-temperature aqueous solution growth of the acousto-optic TeO₂ single crystals

Lu Han, Chao Liu, Xiaoli Wang, Feiyu Li, Chuanyan Fan and Junjie Zhang*

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Superior optical and thermoelectric properties of bilayer β_{12} -like phase borophene synthesized on Cu(111) film

Sajid Ali, Amin Ur Rahman and Mengtao Sun*

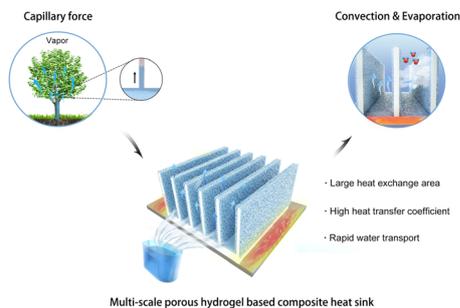
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Preparation of preceramic ferrocene-modified microparticles for the development of uniform porous iron oxide particles and their sustainable recycling

Deborah Schmitt, Oliver Janka, Regina Leiner, Guido Kickelbick and Markus Gallei*

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A high heat dissipation strategy based on a multi-scale porous hydrogel and heat sink exhibiting cooling capacity comparable to that of forced air convection but with zero energy consumption

Kaifen Yan, Weifeng Zhang,* Xue Feng, Weiyun Zhao, Lingling Wu and Yuan Deng*



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Synthesis, characterization, and magnetic and antibacterial properties of a novel iron(III) complex (CH₃)₂NH₂[Fe(phen)Cl₄]

Asmae Ben Abdelhadi, Sara Rodríguez-Sánchez, Rachid Ouarsal, Mohamed Saadi, Lahcen El Ammari, Nicola Morley, Brahim El Bali, Óscar Gómez-Torres, Mohammed Lachkar* and Abderrazzak Douhal*

