

# Materials Advances

An open access journal publishing across the breadth of materials science

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### Cover

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### Inside cover

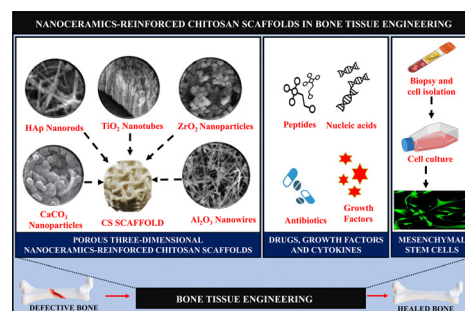
See Chitra Gurnani *et al.*, pp. 4119–4128. Image reproduced by permission of Sayali Shrishail Harke and Chitra Gurnani from *Mater. Adv.*, 2023, 4, 4119.

## REVIEWS

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### Nanoceramics-reinforced chitosan scaffolds in bone tissue engineering

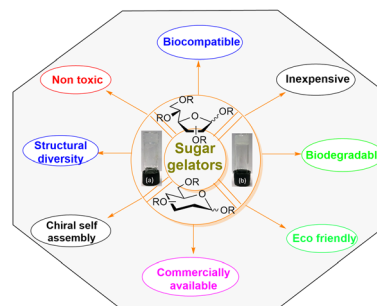
Ganesh Harini, Ramanathan Bharathi, Aravind Sankaranarayanan, Abinaya Shanmugavadivu and Nagarajan Selvamurugan\*



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### Recent advances in carbohydrate-based gelators

Rajdeep Tyagi, Kavita Singh, Nitin Srivastava\* and Ram Sagar\*



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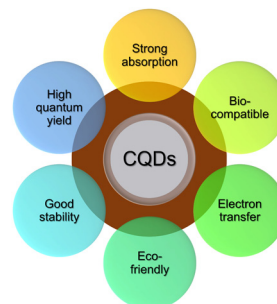


## REVIEWS

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## A review on plant derived carbon quantum dots for bio-imaging

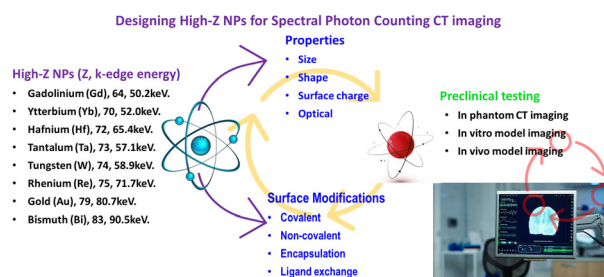
Ashok Kumar S., Dheeraj Kumar M., Mowsam Saikia, Renuga Devi N. and Subramania A.\*



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## High atomic number nanoparticles to enhance spectral CT imaging aspects

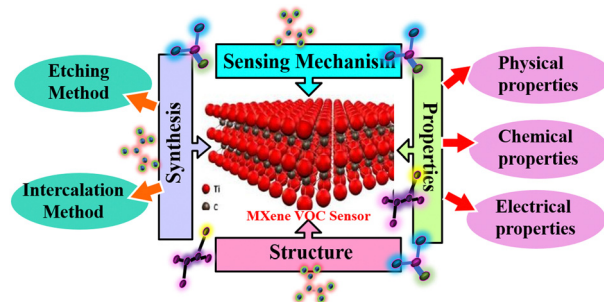
Isha Mutreja, Nabil Maalej, Ajeet Kaushik, Dhiraj Kumar\* and Aamir Raja\*



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## MXene and their integrated composite-based acetone sensors for monitoring of diabetes

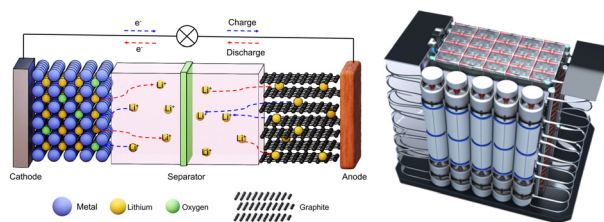
Monu Gupta, Arpit Verma, Priyanka Chaudhary and B. C. Yadav\*



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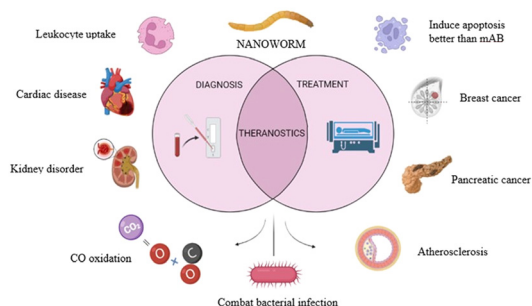
## Research progress in liquid cooling technologies to enhance the thermal management of LIBs

Rui Zhou, Yumei Chen, Jiawen Zhang and Pan Guo\*



## REVIEWS

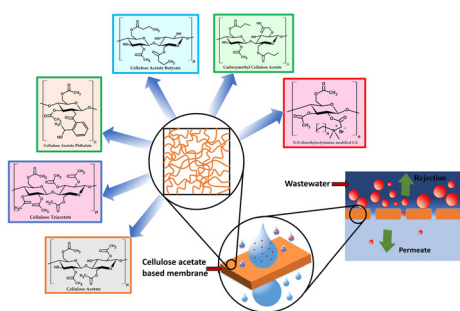
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### Advances of nanoworms in diagnosis, treatment, and theranostics

Kadambari Borse and Pravin Shende\*

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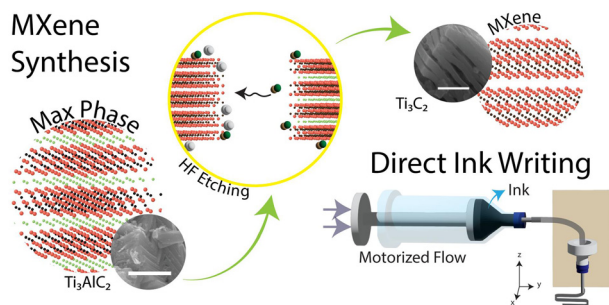


### Cellulose acetate-based membrane for wastewater treatment—A state-of-the-art review

Md. Didarul Islam, Foyez Jalal Uddin, Taslim Ur Rashid\* and Mohammad Shahruzzaman\*

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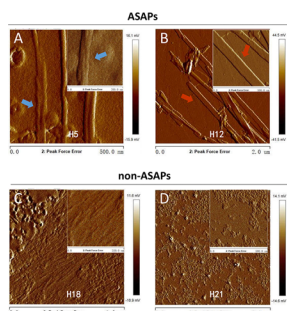


### 3D printing aqueous $Ti_3C_2T_x$ inks for MXene-based energy devices

Mofetoluwa Fagade, Dhanush Patil, Sri Vaishnavi Thummalapalli, Sayli Jambhulkar, Dharneedar Ravichandran, Arunachala M. Kannan and Kenan Song\*

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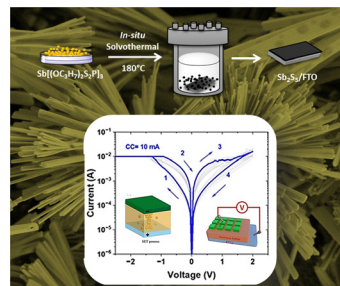
### The morphology and structural features of self-aggregating hexapeptides with antibiofilm formation activity

Dongru Chen, Tingyu Wang, Yiyi Huang, Yucong Chen, Huancai Lin\* and Liping Wu\*



Sayali Shrishail Harke, Tongjun Zhang, Ruomeng Huang  
and Chitra Gurnani\*

Sayali Shrishail Harke, Tongjun Zhang, Ruomeng Huang  
and Chitra Gurnani\*



## Vanishing tails and a resilient mesophase: columnar liquid crystals in the limit of short tails

Triphenylene, fluorine and short tailed mesogens

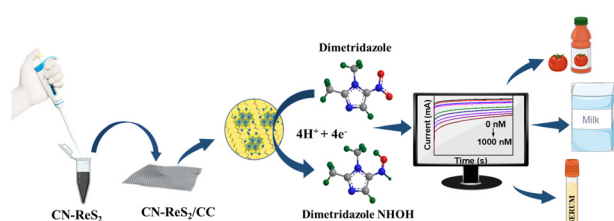
# Room-temperature photoconductivity in superconducting tungsten meander wires

## Antibacterial surface based on hierarchical polyurethane acrylate/zinc oxide structures

The diagram illustrates the growth of ZnO structures. It starts with a PUA layer on a Porous AAO template. An arrow labeled "UV-imprinting + hydrothermal growth" points to the final structure, which consists of ZnO structures grown on a PUA layer with 150 nm pillars.



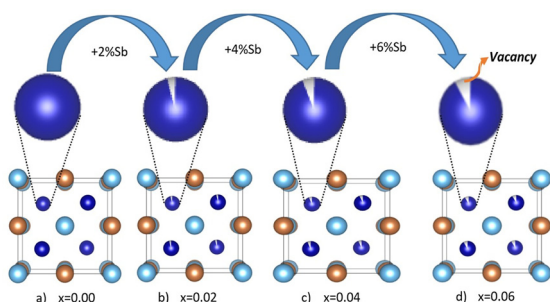
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### Unveiling the capability of graphitic carbon nitride–rhenium disulfide nanocomposite as an electrochemical sensing platform for the detection of dimetridazole from human serum samples

M. Mufeeda, Pushpalatha V. Vaishag, Menon Ankitha and P. Abdul Rasheed\*

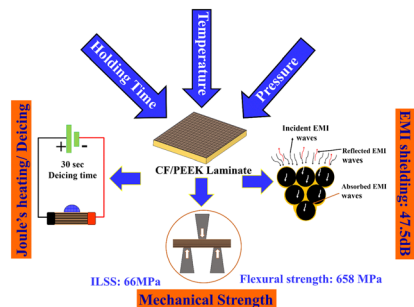
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### Transport phenomena of TiCoSb: defect induced modification in the structure and density of states

S. Mahakal, Diptasikha Das, Pintu Singha, Aritra Banerjee, S. C. Das, Santanu K. Maiti, S. Assa Aravindh and K. Malik\*

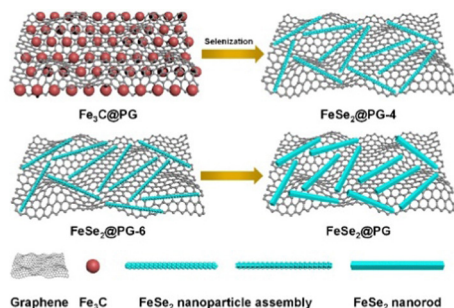
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### Process dependent interface strengthening, de-icing and EMI shielding performance in PEEK/CF laminates

Rishi Raj, Sampath Parasuram, S. Kumar and Suryasarathi Bose\*

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### Confined oriented growth of FeSe<sub>2</sub> on a porous graphene film as a binder-free anode for high-rate lithium-ion batteries

Xiaoting Zhang, Jiaxiu Diao, Jinghao Qiao, Yuhui Wen, Hongkun Zhang\* and Rui Wang\*

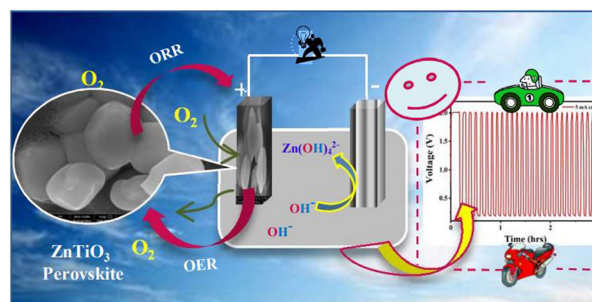


## PAPERS

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### Investigation of the cycling stability and energy storage properties of zinc titanate ( $\text{ZnTiO}_3$ ) perovskite material for zinc–air batteries

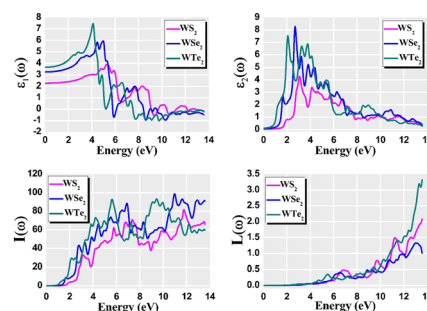
Upasana Bhardwaj, Aditi Sharma and H. S. Kushwaha\*



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### A first-principles study of the electronic, optical, and transport properties of novel transition-metal dichalcogenides

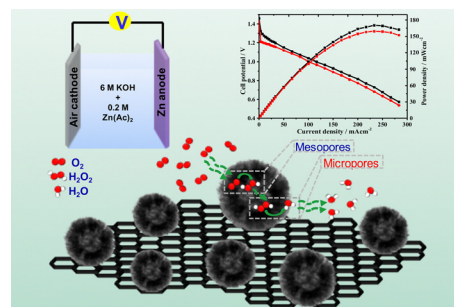
Banat Gul, Muhammad Salman Khan, Bashir Ahmad, Mostafizur Rahaman, Paride O. Lolika,\* Guenez Wafa and Hijaz Ahmad



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### Dendritic hollow nitrogen-doped carbon nanospheres for oxygen reduction at primary zinc–air batteries

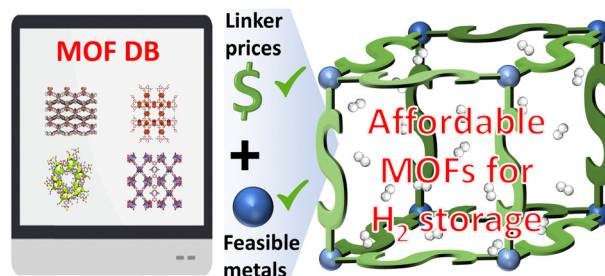
J. Anjana, Anook Nazer Eledath and Azhagumuthu Muthukrishnan\*



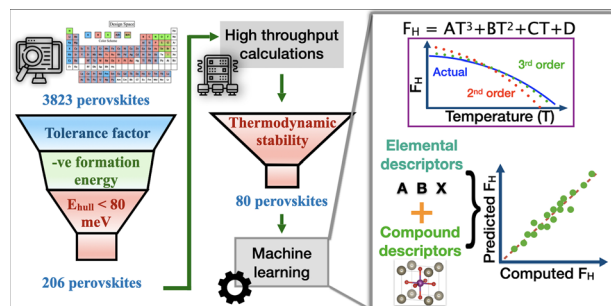
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### A database to select affordable MOFs for volumetric hydrogen cryoadsorption considering the cost of their linkers

Jose A. Villajos,\* Martin Bienert, Nikita Gugin, Franziska Emmerling and Michael Maiwald



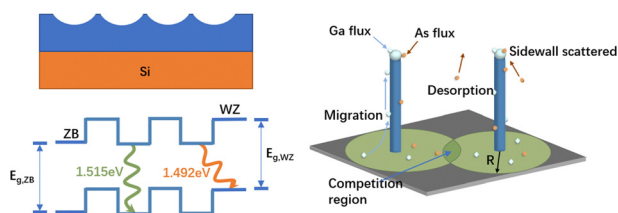
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## Machine learning the vibrational free energy of perovskites

Krishnaraj Kundavu, Suman Mondal and Amrita Bhattacharya\*

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## Crystal phase control in self-catalyzed GaAs nanowires grown on pre-etched Si substrates

Shan Wang, Haolin Li, Jilong Tang, Yubin Kang, Xiaohua Wang,\* Rui Chen\* and Zhipeng Wei\*

