

# Materials Advances

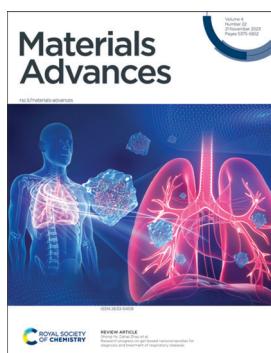
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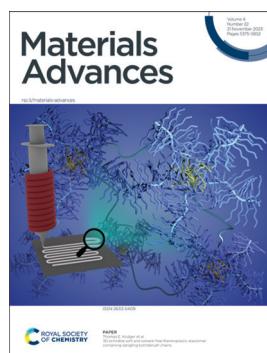
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See Sheng Ye, Dahai Zhao et al., pp. 5431–5452.  
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### Inside cover

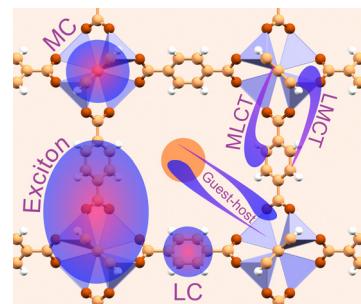
See Thomas E. Kodger et al., pp. 5535–5545.  
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## PERSPECTIVES

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### Simulating excited states in metal organic frameworks: from light-absorption to photochemical CO<sub>2</sub> reduction

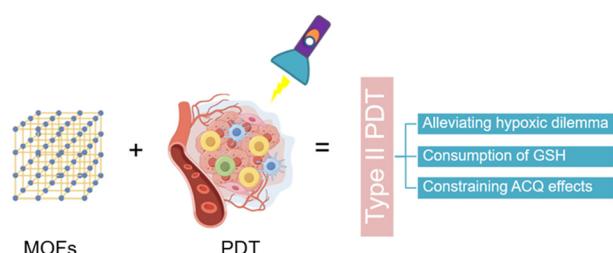
Michael Ingham, Alex Aziz, Devi Di Tommaso\* and Rachel Crespo-Otero\*



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### An oxygen-generating metal organic framework nanoplatform as a “synergy motor” for extricating dilemma over photodynamic therapy

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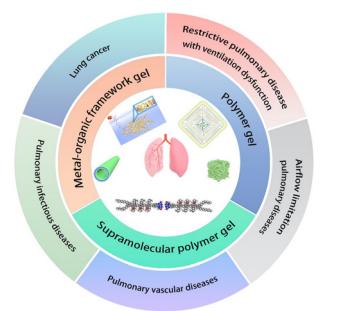


## REVIEWS

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**Research progress on gel-based nanocomposites for diagnosis and treatment of respiratory diseases**

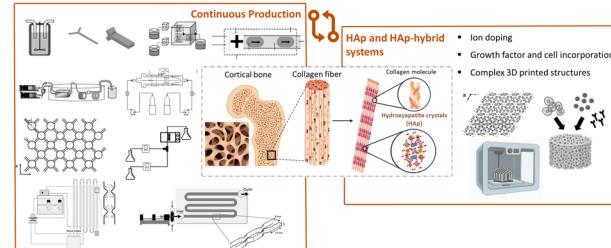
Jing Ye, Wenjing Pei, Jing Zhu, Ping Li, Hui Liu, Lei Gao, Changxiu Ma, Rongrong Gu, Sheng Ye\* and Dahai Zhao\*



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**Tackling current production of HAp and HAp-driven biomaterials**

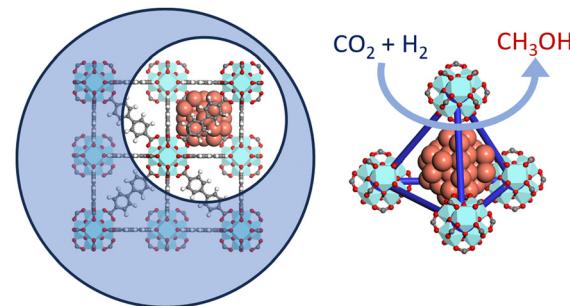
Anabela Veiga, Sara Madureira, João B. Costa,\* Filipa Castro, Fernando Rocha and Ana L. Oliveira\*



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**Direct CO<sub>2</sub> to methanol reduction on Zr<sub>6</sub>-MOF based composite catalysts: a critical review**

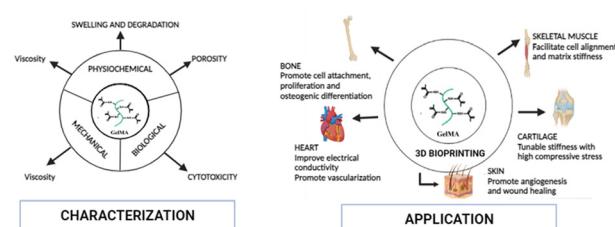
Elif Tezel, Dag Kristian Sannes, Stian Svelle, Petra Ágota Szilágyi\* and Unni Olsbye\*



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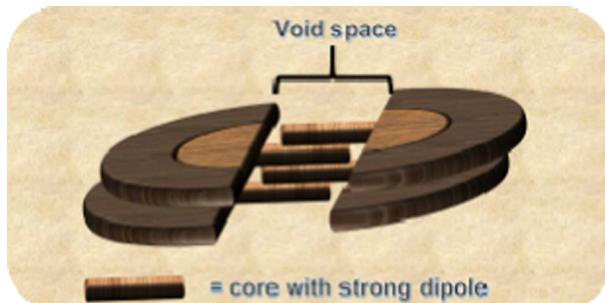
**An insight into synthesis, properties and applications of gelatin methacryloyl hydrogel for 3D bioprinting**

Rudra Nath Ghosh, Joseph Thomas, Vaidehi B. R., Devi N. G., Akshitha Janardanan, Pramod K. Namboothiri and Mathew Peter\*



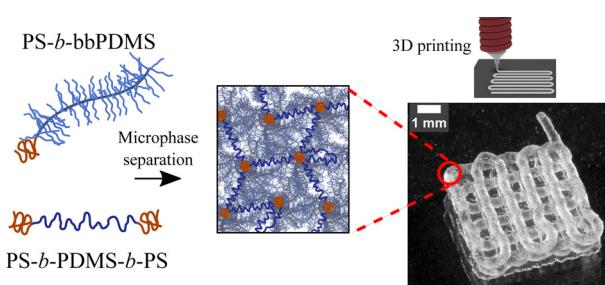
## COMMUNICATION

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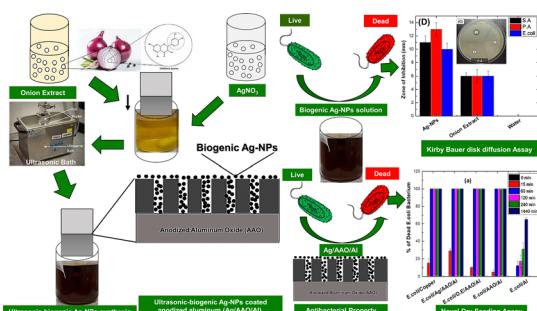
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### Direct evidence of mesogenic dendrons with free void space by Brunauer–Emmett–Teller (BET) isotherms

Yao-Chih Lu, Jun-Cheng Wang, Yun-He Yang and Long-Li Lai\*

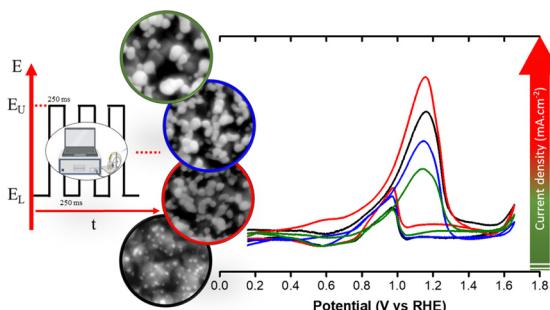
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### 3D printable soft and solvent-free thermoplastic elastomer containing dangling bottlebrush chains

Vahid Asadi, Renee Dolleman, Jasper van der Gucht and Thomas E. Kodger\*

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### Square-wave pulse electrodeposition of gold nanoparticles for ethanol electrooxidation

Setia Budi,\* Annisa Auliya, Suci Winarsih, Mohammad Hamzah Fauzi and Yusmaniar

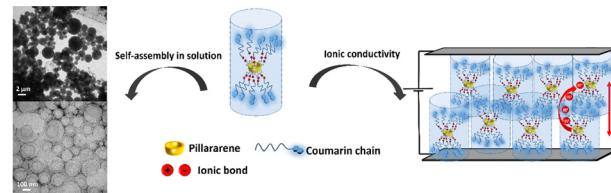


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**Ionic self-assembly of pillar[5]arenes: proton-conductive liquid crystals and aqueous nanoobjects with encapsulation properties**

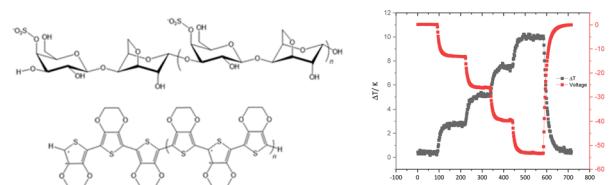
Iván Marín, Rosa I. Merino, Joaquín Barberá, Alberto Concellón and José L. Serrano\*



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**Conducting poly(3,4-ethylenedioxothiophene) materials with sustainable carrageenan counter-ions and their thermoelectric properties**

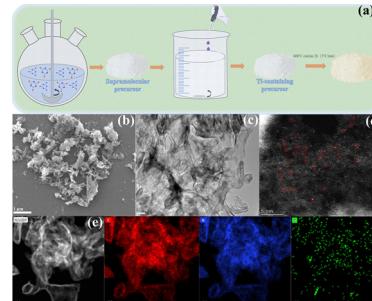
Zhongnan Duan, Joseph Phillips, Letizia Lirò-Peluso, Simon Woodward, Oleg Makarovsky, Michael P. Weir, H. Jessica Pereira\* and David B. Amabilino\*



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**Application of single-atom Ti-doped  $\text{g-C}_3\text{N}_4$  in photocatalytic  $\text{H}_2\text{O}_2$  production**

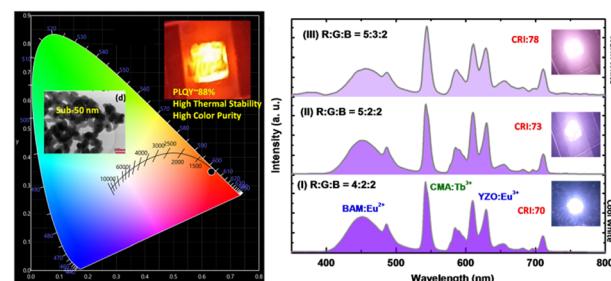
Tinglei Wang, Jiayu Xin, Zhen Li, Yong Fan\* and Yu Wang\*



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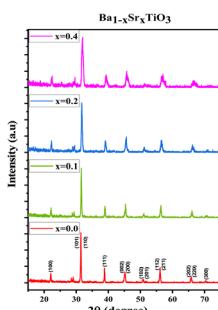
**Ultra-bright and thermally stable deep red emitting doped yttrium zirconate nanoparticles for tunable white LEDs and indoor plant growth**

Reshma Thekke Parayil, Santosh Kumar Gupta,\* Malini Abraham, Subrata Das, Shreyas S. Pitale, Kathi Sudarshan and Manoj Mohapatra



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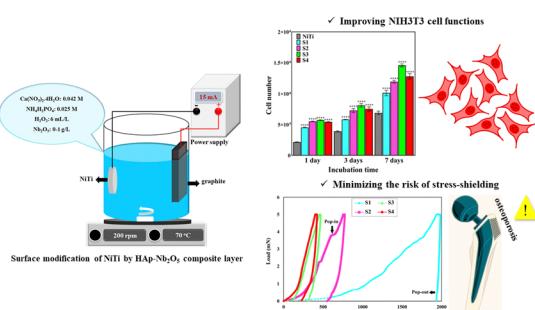
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### Structural and dielectric characterization of synthesized nano-BSTO/PVDF composites for smart sensor applications

Marwa M. Hussein,\* Samia A. Saafan, H. F. Abosheiasha, Amira A. Kamal, Abd El-razek Mahmoud, Di Zhou, Sergei V. Trukhanov,\* Tatiana I. Zubar, Alex V. Trukhanov and Moustafa A. Darwish\*

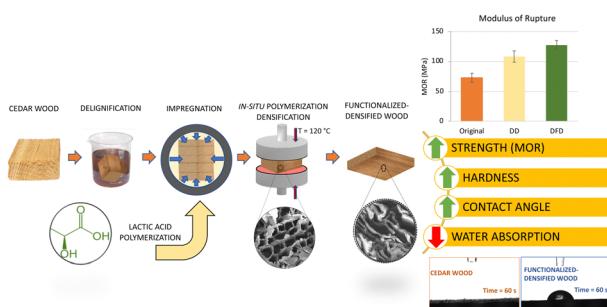
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### Encouraging tribomechanical and biological responses of hydroxyapatite coatings reinforced by various levels of niobium pentoxide particles

Mir Saman Safavi,\* Jafar Khalil-Allafi,\* Amir Motallebzadeh, Cristina Volpini, Vida Khalili and Livia Visai\*

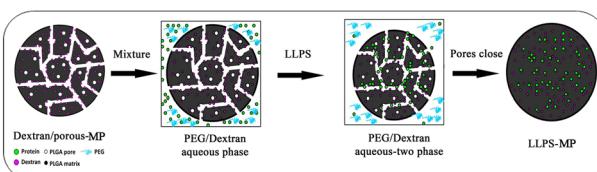
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### Polylactic acid/wood-based *in situ* polymerized densified composite material

Akash Madhav Gondaliya, Kieran Foster and E. Johan Foster\*

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### Liquid–liquid phase separation for microencapsulation of native cytokine to enhance immune activation

Zhenhua Hu, Li Cheng, Qiuling Chen, Tianqing Xin and Xiaoyan Wu\*

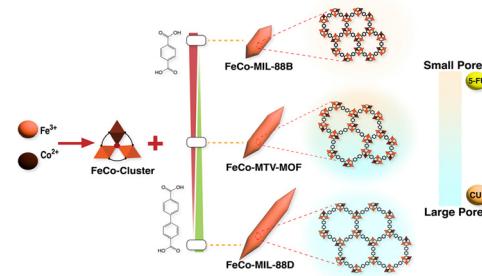


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## A multivariate metal–organic framework based pH-responsive dual-drug delivery system for chemotherapy and chemodynamic therapy

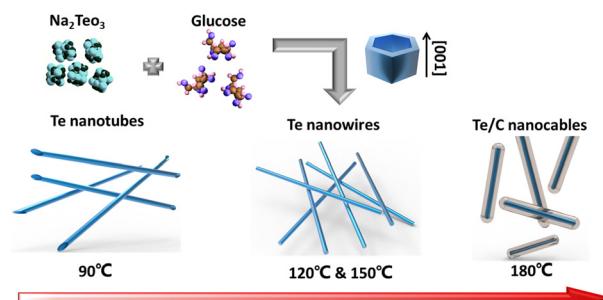
Muhammad Usman Akbar, Arslan Akbar, Umair Ali Khan Saddozai, Malik Ihsan Ullah Khan, Muhammad Zaheer\* and Muhammad Badar\*



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## Morphology-controlled green synthesis of tellurium nanostructures and applications of Te/MXene hybrid structures

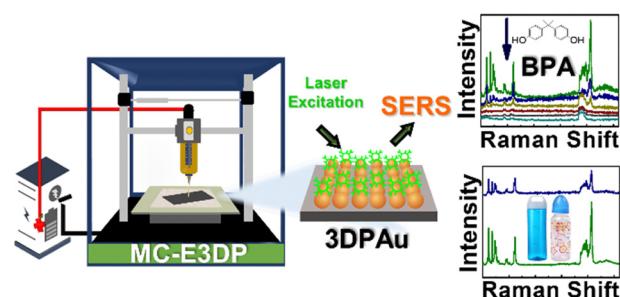
Mengchen Xu, Jinshu Li, Qingshan Yang, Lu Jiang, Jiaqi He, Dawei He,\* Yongsheng Wang\* and Yajie Yang\*



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## Meniscus-confined capping-free 3D printed gold nanoparticles for quantitative SERS detection of bisphenol A

Netrapal Singh, Manoj Kumawat, Hafsa Siddiqui, Koyalada Bhavani Srinivas Rao, Satendra Kumar, Manoj Goswami, Sathish Natarajan, Mohammed Akram Khan, Avanish Kumar Srivastava and Surender Kumar\*



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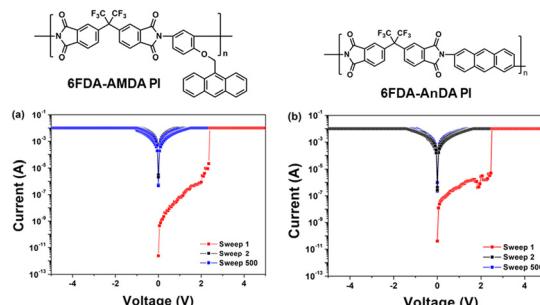
## Environmentally benign fabrication of superparamagnetic and photoluminescent Ce, Tb-codoped $\text{Fe}_3\text{O}_4$ -gluconate nanocrystals from low-quality iron ore intended for wastewater treatment

Utsav Sengupta, Muthaimanoj Periyasamy, Sudipta Mukhopadhyay and Arik Kar\*



## PAPERS

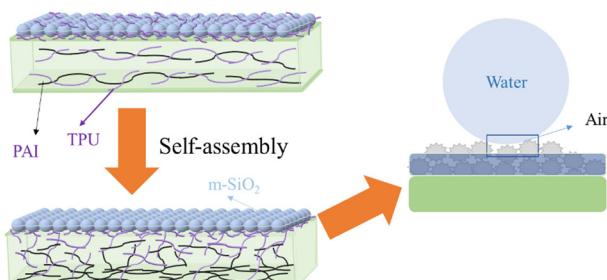
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## Memory characteristics of anthracene-based polyimides in non-volatile resistive memory devices

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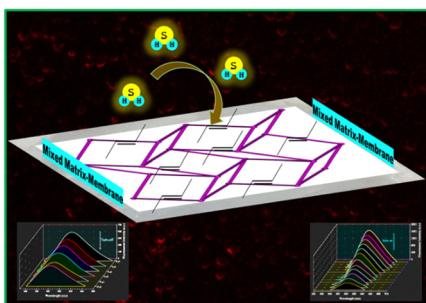
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## Self-assembly of hierarchical porous structure for stretchable superhydrophobic films by delicately controlling the surface energy

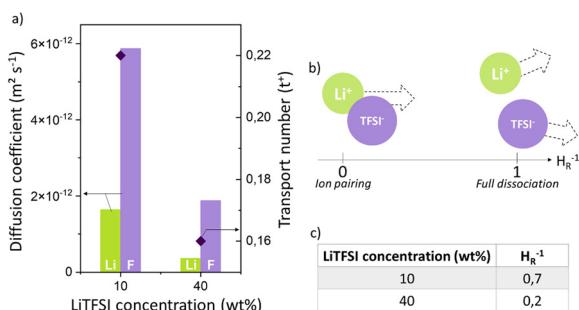
Shuhan Hou, Insub Noh, Meng Yue, Yanbin Wang,\* Hyung Do Kim,\* Hideo Ohkita\* and Biaobing Wang\*

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Enhancing the sensitivity of a water stable MOF as a H<sub>2</sub>S gas sensor by the fabrication of a mixed-matrix membrane

Mouli Das Dawn, Karabi Nath, Subhajit Saha, Pritam Kumar Roy, Mahitosh Mandal and Kumar Biradha\*

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## Towards N-rich solid polymer electrolytes for Li-ion batteries?

L. Artigues, M. Deschamps, F. Salles, V. Chaudoy, V. Lapinte and L. Monconduit\*

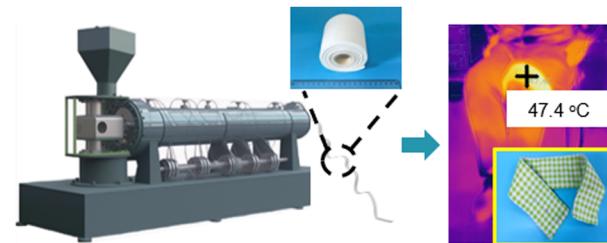


## PAPERS

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**Flexible, antibacterial porous phase change thermal management film prepared by a one-step extrusion casting-foaming method**

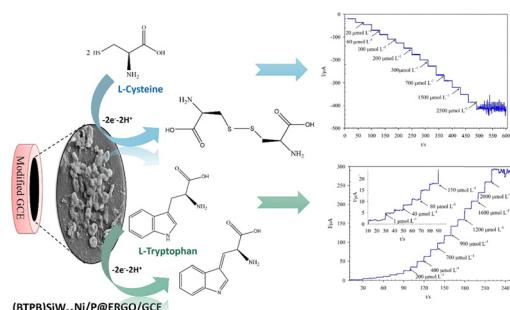
Xinyu Guo, Tianyu Xing, Yanqin Huang and Jiachun Feng\*



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**A novel bio-electrochemical sensor based on a 1,4-bis(triphenylphosphonium)-butane)<sub>3</sub>[SiW<sub>11</sub>O<sub>39</sub>Ni(H<sub>2</sub>O)]/P@ERGO nanocomposite for the selective determination of L-cysteine and L-tryptophan**

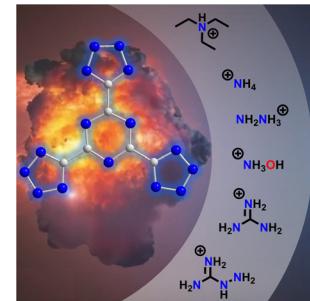
Saeide Ahmadi Direstani and Somayeh Dianat\*



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**Synthesis and detonation performance of novel tetrazolyl-triazine nitrogen-rich energetic materials**

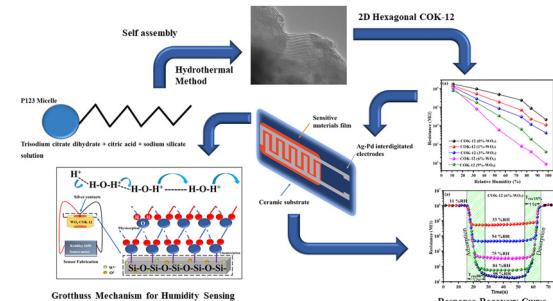
Paul Richardson, Alexandros A. Kitos, Michael Triglav, Jeffrey S. Ovens, Isabelle Laroche, Stéphanie Delisle, Benoit Jolicoeur, Jaclyn L. Brusso\* and Muralee Murugesu\*



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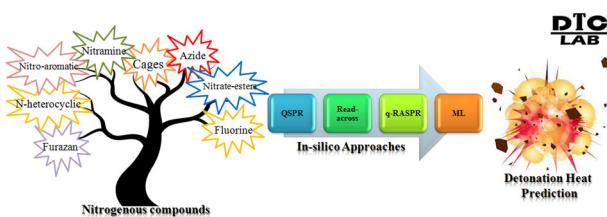
**Exploring 2D hexagonal WO<sub>3</sub>/COK-12 nanostructures for efficient humidity detection**

Bhavna Rohilla, Aryan Boora, M. S. Goyat and Surender Duhan\*



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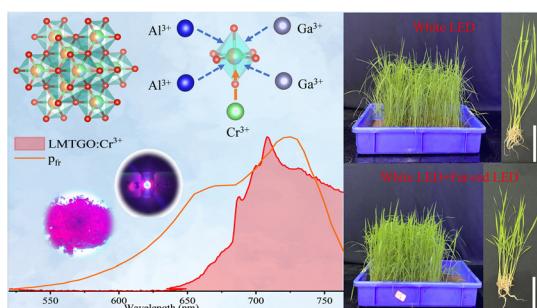
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## Machine learning-based q-RASPR predictions of detonation heat for nitrogen-containing compounds

Shubham Kumar Pandey, Arkaprava Banerjee and Kunal Roy\*

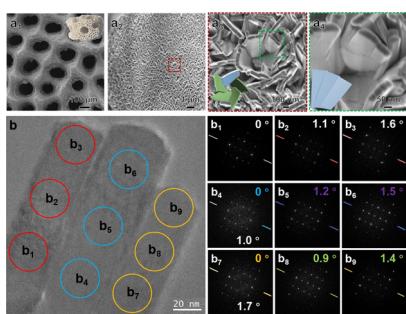
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## Spectroscopically enhanced far-red phosphor $\text{Li}_2\text{Mg}_3\text{TiO}_6\text{:Cr}^{3+}$ and its application prospects to the cold resistance of rice

Yibiao Ma, Siying Li, Jiaqi Wei, Weifang Liao, Beibei Quan, Maxim S. Molokeev, Ming Cheng, Xiaoyan Chen, Zhi Zhou\* and Mao Xia\*

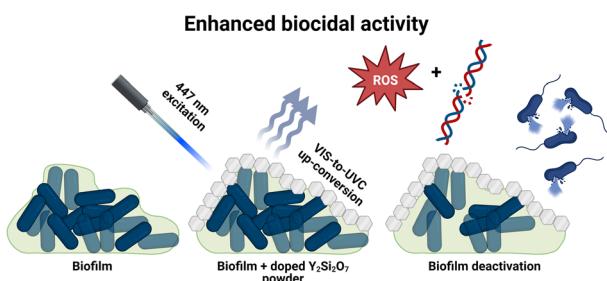
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## Chiral mesostructured hydroxyapatite on 3D macroporous coralline scaffolds for enantio-selective osteogenesis

Chao Zhou, Anqi Liu, Ping Li, Jing Ai, Lu Han, Shaoyang Zhang, Shuai Chen, Yuanming Ouyang,\* Baojie Li,\* Shunai Che\* and Cunyi Fan\*

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## Enhanced biocidal activity of $\text{Pr}^{3+}$ doped yttrium silicates by $\text{Tm}^{3+}$ and $\text{Yb}^{3+}$ co-doping

Patryk Fałat, Min Ying Tsang, Irena Maliszewska, Szymon J. Zelewski, Bartłomiej Cichy, Tymish Y. Ohulchanskyy, Marek Samoć, Marcin Nyk and Dominika Wawryńczyk\*



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**Rapid microwave synthesis of sustainable magnetic framework composites of UTSA-16(Zn) with  $\text{Fe}_3\text{O}_4$  nanoparticles for efficient  $\text{CO}_2$  capture**

John Luke Woodliffe, Amy-Louise Johnston, Michael Fay, Rebecca Ferrari, Rachel L. Gomes, Ed Lester, Ifty Ahmed and Andrea Laybourn\*

