

# Materials Advances

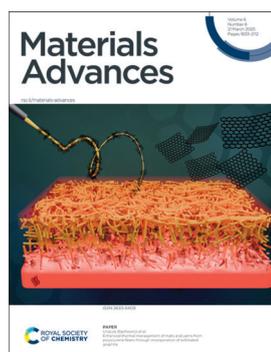
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## IN THIS ISSUE

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### Cover

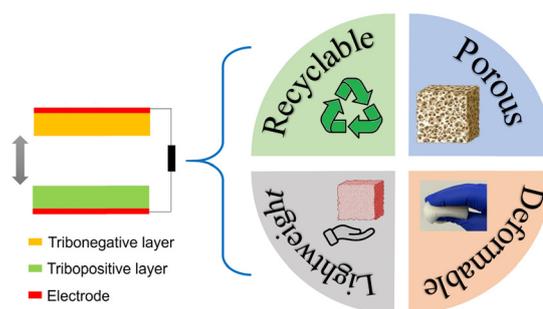
See Urszula Stachewicz *et al.*, pp. 1859–1868.  
Image reproduced by permission of Piotr Szewczyk and Urszula Stachewicz from *Mater. Adv.*, 2025, 6, 1859.

## REVIEW

1842

### Flexible polyurethane foam: materials, synthesis, recycling, and applications in energy harvesting – a review

Ahmed Abdelhamid Maamoun, Mustafa Arafa and Amal M. K. Esawi\*

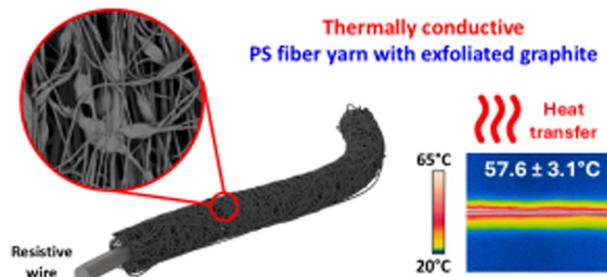


## PAPERS

1859

### Enhanced thermal management of mats and yarns from polystyrene fibers through incorporation of exfoliated graphite

Madhurima Das, Joanna Knapczyk-Korczak, Ahmadreza Moradi, Waldemar Pichór and Urszula Stachewicz\*



# RSC Applied Polymers

The application of polymers,  
both natural and synthetic

Interdisciplinary and open access



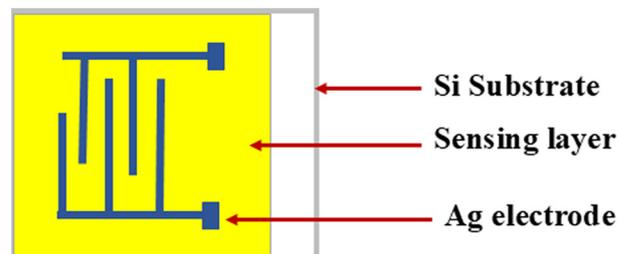
[rsc.li/RSCApplPolym](https://rsc.li/RSCApplPolym)

Fundamental questions  
Elemental answers

1869

### An innovative Ag/Cu-doped polypyrrole hybrid nanocomposite gas sensor for superior ammonia detection at room temperature

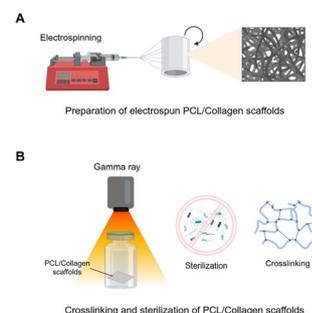
Arunima Verma, Tanuj Kumar\* and Rahul Singhal



1883

### One step gamma-ray induced crosslinking and sterilization of electrospun poly( $\epsilon$ -caprolactone)/collagen composite scaffolds

Jin-Oh Jeong, Sung In Jeong, Jong-Seok Park, Young Min Ju, Sang Jin Lee and Youn-Mook Lim\*



1889

### Development of low-shrinkage eco-friendly composite materials for the DLP 3D printing technique

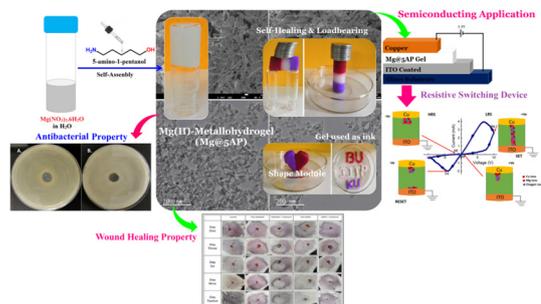
Wei-Chun Lin,\* Jui-Fu Tang, Chia-Cheng Cheng, Chia-Chien Kuo and Wei-Hsuan Hung



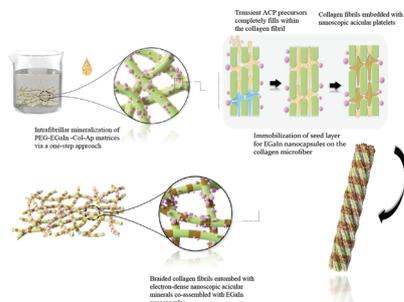
1899

### Investigating the potential of a self-healing semiconducting supramolecular Mg(II)-metallohydrogel in non-volatile memory design and its therapeutic properties towards bacteria infected wound healing

Subhendu Dhibar,\* Arpita Roy, Priyanka Das, Tuhin Sarkar, Mitrabrata Goswami, Sangita Some, Kripasindhu Karmakar, Pradip Ruidas, Subham Bhattacharjee, Timothy O. Ajiboye, Anindya Sundar Ray, Keka Sarkar,\* Soumya Jyoti Ray\* and Bidyut Saha\*



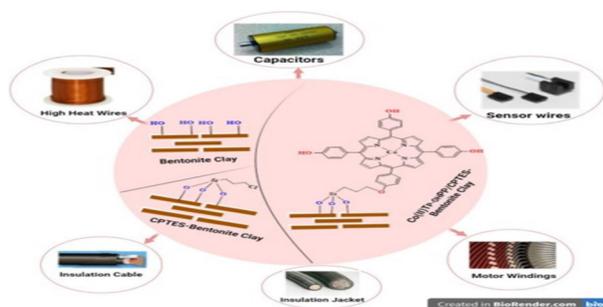
1914



### Hierarchical intrafibrillar mineralization with EGaln nanocapsules through a one-step collagen self-assembly approach

Kevin H. Mwangi, Yue Qu, Sengpav Tong, Xiaodan Sun, Lingyun Zhao and XiuMei Wang\*

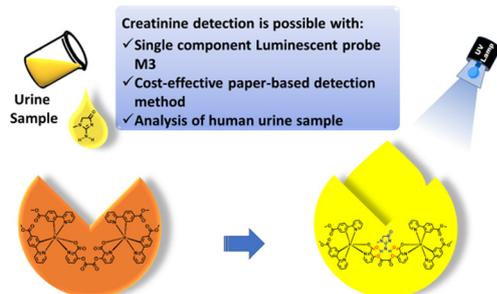
1931



### Synthesis, characterization, and dielectric properties of bentonite clay modified with (3-chloropropyl)triethoxysilane and Co(II) porphyrin complex for technological and electronic device applications

Sahar H. El-Khalafy,\* Mahmoud T. Hassanein, Mohamed M. Alaskary, Galal H. Ramzy and Ahmed I. Ali\*

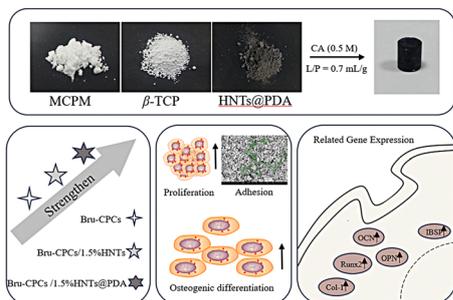
1950



### Facile, selective and cost-effective detection of creatinine from human urine using a cyclometalated dinuclear iridium(III) complex through creatinine-triggered emission

Pramod C. Raichure, Bharat Kaushik, Annu Agarwal and Inamur Rahman Laskar\*

1959



### Novel polydopamine/halloysite nanotube-reinforced brushite calcium phosphate cement for bone regeneration with synergistic regulation of mechanical/osteogenic capacity

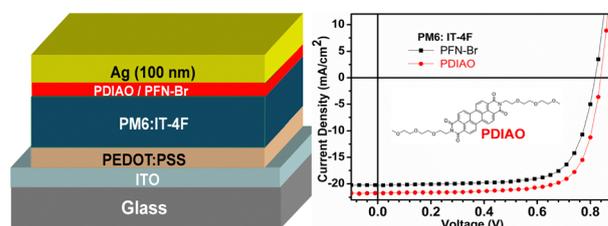
Chen hao Wang, Tao Guo,\* Yukang Gong, Xintian Wang, Puying An, Jie Zhang,\* Zheng Gao, Wenshan Gao, Yuangong Zhang and Feng Liu\*



1965

### Tri(oxyethylene)-functionalised perylene diimide: a promising interlayer material for enhanced organic photovoltaic performance

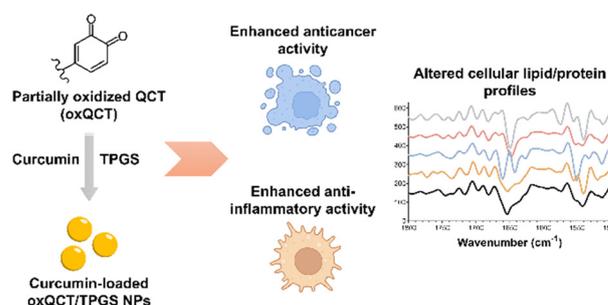
Jegadesan Subbiah,\* Akhil Gupta, David J. Jones\* and Jingliang Li\*



1971

### Insights into the anticancer and anti-inflammatory activities of curcumin-loaded quercetin nanoparticles: *in vitro* bioassays coupled with synchrotron infrared microspectroscopy

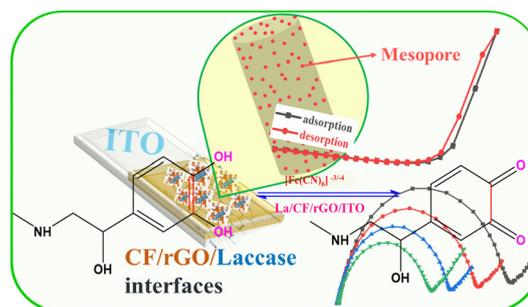
Suhair Sunoqrot,\* Samah Abusulieh and Lina A. Dahabiyeh



1988

### Fabrication of a mesoporous $\text{CoFe}_2\text{O}_4/\text{rGO}$ nanohybrid and laccase interface biosensor for rapid detection of adrenaline for neurodegenerative disease diagnosis

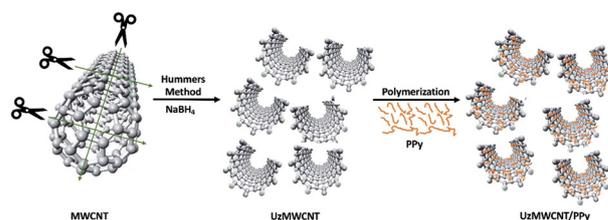
Rahul Verma, Surendra K. Yadav, Diksha Singh and Jay Singh\*



2002

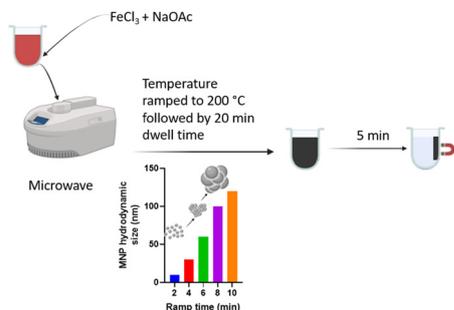
### Unzipped MWCNT/polypyrrole hybrid composites: a pathway to high-performance asymmetric supercapacitors

Shilpa Simon, Letcy V. Theresa and Sreeja P. B.\*



## PAPERS

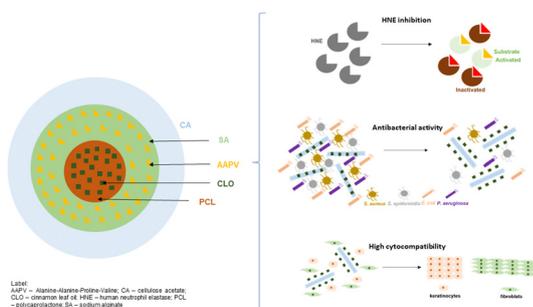
2016



### Simple size tuning of magnetic nanoparticles using a microwave solvothermal method and their application in facilitating the solid-phase synthesis of molecularly imprinted polymers

Andrei N. Stephen, Tim Mercer, William Stockburn, Sarah R. Dennison, Jennifer E. Readman and Subrayal M. Reddy\*

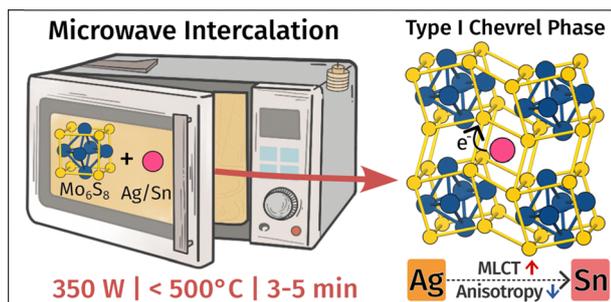
2029



### Pioneering wound care solutions: triaxial wet-spun fibers with bioactive agents for chronic wounds, part II (controlled release and biological activity of the active agents)

Catarina S. Miranda, A. Francisca G. Silva, Camille Evenou, Jérôme Lamartine, Berengere Fromy, Sílvia M. M. A. Pereira-Lima, Artur Ribeiro, Susana P. G. Costa, Natália C. Homem and Helena P. Felgueiras\*

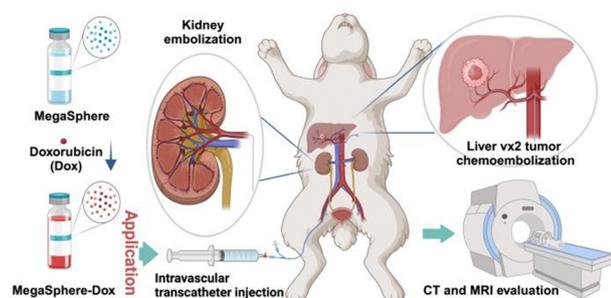
2048



### Microwave-assisted intercalation: exploring electronic and structural features of metastable $MMo_6S_8$ ( $M = Ag, Sn$ )

Rose E. Smiley, Konstantina G. Mason, Rose A. Lam, Alice Giem, Daniella Ingargiola, Brian A. Wuille Bille,\* David Prendergast\* and Jesús M. Velázquez\*

2056



### Highly elastic polyvinyl alcohol embolic microspheres for effective transarterial embolization

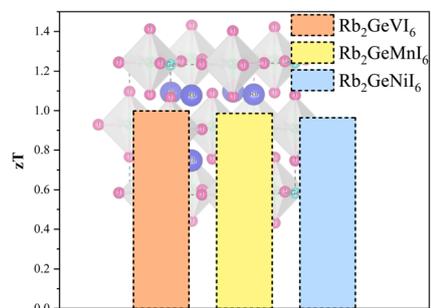
Li Liu, Xiangxian Xu, Xiaoli Zhu, Meng Dang, Yunming Zhang, Donghong Shi, Shenzhe Liu, Zhiwei Zhang, Jing Pan, Jing Zhong, Lin Ou-yang,\* Zhaogang Teng\* and Longjiang Zhang\*



2071

### Semiconducting ferromagnetism and thermoelectric performance of $\text{Rb}_2\text{GeM}_6$ ( $M = \text{V}, \text{Ni}, \text{Mn}$ ): a computational perspective

Mudasir Younis Sofi, Mohd. Shahid Khan and M. Ajmal Khan\*



2090

### MXene-derived potassium titanate nanoribbon-decorated electrode architecture for the detection of ciprofloxacin: development of a multipurpose sensing platform promoting One Health

Arghya Chakravorty, Sudip Das, Aarcha Appu Mini, Shikha Awasthi, Sarvesh Kumar Pandey\* and Vimala Raghavan\*

