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**Cover**
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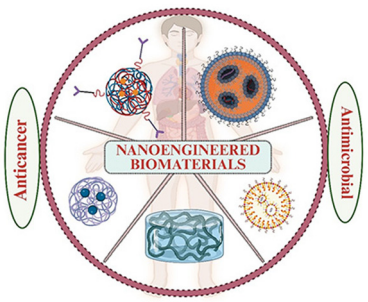
## EDITORIAL

3756

**Nanoengineered biomaterials for anticancer and antimicrobial drug targeting**

Sabya Sachi Das, Janne Ruokolainen and Kavindra Kumar Kesari*




## REVIEWS

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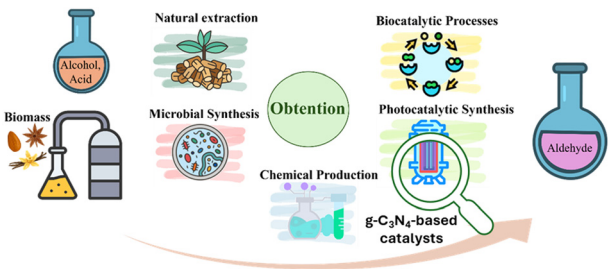
**Selective production of aldehydes: from traditional alternatives to alcohol photo-oxidation using g-$C_3N_4$-based materials**

M. A. Quintana, D. Rodriguez-Padrón, P. Jiménez-Calvo, M. Calero, R. R. Solís* and M. J. Muñoz-Batista*



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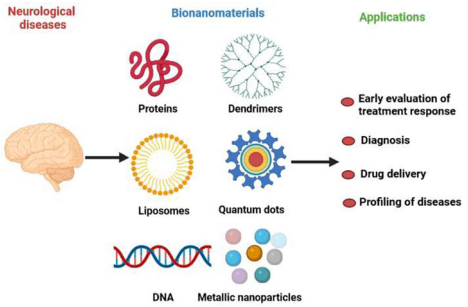
## REVIEWS

3785

**Applications of bionanomaterials in neurodegenerative diseases**

Abhijit Biswas,* Pravin Hivare, Raghu Solanki, Sharad Gupta and Dhiraj Bhatia*

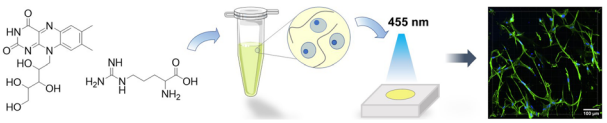



## PAPERS

3805

**Biobased photocrosslinkable gelatin-methacrylate hydrogels promote the growth and phenotype maintenance of human corneal keratocytes**

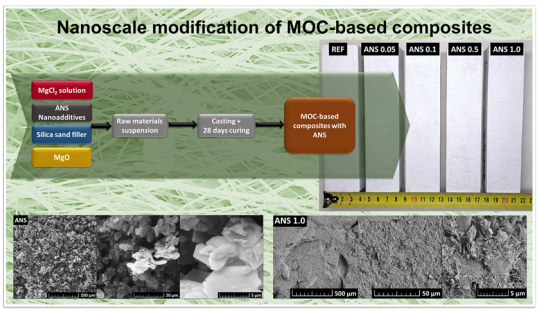
Friederike Dehli, Olivia Schless, Meret Kaliske, Isabel Potthof, Alexandre Taoum, Matthias Fuest and Daniela Duarte Campos*




3817

**Nanoscale modification of MOC-based composites: the influence of alumina nanosheets on the microstructure and material properties**

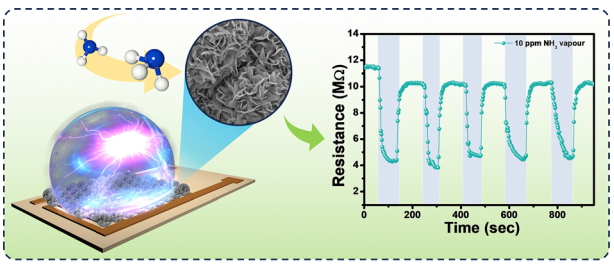
Anna-Marie Lauermannová,* Adéla Jiříčková, Martina Záleská, Milena Pavlíková, Adam Pivák, Ondřej Jankovský and Zbyšek Pavlík




3828

**Highly selective ammonia sensing at room temperature using DC plasma-modified $MoS_2$ nanoflowers**

Anurag Kashyap, Bipradip Chakraborty, Tonmoi Hazarika, Sanjeeb Chouhan, Bharat Kakati and Hemen Kalita*



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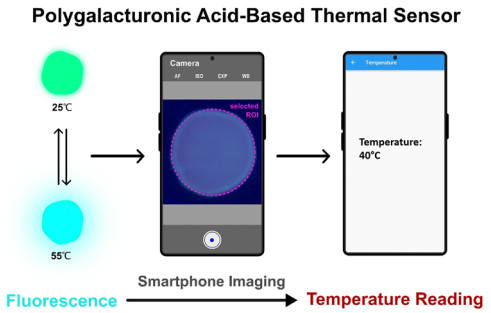
PAPERS

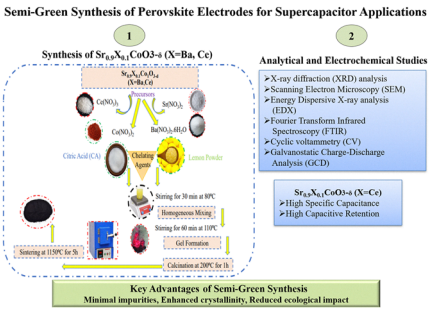
3841




**Temperature-responsive fluorescent polygalacturonic acid: a step towards wound monitoring with smartphone imaging**

Dana Kaafarani, Jad Kaj and Pierre Karam*

3851




**Novel bio-chelating agent-assisted eco-friendly synthesis of $Sr_{0.9}X_{0.1}CoO_{3-\delta}$ (X = Ba, Ce) perovskite electrodes for supercapacitor applications**

Muneeb Irshad,* Muhammad Asif, Muhammad Salim Butt, Muhammad Rafique, Misbah Durrani and Ahmed M. Fouda

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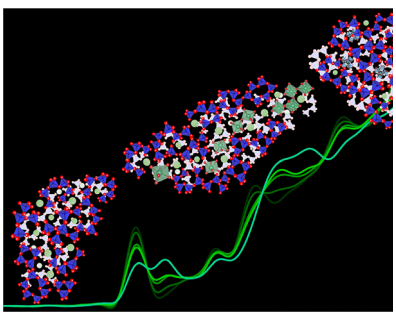

**Unraveling the structural complexity of niobate units in aluminosilicate glasses and glass–ceramics**

Maria Rita Cicconi,* Koji Kimura, Henrik Bradtmüller, Hongyi Deng, Shinji Kohara, Yohei Onodera, Tomokatsu Hayakawa, Seiya Shimono, Koichi Hayashi and Dominique de Ligny

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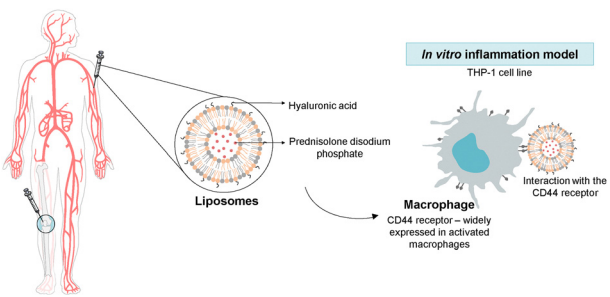


**Assessment of hyaluronic acid-conjugated pH-sensitive liposomes for prednisolone delivery to activated macrophages**

Andreia Marinho, Salette Reis and Cláudia Nunes*



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PAPERS

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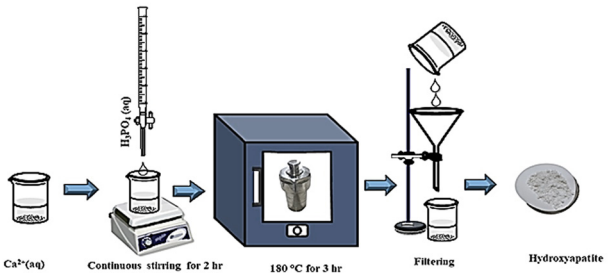
**Crystalline structure modification of hydroxyapatite *via* a hydrothermal method using different modifiers**

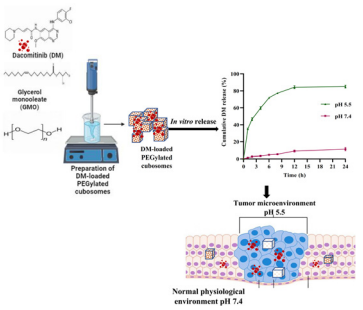
Md. Kawsar, Md. Sahadat Hossain,* Newaz Mohammed Bahadur, Dipa Islam and Samina Ahmed*




3903

**Optimized PEGylated cubosomes: a novel approach for specific delivery of dacomitinib to non-small cell lung cancer cells**

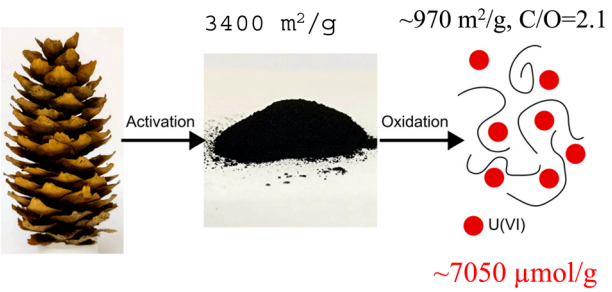
Mohamed Nasr,* Rania Mokhtar and Rania S. Abdel-rashid




3918

**Extraordinary U(VI) sorption capacity of high surface area super-oxidized carbons**

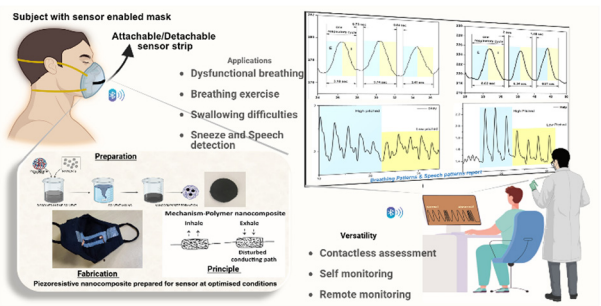
Tamuna Bakhiia, Bartosz Gurzeda, Gui Li, Nicolas Boulanger, Konstantin Maslakov, Anna Krot, Alexander Trigub, Anna Yu. Romanchuk,* Stepan N. Kalmykov and Alexandr V. Talyzin*




3929

**Development of a face mask attachable wireless piezoresistive nanocomposite sensor for monitoring respiratory health**

D. B. Niranjan, Mathew Peter, Jeevan Medikonda and Pramod Kesavan Namboothiri*



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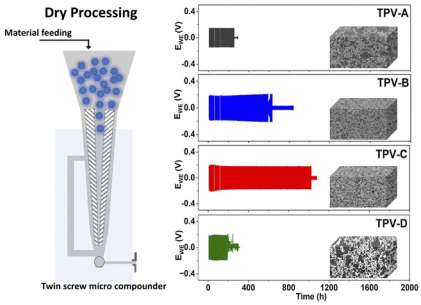


**Optimizing the dry processing parameters of thermoplastic vulcanizate electrolytes for improved microstructure and its impact on electrochemical stability**

Mona Azimi, Gabrielle Foran, Cédric Barcha, Caroline St-Antoine, Arnaud Prébé and Mickael Dollé*

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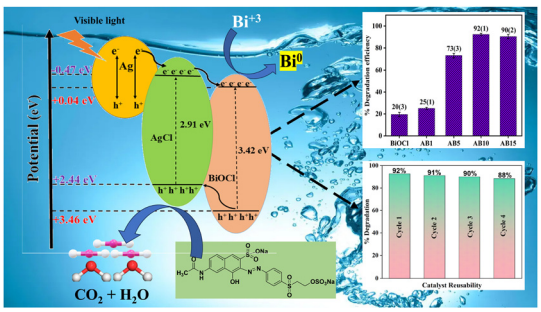
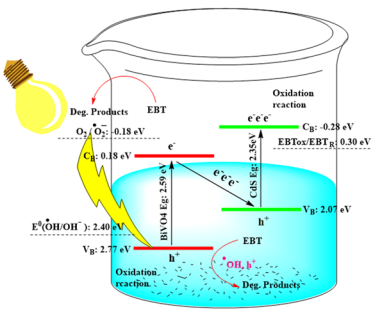



**Superior photocatalytic degradation of Reactive Orange 16 by Ag–AgCl/BiOCl nanocomposites under visible light**

Kamya Jasuja and Raj Kumar Das*

3969




**A photodegradation study of the deposition fabricated CdS–$BiVO_4$ binary catalyst: a brief comparison with other fabrication procedures**

Pooneh Hemmatpour, Alireza Nezamzadeh-Ejhieh* and Ali Ershadi

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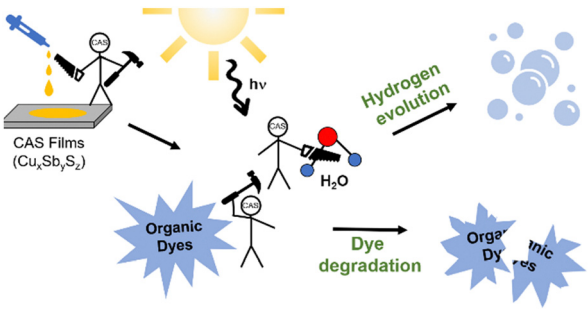


**Phase formation and photocatalytic properties of chalcostibite and tetrahedrite thin films derived from copper and antimony xanthates**

Marco Sigl, Melissa Egger, Daniel Knez, Stephen Nagaraju Myakala, Connor M. J. Marshall, Joe Kaye, Ali Salehi-Reyhani, Heinz Amenitsch, Alexey Cherevan, Dominik Eder, Gregor Trimmel, Saif A. Haque and Thomas Rath*



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PAPERS

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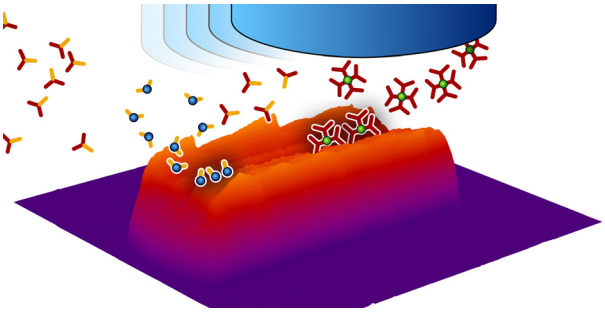
**Direct-patterning $SnO_2$ deposition by atomic-layer additive manufacturing**

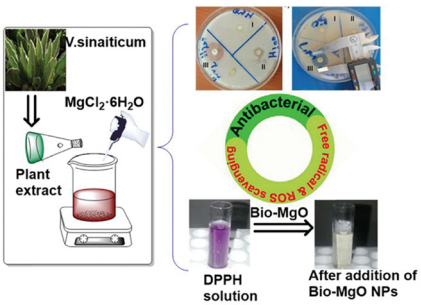
Sonja Kürten, Kimia Hashemizadeh, Mingjian Wu, Johannes Will, Ivan Kundrata, Erdmann Spiecker and Julien Bachmann*



4003

**Biogenic synthesis and characterization of MgO nanoparticles using *Verbascum sinaiticum*: antibacterial, free radical, and reactive oxygen species scavenging activities**

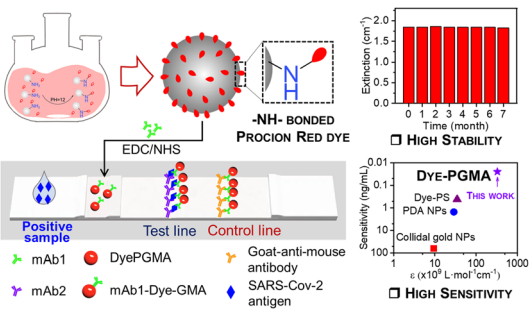
Wubshet Mekonnen Girma,* Muluset Shiferaw Aragie, Biniyam Abdu Berehe and Ayalew H. Assen




4016

**Procion red dye chemically bonded PGMA microspheres towards leakage free and sensitivity improved lateral flow immunoassay**

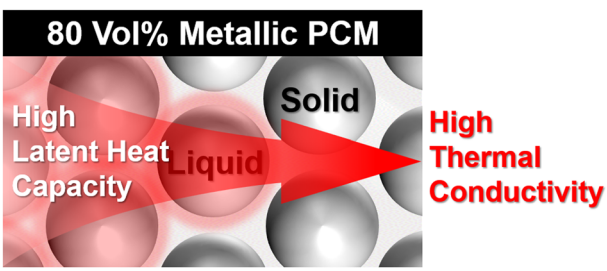
Yunpeng Wang, Xiaoru Dai, Songle Wang, Pragati Awasthi, Wenkun Dong, Dong Chen, Shisheng Ling, Xvsheng Qiao,* Zhiyu Wang, Xianping Fan and Guodong Qian




4027

**Gallium-in-glycerol phase change material emulsions (PCMEs) with superior latent heat capacity and thermal conductivity**

Chae Young Park, Suji Kim, Chimin Song, Jieun Kim and Joohyung Lee*



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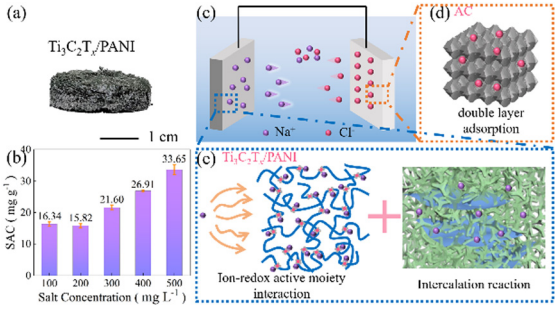
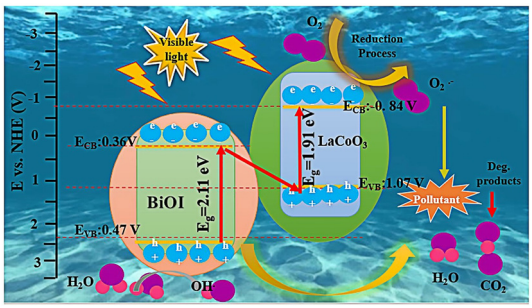



***In situ* polymerized porous $Ti_3C_2T_x$/PANI as an electrode material for enhanced desalination performance in asymmetric capacitive deionization**

Xiaoyan Yang,* Xiaoke Lv, Tao Wen, Zhen Wang, Yubin Zhou, Tianmeng Zhang and Jianfeng Zhang*

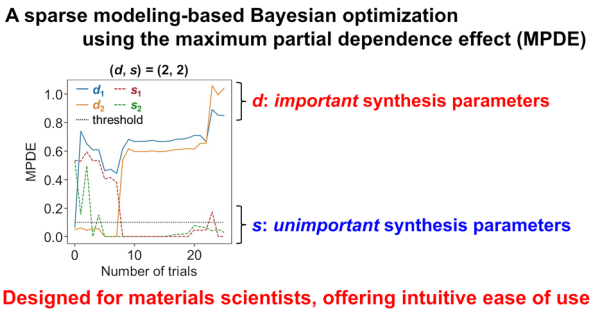
4046




**An outstanding, efficient visible-light-driven BiOI/$LaCoO_3$ Z-scheme system toward cefixime degradation**

Razieh Ahesteh, Alireza Nezamzadeh-Ejhieh* and Seyed Nezamoddin Mirsattari

4062




**Sparse modeling based Bayesian optimization for experimental design**

Ryuji Masui,* Unseo Lee, Ryo Nakayama* and Taro Hitosugi

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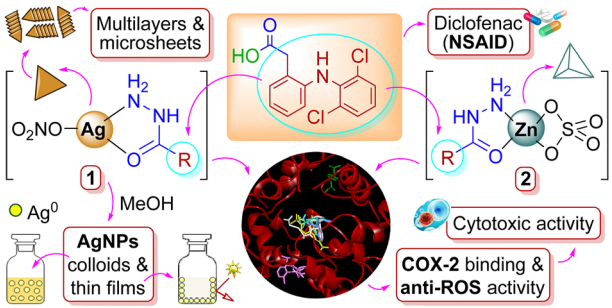


**A multilayered supramolecular chelate of diclofenac-appended $Ag^I$-hydrazide as an efficient anti-inflammatory, anticancer, and nanometal dispersing material, in comparison to analogous $Zn^{II}$-hydrazide**

Qurrat-ul-Ain,* Sammer Yousuf, Summaiyah Bibi, Irum Hamid, Shazia Shah and Sumaira Khurshid



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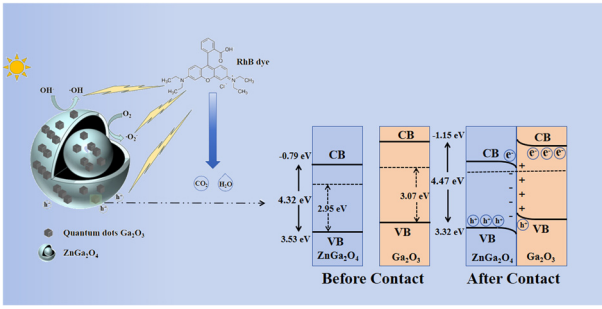
## PAPERS

4096

**High photocatalytic performance of $ZnGa_2O_4$/$Ga_2O_3$ double-shell hollow sphere structures prepared *via* a one-step hydrothermal method**

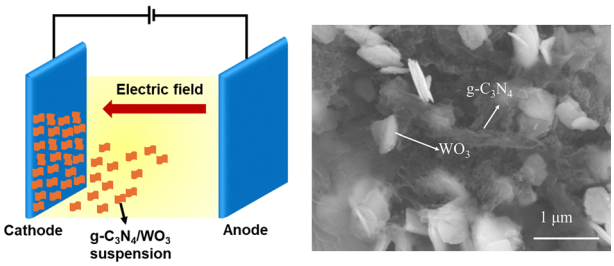
Zeyu Yang, Jizhou Yang and Haibo Fan*




4106

**Unlocking photoanode performance through a roadmap for electrophoretic deposition of carbon nitride/tungsten oxide heterojunction thin films**

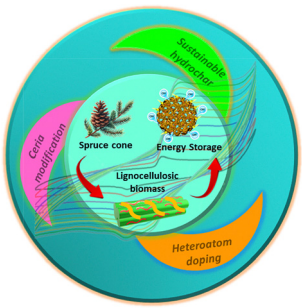
Madasamy Thangamuthu,* Tara M. LeMercier, Emerson C. Kohlrausch, Samuel Lewis, Matthew Macfarlane, Jesum Alves Fernandes and Andrei N. Khlobystov*



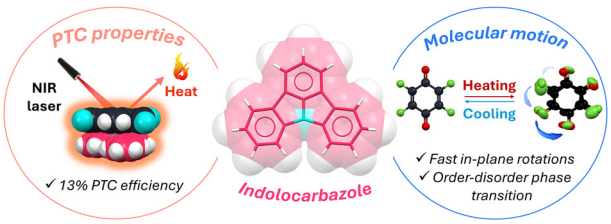

4115

**Ionic liquid-assisted hydrothermal valorization and redox site engineering of spruce cone biowaste for high-performance heteroatom-doped and ceria-modified electrodes for sustainable supercapacitor applications**

Khadija Chaudhary, Adeen Ilyas, Tomáš Zelenka, Hidetsugu Shiozawa, Muhammad Farooq Warsi, Eric W. Cochran* and Sonia Zulfiqar*




4132

**Exploring the dynamic behaviour and optical properties of indolocarbazole charge-transfer cocrystals**

Jade Cisneros, Ernesto A. Hernández-Morales, Armando Navarro-Huerta, Jan Blahut, Erika Bartůňková, Simon J. Teat, Rubén A. Toscano, Martin Dračínský* and Braulio Rodríguez-Molina*