

Materials Advances

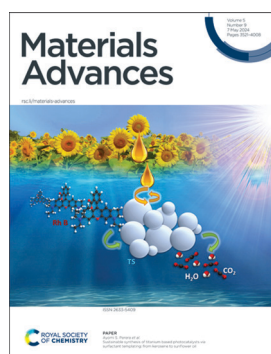
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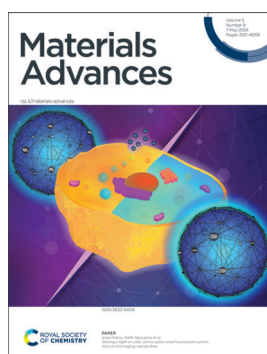
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See Ayomi S. Perera *et al.*, pp. 3649–3661. Image reproduced by permission of Ayomi S. Perera from *Mater. Adv.*, 2024, 5, 3649.



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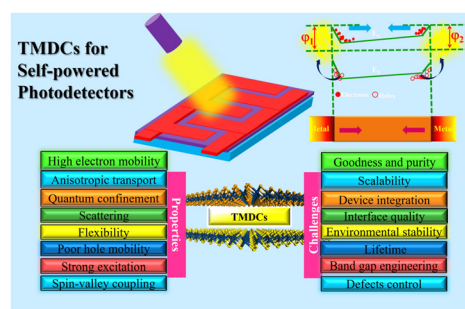
See Alisa Piekny, Rafik Naccache *et al.*, pp. 3662–3674. Image reproduced by permission of Alisa Piekny from *Mater. Adv.*, 2024, 5, 3662.

REVIEWS

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Advancements in transition metal dichalcogenides (TMDCs) for self-powered photodetectors: challenges, properties, and functionalization strategies

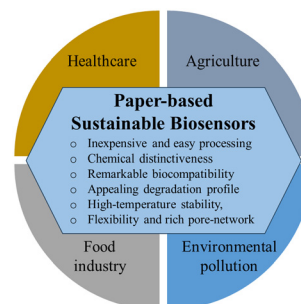
Alka Rani, Arpit Verma and Bal Chandra Yadav*



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Paper-based sustainable biosensors

Anuj Kumar* and Pralay Maiti



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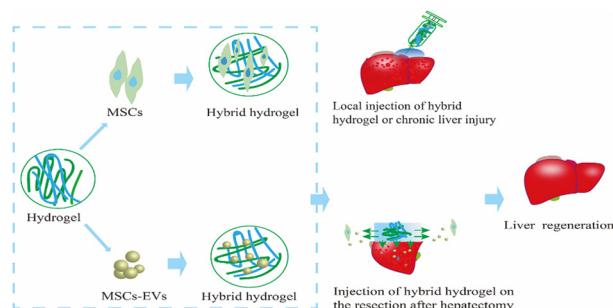
Fundamental questions
Elemental answers

REVIEWS

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Hydrogels as carriers deliver stem cells/exosomes for liver injury

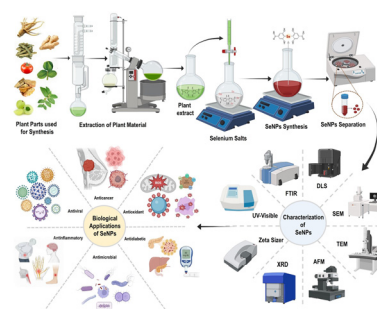
Qiuxia Zheng, Jia Yao, Zongbin Sun, Yongcui Mao, Jiayun Wei, Ye Xie, Xue Kai Hu and Xun Li*



3602

Plant-derived selenium nanoparticles: investigating unique morphologies, enhancing therapeutic uses, and leading the way in tailored medical treatments

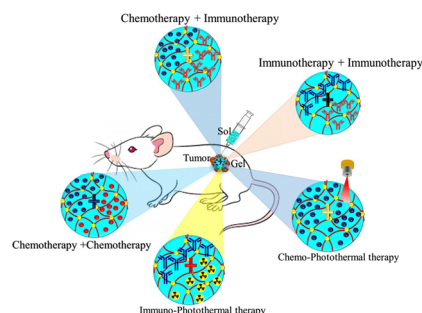
Abhijeet Puri,* Popat Mohite,* Yunus Ansari, Nobendu Mukerjee, Hanan M. Alharbi, Aman Upaganlawar and Nanasheeb Thorat*



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Hydrogels as local depots for on-demand therapeutic delivery: potential therapeutic approaches for tumor metastasis

Abegaz Tizazu Andrgie and Hsieh-Chih Tsai*

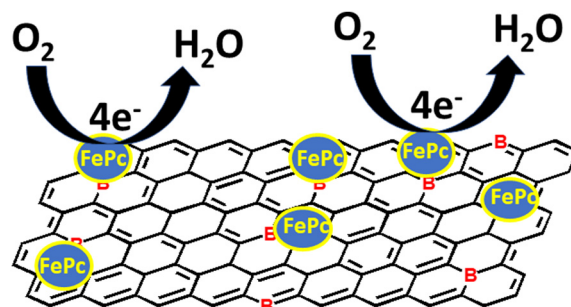


COMMUNICATION

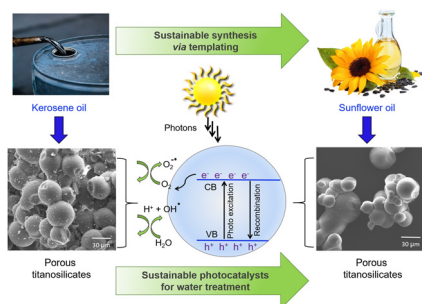
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Iron phthalocyanine integrated with boron-doped reduced graphene oxide for highly selective four-electron oxygen reduction: an experimental study

Vikram Rathour, Smita Singh, Varsha Singh, Devesh Kumar Singh, Mamta Yadav, Ananya Tiwari and Vellaichamy Ganesan*



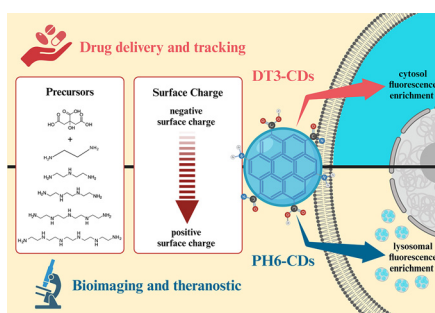
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Sustainable synthesis of titanium based photocatalysts *via* surfactant templating: from kerosene to sunflower oil

Reece M. D. Bristow, Peter J. S. Foot, James D. McGettrick, Joseph C. Bear and Ayomi S. Perera*

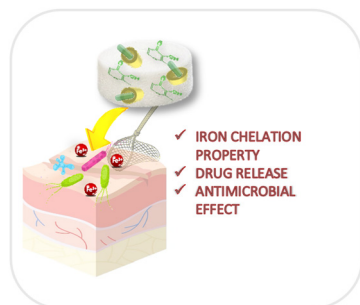
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Shining a light on cells: amine-passivated fluorescent carbon dots as bioimaging nanoprobe

Adryanne Clermont-Paquette, Kevin Larocque, Alisa Piekny* and Rafik Naccache*

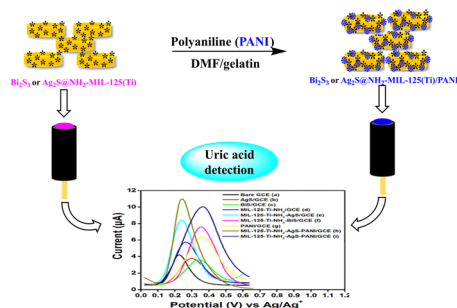
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Supramolecular biomaterials as drug nanocontainers with iron depletion properties for antimicrobial applications

Chiara Zagni, Vincenzo Patamia, Sandro Dattilo, Virginia Fuochi, Salvatore Furnari, Pio Maria Furneri, Sabrina Carola Carroccio, Giuseppe Floresta* and Antonio Rescifina

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Evaluation of two core-shell ($Ag_2S@-$ and $Bi_2S_3@-$) sensors based on a metal-organic framework ($NH_2-MIL-125-Ti$)/polyaniline for the electroanalysis of uric acid in urine samples

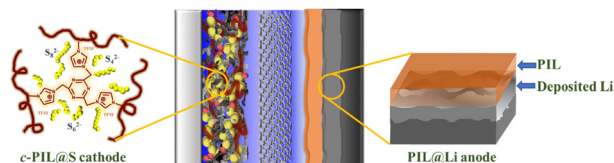
Gullit Deffo,* Cyrille Ghislain Fotsop,* Marcel Cédric Deussi Ngaha, Sengor Gabou Fogang, Lionnel Averie Vomo, Bibiane Wandji Nkuigoua, Calmette Akenmo Shella, Alex Vincent Somba, Thierry Flavien Nde Tene, Ida Kouam Tchummegne, Evangeline Njanja, Ignas Kenfack Tonlé, Panchanan Puzari and Emmanuel Ngameni



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One action, two benefits: improving the performance of lithium–sulfur batteries with a poly(ionic liquid)

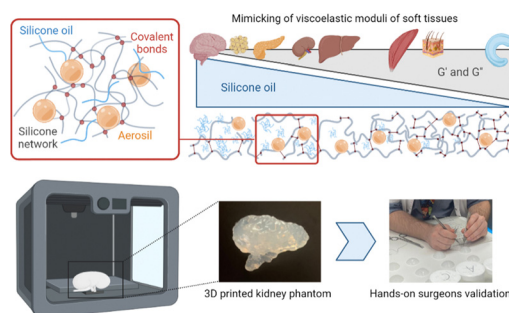
Sixin Jia, Rui Wang, Fengquan Liu,* Hong Huo, Jianjun Zhou* and Lin Li*



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Developing tuneable viscoelastic silicone gel-based inks for precise 3D printing of clinical phantoms

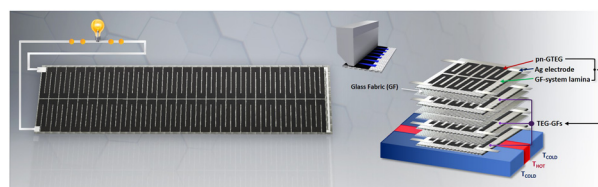
Gloria Nieva-Esteve, Núria Agulló, Miguel Grande-Molina, Núria Adell, Xavier Tarrado, Laura Calvo-Duarte, Arnau Valls-Esteve, Lucas Krauel, Felip Fenollosa-Artés, Robert Teixidó Bartes* and Salvador Borrós



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A hierarchically modified fibre-reinforced polymer composite laminate with graphene nanotube coatings operating as an efficient thermoelectric generator

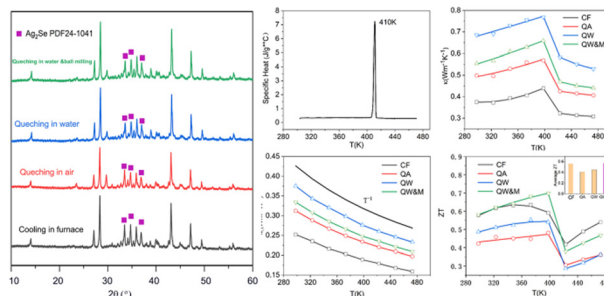
Christos K. Mytafides,* Lazaros Tzounis,* Kyriaki Tsirka, George Karalis, Marco Liebscher, Eleftherios Lambrou, Leonidas N. Gergidis and Alkiviadis S. Paipetis*



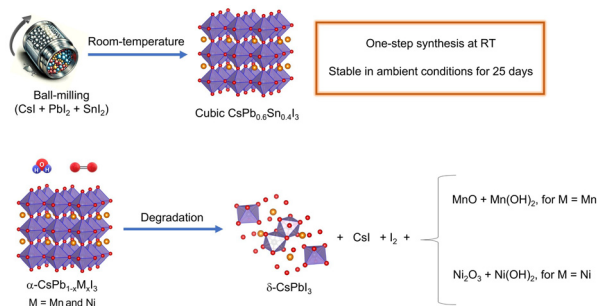
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A new thermoelectric Ag₈SiSe₆ argyrodite for room temperature application: sensitivity of thermoelectric performance to cooling conditions

Bo Wang, Suwei Li, Yubo Luo, Junyou Yang, Haitao Ye,* Yong Liu* and Qinghui Jiang*



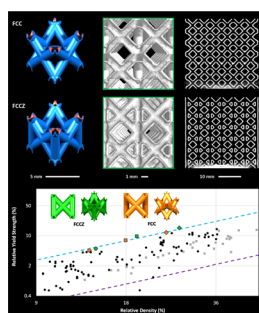
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Stability of CsPbI₃ with divalent cations incorporated *via* mechanochemical alloying

Mahsa Shekarnoush, Francisco S. Aguirre-Tostado and Manuel Quevedo López*

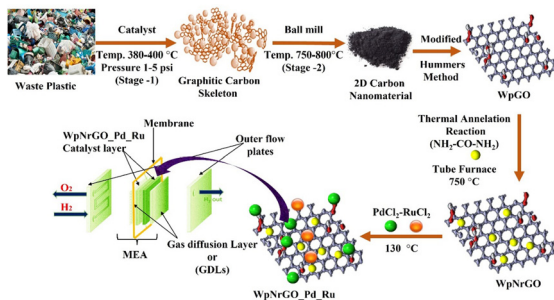
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AlSi10Mg hollow-strut lattice metamaterials by laser powder bed fusion

Jordan Noronha, Martin Leary, Milan Brandt and Ma Qian*

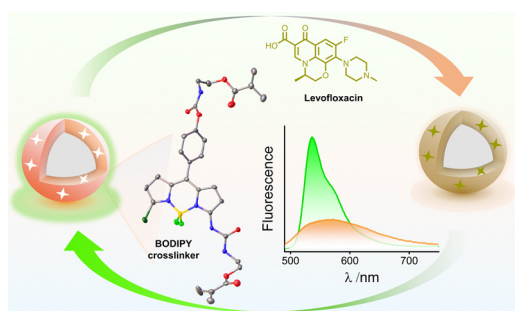
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Waste plastic derived nitrogen-doped reduced graphene oxide decorated core-shell nano-structured metal catalyst (WpNRGO-Pd-Ru) for a proton exchange membrane fuel cell

Sunil Dhali, Manoj Karakoti, Gaurav Tatrari, Sandeep Pandey, Kundan Singh Rawat, Chetna Tewari, Boddepalli Santhi Bhushan, Yong Chae Jung, Anurag Srivastava and Nanda Gopal Sahoo*

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Polymerizable BODIPY probe crosslinker for the molecularly imprinted polymer-based detection of organic carboxylates *via* fluorescence

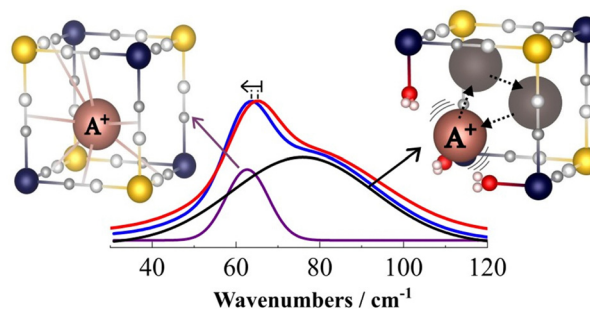
Yijuan Sun, Kornelia Gawlitza, Virginia Valderrey, Jérémy Bell and Knut Rurack*



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Interactions between alkali cations and cyanide-bridged network in $A_2Co_4[Fe(CN)_6]_{3.3}$ Prussian blue analogues revealed by far-infrared spectroscopy

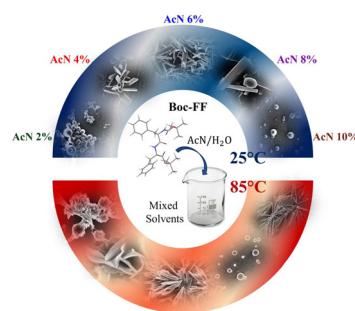
Maria Dronova, Laura Altenschmidt, Amélie Bordage, Jean-Blaise Brubach, Marine Verseils, Gregory Balthazar, Pascale Roy and Anne Bleuzen*



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Multiple length-scale control of Boc-protected diphenylalanine aggregates through solvent composition

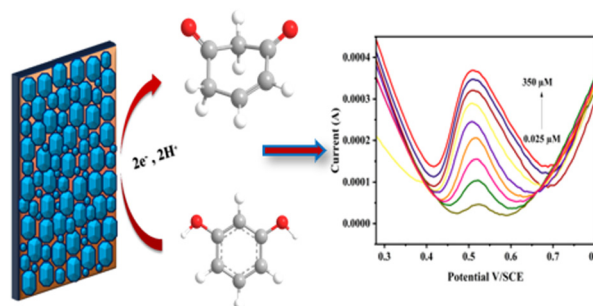
Sara Catalini,* Francesco Bagni, Stefano Cicchi, Mariangela Di Donato, Alessandro Iagatti, Andrea Lapini, Paolo Foggi, Caterina Petrillo, Alessandro Di Michele, Marco Paolantoni, Giorgio Schirò, Lucia Comez* and Alessandro Paciaroni*



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Tweaking the electrocatalytic ability of Cu-MOF by the inclusion of PTA: a selective electrochemical sensor for resorcinol

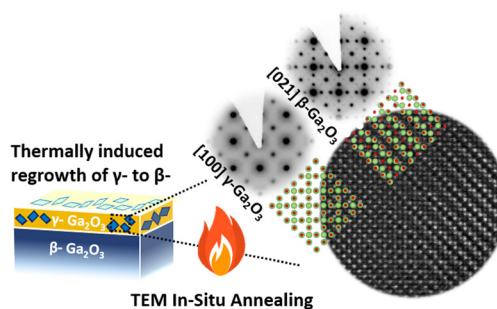
Sandra Jose, Munmun Ghosh and Anitha Varghese*



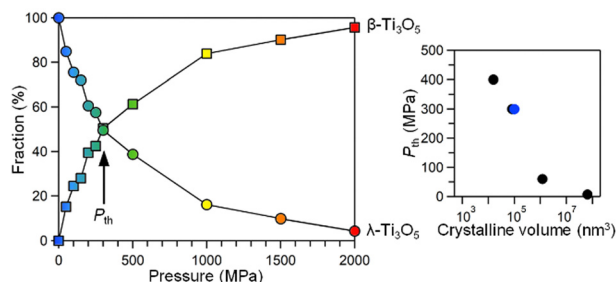
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In situ atomic-resolution study of transformations in double polymorph γ/β -Ga₂O₃ structures

J. García-Fernández,* S. B. Kjeldby, L. J. Zeng, A. Azarov, A. Pokle, P. D. Nguyen, E. Olsson, L. Vines, A. Kuznetsov* and Ø. Prytz*



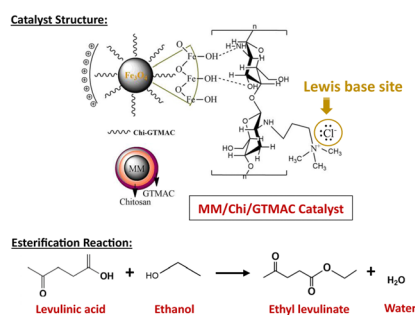
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Synthesis of heat storage ceramic λ -Ti₃O₅ using titanium chloride as the starting material

Tomoko Kubota, Riku Seiki, Akito Fujisawa, Akhmad Fadel Fadilla, Fangda Jia, Shin-ichi Ohkoshi* and Hiroko Tokoro*

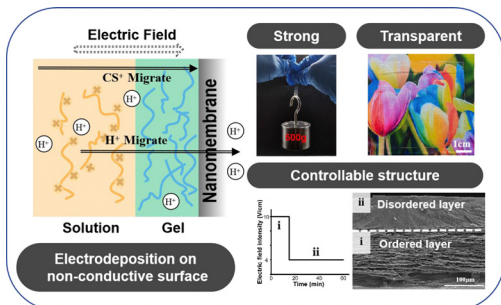
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Modification of chitosan-coated magnetic material with glycidyltrimethylammonium chloride and its application as heterogeneous base catalyst for levulinic acid esterification

Feri Mukhayani, Yuichi Kamiya,* Ryoichi Otomo, Eko Sri Kunarti and Nuryono Nuryono*

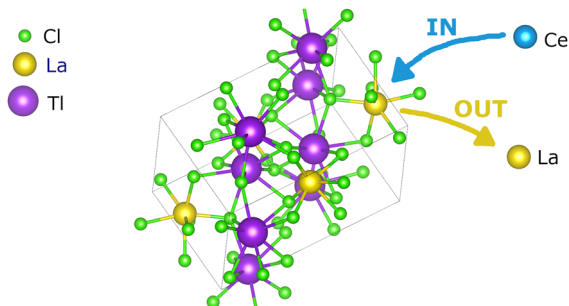
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Continuous electro-growth of a hierarchically structured hydrogel on a non-conductive surface

Yuncheng Xu, Jun Tong, Jingxian Zhang, Yuting Li, Xiaowen Shi,* Hongbing Deng and Yumin Du

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Full Ce substitution on La in Tl₂LaCl₅: impact and performance

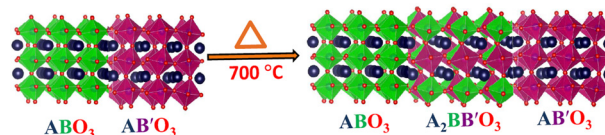
Federico Moretti,* Didier Perrodin, Joanna Szornel and Edith D. Bourret



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Entanglement of cation ordering and manipulation of the magnetic properties through a temperature-controlled topotactic interface reaction in nanocomposite perovskite oxides

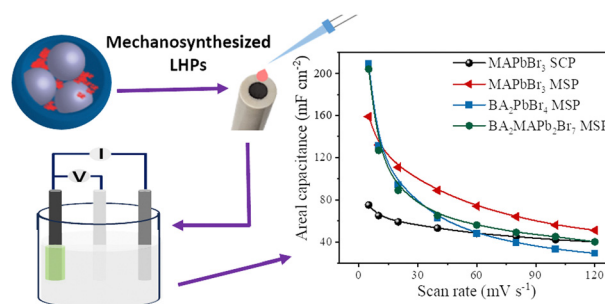
Sudipa Bhattacharya, Radhamadhab Das, Shreyashi Chowdhury, K. K. Supin, M. Vasundhara,* Jyoti Ranjan Sahu, Trilochan Bhunia, Arup Gayen, Oleg I. Lebedev and Md. Motin Seikh*



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Mechanochemically-assisted synthesis of 3D, 2D and quasi 2D lead halide perovskites for supercapacitor applications

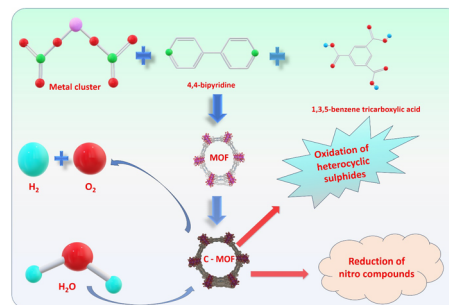
Apurba Mahapatra,* Manoranjan Mandal, Ayon Das Mahapatra, Vishnu Anilkumar, Jan Nawrocki, Rohit D. Chavan, Pankaj Yadav* and Daniel Prochowicz*



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Synthesis of diverse stable MOFs and their electro catalytic capabilities towards desulfurization, water splitting and various nitrophenol reduction reactions

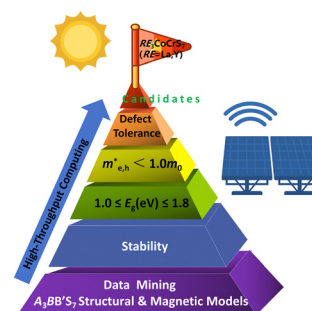
Manivannan Mahendran, Yazhmozhi Mariappan, Rahul Thamizhselvan* and Suryanarayanan Vembu*



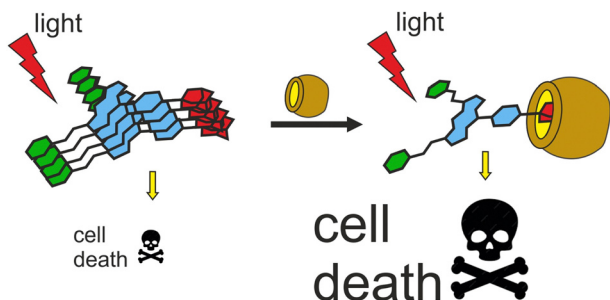
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High-throughput screening of stable sulfide semiconductors for solar cell conversion

Jinjin Yang, Zhongxiong Sun, Dao-Xin Yao and Man-Rong Li*



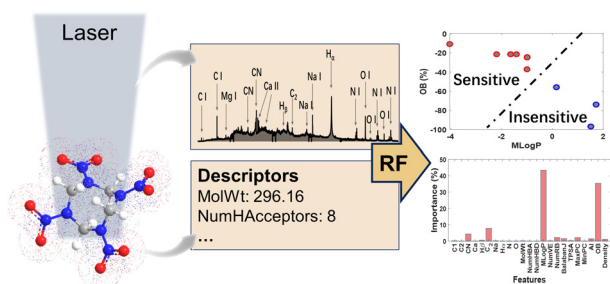
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BODIPY-cucurbituril complexes: supramolecular approach toward improvement of photodynamic activity

Jiri Demuth, Rahul Kaushik, Magdalena Kozlikova, Carola Rando, Miloslav Machacek, Veronika Novakova, Vladimír Šindelář* and Petr Zimcik*

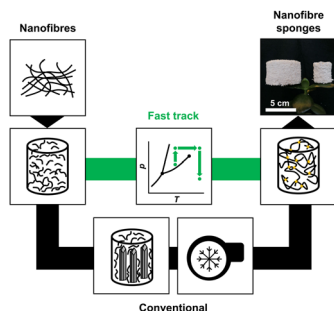
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Interpretable-machine-learning-guided discovery of dominant intrinsic factors of sensitivity of high explosives

Xianshuang Wang, Yage He, Xinyu Zhang, Maoxin Hu, Wanzhu Zhao, Haohan Sun, Xiaoning Yang, Xiaodong Liu and Ruibin Liu*

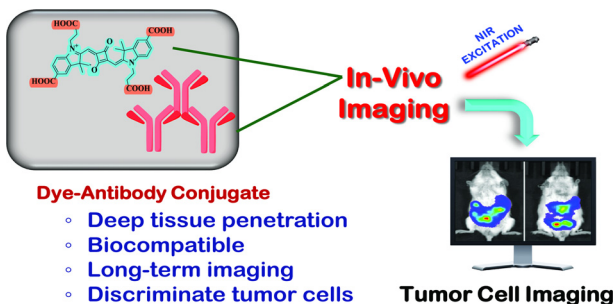
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Rapid preparation of electrospun nanofibre sponges through supercritical CO₂ drying

Gioele Mol, Christina Fialová and Christian Adlhart*

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A biocompatible NIR squaraine dye and dye-antibody conjugates for versatile long-term *in vivo* fluorescence bioimaging

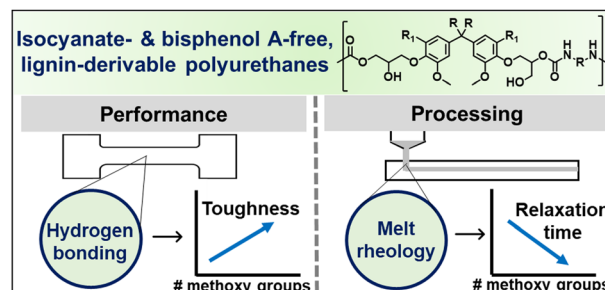
Priyanka, Galyna Bila, Sai Kiran Mavileti, Evgenia Bila, Nazar Negrych, Shekhar Gupta, Linjun Tang, Rostyslav Bilyy,* Shyam S. Pandey* and Tamaki Kato*



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Lignin-derivable, thermoplastic, non-isocyanate polyurethanes with increased hydrogen-bonding content and toughness vs. petroleum-derived analogues

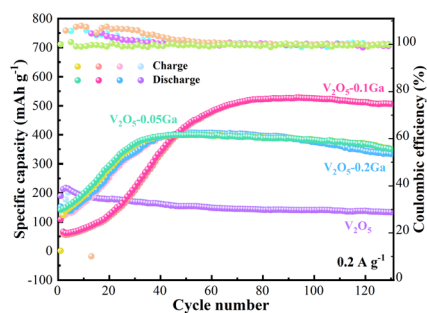
Jignesh S. Mahajan, Zachary R. Hinton, Eduardo Nombera Bueno, Thomas H. Epps, III* and LaShanda T. J. Korley*



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The introduction of gallium ions into V_2O_5 interlayers for highly reversible Zn ion batteries

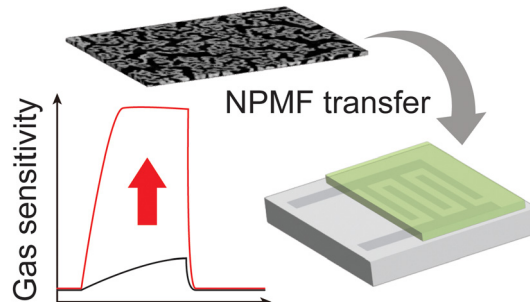
Ming Zhao, Shilong Li, Xiang Wu* and Abdukayum Abdukader*



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Ultrathin nanoporous metallic films and their integration in sensors

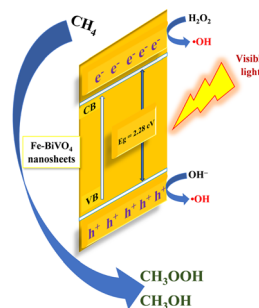
Hyunah Kwon,* Mariana Alarcón-Correa, Izar Schärf and Peer Fischer



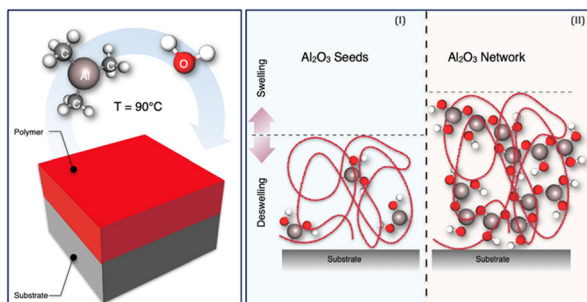
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New Fe-doped two-dimensional $BiVO_4$ nanosheets for direct methane conversion to methyl oxygenates

Catherine Afriyie* and Xingwang Zhang



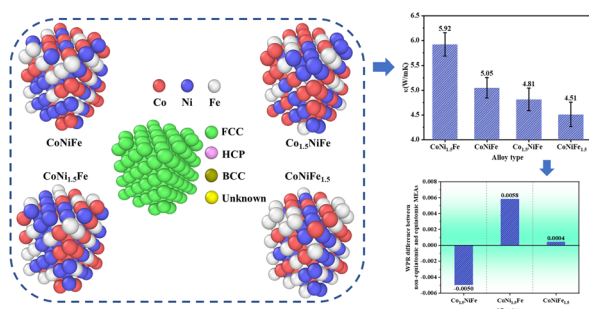
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Al₂O₃ growth in PMMA thin films by sequential infiltration synthesis: *in situ* thickness evolution and mass uptake investigation

Michele Perego,* Gabriele Seguni,* Claudia Wiemer, Federica E. Caligiore and Elena Cianci

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Theoretical insights into the lattice thermal conductivity and thermal expansion of CoNiFe medium-entropy alloys

Jian Zhang, Haochun Zhang,* Jie Xiong, Shuai Chen* and Gang Zhang*

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Retraction: Recent developments in energy storage systems for marine environment

Jaya Verma* and Deepak Kumar

