

Materials Advances

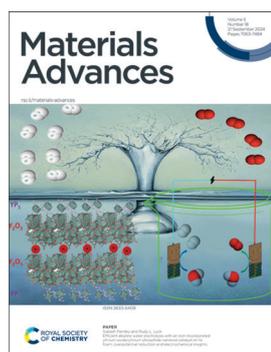
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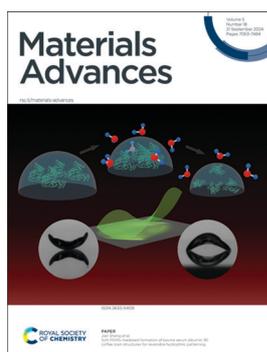
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See Subash Pandey and Rudy L. Luck, pp. 7147–7158. Image reproduced by permission of Rudy L. Luck from *Mater. Adv.*, 2024, 5, 7147. The background image was generated using AI at [Gemini.google.com/app](https://gemini.google.com/app)



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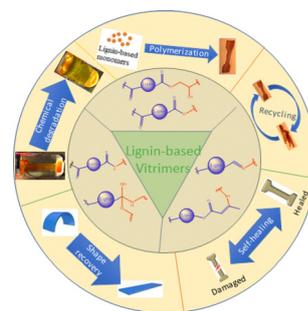
See Jian Sheng *et al.*, pp. 7159–7169. Image reproduced by permission of Kosuen Cheng, Kimberly Lopez, Maryam Jalali-Mousavi and Jian Sheng from *Mater. Adv.*, 2024, 5, 7159.

REVIEWS

7075

Lignin-based vitrimers: valorization and utilization of lignin in high-value applications

Peter K. Karoki, Shuyang Zhang, Yunqiao Pu and Arthur J. Ragauskas*

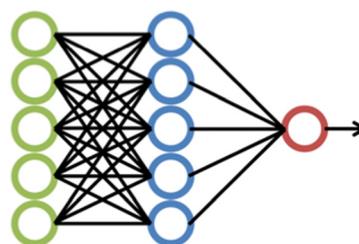


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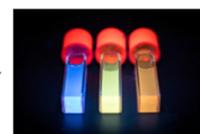
Machine learning for carbon dot synthesis and applications

Ali Nabi Duman* and Almaz S. Jalilov*

MACHINE LEARNING



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REVIEWS

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Optical anti-counterfeiting with cholesteric liquid crystal emulsions: preparation, properties, and applications

Buchaiah Gollapelli,* Supraja Potu,
Rakeshkumar Rajaboina and
Jayalakshmi Vallamkondu*



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The origin and evolution of molecular precursors for quantum dot synthesis

Mark Green

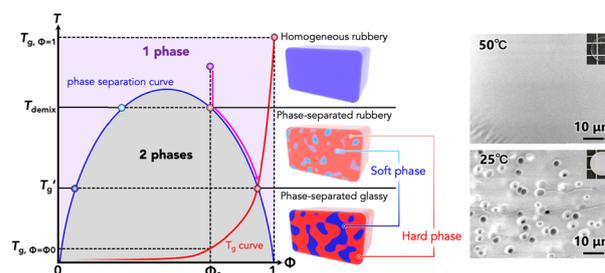


COMMUNICATION

7140

Phase separation-induced glass transition under critical miscible conditions

Mayu Watanabe, Dong Shi, Ryuji Kiyama,
Kagari Maruyama, Yuichiro Nishizawa,
Takayuki Uchihashi, Jian Ping Gong and
Takayuki Nonoyama*

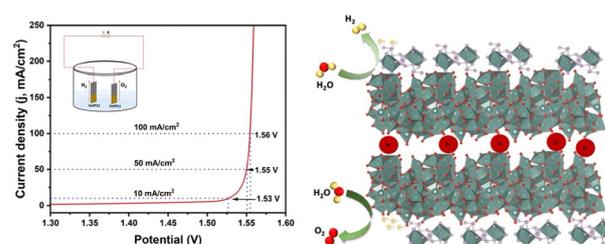


PAPERS

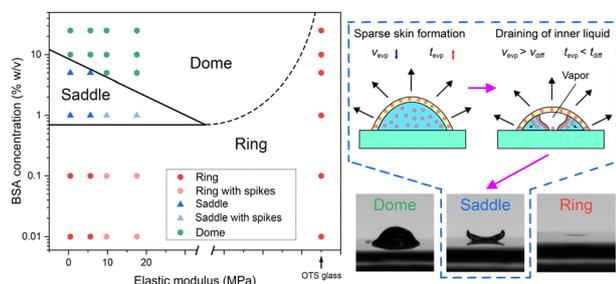
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Efficient alkaline water electrolysis with an iron-incorporated yttrium oxide/yttrium phosphide nanorod catalyst on Ni foam: overpotential reduction and electrochemical insights

Subash Pandey and Rudy L. Luck*



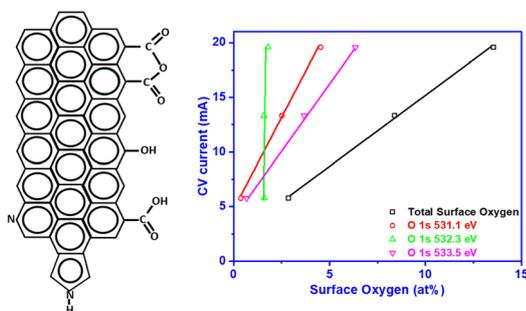
7159



Soft PDMS-mediated formation of bovine serum albumin 3D coffee stain structures for reversible hydrophilic patterning

Samuel Kok Suen Cheng, Kimberly Lopez, Maryam Jalali-Mousavi and Jian Sheng*

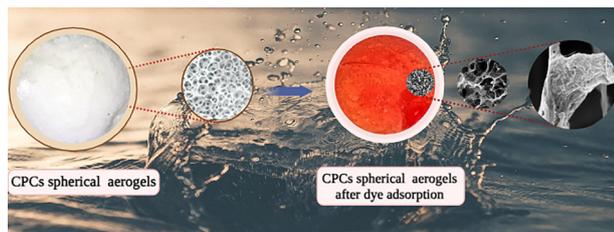
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Spectroelectrochemical study of carbon structural and functionality characteristics on vanadium redox reactions for flow batteries

Ha H. Phan, Jon G. Bell, Greg A. Mutch, Alan J. McCue, Anh N. Phan* and K. Mark Thomas*

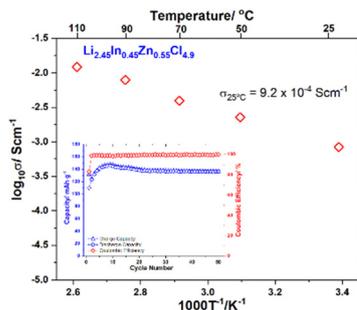
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Functional porous protein nanofibrils/polysaccharides aerogel beads for efficient dyes removal from water

Mandana Dilamian, Majid Montazer, Hossein Yousefi, Daniel E. Otzen and Dina Morshedi*

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Preparation of $\text{Li}_{2+2x}\text{In}_x\text{Zn}_{1-x}\text{Cl}_{4+2x}$ ($0 \leq x \leq 0.5$) solid electrolyte and its application in all-solid-state Li-ion batteries

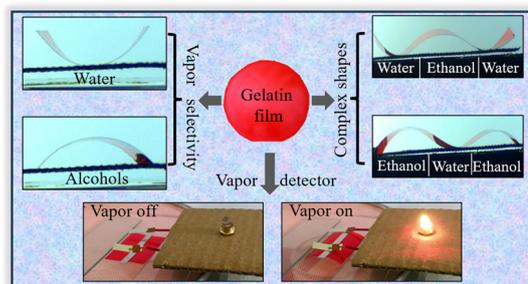
Nguyen Thi Minh Nguyet, Tran Viet Toan, Luu Tuan Anh, Luong Thi Quynh Anh, Tran Anh Tu and Nguyen Huu Huy Phuc*



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Vapor selective and controlled actuation of gelatin-based soft actuators

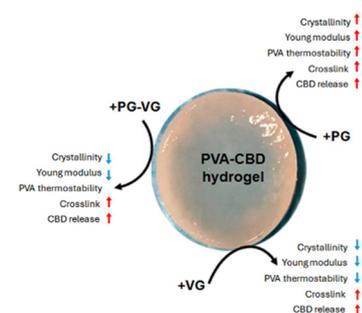
Vipin Kumar, Sarah Ahmad Siraj and Dillip K. Satapathy*



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Design, characterization, and release profile of a cannabidiol (CBD)-rich polyvinyl alcohol hydrogel

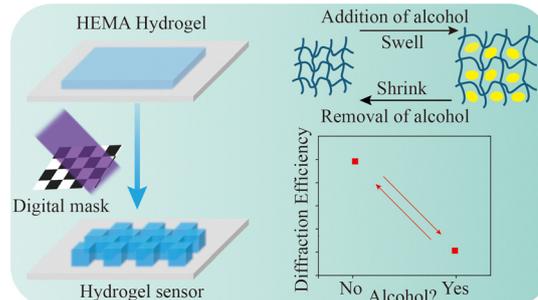
Shujun Cui, Maryam Bahraminia, Mahmoud Rouabhia,* Abdelhabib Semlali, François Béland and Ze Zhang



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DMD-based optical printing of PHEMA hydrogel gratings for sensitive and rapid alcohol sensing

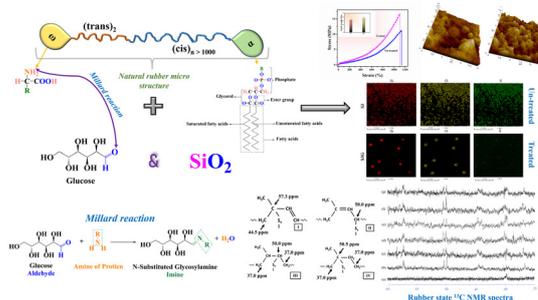
Jing Xu, Fanglei Guo, Carmen Bartic, Koen Clays and Yovan de Coene*



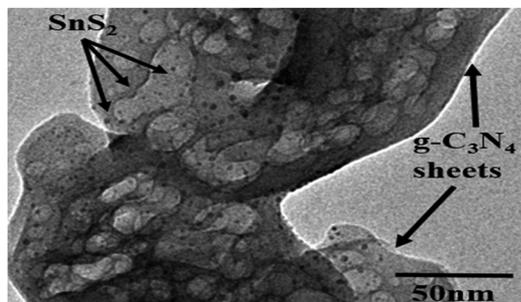
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A step towards a green and sustainable method to understand the effect of glucose on a silica filled natural rubber composite

Abhijit Bera, Masaki Yamano, Seiichi Kawahara* and Santanu Chattopadhyay*



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Pioneering the design of S-scheme $\text{SnS}_2/\text{g-C}_3\text{N}_4$ nanocomposites via sonochemical and physical mixing methods for solar degradation of cationic rhodamine B dye

Ali Alsalmeh, Mustafa Hesham, Ayman Soltan, Nagy N. Mohammed, A. Qassim Nejm, M. F. Abdel Messih, Islam A. Hussein and M. A. Ahmed*

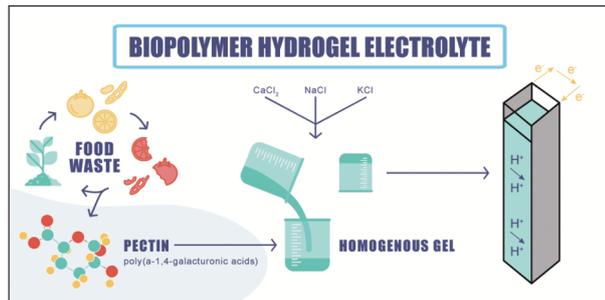
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Nitrophenylfurfural grafted amino functionalized silica nanoparticles for adsorptive removal of tartrazine dye from water

Syed Salman Shafqat,* Bushra Zafar, Syeda Amna Masood, Syed Rizwan Shafqat, Hafeez Ullah Khan, Asad Syed, Ali H. Bahkali, Sadaf Mutahir, Muhammad Asim Khan, Guobao Xu and Muhammad Nadeem Zafar*

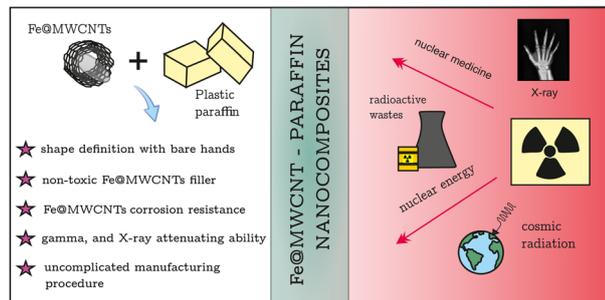
7312



Novel biopolymer pectin-based hydrogel electrolytes for sustainable energy storage

Nathan W. Wilson and Gerardine G. Botte*

7327



Soft, ternary, X- and gamma-ray shielding materials: paraffin-based iron-encapsulated carbon nanotube nanocomposites

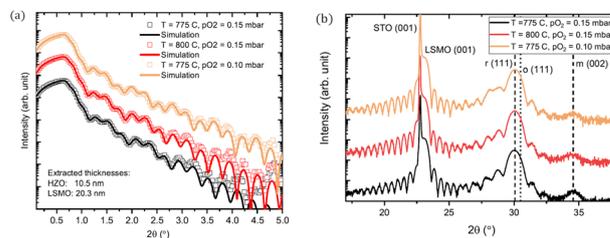
Jolanta Sobczak, Adrian Truskiewicz, Krzysztof Cwynar, Szymon Ruczka, Anna Kolanowska, Rafał G. Jędrzyak, Sylwia Waśkiewicz, Marzena Dzida, Sławomir Boncel* and Gawet Żyła*



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Synthesis of rhombohedral $\text{Hf}_{0.5}\text{Zr}_{0.5}\text{O}_2$ and analysis by X-ray diffraction through dynamical diffraction simulations

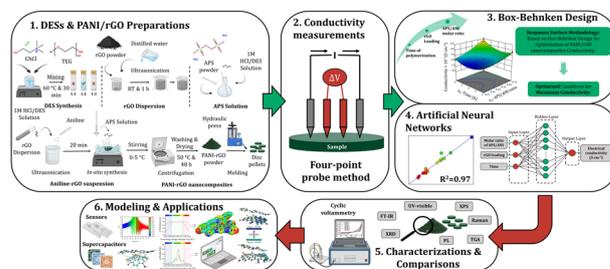
Kit de Hond, Guus Rijnders and Gertjan Koster*



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Comprehensive investigation of multifunctional polyaniline/reduced graphene oxide nanocomposites synthesized from deep eutectic solvents: experimental, RSM, ANN and computational studies

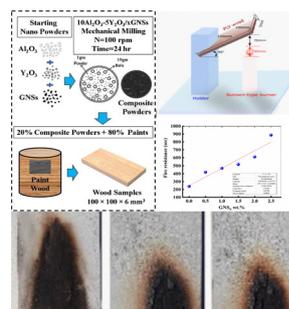
Abir Boublia, Zahir Guezout, Nacerddine Haddaoui, Michael Badawi, Imane Lakikza, Ilyas Belkhettab, Ouahiba Moumeni, Saoussen Imene Aouni, Manawwer Alam and Yacine Benguerba*



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Low cost paints reinforced with an $\text{Al}_2\text{O}_3/\text{Y}_2\text{O}_3/\text{graphene}$ nanocomposite for fire-resistant wood coating applications

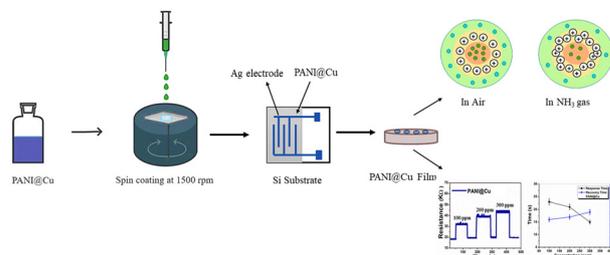
Ahmed El-Tantawy, Ibrahim M. Hassan, Omayma A. El-kady, Ahmed. I. Ali,* Jong Yeog Son* and Nasser. M. Ayoub



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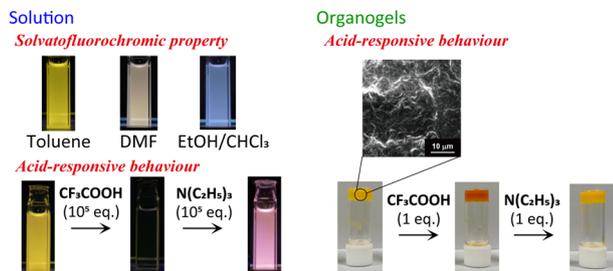
Gas sensing properties of a Cu-doped PANI nanocomposite towards ammonia

Arunima Verma and Tanuj Kumar*



7401

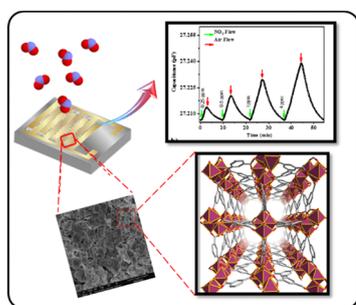
Hydrogen-bonding fluorenone-based donor–acceptor–donor triads



Multi-stimuli-responsive behaviours of fluorenone-based donor–acceptor–donor triads in solution and supramolecular gel states

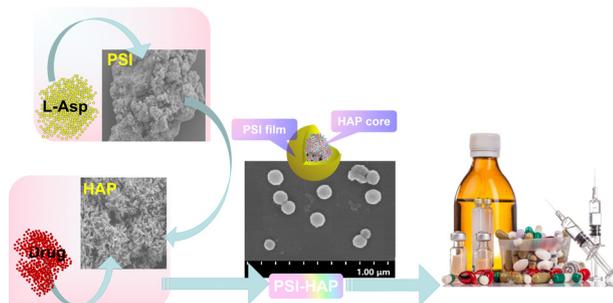
Mao Suzuki, Atsushi Seki,* Syota Yamada and Ken'ichi Aoki

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The deployment of an NOTT-300 (Al) MOF thin film as a NO₂ capacitive sensor under ambient conditions

Mohamed Rachid Tchalala, Osama Shekhal, Youssef Belmabkhout, Hao Jiang, Khaled N. Salama* and Mohamed Eddaoudi*

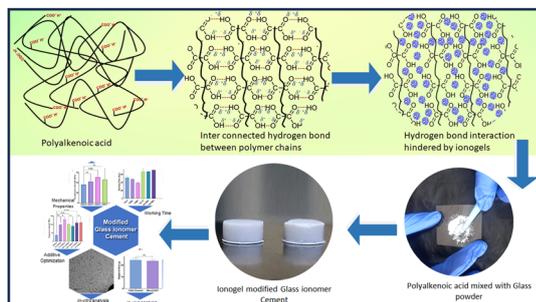
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Studies of a novel nano sustained-released drug delivery system with a hydroxyapatite core and polysuccinimide coating structure

Fengbo Yu, Qiang Wang, Dan Liu, Xingjun Fan, Lei Tong, Guangzhi Shen and Fengguo Zhai*

7432



Ionogel impregnated glass ionomer cement and the effect of nanoparticle additives

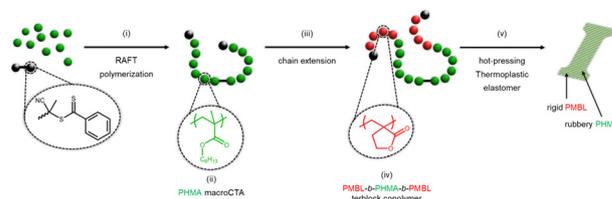
Sreejith Sasidharan Lathikumari and Manju Saraswathy*



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Synthesis of a thermoplastic elastomer from α -methylene- γ -butyrolactone for high temperature applications

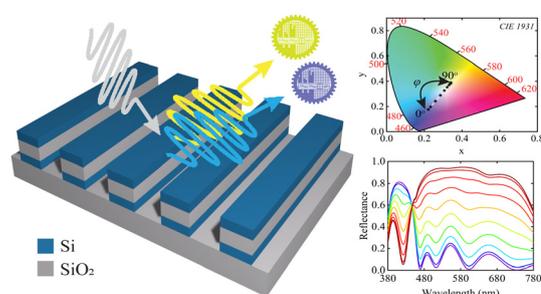
Friso G. Versteeg, Théophile Pelras, Giuseppe Portale and Francesco Picchioni*



7455

A polarization tunable incident angle tolerant dielectric metasurface-based color filter

Soikot Sarkar, Dip Sarker and Ahmed Zubair*

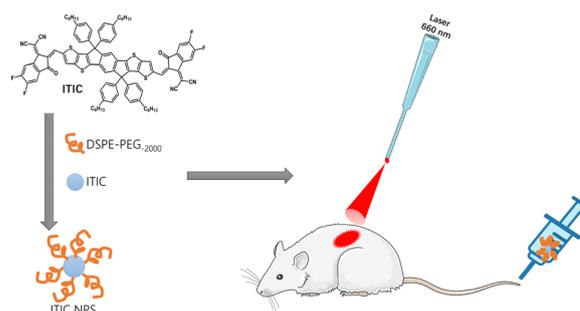


An ingenious Si-SiO₂-Si grating dielectric metasurface structure was engineered to obtain structural colorization.

7467

Synthesis of a new photosensitizer for laser-mediated photodynamic therapy to kill cancer cells in gliomas

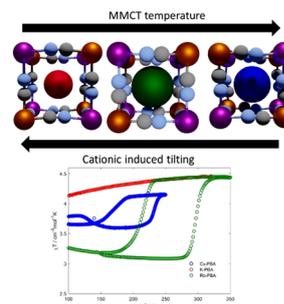
Guangshu Liang, Yining Yang, Daofu Cheng, Yuyan Ma and Linping Yan*



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Controlling A_xMn[Fe(CN)₆] charge transfer pathways through tilt-engineering for enhanced metal-to-metal interactions

A. Regueiro, J. Castells-Gil, C. Shen, I. Mikulska, C. Allen, L. Bogani* and R. Torres-Cavanillas*



CORRECTION

7481

Correction: Imidazolium-based ionic liquids support biosimilar flavin electron transfer

Grace I. Anderson, Alec Agee and Ariel L. Furst*

