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IN THIS ISSUE

ISSN 2633–5409 CODEN MAADC9 5(13) 5325–5674 (2024)

Cover
See Naoko Kobayashi, Takashi Watanabe *et al.*, pp. 5398–5409. Image reproduced by permission of Naoko Kobayashi and Takashi Watanabe from *Mater. Adv.*, 2024, **5**, 5398.

Inside cover
See Chamindie Punyadeera, Ajay K. Pandey *et al.*, pp. 5339–5350. Image reproduced by permission of Ajay K. Pandey from *Mater. Adv.*, 2024, **5**, 5339.

EDITORIAL

5336

Introduction to hybrid pores for CO_2 technologies

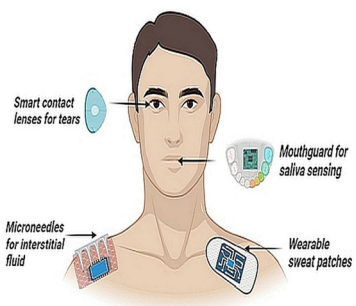
Petra Ágota Szilágyi, Jenny G. Vitillo and Gavin A. Craig

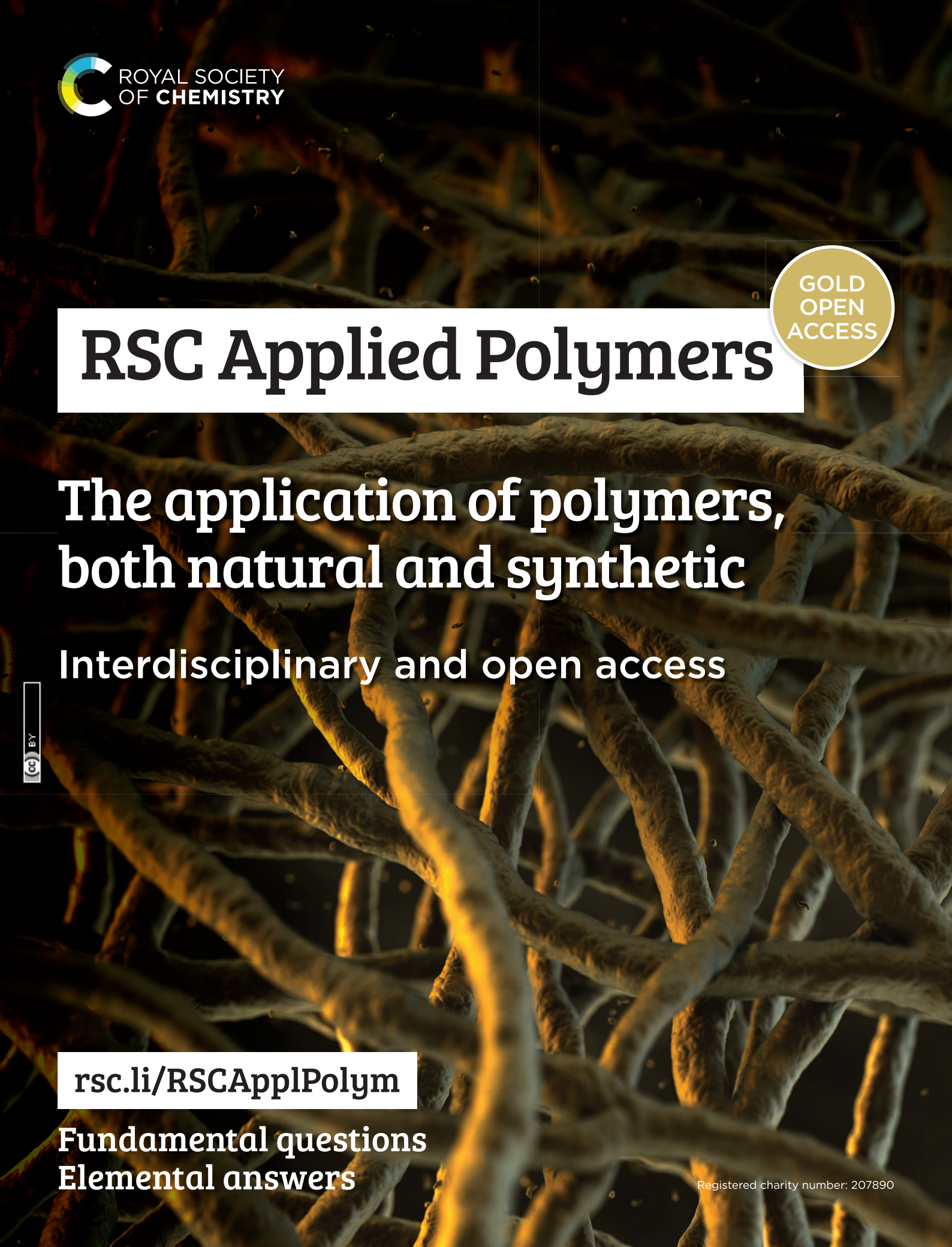
REVIEWS

5339

Sensing methods for stress biomarker detection in human saliva: a new frontier for wearable electronics and biosensing

Parth Pandit, Blair Crewther, Christian Cook, Chamindie Punyadeera* and Ajay K. Pandey*

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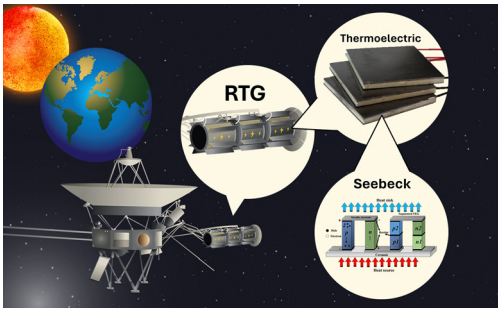
REVIEWS

5351

Thermoelectric materials for space explorations

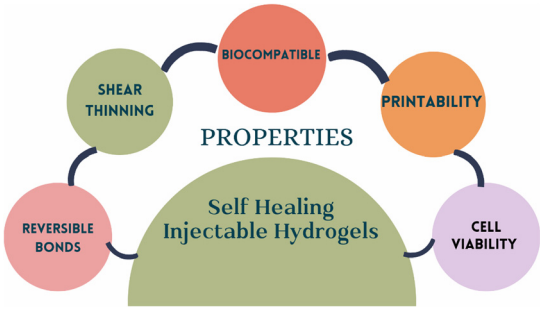
Dulyawich Palaporn, Sora-at Tanusilp,* Yifan Sun, Supree Pinitsoontorn and Ken Kurosaki*



5365

Self-healing, injectable chitosan-based hydrogels: structure, properties and biological applications

Manasi Esther J., Raghu Solanki, Mukesh Dhanka, Prachi Thareja* and Dhiraj Bhatia*

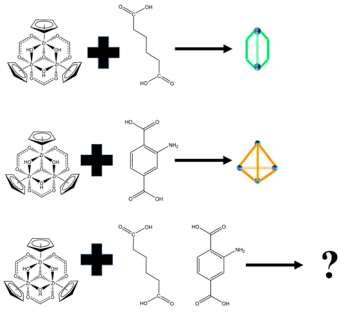


COMMUNICATION

5394

Study of self-assembly of mixed-ligand metal–organic cages by high-resolution mass spectrometry

Kang Tong, Jia Jia,* Rongfu Huang and Jin Luo

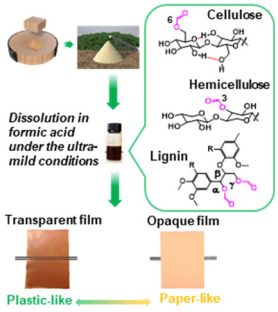


PAPERS

5398

Reassembly of wood to plastic- and paper-like films *via* ultra-mild dissolution in formic acid

Naoko Kobayashi,* Tomohiro Hashizume, Keiko Kondo, Kenji Kitayama, Masato Katahira and Takashi Watanabe*



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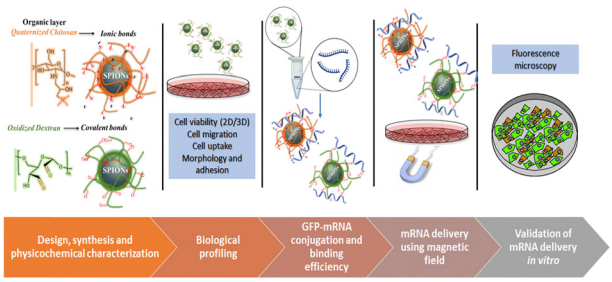
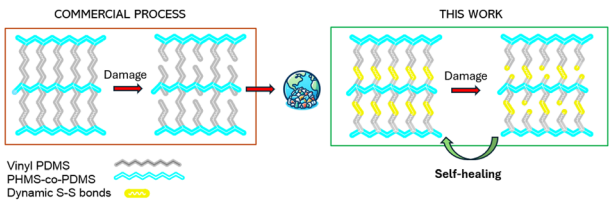


Functional polysaccharide-coated SPIONs for *in vitro* mRNA delivery in breast cancer cells

Olga Tsave, Maria Psarrou, Georgia Kastrinaki, Eleni Papachristou, Rigini Papi, Vassilios Zaspalis, Lori Nalbandian, Charalampos Sarafidis, Theodora Choli-Papadopoulou, Maria Vamvakaki and Christos Chatzidoukas*

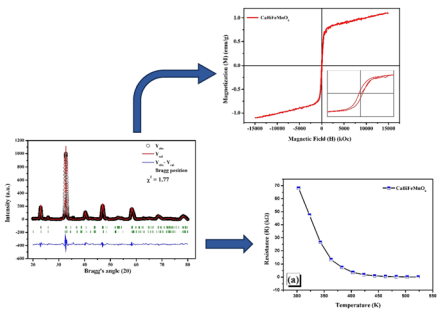
5433



Converting commercial-grade silicone into a vitrimer using elemental sulfur

Mahsaalsadat Rokni, Kun Woo Park, Wing Ho Leung, Zoran Zujovic and Erin M. Leitao*

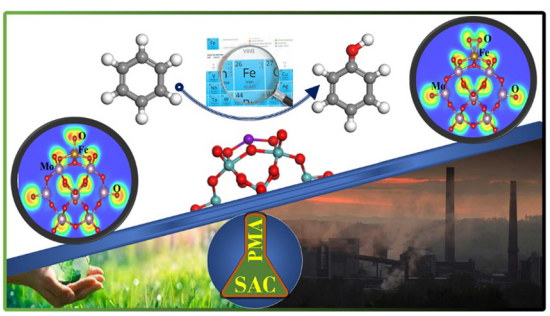
5442



Investigation of the structural, dielectric, magnetic properties and NTC-thermistor response of $CaBiFeMnO_6$ double perovskites

Shubhashree Sahoo, Lutu Sahoo, N. C. Nayak, B. N. Parida and R. K. Parida*

5458



Enhancing direct hydroxylation of benzene to phenol on Fe_1/PMA single-atom catalyst: a comparative study of H_2O_2 *vs.* O_2-assisted reactions

Beenish Bashir, Shamraiz Hussain Talib,* Muhammad Ajmal Khan, Sharmarke Mohamed, Ahsanulhaq Qurashi, Hai Xiao and Jun Li*

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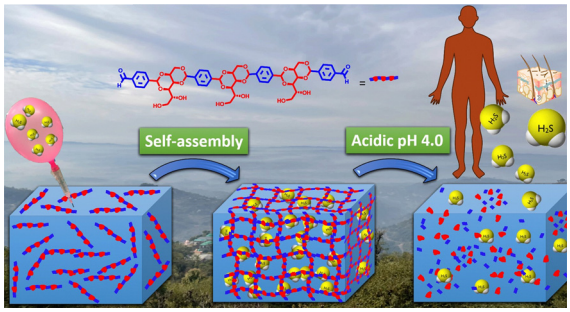
PAPERS

5471

Facile synthesis and self-assembly of pharmaceutically important oligobenzylidene-D-sorbitol dialdehydes: direct encapsulation and stimuli responsive delivery of H_2S

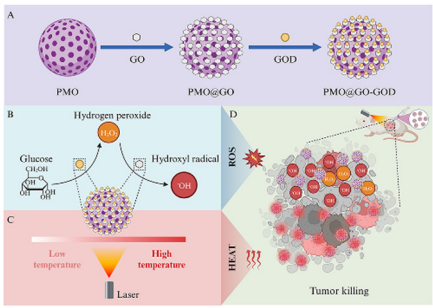
Vara Prasad Rebaka, Yogendra Kumar, Tohira Banoo, Arun Kumar Rachamalla and Subbiah Nagarajan*



5482

A graphene oxide-based sequential nanocatalyst for efficient tumor combination therapy

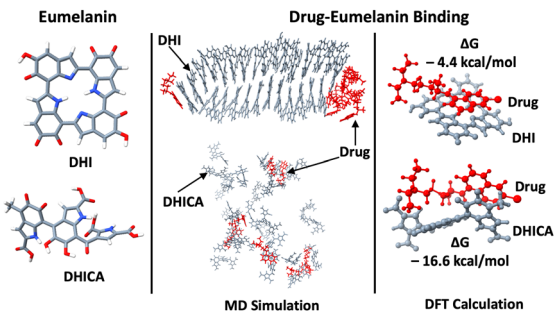
Zhenlu Yang, Ying Zhao, Zi Xu, Rongpin Wang* and Qing Wang*



5494

A computational investigation of eumelanin–drug binding in aqueous solutions

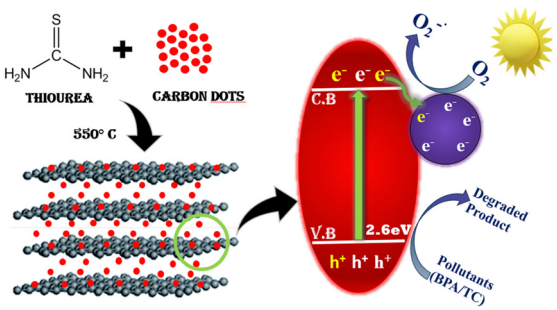
Sepideh Soltani, Anupom Roy, Arto Urtti and Mikko Karttunen*



5514

Efficient photo-oxidation of bisphenol a and tetracycline through sulfur-doped g-C_3N_4/CD heterojunctions

Ankoor Sura, Amanvir Singh, Arjun Singh, Sudha Narwal, Priya Malik, Manjeet Singh Goyat, Yogendra K. Mishra, Sonia Nain* and Surender Duhan*



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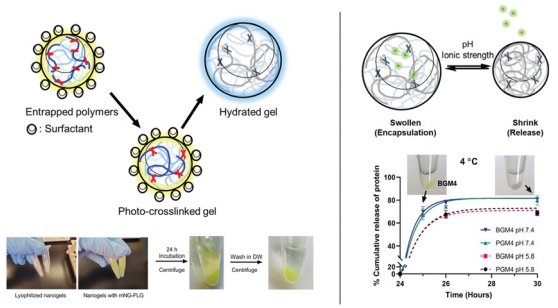
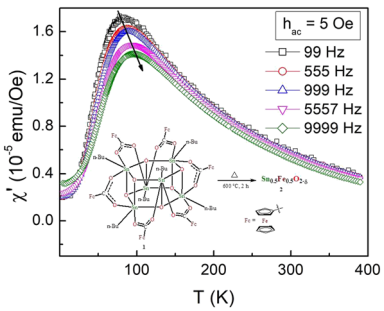


Harnessing nanoreactors: gelatin nanogels for human therapeutic protein delivery

Jeehye Kim, Caroline E. Copeland and Yong-Chan Kwon*

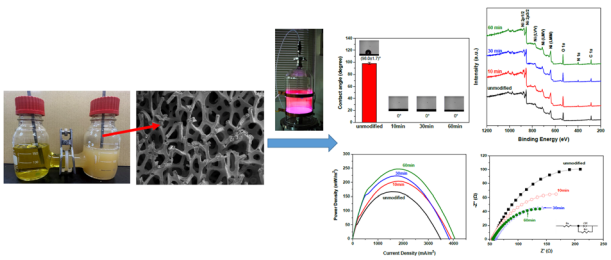
5543



Observation of cluster spin glass behavior in thermally decomposed nanocrystalline $Sn_{0.5}Fe_{0.5}O_{2-\delta}$

Aarti Saini, Kisturi Dhanwant, Mukesh Verma, Sher Singh Meena, Yugandhar Bitla* and Ramalingam Thirumoorthi*

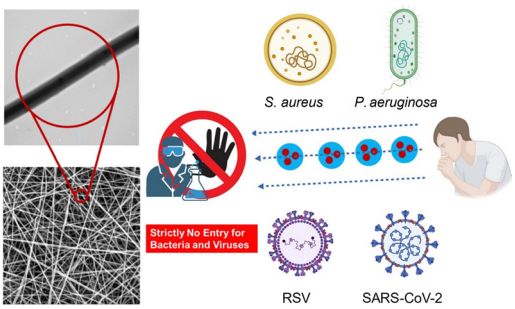
5554



Effects of N_2 plasma modification on the surface properties and electrochemical performance of Ni foam electrodes for double-chamber microbial fuel cells

Mozhgan Gholami-Kermanshahi, Ming-Cheng Lee, Günther Lange and Shih-Hang Chang*

5561



A one-step method for generating antimicrobial nanofibre meshes *via* coaxial electrospinning

Fangyuan Zhang, Amy I. Jacobs, Maximillian Woodall, Helen C. Hailes, Ijeoma F. Uchegbu, Delmiro Fernandez-Reyes, Claire M. Smith, Karolina Dziemidowicz* and Gareth R. Williams*

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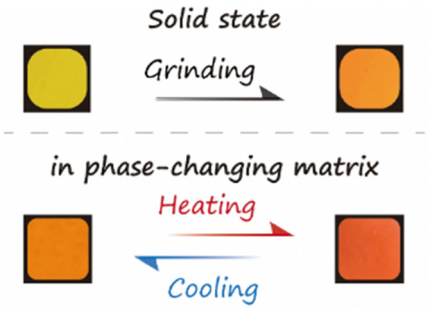
5572

Visible light excited and temperature-responsive phosphorescent system in a phase-changing matrix

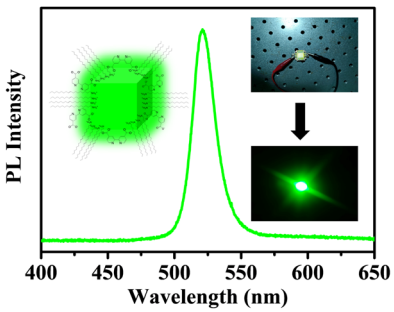
Yingying Hu, Glib V. Baryshnikov,* Xueru Shan, Weiyi Zhang, Sheng-yin Zhao,* Liangliang Zhu* and Hongwei Wu*



5579

2,2′-Bipyridine-4,4′-dicarboxylic acid ligand engineered $CsPbBr_3$ perovskite nanocrystals for enhanced photoluminescence quantum yield with stable display applications

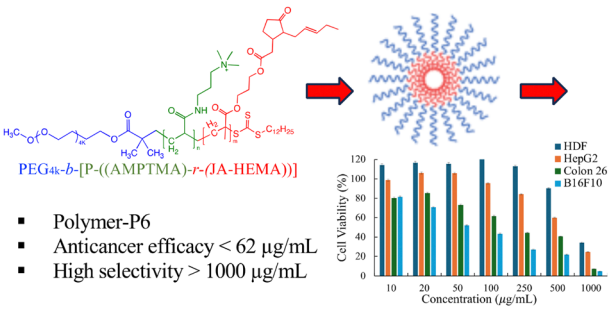
Ankit Kumar, Sukanya Ghosh, Ankush Saini, Sumit Kumar, Monojit Bag* and Prasenjit Kar*



5586

Novel approach to enhancing the anticancer efficacy of methyl jasmonate with PEG-incorporated cationic polymers

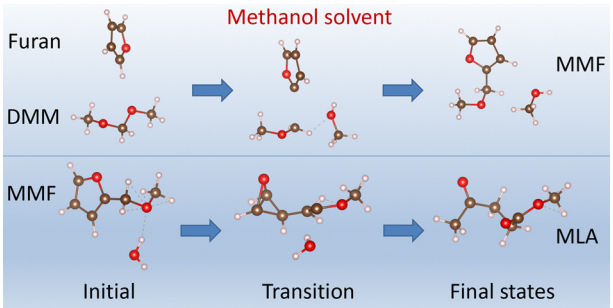
Nishant Kumar, Pratibha Singh, Dandan Zhao, Robin Rajan* and Kazuaki Matsumura*



5595

***Ab initio* insight into furan conversion to levulinate ester in reaction with methylal and methanol**

Yun-Sim Kim, Ryong-Wan Ham, Yong-Chol Pak, Man-Sok O and Chol-Jun Yu*



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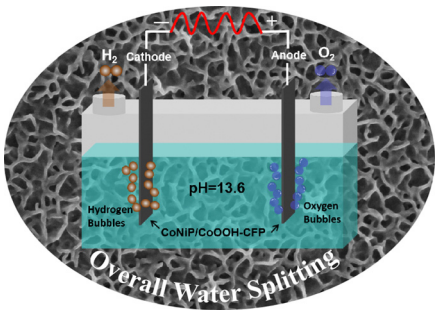
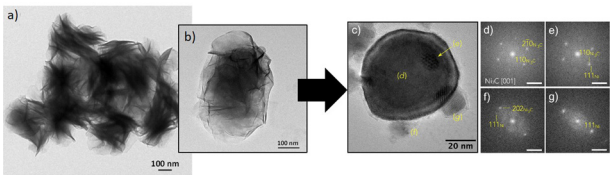


Surface engineering assisted CoNiP nanosheet arrays for electrochemical overall water splitting

Linfei Zhang,* Ruilong Wei, Chenyi Liu, Ningfa He, Xinru He, Yuhuan Jiang, Changshuai Guo, Yong Hu and Shengliang Zhong*

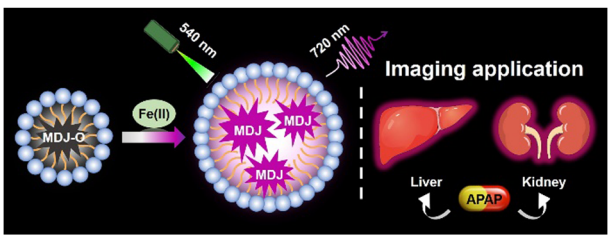
5614



Cold H_2–Ar plasma interaction with nickel α-hydroxide as a versatile nanofabrication tool for Ni@C_{gr} nanoparticles

Marie-Charlotte Dragassi, Sonia Haj-Khlifa, Nicolas Menguy, Michael Redolfi* and Souad Ammar*

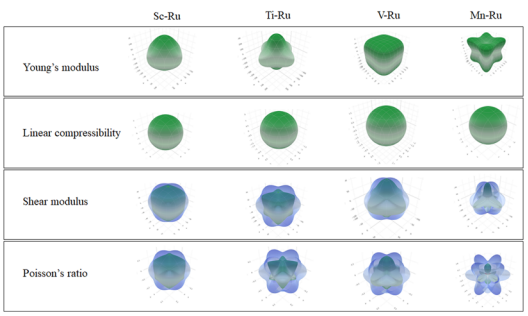
5624



A novel NIR fluorescent probe for *in situ* visualizing Fe(II) and its application in drug-induced liver/kidney injury

Hanyue Xiang, Yanjie Song, Yilin Wang, Wenzhuo Fu and Nao Xiao*

5632



First-principles study of stability and electronic properties of B2 X–Ru alloys for high-temperature structural applications

B. O. Mnisi,* E. M. Benecha and M. M. Tibane

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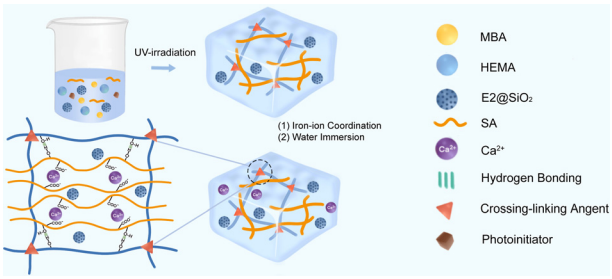
PAPERS

5644

Long-lasting anti-swelling sustained-release estradiol hydrogel for promoting vaginal wound healing

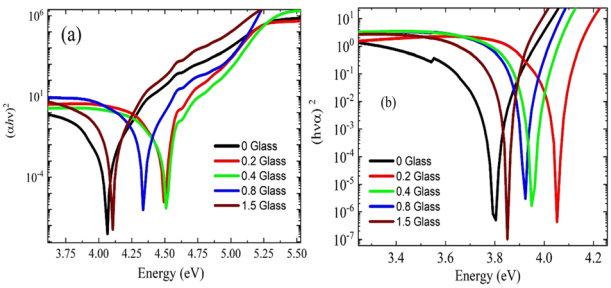
Tianyue Zhang, Hongyi Lv, Yijing Zhang, Lingyun Yu, Yonghong Li, Hechun Yan, Chenyan He, Dongmei Zhao, Lijuan Zhao, Yuedong He,* Yi Wang* and Zhongyi Zhu*



5658

Effect of gamma irradiation on the electrical and optical properties of PEVA composite membrane embedded with conductive copper fluoroborate glass powder

Elbadawy A. Kamoun,* O. I. Sallam, Ehab E. Khozemy, Mohamed Morsy, Yasair Al-Faiyz, Saleh M. Matar, Ahmed I. Ali,* Jong Yeog Son* and Galal H. Ramzy



CORRECTIONS

5671

Correction: Thermosensitive drug-loaded liposomes for photothermal and chemotherapeutic treatment of colon cancer

Haihua Zhou, Hongyan Pan, Faisal Raza, Hajra Zafar, Yu Ge, Nan Wang, Ronglei Zheng, Degeng Zhang and Minyan Yang*

5672

Correction: High-throughput prediction of oxygen vacancy defect migration near misfit dislocations in $SrTiO_3/BaZrO_3$ heterostructures

William Ebmeyer and Pratik P. Dholabhai*