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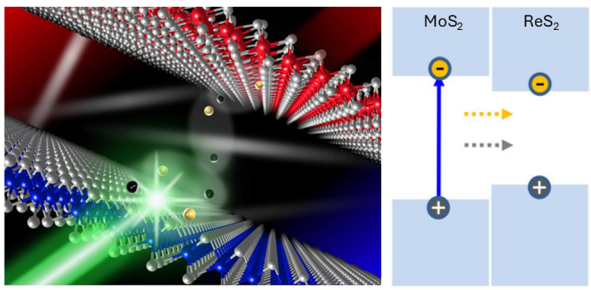
COMMENTARY

2636

A reflection on 'Type-I van der Waals heterostructure formed by MoS_2 and ReS_2 monolayers'

Hui Zhao



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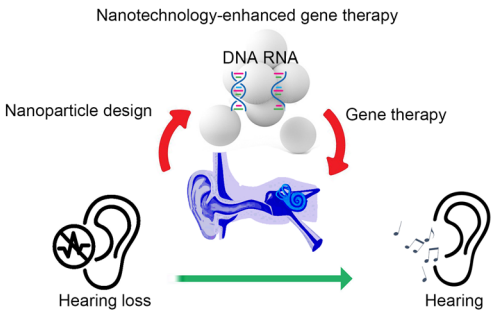
REVIEWS

2641

Nanotechnology-enhanced gene therapy for hearing loss

Yiwen Liu, Lin Li, Pei Huang, Dingjun Zha* and Hongzhang Deng*



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REVIEWS

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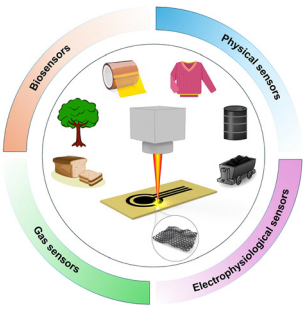
Advances in aptamer-based electrochemical biosensors for disease diagnosis: integration of DNA and nanomaterials

SaRi GeGen, Gedong Meng, Gerile Aodeng, Lu Ga and Jun Ai*

2688

Laser-induced graphene for biomedical applications: innovations in health monitoring and diagnostics

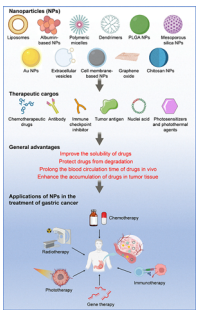
Truong-Son Dinh Le, Y-Van Tran, Yuji Gao, Von Luigi Valerio, Zhixing Ge and Chwee Teck Lim*



2722

Nanoformulation-based drug delivery systems for the treatment of gastric cancer: recent developments and future prospects

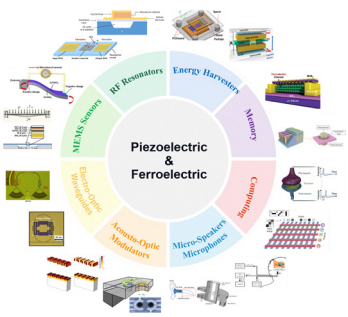
Jiale Zou, Siwen Chen, Wenhui Liu, Yishu Wang, Diwei Zheng, Wenqiang Sun, Shiping Xu,* Wei Wei* and Shuang Wang*



2744

Multifunctional MEMS, NEMS, micro/nano-structures enabled by piezoelectric and ferroelectric effects

Mengyao Xiao, Aolei Xu, Zhouli Sui, Wenjie Zhang, Huajun Liu* and Chengkuo Lee*



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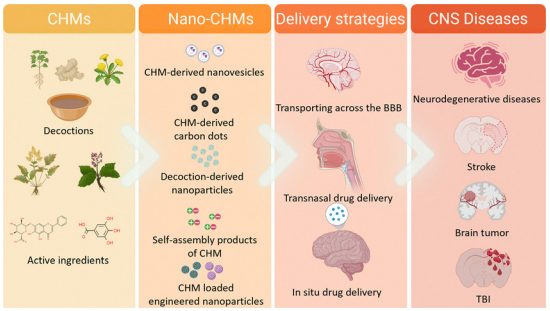

Nano-Chinese herbal medicines and their delivery strategies for central nervous system disease therapy

Yan Mu, Tong Jin, Tiantian Peng, Ya-Li Zhang, Jiameng Li, Rui Yu, Tiqiang Zhou, Guangchao Qing, Mengliang Zhu, Jianxin Chen,* Qian Hua* and Xing-Jie Liang*

MINIREVIEWS

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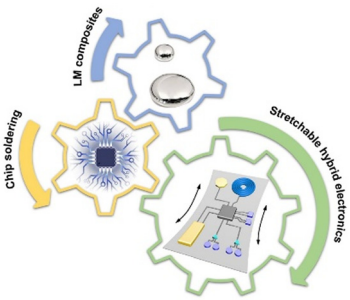
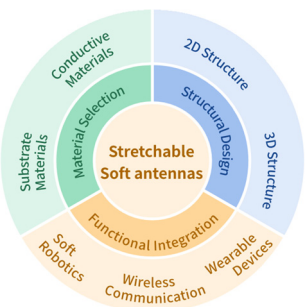


Biphasic liquid metal composites as soldering systems for robust soft–rigid interfacing in stretchable hybrid electronics

Jie Li, Kai Zhao* and Changqing Ye*

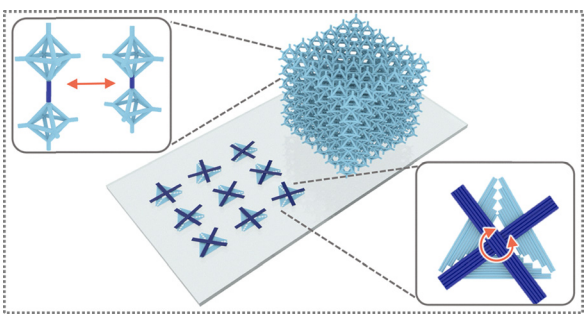
2809



Recent advances of stretchable soft antennas: material, structure and integration

Qian Wang, Wei Wang, Yuyang Hu, Fuhui Zhou* and Haitao Yang*

2828



Dynamic DNA superstructures with emergent functions

Daniel Duke, Sierra Sterling, Teng Teng, Anna Altunina, Irina V. Martynenko, Yonggang Ke, Carlos E. Castro and Gaurav Arya*

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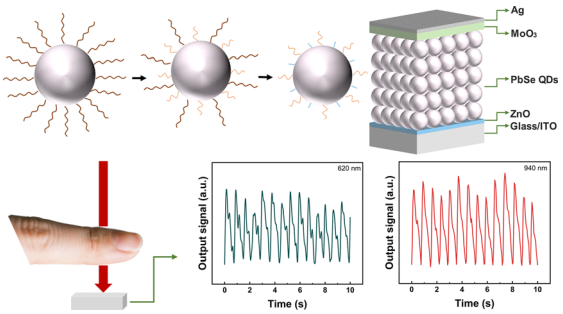
COMMUNICATIONS

2841

Two-step ligand exchange to promote charge transfer in PbSe quantum dot photodetectors for pulse monitoring

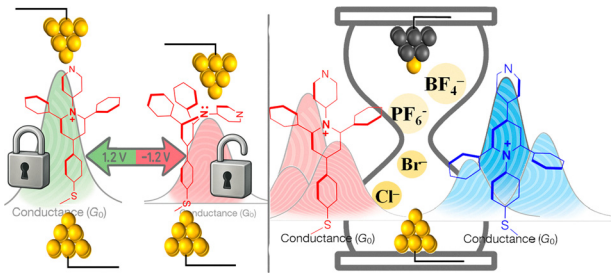
Jingwen Yang, Zaihua Duan,* Wenxin Zeng, Yichen Bu, Xing Tang, Guosheng Wang, Xin Zhou, Qian Dai, Zhen Yuan, Yadong Jiang and Huiling Tai*



2850

Molecular switches and real-time ion sensing in pyridinium circuits *via* a single-molecule STM-break junction

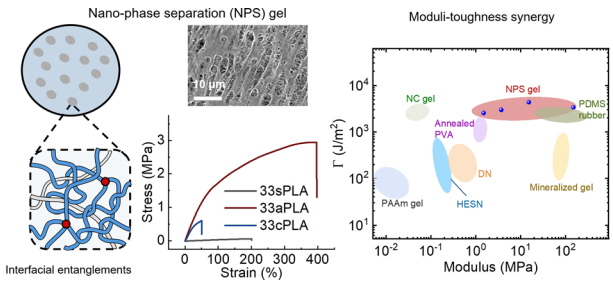
Ana María Méndez-Torres, Rubén Oñate, Ana Pizarro, Dany S. Monje, Nicolás Montenegro-Pohlhammer, Nadim Darwish, Diego Cortés-Arriagada, Gloria Cárdenas-Jirón* and Ingrid Ponce*



2865

Nanophase separation and interfacial entanglements enable tough hybrid polymer networks

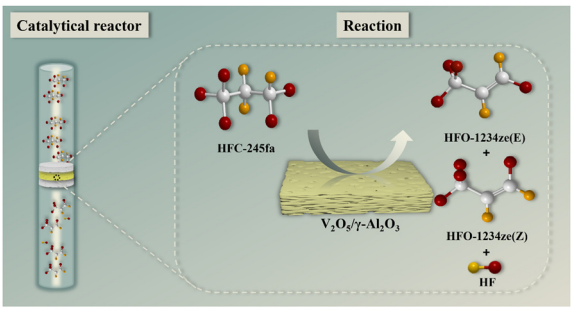
Xunan Hou, Liang Ma, Zhihao Zhang, Zichun Zhu, Hao Wang, Peiyao Yan, Zhuang Wang and Chaobin He*



2873

Robust dehydrofluorination of HFC-245fa to HFO-1234ze *via in situ* VOFx formation over a non-oxalic acid assisted $V_2O_5/\gamma-Al_2O_3$ catalyst

Fizzah Fatima, Mudadla Umamaheswara Rao, Guo-Ping Chang-Chien, Srinivaas Masimukku, Giridhar Madras, Gedu Satyanarayana and Subrahmanyam Challapalli*



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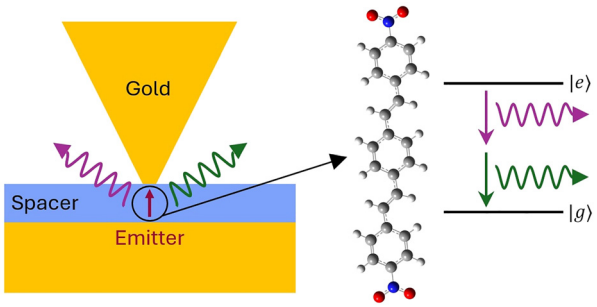
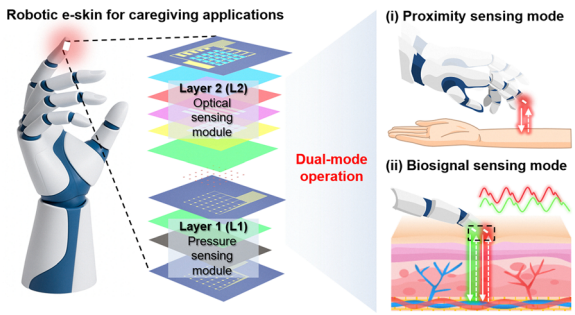


Designing two-photon molecular emitters in nanoparticle-on-mirror cavities

S. Smeets, B. Maes, G. Rosolen* and C. Van Dyck*

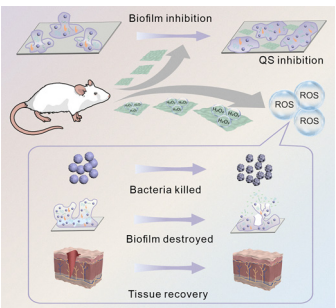
2896



Multifunctional electronic skin integrating dual-mode optical and pressure sensors for caregiving robots

Hyeonjun Heo, Jinhong Park, Daewon Ko, Kyunghoon Lee, Jinhee Lee, Hyunwoo Joo, Jiwoong Yang, Gi Doo Cha, Dae-Hyeong Kim* and Dong Chan Kim*

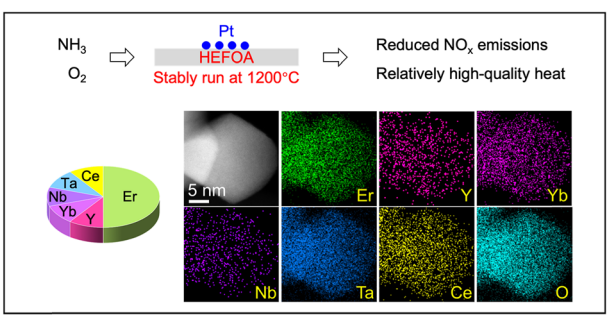
2908



Ultrathin DNA–copper nanosheets with antibacterial and anti-biofilm activity for treatment of infected wounds

Fangfang Chen, Mengyan Lei, Jing Luo, Jiaqi Li, Jinfang Wang, Nan Zhang, Xinyi Li, Nan Jia, Xiangyuan Ouyang* and Huaiyu Bu*

2920



High-entropy fluorite oxide supported Pt catalysts for catalytic ammonia combustion at 1200 °C

Yankun Du, Liang Xu, Bingqing Yao, Xin He, Chaokai Xu, Zhiwei Dai, Hongjie Wang,* Ning Yan* and Qian He*

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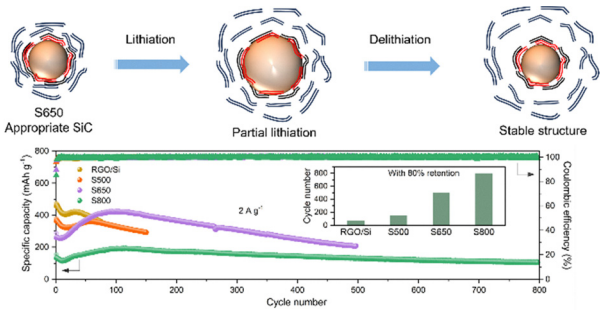
Adjustable SiC interfacial layers toward reliable Si-based anode applications

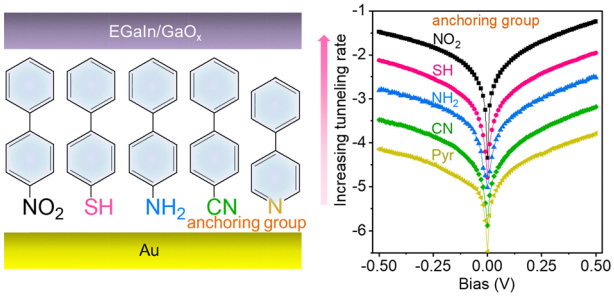
Wenhui Lai, Jong Hak Lee, Yue Yuan, Yong Kang Ong, Carlos Limpo, Lu Shi, Yanhui Pu, Yifan Rao, Mario Lanza and Barbaros Özyilmaz*



2945

Influence of anchoring group on charge transport across self-assembled monolayer-based molecular tunnel junctions

Qianqian Guo, Shi Huang, Xiaojiang Yu, Christian A. Nijhuis* and Xiaoping Chen*



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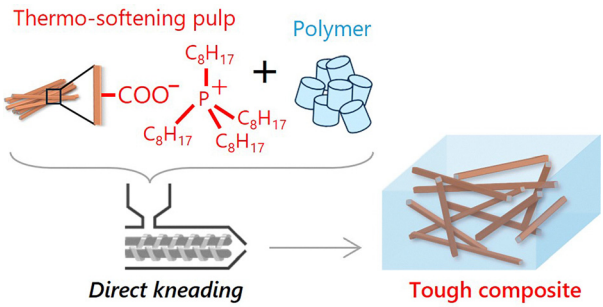
Direct kneading of thermo-softening pulp towards producing sustainable tough composites of wood nanocellulose and polycaprolactone

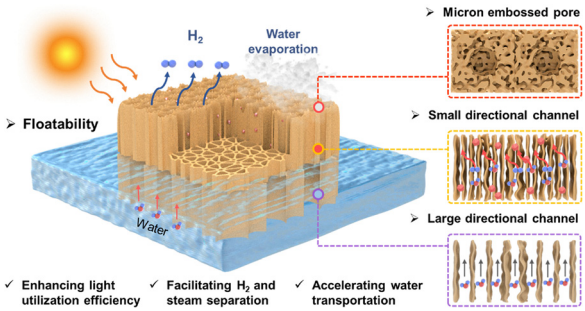
Masahiro Kasamatsu, Shun Ishioka,* Noriyuki Isobe, Katsunori Kimoto, Satoshi Okada, Yohsuke Goi, Shuji Fujisawa and Tsuguyuki Saito*



2960

Gradient-structured directional porous floatable aerogels for effective solar-driven hydrogen production and steam generation

Changsong Shi, Rongtao Zheng, Yihe Yue, Mingliang Wu, Pengfei Li, Linfeng Fan, Chi Guo, Xin Zhang, Peiyu Luo, Jiawen Zhang, Cuilian Wen, Jinlan Wang,* Baisheng Sa* and Zhiyang Lyu*



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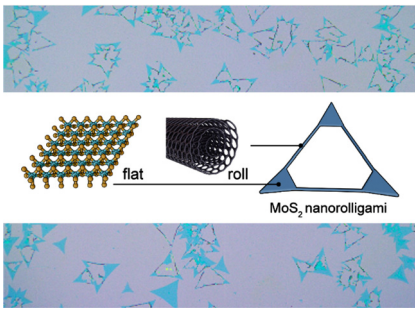
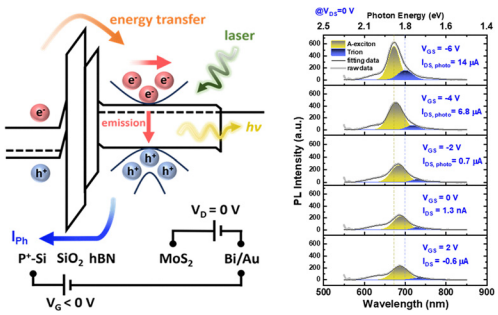


Unveiling the giant polarisation ratio of chiral photoluminescence in MoS_2 nanorolligami fabricated using a centre-to-edge rolling mechanism

Rahul Kesarwani, Miroslav Veverka, Martin Žáček, Vaibhav Varade, Ladislav Fekete, Martin Kalbac and Jana Vejpravova*

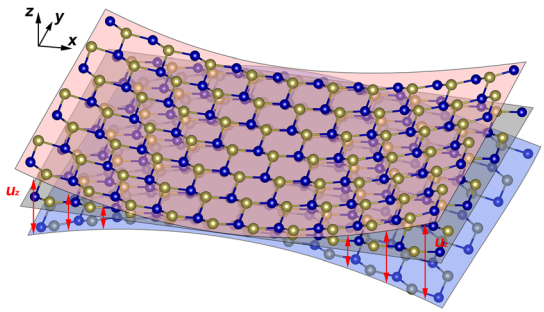
2986



Modulation of photoluminescence in a MoS_2 device through tuning the quantum tunneling effect

Bor-Wei Liang,* Ruei-Yu Hsu, Wen-Hao Chang, Ye-Ru Chen, You-Jia Huang, Tilo H. Yang, Yu Liang Li, Chin-Yuan Su, Ting-Hua Lu and Yann-Wen Lan*

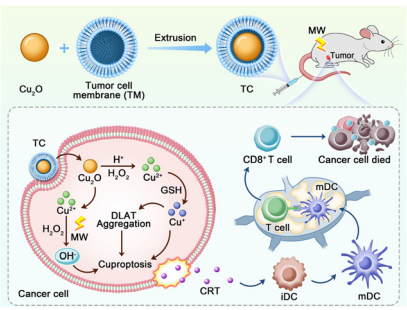
2995



Large piezo-/flexo-electric and flexomagnetic effects in a semiconducting cobalt telluride monolayer

Ying Liu, Wenfa Chen,* Yan Yin, Ziming Tang, Qihua Gong,* Min Yi and Yanpeng Liu*

3003



Bionic nanomedicines for microwave-triggered cuproptosis to enhance cancer immunotherapy

Meng Suo, Ziqi Wang, Shiwei Zhang, Wei Tang, Dongyan Liang, Xiaoyuan Chen* and Shipeng Ning*

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COMMUNICATIONS

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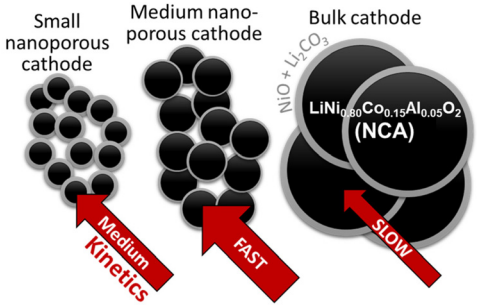
Nanostructured $LiNi_{0.80}Co_{0.15}Al_{0.05}O_2$ (NCA) for fast-charging, high-capacity battery cathodes

Victoria M. Basile, Chun-Han Lai, Grace Y. Kim, Christopher S. Choi, Danielle M. Butts, Kodi Thurber, Sophia C. King and Sarah H. Tolbert*



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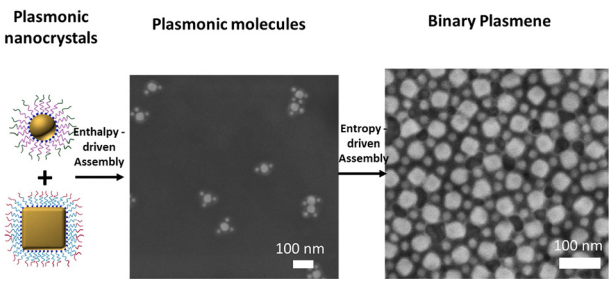
Plasmene nanosheets assembled from "plasmonic molecules"

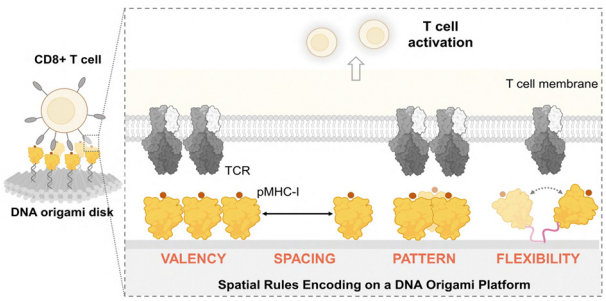
Qianqian Shi,* Bo Fan, Xiaorui Cao, Debabrata Sikdar, Yifeng Huang, Jialiang Yin, Yan Lu, San H. Thang and Wenlong Cheng*



3041

Pattern and precision: DNA-based mapping of spatial rules for T cell activation

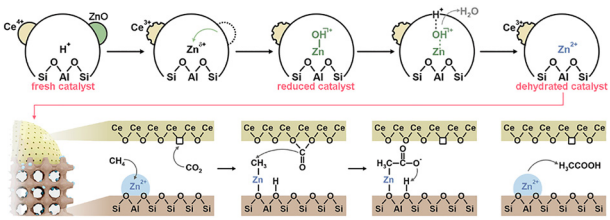
Shujie Li, Kaltrina Paloja and Maartje M. C. Bastings*



3051

Advances in the direct conversion of CH_4 and CO_2 into acetic acid over bimetallic catalysts supported on H-ZSM-5

Gabriel F. Lopes, Alessandra F. Lucrédio, Luiz H. Vieira* and Elisabete M. Assaf*



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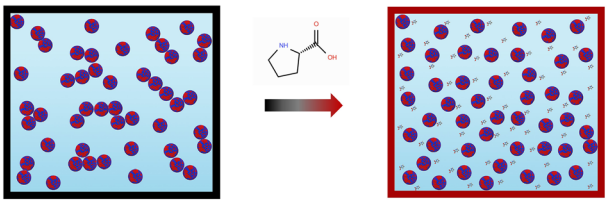
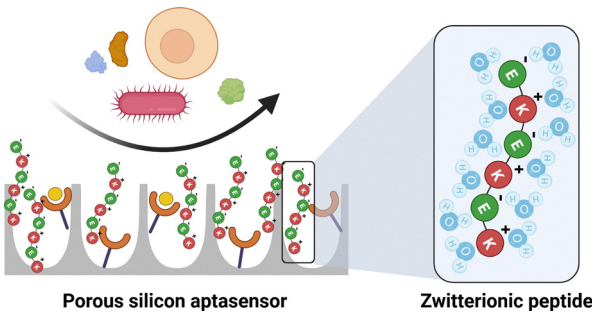


Proline stabilizes amphiphilic gold nanoparticles *via* hydrophobic interactions

Ting Mao, Quy Ong, Joachim Kohlbrecher, Ekaterina Poliukhina, Paulo Jacob Silva and Francesco Stellacci*

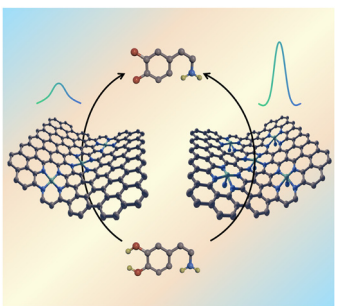
3072



Porous silicon biosensors meet zwitterionic peptides: tackling biofouling from proteins to cells

Kayan Awawdeh, Xin Jiang, Lisa Dahan, Matan Atias, Janina Bahnemann and Ester Segal*

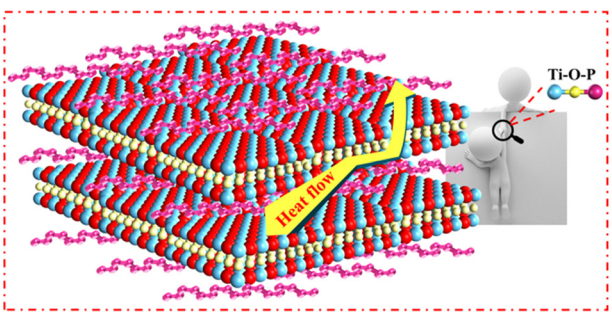
3085



Axial modulation of Fe sites for boosted electrochemical oxidation

Zhenglong Mao, Shentian Li, Feilong Tan, Cao Li, Lei Jiao, Wenling Gu and Xin Luo*

3093



Facile preparation of MXene/BP nanocomposite films with high thermal conductivity and excellent flame retardancy

Yingjie Zhan,* Kun Wu* and Wei Xue

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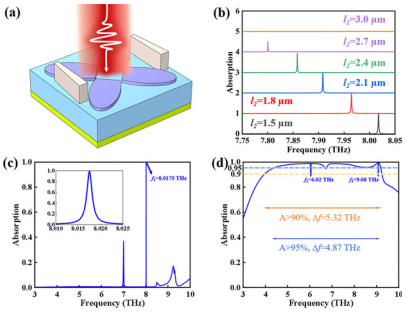
A multifunctional terahertz device based on vanadium dioxide metamaterials that switches between ultra-broadband absorption and ultra-high-*Q* narrowband absorption

Tao Liu, Chunlan Wang,* Gengliang Zou, Jiaying Ji and Zao Yi*



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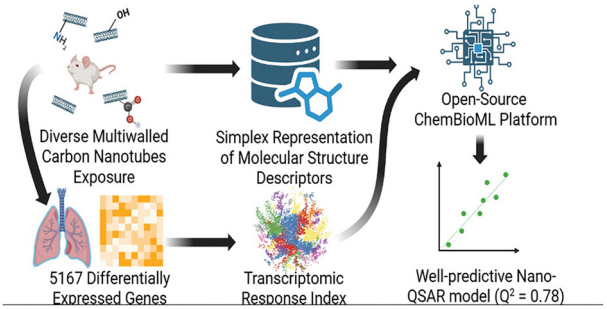
TRIumph in nanotoxicology: simplifying transcriptomics into a single predictive variable

Viacheslav Muratov, Karolina Jagiello* and Tomasz Puzyn*