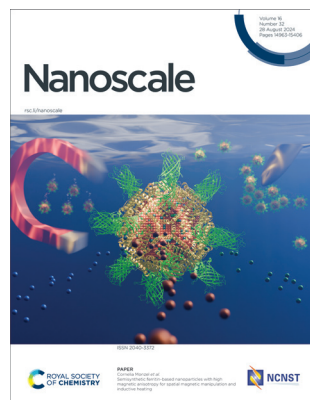


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### Cover

See Cornelia Monzel *et al.*, pp. 15113–15127.

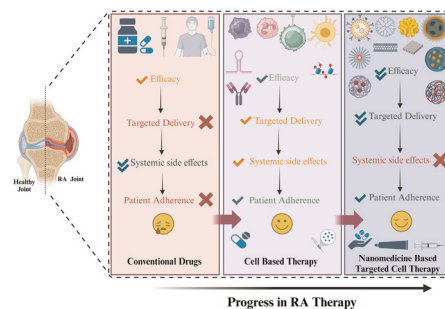
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## REVIEWS

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### Advancements in rheumatoid arthritis therapy: a journey from conventional therapy to precision medicine via nanoparticles targeting immune cells

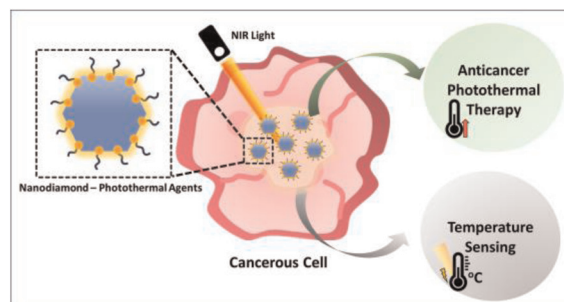
Anwasha Laha, Simran Nasra, Dhiraj Bhatia and Ashutosh Kumar\*



14994

### Exploring nanodiamonds: leveraging their dual capacities for anticancer photothermal therapy and temperature sensing

Wesley Wei-Wen Hsiao,\* Xuan Mai Lam, Trong-Nghia Le, Chi-An Cheng\* and Huan-Cheng Chang



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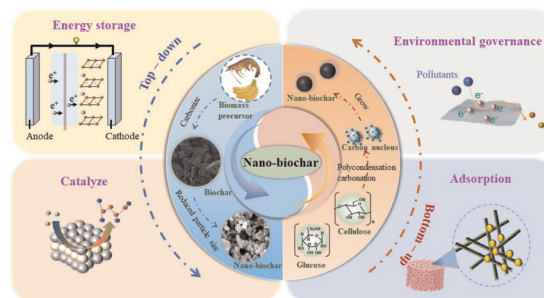
Fundamental questions  
Elemental answers

## REVIEWS

15009

**Advances in sustainable nano-biochar: precursors, synthesis methods and applications**

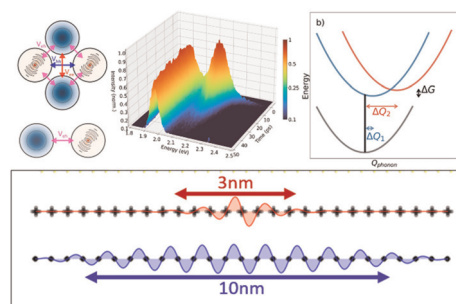
Junchao Xu, Yiming Xie, Qingdong Yao, Li Lv and Huaqiang Chu\*



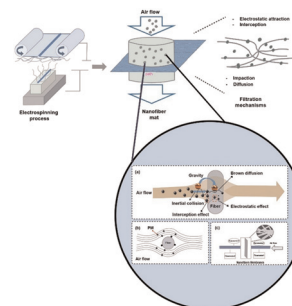
15033

**Unraveling the excitonics of light emission from metal-halide perovskite quantum dots**

Patanjali Kambhampati



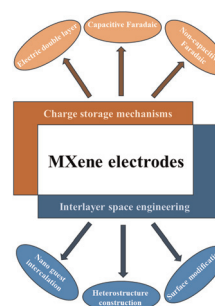
15059

**Nanoporous air filtering systems made from renewable sources: benefits and challenges**Arnab Dutta, Solmaz Karamikamkar,\*  
Mohammadreza Nofar and Ehsan Behzadfar\*

15078

**Effects of interlayer space engineering and surface modification on the charge storage mechanisms of MXene nanomaterials: A review on recent developments**

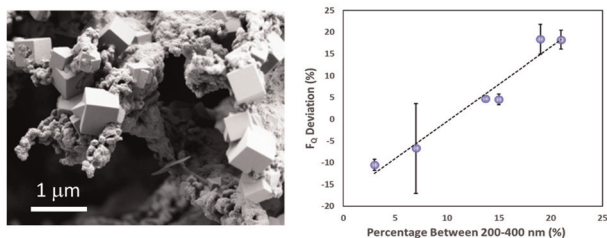
Mohammad Bandpey and Dominik P. J. Barz\*





## COMMUNICATIONS

15094

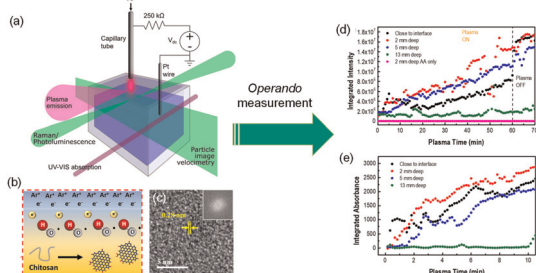


### Microstructure-dependent particulate filtration using multifunctional metallic nanowire foams

James Malloy, Erin Marlowe, Christopher J. Jensen, Isaac S. Liu, Thomas Hulse, Anne F. Murray, Daniel Bryan, Thomas G. Denes, Dustin A. Gilbert, Gen Yin and Kai Liu\*

15104

Operando time and space-resolved spectroscopy study for plasma synthesis of NGQDs

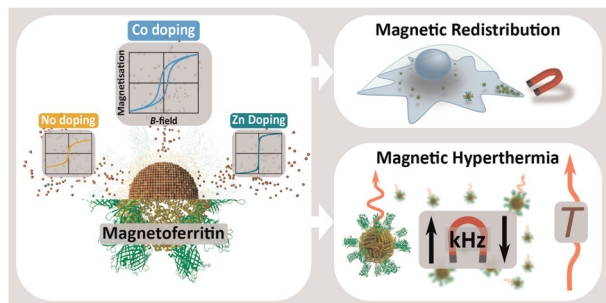


### Operando time and space-resolved liquid-phase diagnostics reveal the plasma selective synthesis of nanographenes

Darwin Kurniawan, Francesca Caielli, Karthik Thyagajaran, Kostya (Ken) Ostrikov, Wei-Hung Chiang\* and David Z. Pai\*

## PAPERS

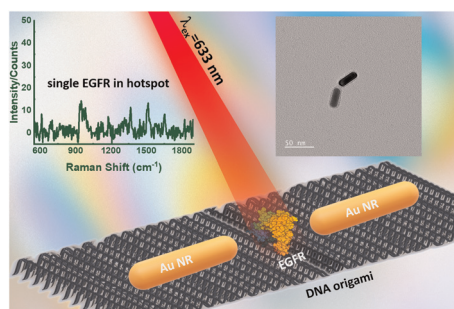
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### Semisynthetic ferritin-based nanoparticles with high magnetic anisotropy for spatial magnetic manipulation and inductive heating

Andreas Neusch, Ulf Wiedwald, Iuliia P. Novoselova, Daniel A. Kuckla, Nikolaos Tetos, Sarah Sadik, Philipp Hagemann, Michael Farle and Cornelia Monzel\*

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### DNA origami-templated gold nanorod dimer nanoantennas: enabling addressable optical hotspots for single cancer biomarker SERS detection

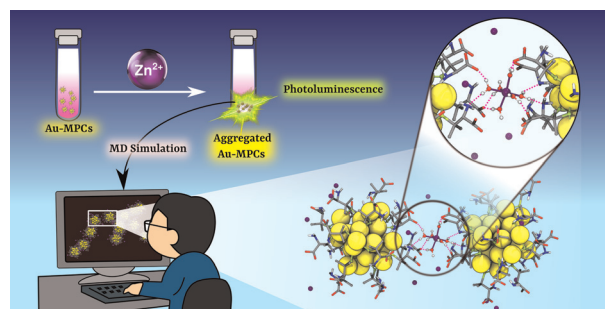
Mridu Sharma, Charanleen Kaur, Priyanka Singhmar, Shikha Rai and Tapasi Sen\*



15141

## A molecular dynamics study on the ion-mediated self-assembly of monolayer-protected nanoclusters

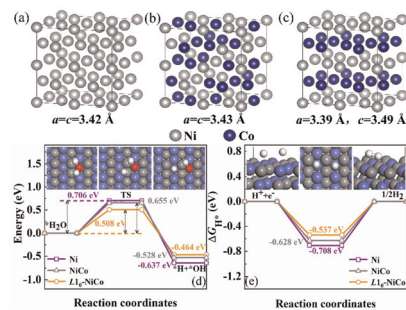
Vikas Tiwari, Anushna Bhattacharyya and Tarak Karmakar\*



15148

## Design and fabrication of intermetallic NiCo electrocatalysts for the alkaline HER

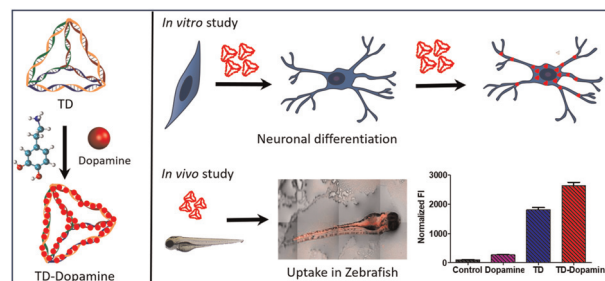
Chun Wu,\* Xuhui Wang, Mengyao Huang, Chao Meng, Ling Chang, Dake Xu and Wenli Pei\*



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## DNA tetrahedral nanocages as a promising nanocarrier for dopamine delivery in neurological disorders

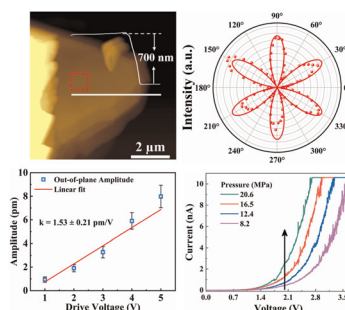
Ramesh Singh, Krupa Kansara, Pankaj Yadav, Sandip Mandal, Ritu Varshney, Sharad Gupta, Ashutosh Kumar, Prabal K. Maiti and Dhiraj Bhatia\*



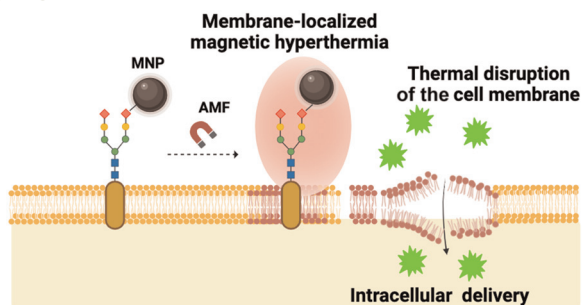
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## Piezoelectricity in wide bandgap semiconductor 2D crystal GaN nanosheets

Yong Wang, Shaopeng Wang, Yu Zhang,\* Zixuan Cheng, Dingyi Yang,\* Yongmei Wang,\* Tingting Wang, Liang Cheng, Yizhang Wu\* and Yue Hao



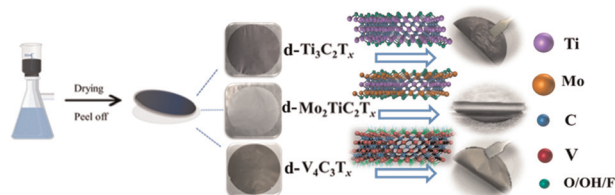
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### Membrane-localized magnetic hyperthermia promotes intracellular delivery of cell-impermeant probes

Javier Idiago-López, Daniela Ferreira, Laura Asín, María Moros, Ilaria Armenia, Valeria Grazú, Alexandra R. Fernandes, Jesús M. de la Fuente, Pedro V. Baptista\* and Raluca M. Fratila\*

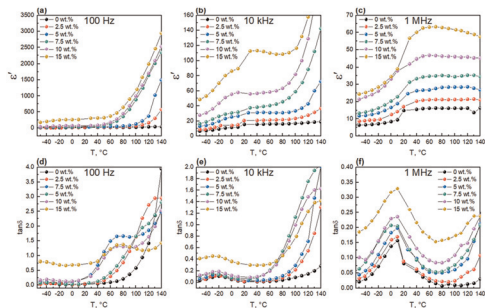
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### The synthesis and supercapacitor application of flexible free-standing $\text{Ti}_3\text{C}_2\text{T}_x$ , $\text{Mo}_2\text{TiC}_2\text{T}_x$ , and $\text{V}_4\text{C}_3\text{T}_x$ MXene films

Xiaoqing Bin, Minhao Sheng, Binshan Kong, Yijia Luo, Jing Xiao and Wenxiu Que\*

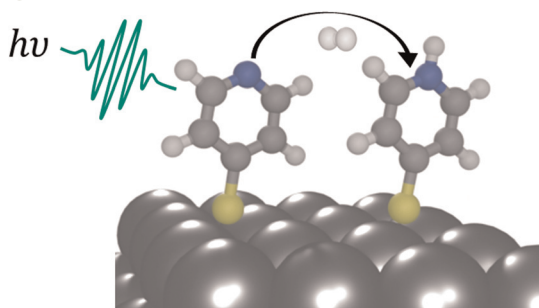
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### Thermal behavior of the dielectric response of composites based on poly(vinylidene fluoride) filled with two-dimensional $\text{V}_2\text{CT}_x$ MXenes

Alexey Tsyganov,\* Maria Vikulova, Ilya Zotov, Olga Grapenko, Valery Vlasenko, Alexey Bainyashev, Alexander Gorokhovskiy and Nikolay Gorshkov\*

15219



### Assessing plasmon-induced reactions by a combined quantum chemical-quantum/classical hybrid approach

Sadaf Ehtesabi, Martin Richter, Stephan Kupfer\* and Stefanie Gräfe\*

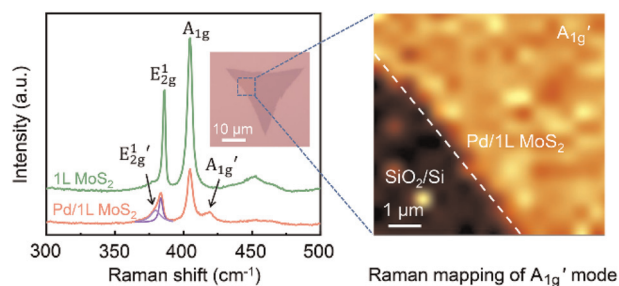


## PAPERS

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### Changes of phonon modes and electron transfer induced by interface interactions of Pd/MoS<sub>2</sub> heterostructures

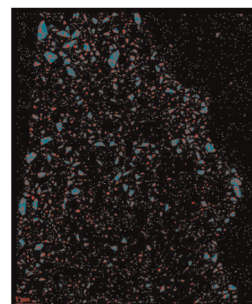
Xinyi Chen, Liang Zhou, Yusong Wu, Yadi Cao, Wengui Jiang, Yingying Xu, Rongming Wang\* and Yinghui Sun\*



15240

### Formation of EGFRwt/EGFRvIII homo- and hetero-dimers in glioblastoma cells as detected by single molecule localization microscopy

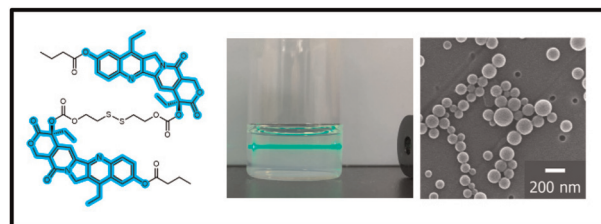
Kevin Jahnke, Nina Struve,\* Daniel Hofmann, Martin Julius Gote, Margund Bach, Malte Kriegs and Michael Hausmann\*



15256

### Carrier-free nano-prodrugs for minimally invasive cancer therapy

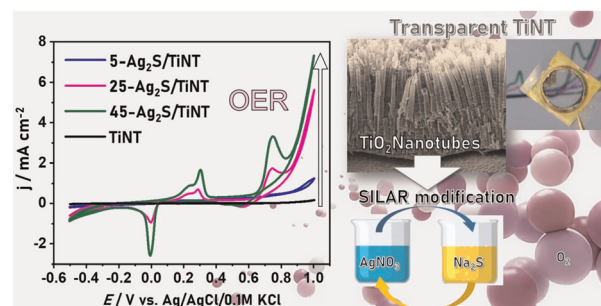
Keita Tanita, Yoshitaka Koseki,\* Sanjay Kumar, Farsai Taemaitree, Asuka Mizutani, Hirotaka Nakatsuji, Ryuju Suzuki, Anh Thi Ngoc Dao, Fumiyoshi Fujishima, Hiroshi Tada, Takanori Ishida, Ken Saijo, Chikashi Ishioka and Hitoshi Kasai\*



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### Transparent TiO<sub>2</sub> nanotubes supporting silver sulfide for photoelectrochemical water splitting

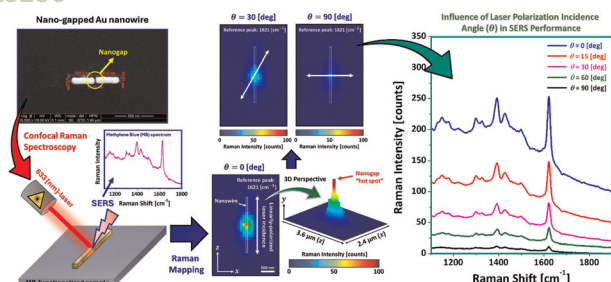
Wiktoria Lipińska, Stefania Wolff, Katharina E. Dehm, Simon P. Hager, Justyna Gumieniak, Agnieszka Kramek, Ryan W. Crisp, Emerson Coy, Katarzyna Grochowska and Katarzyna Siuzdak\*





## PAPERS

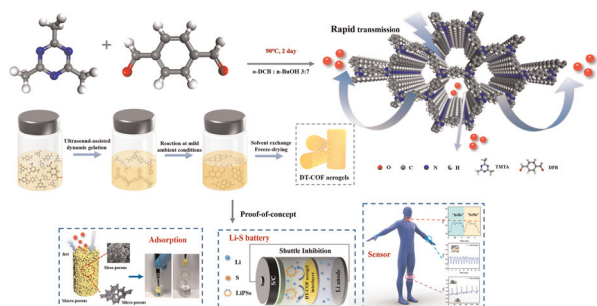
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### Laser polarization as a critical factor in the SERS-based molecular sensing performance of nano-gapped Au nanowires

Simón Roa,\* Terunori Kaihara, María Laura Pedano,\* Henrik Parsamyan and Paolo Vavassori

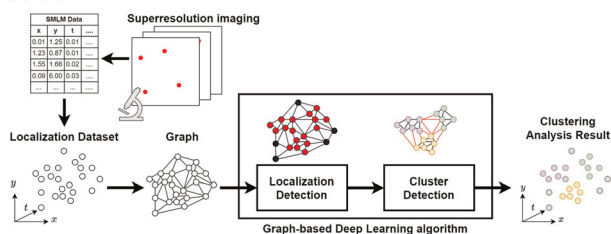
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### Preparation of $sp^2$ carbon-bonded $\pi$ -conjugated COF aerogels by ultrasound-assisted mild solvothermal reaction for multi-functional applications

Qiaomu Wang, Lei Gao, Peng Wang, Yandong Wang, Yang Xu, Haocheng Xu, Xuebin Wang,\* Zhen Meng\* and Kai Xi\*

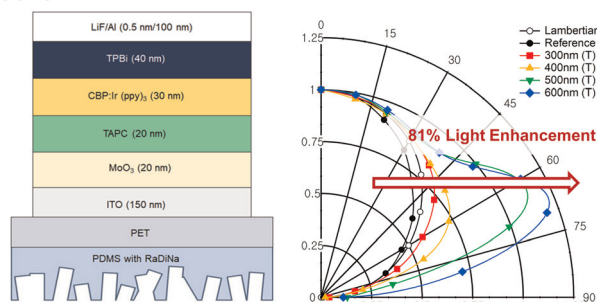
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### A supervised graph-based deep learning algorithm to detect and quantify clustered particles

Lucas A. Saavedra, Alejo Mosqueira and Francisco J. Barrantes\*

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### Spectrally independent and wide-angle light extraction of organic light emitting diodes with randomly disassembled nanostructure

Joel Ndikumana and Kunsik An\*



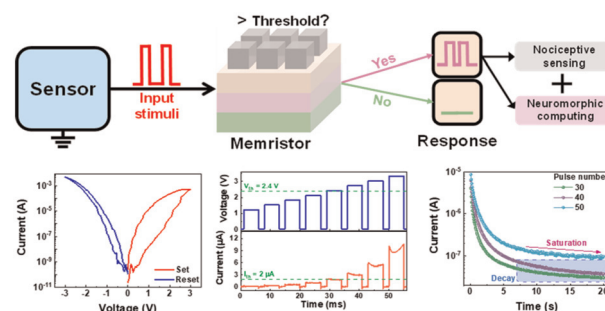


## PAPERS

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**On-receptor computing with classical associative learning in semiconductor oxide memristors**

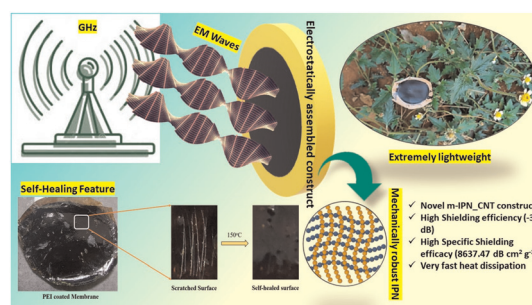
Dongyeol Ju, Jungwoo Lee and Sungjun Kim\*



15343

**'Donor-acceptor', 'interpenetrating polymer network' and 'electrostatic self-assembly' work in tandem to achieve extraordinary specific shielding effectiveness**

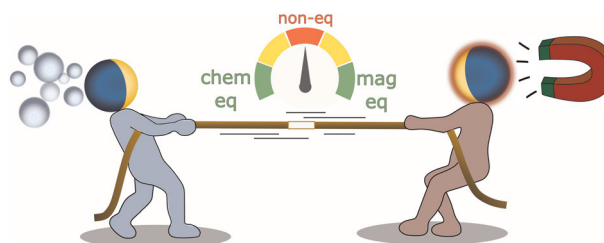
Amit Malakar, Samir Mandal, Ria Sen Gupta, Vinod Kashyap, Rishi Raj, Kunal Manna and Suryasarathi Bose\*



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**Accelerating and breaking adaptive nano-colloids (<100 nm) into unsteady state operation via push-pull effects**

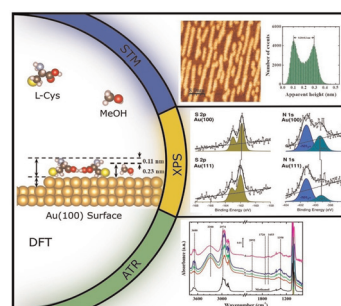
Cornelia Lanz, Nele Künnecke, Yaşar Krysiak and Sebastian Polarz\*



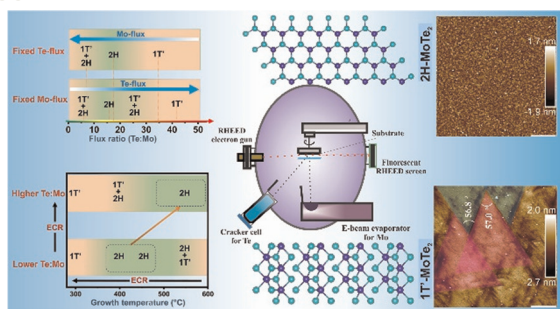
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**Novel mixed self-assembled monolayers of L-cysteine and methanol on gold surfaces under ambient conditions**

Vanina Gisela Franco,\* Sindy Julieth Rodríguez, Florencia Carolina Calaza, Mario César Guillermo Passeggi and Gustavo Daniel Ruano



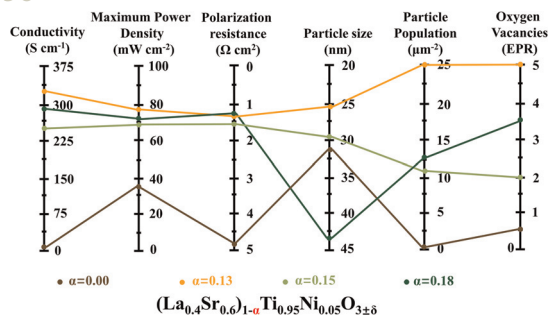
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## Effective concentration ratio driven phase engineering of MBE-grown few-layer MoTe<sub>2</sub>

Kamlesh Bhatt, Santanu Kandar, Nand Kumar, Ashok Kapoor and Rajendra Singh\*

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## A-site-deficiency range identified for *in situ* exsolution from (La<sub>0.4</sub>Sr<sub>0.6</sub>)<sub>1- $\alpha$</sub> Ti<sub>0.95</sub>Ni<sub>0.05</sub>O<sub>3 $\pm$ $\delta$</sub> electrodes for SOFC and SOEC

Yao Jiang, Chengyu Li, Haonan Huang, Linxi Zhang, Jingyu Zhang, Cairong Jiang, Yongjin Chen,\* Yali Yao\* and Jianjun Ma\*

