

# Materials Advances

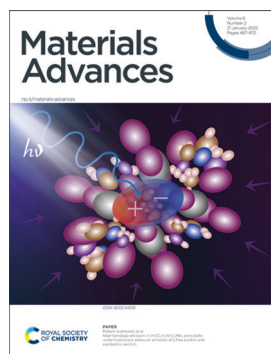
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## IN THIS ISSUE

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### Cover

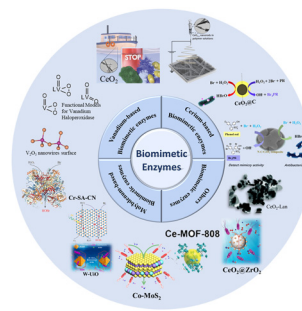
See Robert Kudrawiec *et al.*, pp. 569–578.  
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## REVIEWS

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### Biomimetic haloperoxidases for antifouling on the surface of marine materials: a review

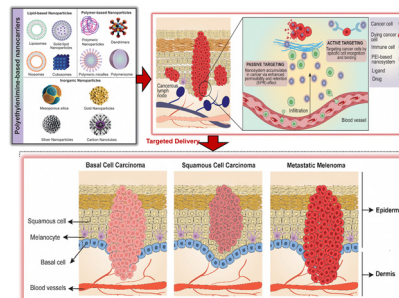
Meinan Yang, Nan Wang,\* Ruiyong Zhang,\* Sikandar Khan, Baorong Hou and Wolfgang Sand



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### Unravelling the potential role of polyethyleneimine (PEI)-based nanosystems in skin cancer therapy

Ajeet Kumar, Sabya Sachi Das,\* Srushti Tambe, Babita Kaundal, Sunny Kumar Sarraf and Kavindra Kumar Kesari\*



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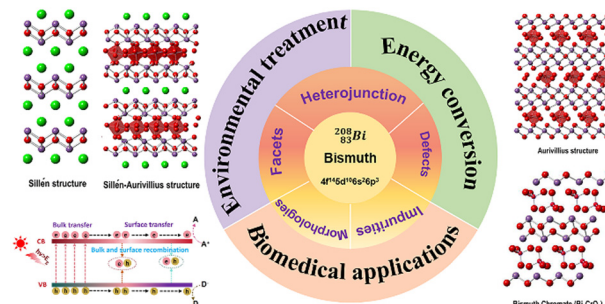


## REVIEWS

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### One bismuth three benefits: an overview of bismuth-based photocatalysts for energy conversion, environmental treatment and biomedical applications

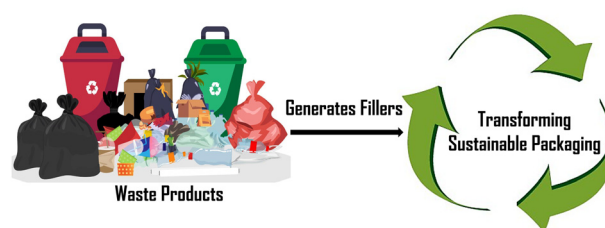
Deng Long, Xinglin Yu, Wentao Li\* and Sihan Ma\*



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Zeba Tabassum, Madhuri Girdhar,\* Abhinav Anand, Neelam Kumari, Bhawana Sood, Tabarak Malik,\* Anil Kumar and Anand Mohan

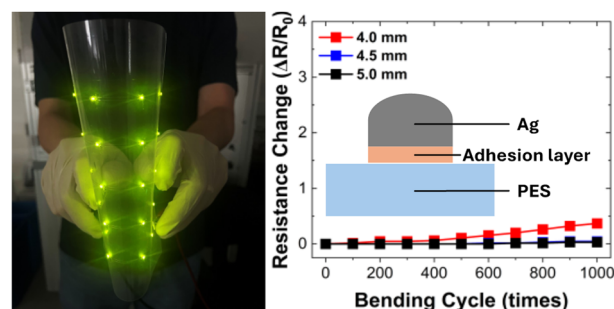


## COMMUNICATIONS

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### Improved adhesion of printed Ag electrodes for flexible transparent display applications

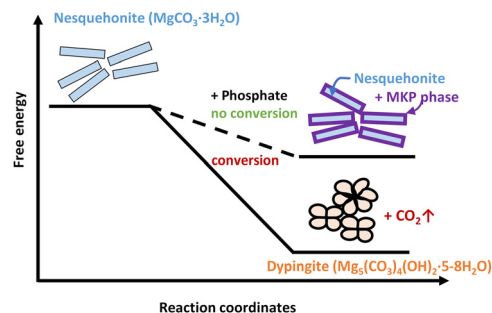
Han-Jung Kim, Se Yong Park, Jeongmin Park, Yohan Ko, Sung Eun Park, Yoonkap Kim and Junhee Kim\*



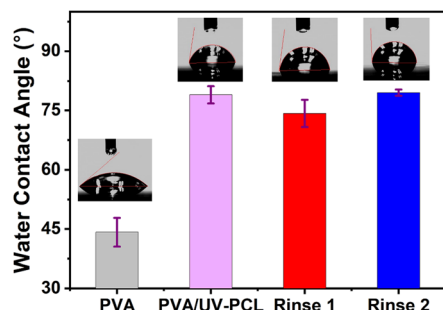
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### Stabilization of nesquehonite for application in carbon capture utilization and storage

Nirrupama Kamala Ilango, Hoang Nguyen, Mohammad Alzeer, Frank Winnefeld and Paivo Kinnunen\*



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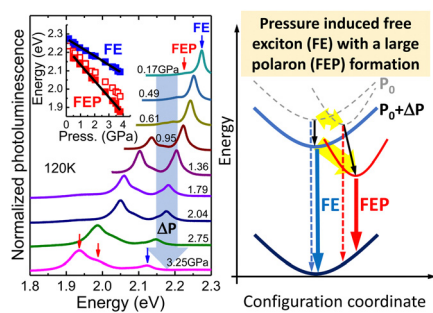


### Cytocompatible, disintegrable, low-voltage operation n-type organic thin film transistors

Mohsin Ali, Bahar Ronnasi, May Ourabi, Joon Hyung Park, Jean-Philippe St-Pierre, Chang-Hyun Kim and Benoît H. Lessard\*

PAPERS

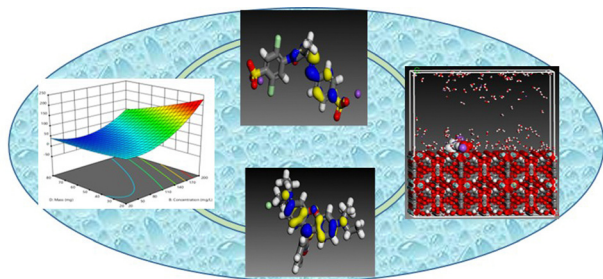
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### Near-bandgap emission in $[\text{HOC}_2\text{H}_4\text{NH}_3]_2\text{PbI}_4$ perovskite under hydrostatic pressure: emission of a free exciton and a polaronic exciton

Filip Dybala, Robert Kudrawiec,\* Maciej P. Polak, Artur P. Herman, Adam Sieradzki and Mirosław Mączka

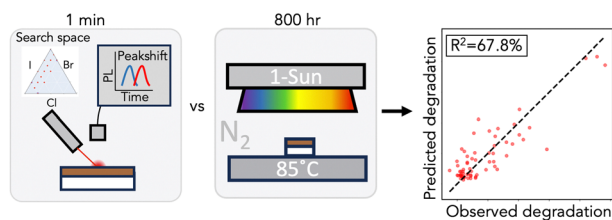
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### Unraveling the sorption mechanism of industrial dyes onto Zr-based MOFs: computational and experimental modelling for highly efficient removal

Kora Lucretse Tiemo Nguena,\* Cyrille Ghislain Fotsop, Aurelien Bopda, Donald Raoul Tchuifon Tchuifon, Fredy Harcel Kamgang Djioko, Alvine Mirabelle Soukoua Nguéabou, Chinyere Ada Madu, Fabian I. Ezema and Emeka Emmanuel Oguzie\*

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### Bayesian optimization and prediction of the durability of triple-halide perovskite thin films under light and heat stressors

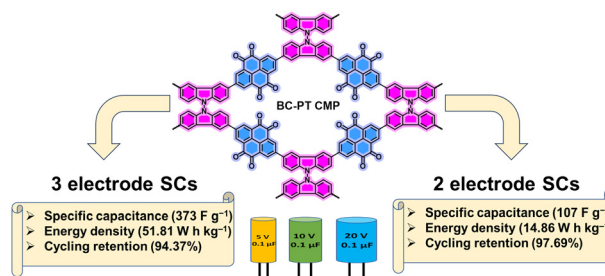
Deniz N. Cakan, Eric Oberholtz, Ken Kaushal, Sean P. Dunfield and David P. Fenning\*



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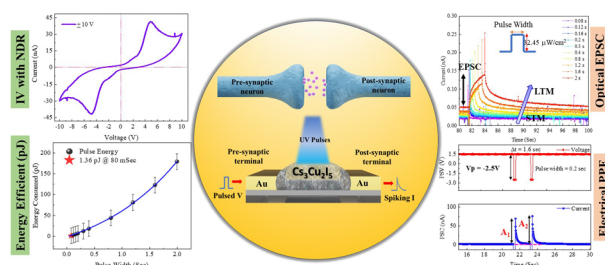
Ahmed F. Saber, Ya-Fan Chen, Levannie Mabuti, Swetha V. Chaganti, Santosh U. Sharma, Johann Lüder, Jyh-Tsung Lee, Shiao-Wei Kuo and Ahmed F. M. EL-Mahdy\*



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## A low-energy consuming, optically and electrically stimulated artificial synapse based on lead-free metal halide perovskite (Cs<sub>3</sub>Cu<sub>2</sub>I<sub>5</sub>) for neuromorphic applications

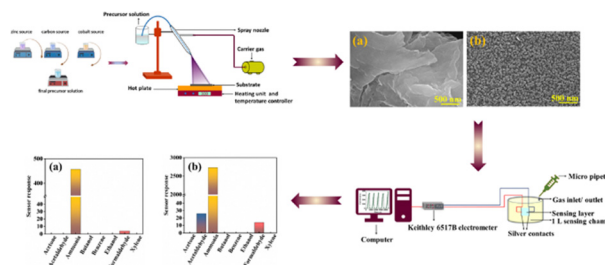
Amrita Bharati Mishra, Mrunal Shete and R. Thamankar\*



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## Carbon and cobalt co-doped ZnO thin films for highly sensitive and selective ammonia detection at room temperature

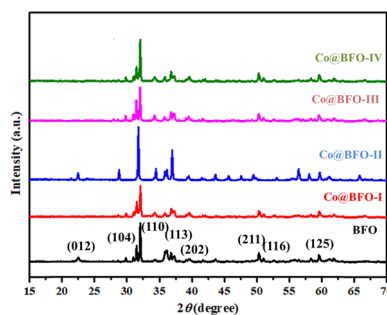
Anju Thomas and Kalainathan Sivaperuman\*



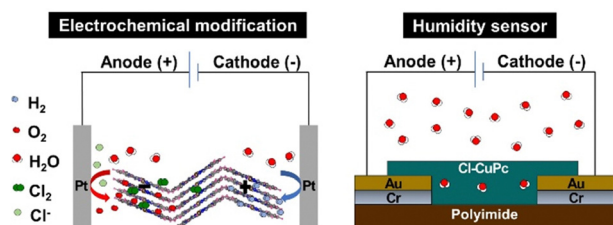
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## A multifunctional Co-doped BiFeO<sub>3</sub> nanocomposite: a promising candidate for photocatalytic degradation, antibacterial activity, and antioxidant applications

Devender Jalandhara, Sanjeev Kumar,\* Jasvir Dalal, Supreet, Gautam Singh, Sandeep Kumar, Rahul Badru, Yadvinder Singh, Satya Vir Sharma\* and Sandeep Kaushal\*



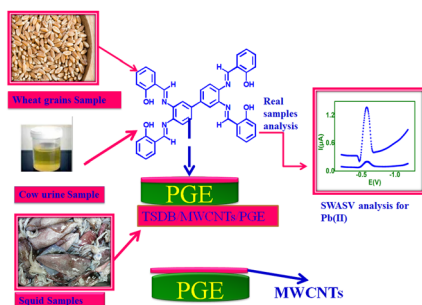
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### Halide-mediated electrochemical modification of copper phthalocyanine for humidity sensing applications

Busarakham Ngokpho, Pattanaphong Janphuang, Supinya Nijpanich, Narong Chanlek, Suttipong Wannapaiboon, Theeranun Siritanon and Kamonwad Ngamchuea\*

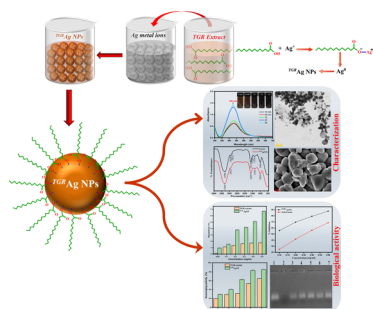
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### Analysis of Pb(II) in wheat grain, cow urine and squid samples using modified novel TSDB incorporated MWCNTs

Jayagopi Gayathri,\* Sivakumar Sivalingam and Kumar Sangeetha Selvan\*

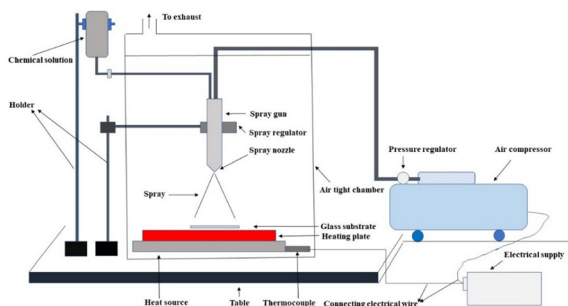
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### Green synthesis of biocompatible silver nanoparticles using *Trillium govanianum* rhizome extract: comprehensive biological evaluation and *in silico* analysis

Syed Ibrah Manzoor, Farhat Jabeen, Rajan Patel, M. Moshahid Alam Rizvi, Khalid Imtiyaz, Maqsood Ahmad Malik\* and Tanveer A. Dar\*

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### Effect of silver and cobalt on transparent conducting CdO thin films: tuning the optoelectronic properties

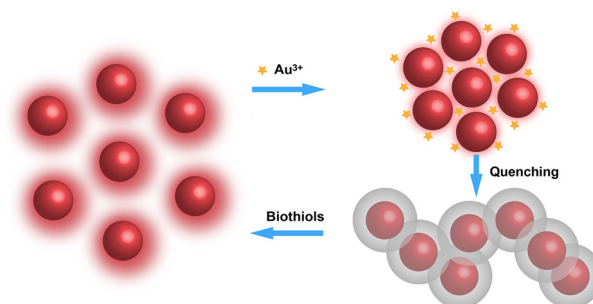
Ishraque Karim, M. Ashikul Haque Naeem,\* Ahmed Sidrat Rahman Ayon, Md. Abdus Sattar, Md. Abdus Sabur\* and Aninda Nafis Ahmed



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### Carbon dot based fluorescent “on–off–on” assays for the determination of Au(III) ions and biothiols

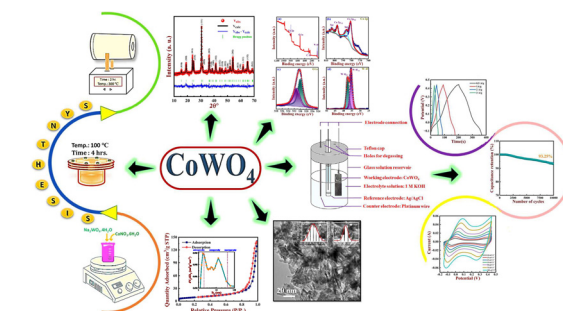
Zhenzhen Guo, Jinwen Zhu, Yue Huang, Jibin Liu\* and Peng Miao\*



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### Low-temperature synthesis of oval-shaped CoWO<sub>4</sub> nanomaterials for enhanced asymmetric supercapacitor performance

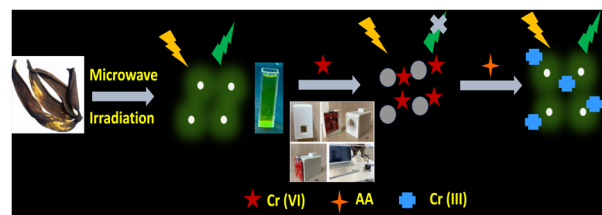
Pruthvi B. Patel, Dharti Patel, Anita R. Patel, Sanjay N. Bariya, Yash G. Kapdi, Vanaraj Solanki, Saurabh S. Soni\* and Mitesh H. Patel\*



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### A portable microcontroller-enabled spectroscopy sensor module for the fluorometric detection of Cr(VI) and ascorbic acid, utilizing banana peel-derived carbon quantum dots as versatile nanoprobes

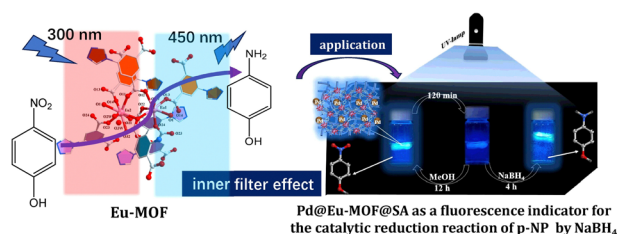
Aayushi Kundu,\* Jobanpreet Brar, Amit Mishra, Banibrata Maity\* and Soumen Basu\*



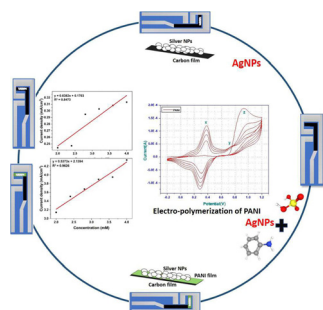
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### Eu-MOF and its composites as turn-off fluorescence sensors for *p*-nitrophenol with applications in monitoring catalytic reduction reactions

Bing-Bing Xing, Yue-Shu Wang, Tao Zhang, Jing-Yi Liu, Huan Jiao and Ling Xu\*



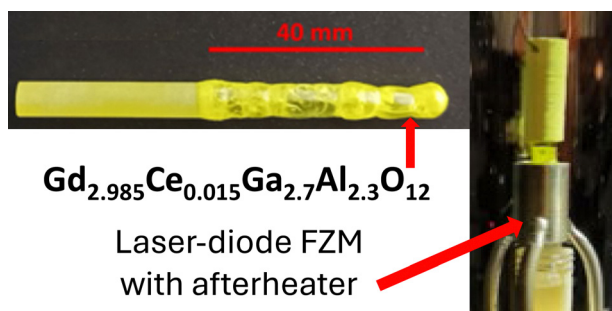
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### Development of a silver–polyaniline functionalized biosensor for non-enzymatic lactic acid detection

Vinay Kishnani, Rahul Ashvinbhai Makadia, Satheesh Natarajan, Jayaraj Joseph and Ankur Gupta\*

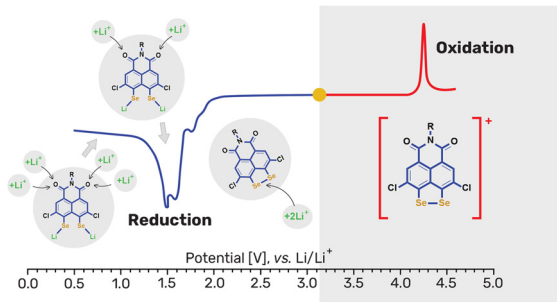
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### A fast GGAG:Ce(Mg) single crystal scintillator: LDFZM growth, characterization and electronic band structure calculation

František Zajíc,\* Vítězslav Jarý, Jiří Pospíšil, Pavel Boháček, Zafari Umar, Michal Piasecki, Mikhail G. Brik, Romana Kučerková, Alena Beitlerová and Martin Nikl\*

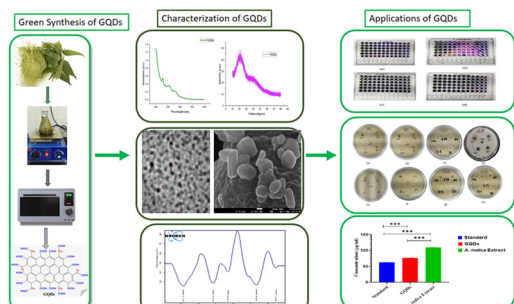
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### peri-Diselenolo-substituted 1,8-naphthalimide derivatives as bipolar matrices for redox reactions in a non-aqueous electrolyte

Delyana Marinova,\* Lyuben Borislavov, Silva Stanchovska, Rositsa Kukeva, Monika MUTOVSKA, Natali Simeonova, Stanimir Stoyanov, Yulian Zagranjarski,\* Mihail Mondeshki, Yanislav Danchovski, Hristo Rashev, Alia Tadjer and Radostina Stoyanova

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### Microwave-assisted green synthesis of fluorescent graphene quantum dots (GQDs) using *Azadirachta indica* leaves: enhanced synergistic action of antioxidant and antimicrobial effects and unveiling computational insights

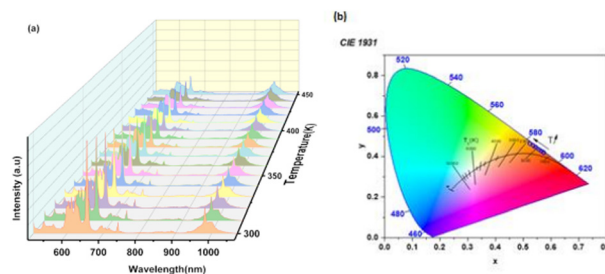
Pooja Kadyan, Manish Kumar, Aisha Tufail, Andrea Ragusa,\* Sudhir Kumar Kataria\* and Amit Dubey\*



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### Ultra-high-sensitive temperature sensing based on emission $\text{Pr}^{3+}$ and $\text{Yb}^{3+}$ codoped $\text{Y}_2\text{Mo}_3\text{O}_{12}$ nanostructures

Nozha Ben Amar, Kamel Saidi,\*  
Christian Hernández-Álvarez,  
Mohamed Dammak\* and  
Inocencio R. Martín



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### Smart early diagnosis of acute myocardial infarction: a ZIF-based nanofluorescence lateral flow immunoassay for point-of-care detection of cTnI

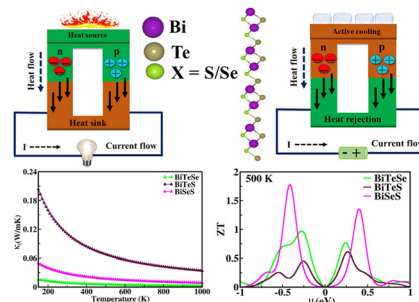
Zahra Mirzaeizadeh, Emadoddin Amin Sadrabadi,  
Neda Naseri, Hamed Golmohammadi\* and  
Kobra Omidfar\*



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### Thermoelectric performance of Bi-based novel Janus monolayer structures

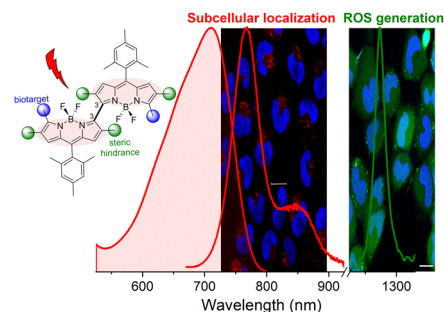
KM Sujata, Nidhi Verma, Rekha Garg Solanki\* and  
Ashok Kumar\*



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### Heavy-atom-free BODIPY-based photodynamic therapy agents activated at long wavelengths

Jennifer Soler-Beatty, Edurne Avellanal-Zaballa,  
Gonzalo Durán-Sampedro, Alba García-Fernández,  
Antonia R. Agarrabeitia, Jorge Bañuelos,\*  
Ramón Martínez Mañez\* and María J. Ortiz\*



## CORRECTION

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

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

