

# Nanoscale Advances

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### Cover

See Wendel Wohlleben, Stefania Sabella *et al.*, pp. 798–815. Image reproduced by permission of Stefania Sabella from *Nanoscale Adv.*, 2024, **6**, 798.



### Inside cover

See Emanuele Locatelli *et al.*, pp. 816–825. Image reproduced by permission of Clemens Franz Vorsmann (University of Padova) from *Nanoscale Adv.*, 2024, **6**, 816.

## EDITORIAL

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### Introduction to Bionanocomposites

Sabu Thomas, Maya Jacob John and Aji P. Mathew



## REVIEW




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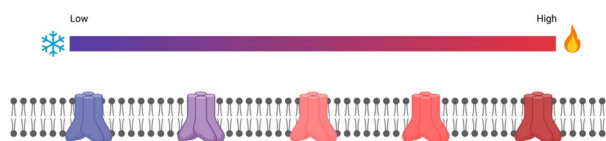
### Metallic nanostructure-based aptasensors for robust detection of proteins

Navid Rabiee, Sepideh Ahmadi, Kamal Rahimizadeh, Suxiang Chen and Rakesh N. Veedu\*

#### Aptasensors for protein detection



-  Aptamer SELEX
-  Optical/Electrochemical (bio)sensor development
-  Nanoparticles@Aptamer conjugation/decoration



# Fuelling your energy research



## Energy & Environmental Science

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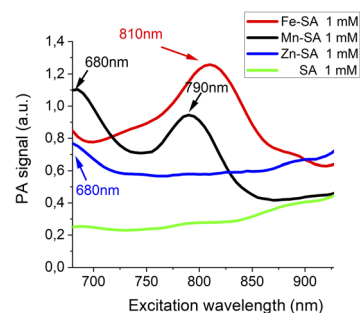
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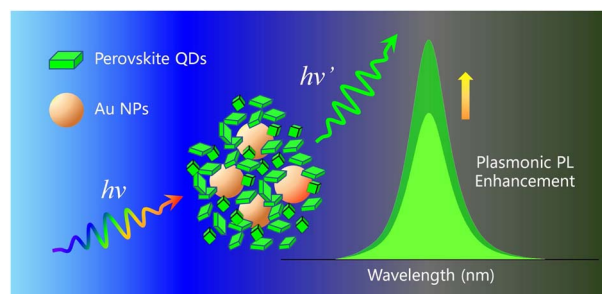
Enza Di Gregorio,\* Angelo Scarciglia, Alessandro Amaolo and Giuseppe Ferrauto



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### Enhancing photoluminescence performance of perovskite quantum dots with plasmonic nanoparticles: insights into mechanisms and light-emitting applications

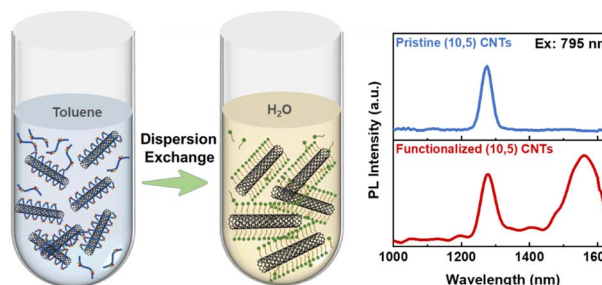
Gautham Kumar, Chien-Chung Lin, Hao-Chung Kuo and Fang-Chung Chen\*



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### Polymer removal and dispersion exchange of (10,5) chiral carbon nanotubes with enhanced 1.5 $\mu\text{m}$ photoluminescence

Yahui Li, Ye Liu, Feng Jin, Leitao Cao, Hehua Jin, Song Qiu\* and Qingwen Li\*

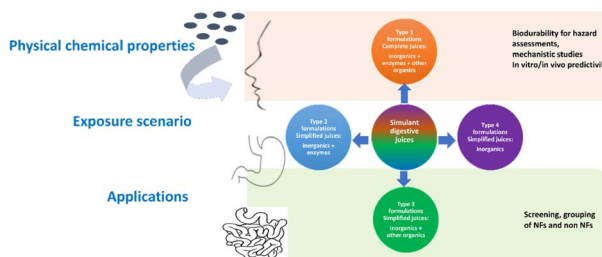


## PAPERS

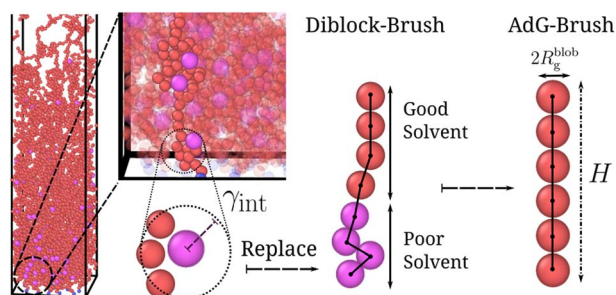
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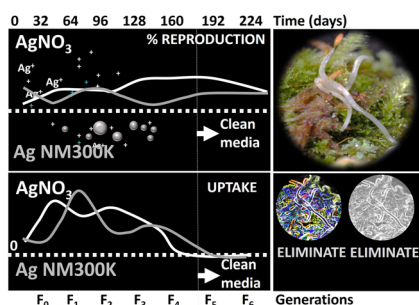
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### Colloidal adsorption in planar polymeric brushes

Clemens Franz Vorsmann, Sara Del Galdo, Barbara Capone and Emanuele Locatelli\*

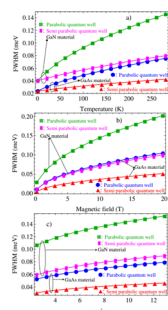
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Fátima C. F. Santos, Rudo A. Verweij, Amadeu M. V. M. Soares, Janeck J. Scott-Fordsmand, Cornelis A. M. van Gestel and Mónica J. B. Amorim\*

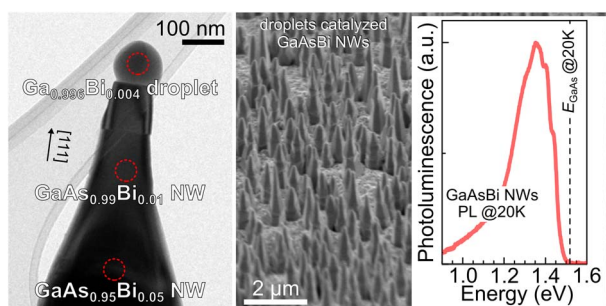
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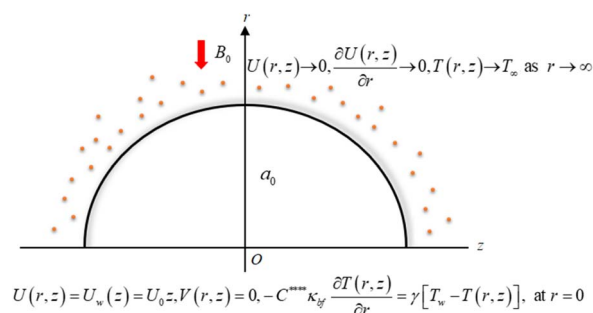
Chalermchai Himwas,\* Visittapong Yordsri, Chanchana Thanachayanont, Saharat Chomdech, Wenich Pumee, Somsak Panyakeow and Songphol Kanjanachuchai



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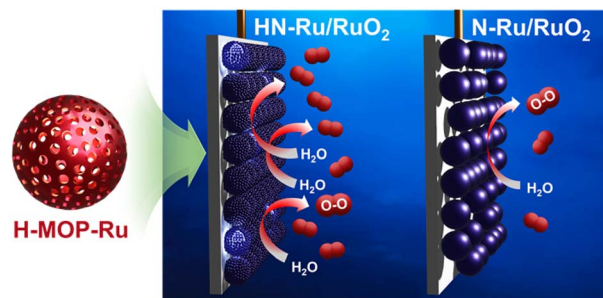
Khursheed Muhammad,\* Bilal Ahmed, Mohamed Sharaf, Mohammad Afikuzzaman and Emad A. Az-Zo'bi



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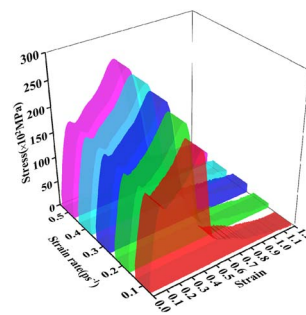
Kyoungil Cho, June Young Jang, Yoon-Joo Ko, Yoon Myung\* and Seung Uk Son\*



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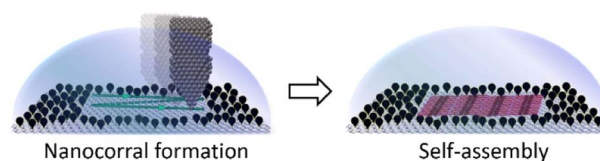
Xianfa Li,\* Junyu An, Shuisheng Chen, Guoqiang Chen, Yi Liu, Yongjun Shi and Long Zhou



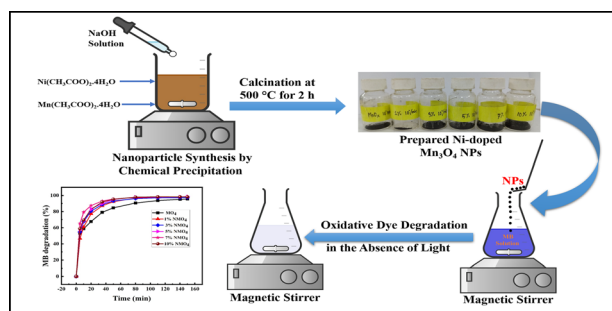
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### Chiral induction in substrate-supported self-assembled molecular networks under nanoconfinement conditions

Zeno Tessari, Tamara Rinkovec and Steven De Feyter\*



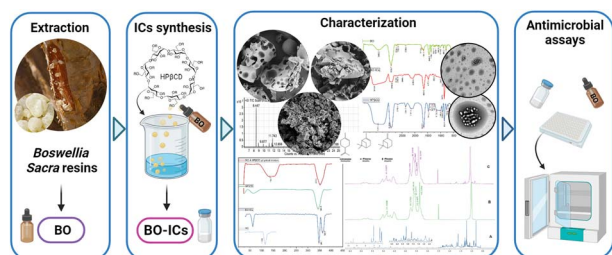
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### Phase tunable nickel doped $\text{Mn}_3\text{O}_4$ nanoparticle synthesis by chemical precipitation: kinetic study on dye degradation

Jasim Uddin, Rahim Abdur, Md. Rifat Hossain, Shahin Aziz, Mohammad Shah Jamal,\* Md. Aftab Ali Shaikh\* and Mosharof Hossain\*

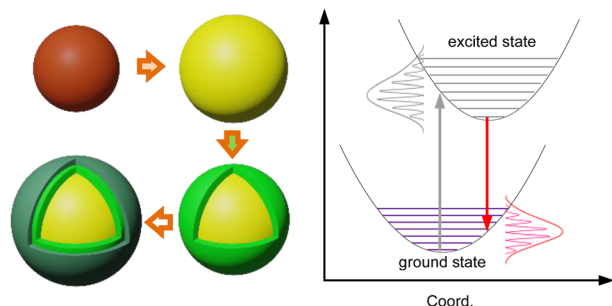
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### Improved antimicrobial activities of *Boswellia sacra* essential oils nanoencapsulated into hydroxypropyl-beta-cyclodextrins

Obaydah Abd Alkader Alabrahim, Salim Alwahibi and Hassan Mohamed El-Said Azzazy\*

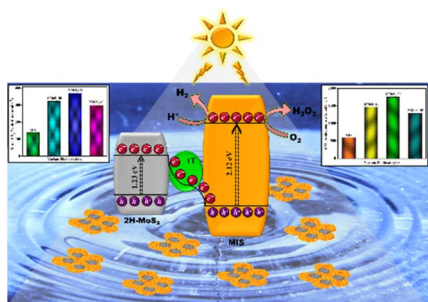
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### Enhancement mechanism of quantum yield in core/shell/shell quantum dots of $\text{ZnS-AgIn}_5\text{S}_8/\text{ZnIn}_2\text{S}_4/\text{ZnS}$

Seonghyun Jeong, Minji Ko, Sangwon Nam, Jun Hwan Oh, Seung Min Park, Young Rag Do\* and Jae Kyu Song\*

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### Augmented photocatalysis induced by 1T- $\text{MoS}_2$ bridged 2D/2D $\text{MgIn}_2\text{S}_4@1\text{T}/2\text{H-MoS}_2$ Z-scheme heterojunction: mechanistic insights into $\text{H}_2\text{O}_2$ and $\text{H}_2$ evolution

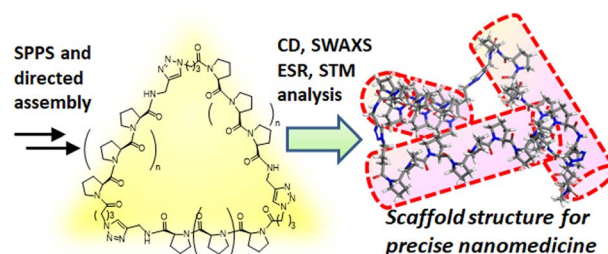
Sarmistha Das, Lopamudra Acharya, Lijarani Biswal and Kulamani Parida\*



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### Comprehensive characterization of polyproline tri-helix macrocyclic nanoscaffolds for predictive ligand positioning

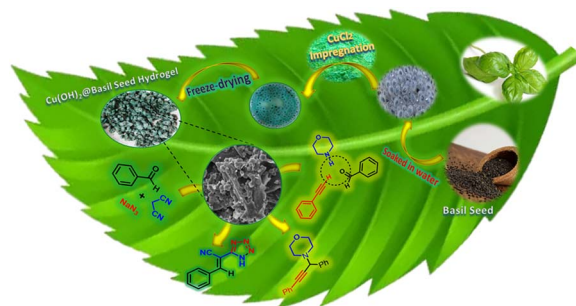
Chia-Lung Tsai, Je-Wei Chang, Kum-Yi Cheng, Yu-Jing Lan, Yi-Cheng Hsu, Qun-Da Lin, Tzu-Yuan Chen, Orion Shih, Chih-Hsun Lin, Po-Hsun Chiang, Mantas Simenas, Vidmantas Kalendra, Yun-Wei Chiang,\* Chun-hsien Chen,\* U-Ser Jeng\* and Sheng-Kai Wang\*



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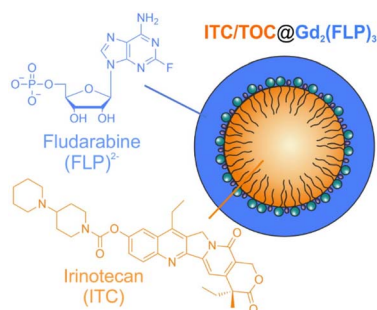
Effat Samiee Paghaleh, Eskandar Kolvari,\* Farzad Seidi and Kheibar Dashtian



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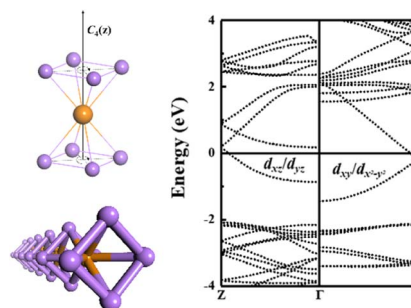
David Rudolph, Myrto Ischyropoulou, Juliana Pfeifer, Joanna Napp,\* Ute Schepers,\* Frauke Alves\* and Claus Feldmann\*

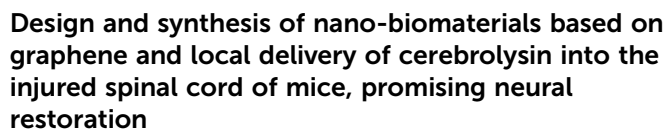


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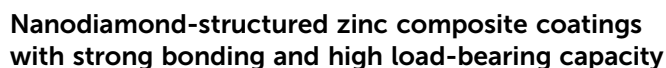
### First-principles calculations of inorganic metallocene nanowires

Yangqi Ji, Haifeng Lv\* and Xiaojun Wu\*





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Mehri Sohrabi,\* Saeed Hesaraki, Mostafa Shahrezaee,\*  
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Brigit Glasmacher, Sascha Heinemann, Yi Xu\*  
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## Correction: The emerging role of medical foods and therapeutic potential of medical food-derived exosomes

Jin-Young Hur, SeonHyung Lee, Woo-Ri Shin, Yang-Hoon Kim\* and Ji-Young Ahn\*