

# Nanoscale Advances

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## IN THIS ISSUE

ISSN 2516-0230 CODEN NAADAI 6(13) 3243–3464 (2024)



**Cover**  
See Shunya Sakane, Hideki Tanaka *et al.*, pp. 3299–3305. Image reproduced by permission of Shunya Sakane and Hideki Tanaka from *Nanoscale Adv.*, 2024, 6, 3299. Image created by Takashi Tsujino.



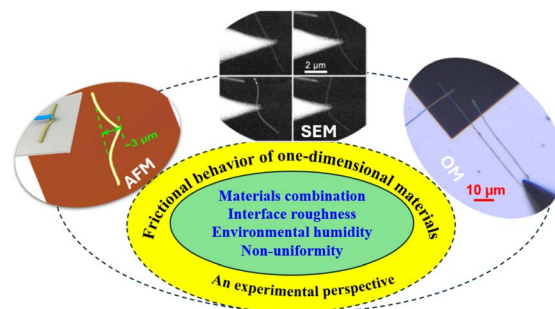
**Inside cover**  
See Yanqi Yang and Mi Li, pp. 3306–3319. Image reproduced by permission of Mi Li from *Nanoscale Adv.*, 2024, 6, 3306.

## REVIEW

3251

### Frictional behavior of one-dimensional materials: an experimental perspective

Tursunay Yibibulla, Lizhen Hou,\* James L. Mead, Han Huang, Sergej Fatikow and Shiliang Wang\*

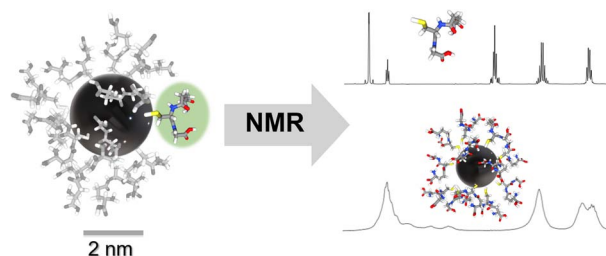


## MINIREVIEW

3285

### Possibilities and limitations of solution-state NMR spectroscopy to analyze the ligand shell of ultrasmall metal nanoparticles

Natalie Wolff, Christine Beuck, Torsten Schaller and Matthias Eppel\*



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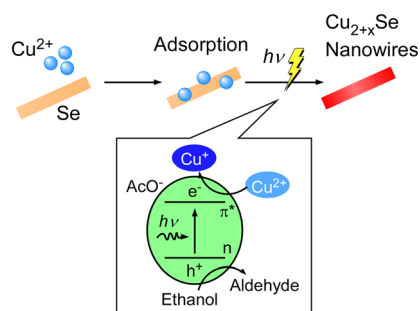
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Fundamental questions  
Elemental answers

3299

### Precise synthesis of copper selenide nanowires with tailored Cu vacancies through photo-induced reduction for thermoelectric applications

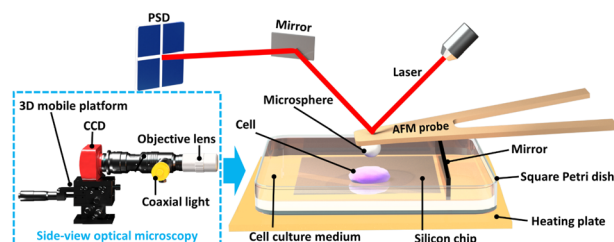
Shunya Sakane,\* Tatsuki Miura, Kazuki Munakata, Yusuke Morikawa, Shunichiro Miwa, Riku Yamanaka, Toshiki Sugai, Akito Ayukawa, Haruhiko Uono and Hideki Tanaka\*



3306

### Side-view optical microscopy-assisted atomic force microscopy for thickness-dependent nanobiomechanics

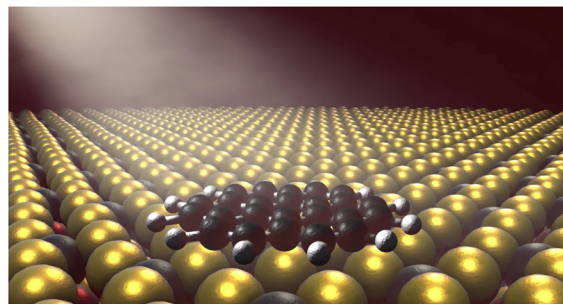
Yanqi Yang and Mi Li\*



3320

### Towards molecular controlled magnonics

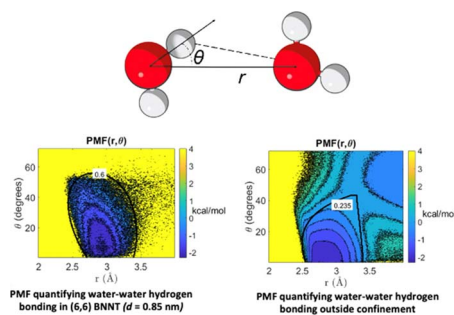
Alberto M. Ruiz, Gonzalo Rivero-Carracedo, Andrey Rybakov, Sourav Dey and José J. Baldovi\*



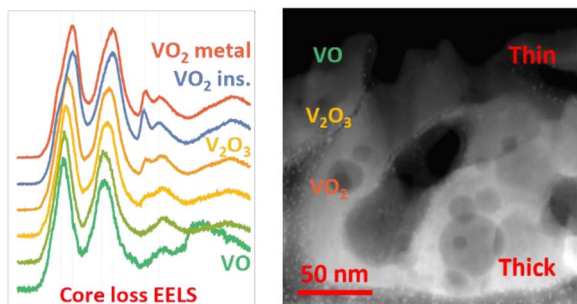
3329

### Strength, number, and kinetics of hydrogen bonds for water confined inside boron nitride nanotubes

Bhargav Sai Chava and Siddhartha Das\*



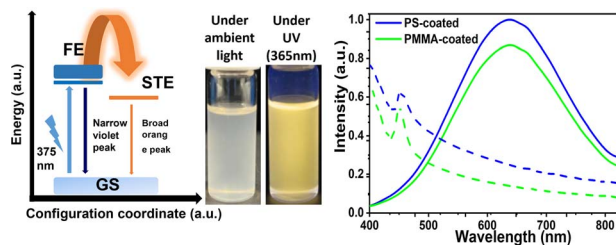
3338



### Analytical electron microscopy analysis of insulating and metallic phases in nanostructured vanadium dioxide

Jan Krpenský, Michal Horák, Jiří Kabát, Jakub Planer, Peter Kepič, Vlastimil Křápek\* and Andrea Konečná\*

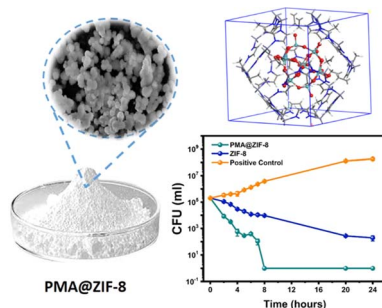
3347



### Room temperature synthesis of nanocomposite thin films with embedded $\text{Cs}_2\text{AgIn}_{0.9}\text{Bi}_{0.1}\text{Cl}_6$ lead-free double perovskite nanocrystals with long-term water stability, wide range pH tolerance, and high quantum yield

Stevanson Bayer, Jason Ho Yin Yu and Stefan Nagl\*

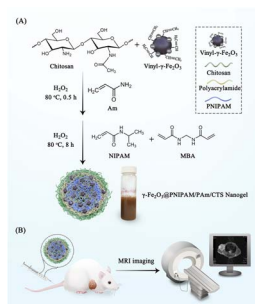
3355



### Zeolitic imidazolate framework-8 encapsulated with Mo-based polyoxometalates as surfaces with antibacterial activity against *Escherichia coli*

Mariam M. Abdelkhalak, Aya M. Mohamed, Rehab Z. Abdallah, Ghada E. Khedr, Rania Siam and Nageh K. Allam\*

3367



### Enhancing MRI through high loading of superparamagnetic nanogels with high sensitivity to the tumor environment

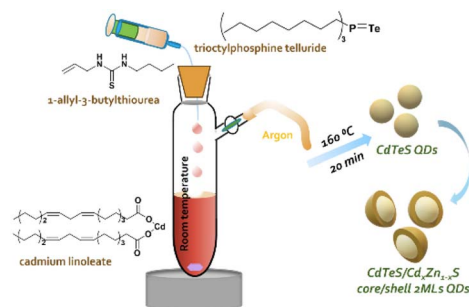
Jinfeng Liao, Liangyu Zhou, Yongzhi Wu, Zhiyong Qian and Pei Li\*



3377

### Disubstituted thiourea as a suitable sulfur source in the gram-scale synthesis of yellow- and red-emitting CdTeS/Cd<sub>x</sub>Zn<sub>1-x</sub>S core/shell quantum dots

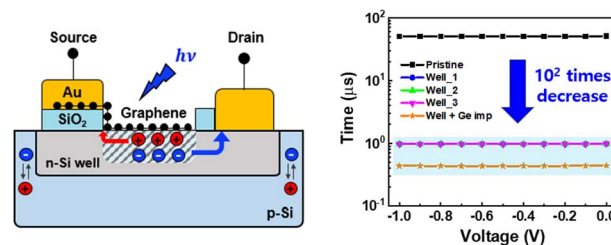
Liudmila Loghina,\* Jakub Houdek, Stanislav Slang, Bozena Frumarova, Miroslav Cieslar and Miroslav Vlcek



3391

### Demonstration of a low power and high-speed graphene/silicon heterojunction near-infrared photodetector

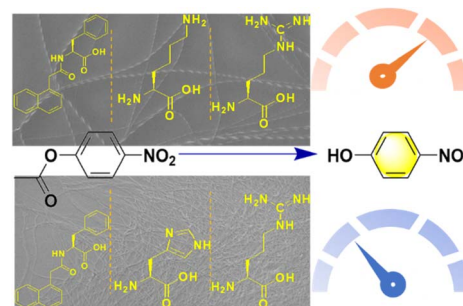
Min Gyu Kwon, Cihyun Kim, Seung-Mo Kim, Tae Jin Yoo, Yongsu Lee, Hyeon Jun Hwang, Sanghan Lee\* and Byoung Hun Lee\*



3399

### 1-Naphthylacetic acid appended amino acids-based hydrogels: probing of the supramolecular catalysis of ester hydrolysis reaction

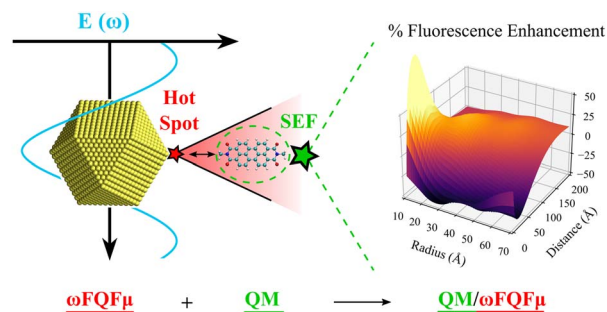
Ruchika Bassan, Biplab Mondal, Mayank Varshney and Subhasish Roy\*



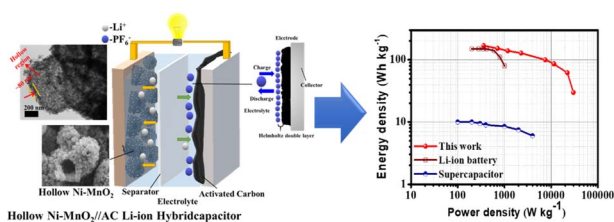
3410

### Multiscale modeling of surface enhanced fluorescence

Pablo Grobas Illobre, Piero Lafiosca, Teresa Guidone, Francesco Mazza, Tommaso Giovannini\* and Chiara Cappelli\*



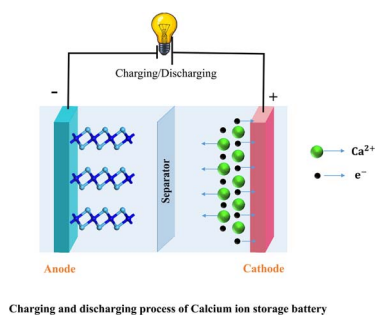
3426



### Hierarchical hollow porous structures of nickel-doped $\lambda$ - $\text{MnO}_2$ anodes for Li-ion energy storage systems

Venugopal Nulu, Arunakumari Nulu and Keun Yong Sohn\*

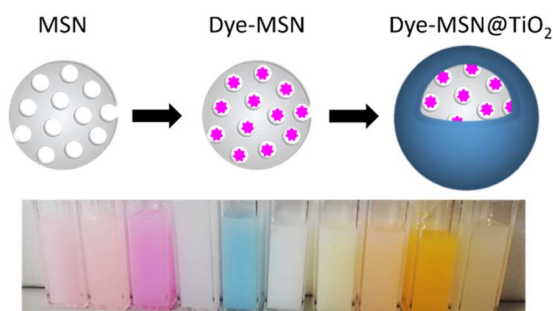
3441



### Recent advances in Zr and Hf-based MXenes and their hetero-structure as novel anode materials for Ca-ion batteries: theoretical insights from DFT approach

Tanvir Ahmed, Afiya Akter Piya and Siraj Ud Daula Shamim\*

3450



### Titania-mediated stabilization of fluorescent dye encapsulation in mesoporous silica nanoparticles

Laura Spitzmüller,\* Jonathan Berson, Fabian Nitschke, Thomas Kohl and Thomas Schimmel

