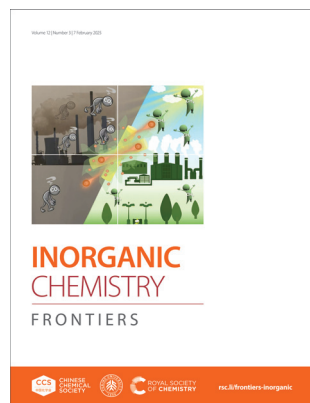


IN THIS ISSUE

ISSN 2052-1553 CODEN ICFNAW 12(3) 835–1316 (2025)



Cover

See Bojing Sun,
Dongfang Hou,
Dong-Sheng Li *et al.*,
pp. 955–966.

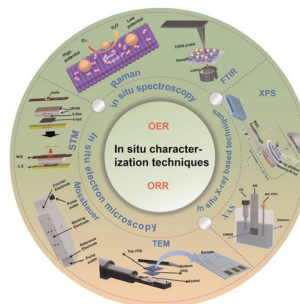
Image reproduced
by permission of
Dong-Sheng Li from
Inorg. Chem. Front.,
2025, **12**, 955.

REVIEWS

848

In situ characterization techniques: main tools for revealing OER/ORR catalytic mechanism and reaction dynamics

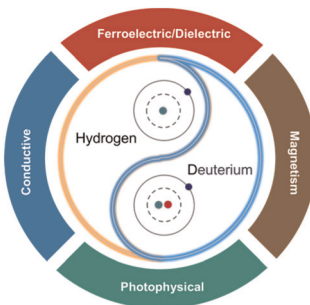
Siqi Wu, Zexin Liang, Tianshi Wang, Xiaobin Liu and
Shaobo Huang*



876

Impact of H/D isotopic effects on the physical properties of materials

Chengdong Liu, Zi-Shuo Yao* and Jun Tao*



Royal Society of Chemistry approved training courses

Explore your options.
Develop your skills.
Discover learning
that suits you.

**Courses in the classroom,
the lab, or online**

Find something for every
stage of your professional
development. Search our
database by:

- subject area
- location
- event type
- skill level

Members **get at least 10% off**

Visit rsc.li/cpd-training

**SAVE
10%**

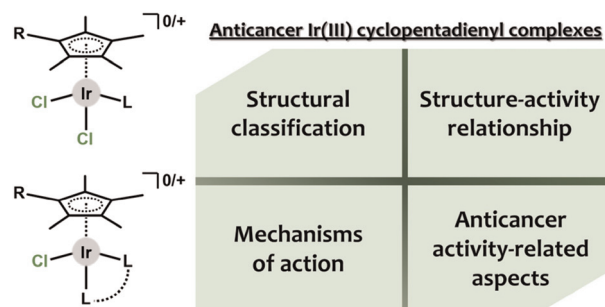


REVIEWS

897

Anticancer iridium(III) cyclopentadienyl complexes

Pavel Štarha

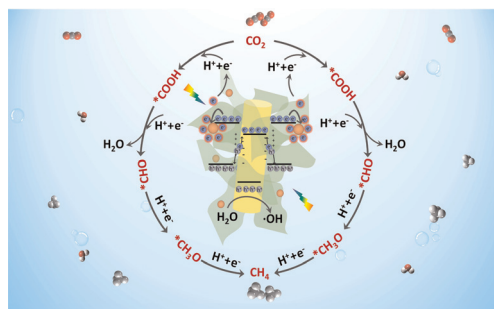


RESEARCH ARTICLES

955

Synergetic effects of surface plasmon resonance and structure defects in a ZnCdS₂/NiMoO₄@Cu Z-scheme heterojunction for enhanced photocatalytic CO₂ reduction to CH₄

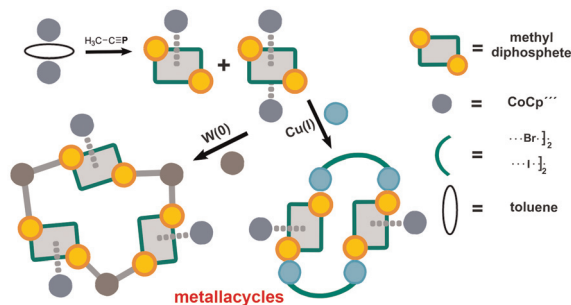
Zhentao Hu, Lei Huang, Bojing Sun,* Dongfang Hou,* Xiu-qing Qiao, Meidi Wang, Huijuan Ma and Dong-Sheng Li*



967

Synthesis, oxidation and unusual coordination chemistry of the diphosphate complex [(Cp^{'''}Co)₂(μ,η^{4:4}-(CH₃CP)₂)]

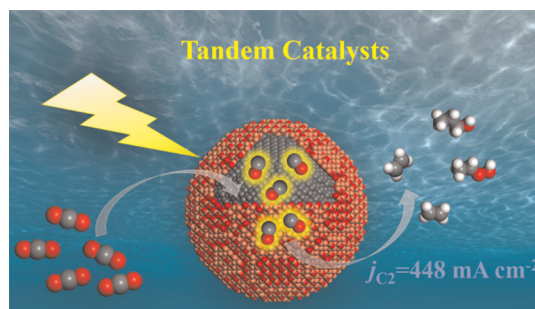
E.-M. Rummel, M. Elsayed Moussa, M. Parzefall, E. Peresypkina, C. Riesinger, A. Y. Timoshkin, G. Balázs, P. Mastrolilli, S. Todisco and Manfred Scheer*



975

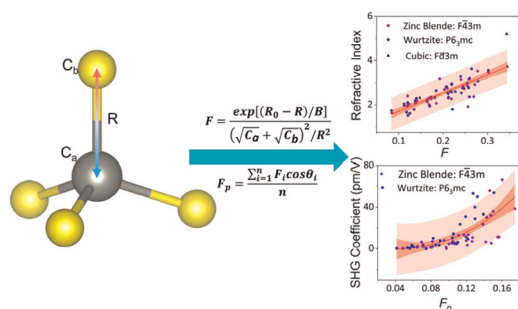
A tandem nanoreactor constructed by coating Cu₂O on the surface of single-atom catalyst Ni-NC₃ for electroreduction of CO₂ to C₂ products

Cheng-Peng Liang, Jia-Run Huang, Pei-Qin Liao* and Xiao-Ming Chen*



RESEARCH ARTICLES

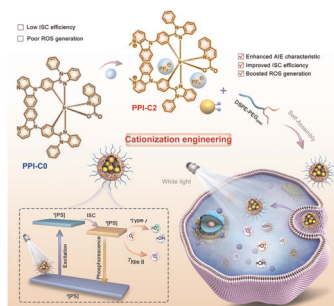
980



Flexibility index: a general descriptor of polarization ability in crystalline materials

Qin Chen, Xingxing Jiang* and Zheshuai Lin*

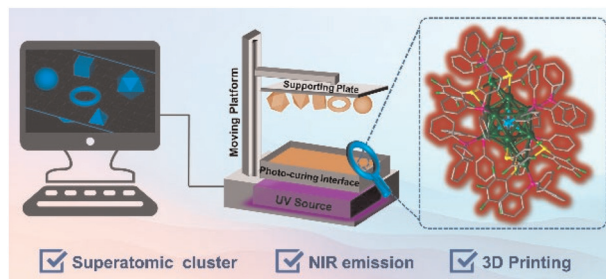
986



Enhanced ROS generation in AIE-active iridium(III) photosensitizers by cationization engineering for advanced photodynamic therapy

Shanshan Huang, Yuancheng Li, Xiaohan Xie, Jialin Tong, Guo-Gang Shan,* Chao Qin,* Xiyan Xiao,* Qianruo Wang,* Yuanyuan Li and Hualei Wang

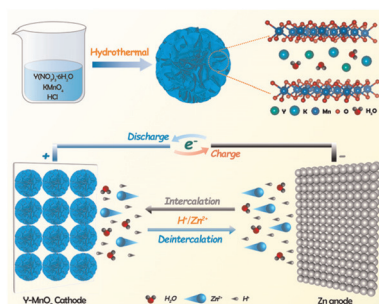
995



Near-infrared luminescence AgPd alloy superatomic clusters

Xiao-Hong Ma, Jian-Hua Qin,* Fei-Fan Wang, Peng Luo and Xi-Yan Dong*

1002



Rare earth pillars for stable layered birnessite cathodes propelling aqueous zinc-ion batteries with ultra-long cyclability

Jianwei Wang, Kangning Wang,* Wenlin Zhang, Jinbo Zhang, Yanzhong Zhen, Feng Fu and Yaping Du*

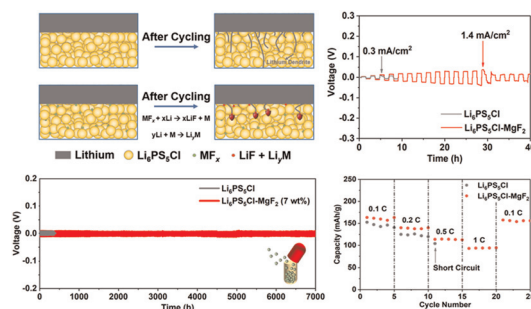


RESEARCH ARTICLES

1010

***In situ* conversion reaction of magnesium fluoride to boost the performance of the sulfide-based electrolyte $\text{Li}_6\text{PS}_5\text{Cl}$ for all-solid-state lithium metal batteries**

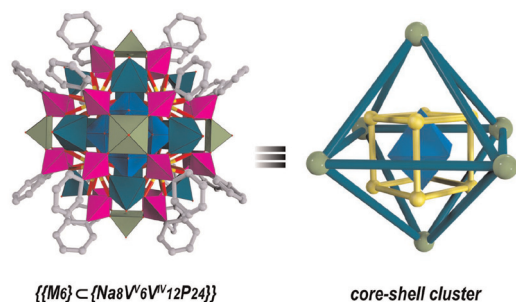
Yuzhe Zhang, Haolong Chang, Xiaohu Hu, Shijie Xu, Xinyu Wang, Shunjin Yang, Yujiang Sun, Xiao Sun, Dehang Ren, Xing Chen,* Fangyi Cheng and Yongan Yang*



1021

Self-assembly of high-nuclear core-shell polyoxovanadates with Lindqvist templates

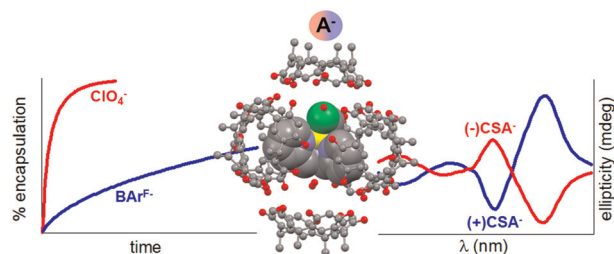
Shuangxue Wu, Yaomei Fu, Hongmei Gan, Liang Zhao,* Xinlong Wang, Chao Qin* and Zhongmin Su



1028

Anion-mediated properties of a metal complex in a hexameric resorcin[4]arene cage: chirality induction, kinetics and reactivity

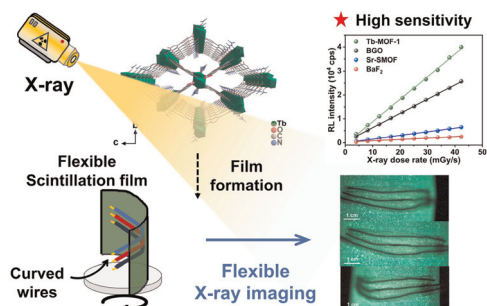
Hichem Ichou, Kevin Telliez, Sonia Lajnef, Fabienne Peyrot, Benjamin Doistau, Laurence Leherte* and Benoit Colasson*



1040

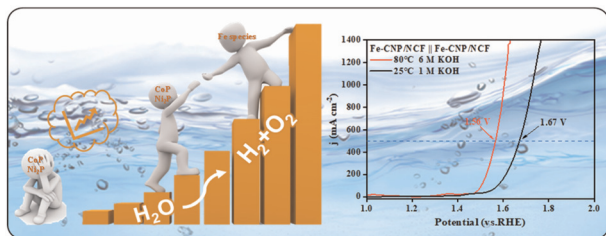
Highly sensitive terbium-based metal-organic framework scintillators applied in flexible X-ray imaging

Peng-Kun Wang, Wen-Fei Wang, Bao-Yi Li, Rui-Xuan Qian, Zhao-Xing Gao, Shuai-Hua Wang,* Fa-Kun Zheng* and Guo-Cong Guo*



RESEARCH ARTICLES

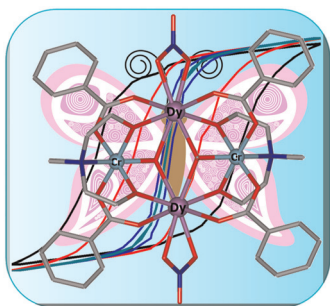
1049



Self-derived, high-mechanical-strength polymetallic phosphides microsheet heterostructures for industrial-scale high-current-density water-splitting

Jing Jin, Feng Chen, Xinyu Hu, Jiashuai Zhang, Li Hou,* Wenwei Lei and Faming Gao*

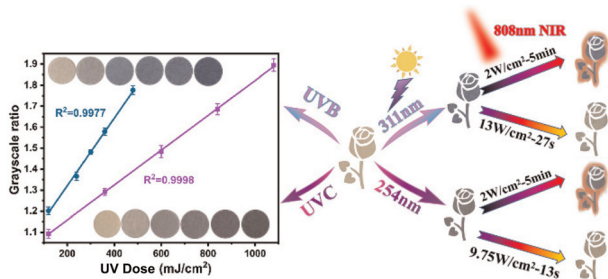
1059



Enhancing blocking temperatures in $\{Cr_2^{III}Dy_2^{III}\}$ butterfly SMMs: deciphering the role of exchange interactions and developing magneto-structural maps

Abinash Swain, Yasmin L. Whyatt, Daniel Wielechowski, Satheeshkumar Muthu, Sophie L. Benjamin, Keith S. Murray,* Gopalan Rajaraman* and Stuart K. Langley*

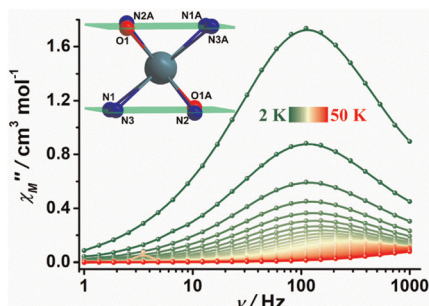
1080



Wavelength-selective duotone single-component photochromic gallophosphate-oxalate with multidirectional UVB/UVC/NIR photoswitch electron transfer

Zhihui Yi, Tieqiang Wang, Xu Li, Junbiao Wu,* Zhuopeng Wang, Zhiqiang Liang and Jiyang Li*

1090



A high-performance dysprosium single-ion magnet with local pseudo cubic geometry

Yanbo Shi, Chennan Zhang, Mingyue Shi, Yang Zhou, Hong Li, Rui Liu, Shaojun Zheng, Aihua Yuan, Lei Chen,* Shu-Yang Chen,* Bing Yin* and Zhao-Bo Hu*



The Shastry–Sutherland lattice in two-dimensional magnetic lanthanide metal–organic frameworks

High-efficiency photodriven coupling of CO₂ and various epoxides *via* a multi-shelled hollow ZIF/MXene derived composite with low activation energy

Reduced activation energy
 Enhanced light harvesting
 Fast mass transfer
 Thermal insulation effect

full spectrum (200-1200 nm)
 Pyrolysis
 4L-ZIF/MX-8
 CoNHPC/TM-8
 $\Delta T = 50\text{ }^{\circ}\text{C}$
 Synergistic photothermal-photocatalytic effect

Regulating π -type interactions between O 2p and TM t_{2g} orbitals *via* Ti doping and surface dielectric coatings for Li-rich cathodes

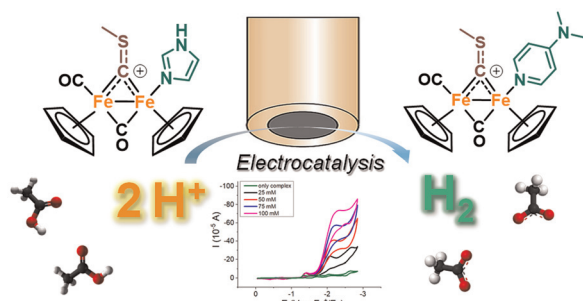
[illegible]

High-performance TADF-OLEDs utilizing copper(I) halide complexes containing unsymmetrically substituted thiophenyl triphosphine ligands

Figure 1 shows the chemical structure of the x-ray complex 4 and its cyclic voltammogram (CV). The structure is a central metal atom coordinated by two terphenyl ligands and two TMS-substituted ligands. The CV shows the redox potentials of the ligands and the complex. The x-axis is potential E (V) from -2 to -8. The y-axis is current i (nA). The CV shows several redox couples: TMS (0.0 mV), TCTA (0.0 mV), Complex 4 (0.0 mV), DPEPO (0.0 mV), and TEB (-0.7 to -2.7 V). The EQE_{max} is 14.57%.

RESEARCH ARTICLES

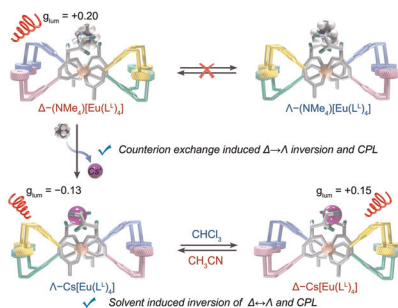
1156



Effective electrocatalysts for hydrogen production from acetic acid by screening of monodentate ligands in cationic diiron hetero-carbyne complexes

Lorenzo Biancalana,* Isacco Gualandi,*
Stefano Zacchini, Giulia Martelli, Erika Scavetta,
Valerio Zanotti, Rita Mazzoni and Fabio Marchetti

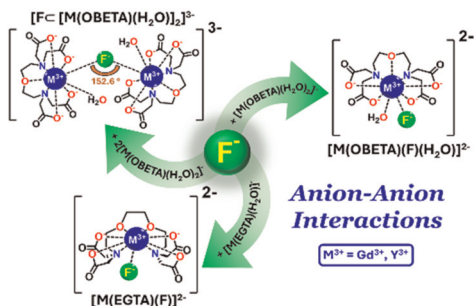
1176



Solvent and counterion cooperatively induced inversion of the stereocenter Δ/Λ and CPL in a mononuclear Eu(III) complex

Wenhua Li, Sen Yin, Ziyi Song, Pengfei Yan,
Yanyan Zhou, Ting Gao* and Hongfeng Li*

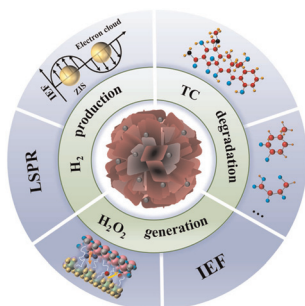
1187



Fluoride binding in unlikely partners: the formation of anion-anion complexes with $[\text{M(EGTA)}]^-$ and $[\text{M(EBETA)}]^-$ ($M = \text{Gd}^{3+}, \text{Y}^{3+}$)

Lorenzo Risolo, Marco Ricci, Daniela Lalli,*
Carlos Platas-Iglesias and Mauro Botta*

1200



Dual electron transfer path and LSPR photothermal enhancement in BiOCl@ZnIn₂S₄ heterojunction for enhanced photocatalytic H_2 evolution, H_2O_2 production and tetracycline removal

Fan Wu, Guangyu Wu,* Yonggong Tang, Yuwei Pan,
Jiangang Han, Jin Zhang, Weinan Xing and
Yudong Huang

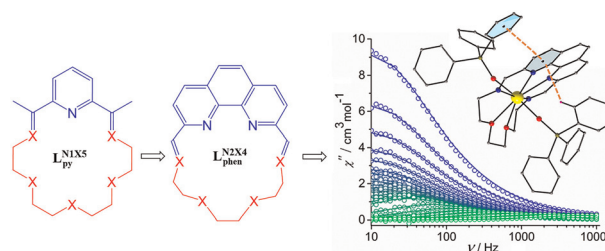


RESEARCH ARTICLES

1214

'Kick-in the head': high-performance and air-stable mononuclear Dy^{III} single-molecule magnets with *pseudo-D*_{6h} symmetry from a [1 + 1] Schiff-base macrocycle approach

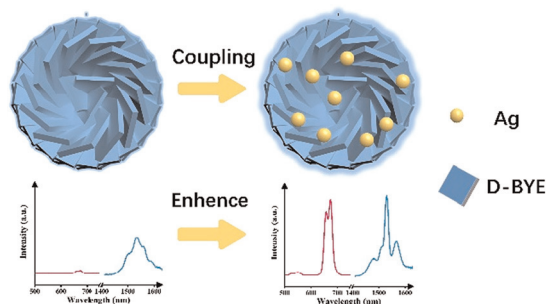
Alexandros S. Armenis, Arpan Mondal, Sean R. Giblin, Dimitris I. Alexandropoulos, Jinkui Tang, Richard A. Layfield* and Theocharis C. Stammatatos*



1225

Precise control of photoemission and circularly polarized emission achieved through resonant coupling of chiral nanoparticles with Ag particles

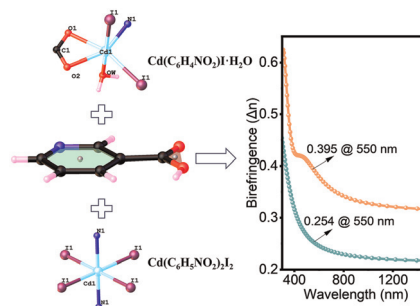
Rongze Ma, Dedan Mu, Yanni Lang, Liang Xu, Haoxin Wang, Songtao Li, Yongjin Li, Zhiguo Song, Dacheng Zhou, Yong Yang, Yugeng Wen, Jin Han* and Jianbei Qiu*



1234

Strategically designed anisotropic organic–inorganic metal halides (OIMHs) with superior balance between bandgap and birefringence

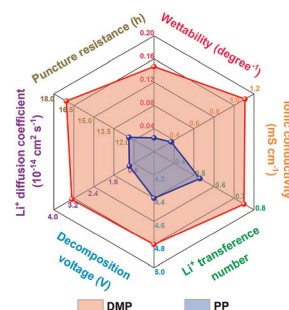
Ming-Chang Wang, Huai-Yu Wu,* Miao-Bin Xu, Jia-Jia Li, Ke-Zhao Du* and Jin Chen*



1244

An ingenious double-modified strategy to prepare a "hexagonal warrior" separator for lithium metal batteries

Shitong Sun, Bo Jin,* Hui Liu and Qing Jiang



Hydrolytic polymerization

Absorbance (a.u.)

Wavelength (nm)

Ligand field transitions

Marco Piccinni, Christian Rossi, Diego Colombara* and
Francesco Bonaccorso*

Figure 1 illustrates the schematic representation of the PES working potential window. The diagram shows a blue energy landscape with a red banner labeled "constrain". Above the landscape, chemical reactions for water splitting are listed: $\cdot\text{OH} + \text{e}^- \rightleftharpoons \cdot\text{OH}^-$, $\cdot\text{OH} + \text{OH}^- \rightleftharpoons \text{O} + \text{H}_2\text{O}^-$, $\cdot\text{O} + \text{H}^+ \rightleftharpoons \cdot\text{OH}$, and $\cdot\text{OOH} + \text{OH}^- \rightleftharpoons \cdot\text{O}_2 + \text{H}_2\text{O}^-$. A legend identifies the atoms: N (blue), C (grey), Al (green), Fe (red), Cu (orange), and O (white). The diagram is divided into two regions: "Low OER overpotential" and "High OER overpotential". A red arrow labeled "constrain" points from the "High OER overpotential" region to the "Low OER overpotential" region. The "Low OER overpotential" region is labeled "PES working potential window". Below the landscape, two graphs show the current density (A/g) versus potential (V vs. RHE) for various catalysts. The left graph shows the current density for different catalysts at a fixed potential of 1.6 V. The right graph shows the current density for different catalysts at a fixed potential of 1.6 V. The right graph also includes a table of the potential window (V vs. RHE) for each catalyst.

Catalyst	Potential window (V vs. RHE)
100 wt % Fe^{3+}	1.60 - 1.65
100 wt % Cu^{2+}	1.60 - 1.65
100 wt % Al^{3+}	1.60 - 1.65
100 wt % Fe^{3+}	1.60 - 1.65
100 wt % Cu^{2+}	1.60 - 1.65
100 wt % Al^{3+}	1.60 - 1.65
100 wt % Fe^{3+}	1.60 - 1.65
100 wt % Cu^{2+}	1.60 - 1.65
100 wt % Al^{3+}	1.60 - 1.65

Xinpeng Huang, Yingnan Yan, Xuehua Yan,*
Qianzuo Liu, Feng Zhang, Jili Wu, Jianmei Pan,
Zohreh Shahnavaaz and Jamile Mohammadi Moradian

Suhua Mao, Xin Li, Bingshuang Li, Jin Li and Xiaoxi Huang*

Figure 1 illustrates the photochemical reaction of Cu(II) complexes. The diagram compares the behavior of a Cu(II) complex in solution versus on a surface. In solution, the complex is a monomer. On a surface, it forms a dimeric structure coordinated to a ZrO₂ surface. A graph on the right shows the decay of the excited state (ΔA) over time, with a long-lived component (blue curve) having a lifetime of $\tau \times 20$ and a short-lived component (orange curve) having a lifetime of τ .

Jiaqi Chen, Henry C. London, Dhruba Pattadar,
Charlotte Worster, Sahan R. Salpage, Elena Jakubikova,*
S. Scott Saavedra* and Kenneth Hanson*

RESEARCH ARTICLES

1303

Cluster-like Mo₂N anchored on reduced graphene oxide as an efficient and high-performance catalyst for deep-degree oxidative desulfurization

Weizhuang Song, Dongxu Wang,* Xianyun Yue, Chengxu Jin, Yangchen Wu, Yu Shi, Jiancong Liu, Aiping Wu, Chungui Tian* and Honggang Fu*

