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Polyoxometalates

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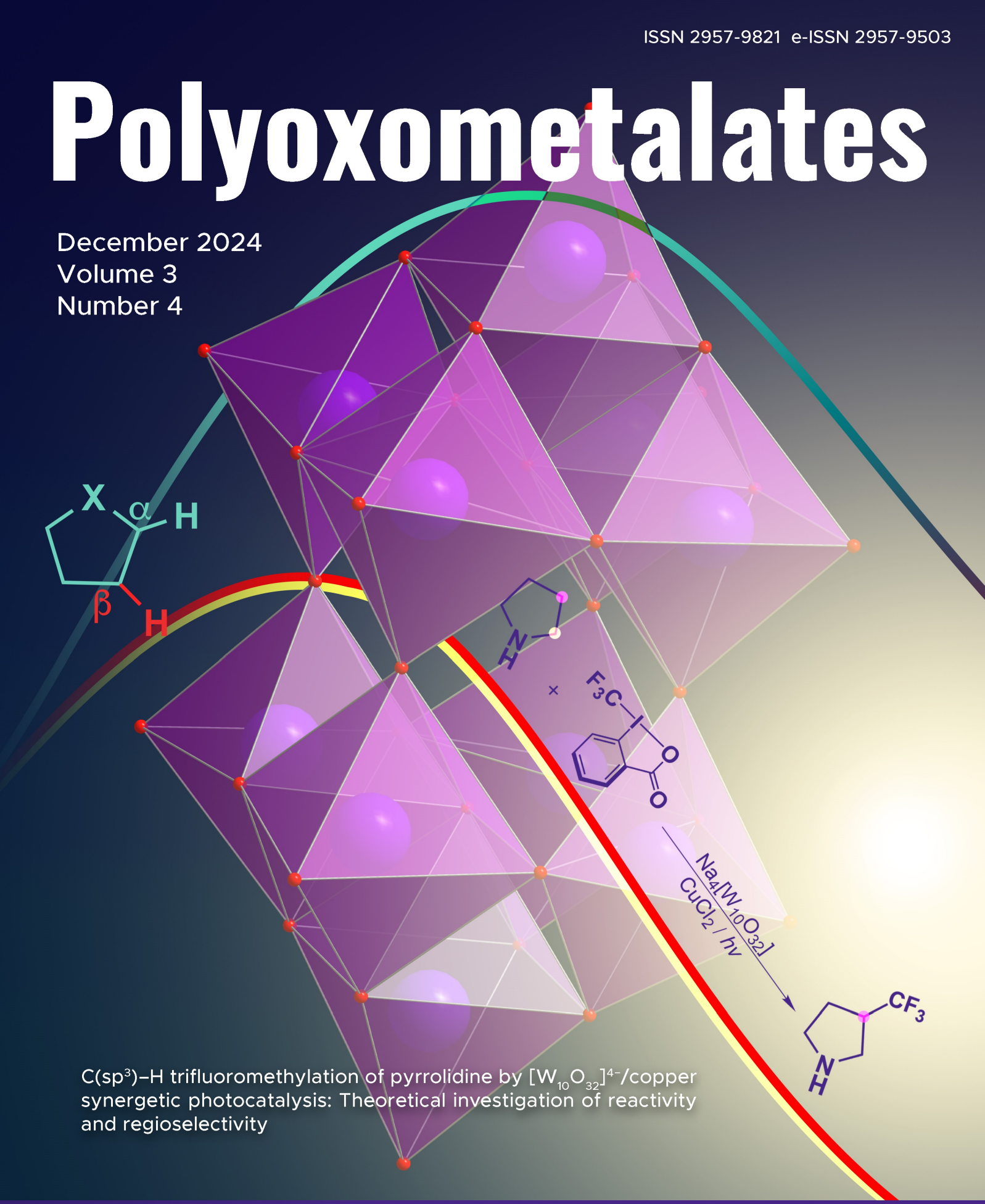

C(sp³)–H trifluoromethylation of pyrrolidine by $[W_{10}O_{32}]^{4-}$/copper synergetic photocatalysis: Theoretical investigation of reactivity and regioselectivity

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Contents

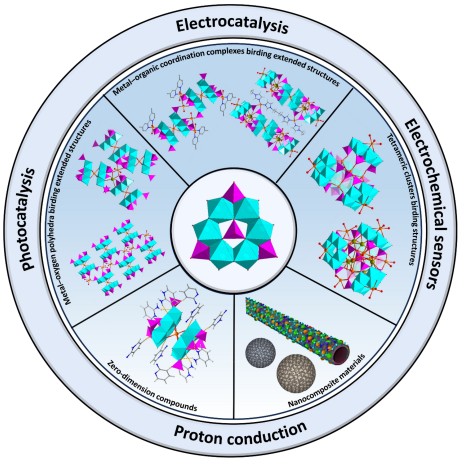
Review article

Recent advances in $\{P_4Mo_6\}$-based polyoxometalates

Wenrui Deng, Zihao Zhu, Yijian Sun, Hui Xu*, Suijun Liu, and Herui Wen

Polyoxometalates, **2024**, *3*, 9140071
https://doi.org/10.26599/POM.2024.9140071

In this review, we briefly discuss the advances of $\{P_4Mo_6\}$-based polyoxometalates (POMs) over the past decade, where focusing on the structure and property perspectives, including the four sections: structures and structuralclassification, synthesis strategies, applications and nanocomposites with $\{P_4Mo_6\}$-based POMs as precursors and their applications. Moreover, the challenges and development prospects are also briefly discussed.



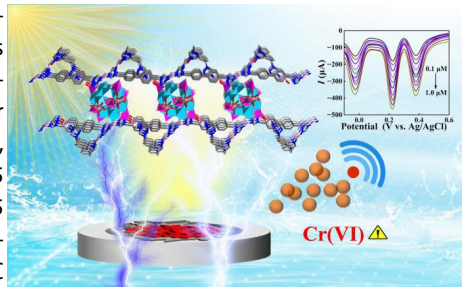
Research articles

Reduced phosphomolybdate as photoassisted electrochemical crystalline sensor for trace Cr(VI) detection

Hao Song, Meng-Si Guo, Jie-Fei Wang, Yu-Qing Liu, Hao-Xue Bi, Jing Du, Wen-Ting An, Yuan-Yuan Ma*, and Zhan-Gang Han*

Polyoxometalates, **2024**, *3*, 9140065
https://doi.org/10.26599/POM.2024.9140065

An hourglass-type phosphomolybdate-based metal-organic network was hydrothermally synthesized as photo-assisted electrochemical (PAEC) sensor for ultra-trace Cr(VI) determination, which exhibits high sensitivity of 330.5 $\mu A \cdot \mu M^{-1}$ and low detection limit of 0.95 nM (98.79 ppt) along with high anti-interference ability and excellent PAEC detection stability.

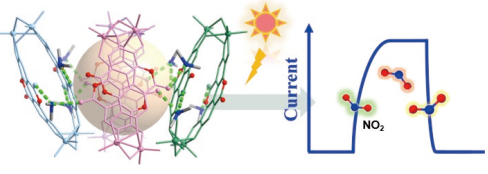


A visible-light-active ellagic acid-based titanium-oxo cluster for room temperature chemiresistive sensing

Hui-Zi Li, Fei Wang*, and Jian Zhang

Polyoxometalates, **2024**, *3*, 9140066
https://doi.org/10.26599/POM.2024.9140066

A new titanium-oxo cluster functionalized with polyphenolic-type ellagic acid was synthesized for room temperature chemical resistance sensing.

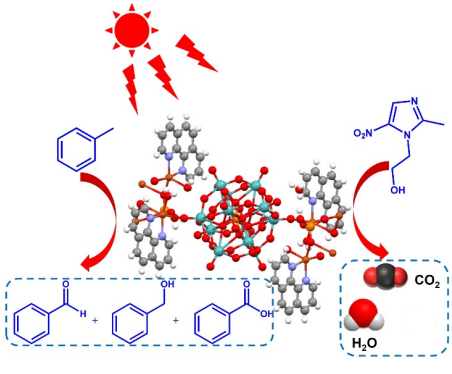


Polyoxometalate-based Cu(II) complexes as the photocatalyst for oxidation of toluene and photodegradation of metronidazole

Fei Wang, Chaojun Jing*, Jiejie Ping, Danyang He, Wenhui Shang, Muling Zeng*, Nan Wang*, and Zhiyu Jia*

Polyoxometalates, **2024**, *3*, 9140067
https://doi.org/10.26599/POM.2024.9140067

The Cu&POM-based complex, composed of PMo_{12} and 1,10-phenanthroline, has constructed a supramolecular framework through hydrogen bonding and π–π interactions. The complex exhibits excellent photocatalytic performance in the oxidation of toluene and the photodegradation of metronidazole.

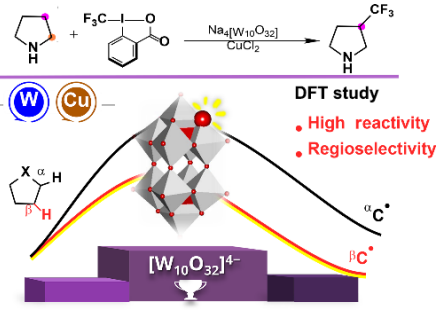


C(sp³)–H trifluoromethylation of pyrrolidine by $[W_{10}O_{32}]^{4-}$/copper synergetic photocatalysis: Theoretical investigation of reactivity and regioselectivity

Yu-Jiao Dong, Zhong-Min Su*, and Wei Guan*

Polyoxometalates, **2024**, *3*, 9140068
https://doi.org/10.26599/POM.2024.9140068

Through density function theory (DFT) calculations investigating a triple catalytic cycle, the outstanding reactivity of $[W_{10}O_{32}]^{4-}$ and the reversal regioselectivity for C(sp³)–H bond activation has been uncovered.



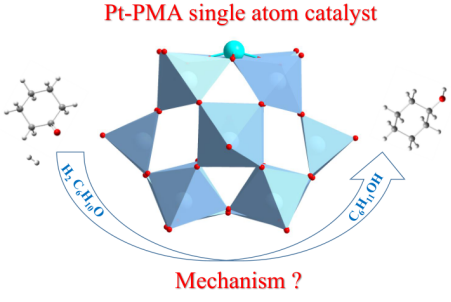
Front Cover

Cyclohexanone hydrogenation to cyclohexanol on phosphomolybdate supported Pt single-atom catalyst: A density functional theory study

Shuang Wu, Congcong Zhao, Yujiao Dong, and Likai Yan*

Polyoxometalates, **2024**, *3*, 9140070
https://doi.org/10.26599/POM.2024.9140070

Herein, we systematically investigated the geometric and electronic structures of Pt-PMA ((PMA = $PMo_{12}O_{40}^{3-}$) single-atom catalyst, elucidating its catalytic mechanism for the hydrogenation of cyclohexanone to cyclohexanol.



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