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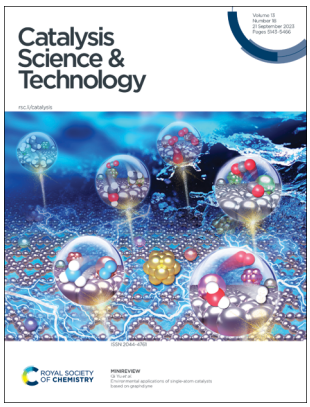
ISSN 2044–4761 CODEN CSTAGD 13(18) 5143–5466 (2023)



Cover
See Qi Yu *et al.*, pp. 5154–5174.
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See Keigo Kamata *et al.*, pp. 5180–5189.
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MINI REVIEW

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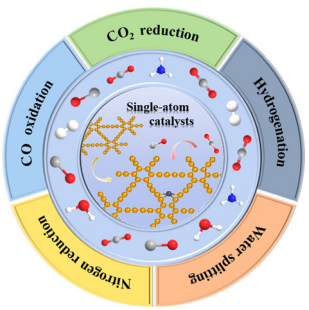
Environmental applications of single-atom catalysts based on graphdiyne

Mengdie Zhao, Liyun Jiang and Qi Yu*



COMMUNICATION

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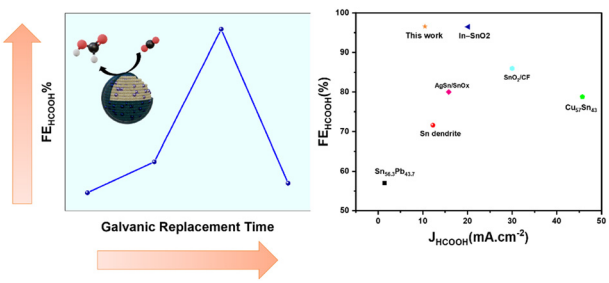
Dynamic hydrogen bubbling templated AgSn@SnO_x electrocatalyst for selective electrochemical CO_2 reduction: adjusting the binding energy of the HCOO* intermediate

Hisham G. El-Aqapa, Ibrahim M. Badawy, Ghada E. Khedr, Ahmed M. Agour, Doha M. Sayed, Manar M. Taha and Nageh K. Allam*



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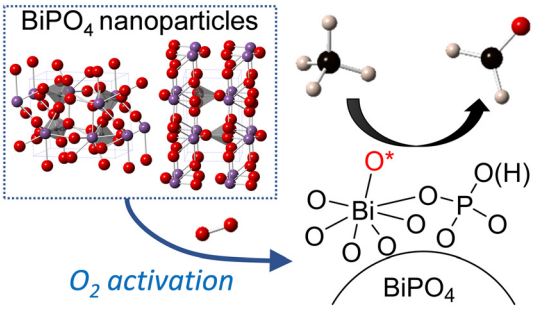
Bismuth phosphate nanoparticle catalyst for direct oxidation of methane into formaldehyde

Aoi Matsuda, Kazuhiko Obara, Atsushi Ishikawa, Meng-Hsuan Tsai, Chia-Hsin Wang, Yu-Chuan Lin, Michikazu Hara and Keigo Kamata*



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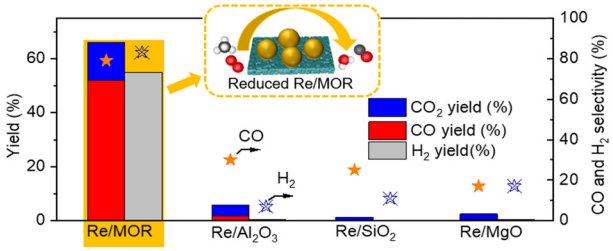
Mordenite-stabilised rhenium catalyst for partial oxidation of methane to syngas

Lingcong Li, Abhijit Shrotri, Kazuya Kato, Atsushi Fukuoka and Hirokazu Kobayashi*



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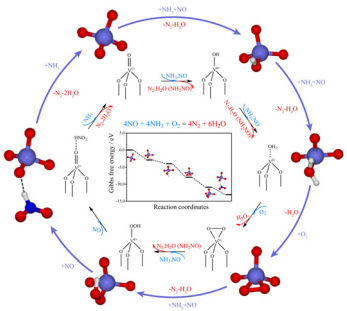
Active vanadium(IV) species synthesized at low-temperature facilitate excellent performance in low-temperature NO_x-catalytic removal

Liwei Sun, Peng Liu, Jianheng Xu, Kaijie Liu, Zeshu Zhang, Yibo Zhang* and Xiangguang Yang*



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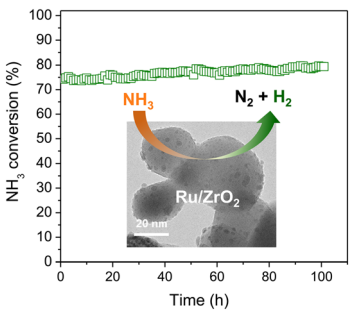
Steering ammonia decomposition over Ru nanoparticles on ZrO_2 by enhancing metal–support interaction

Tong Zhang, Xiaohua Ju, Lvye Liu, Lin Liu,* Teng He, Yunhua Xu, Hanying Wang and Ping Chen



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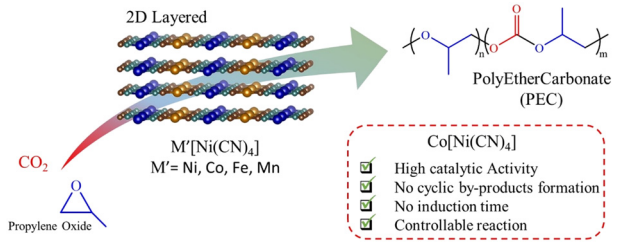

Two-dimensional (2D) layered double metal cyanides as alternative catalysts for CO_2/propylene oxide copolymerization

Guillermo Penche, María P. González-Marcos,* Juan R. González-Velasco, Cyler W. Vos and Christopher M. Kozak

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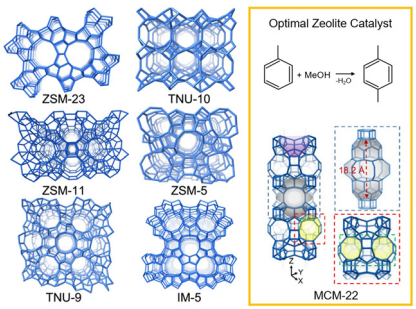

Impact of medium-pore zeolite topology on *para*-xylene production from toluene alkylation with methanol

Deependra Parmar, Seung Hyeok Cha, Chenfeng Huang, Hsu Chiang, Seth Washburn, Lars C. Grabow and Jeffrey D. Rimer*

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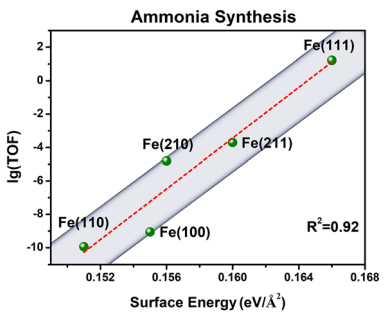

Correlation between the structural features and intrinsic activity trend of Fe surfaces for ammonia synthesis

Jianfu Chen, Ye Chen, Haifeng Wang and P. Hu*

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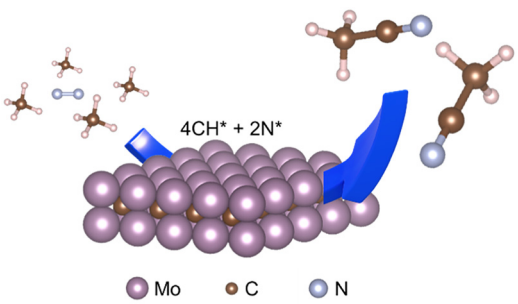

Co-activation of methane and nitrogen to acetonitrile over MoC_x/Al_2O_3 catalysts

Korawich Trangwachirachai, I-Ting Kao, Wei-Hsiang Huang, Chi-Liang Chen and Yu-Chuan Lin*

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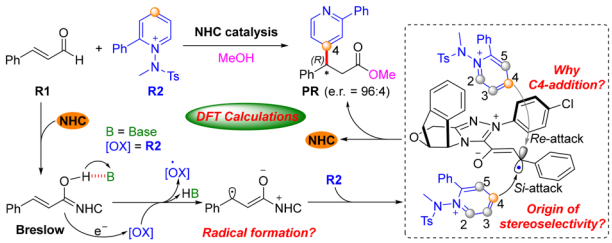
NHC-catalyzed enantioselective radical reactions of enal and pyridinium salt: mechanism and origin of regio- and stereoselectivities

Kuohong Chen, Jiaming Zhang, Qianqian Shi, Lili Han, Dongmin Fu, Donghui Wei* and Yanyan Zhu*



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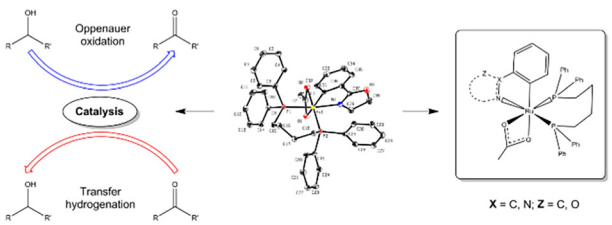
Cyclometalated C^N diphosphine ruthenium catalysts for Oppenauer-type oxidation/transfer hydrogenation reactions and cytotoxic activity

Dario Alessi, Pierfrancesco Del Mestre, Eleonora Aneggi, Maurizio Ballico, Antonio P. Beltrami, Marta Busato, Daniela Cesselli, Alexandra A. Heidecker, Daniele Zuccaccia and Walter Baratta*



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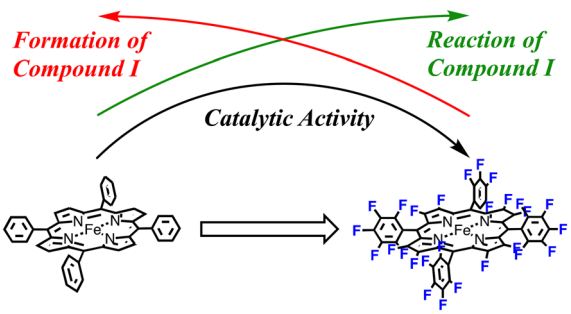
Tuning catalytic activity with steric and electron-withdrawing effects of a porphyrin substituent

Lulu Jiang, Yosuke Imanaka and Hiroshi Fujii*



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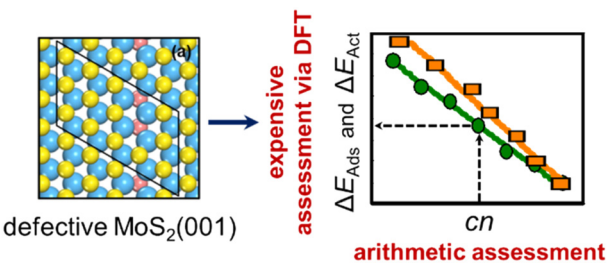
A structure-sensitive descriptor for the design of active sites on MoS_2 catalysts

Hai-Yan Su, Federico Calle-Vallejo* and Keju Sun*



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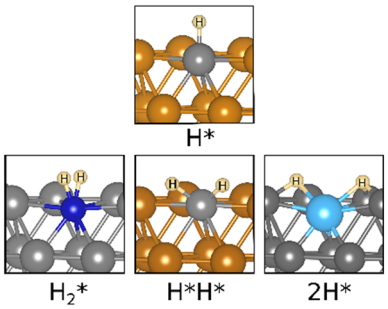

Hydrogen complexes on single atom alloys: classical chemisorption *versus* coordination chemistry

Ilaria Barlocco, Giovanni Di Liberto* and Gianfranco Pacchioni

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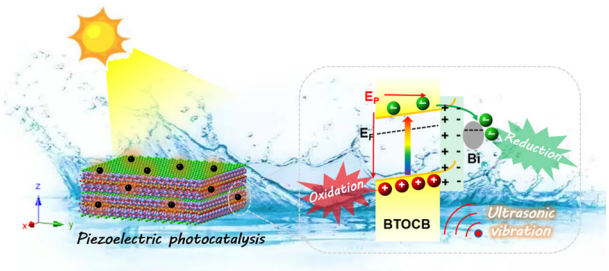

***In situ* construction of a Sillén–Aurivillius layered perovskite-based 0D/2D homologous Schottky junction for efficient piezo-photocatalytic activity**

Jian Yang, Yali Xue, Chuang Han, Xiaorui Zhang, Ke Sa, Jin Jia, Hanlin Ye and Yujun Liang*

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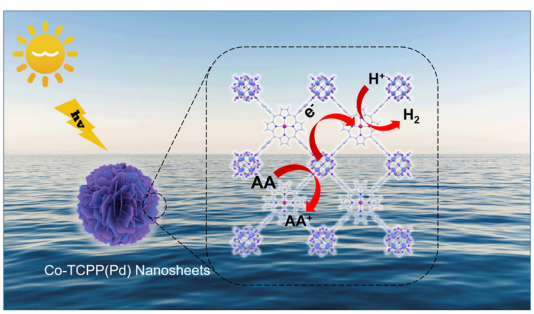

2D photosensitive porphyrin-based MOFs integrated with a Pd cocatalyst with fast charge transfer for efficient photocatalytic hydrogen evolution

Yacen Tang, Mingzuo Chen, Chenghua Zhang,* Huyumao Li, Youzhou He,* Xiangdong Lai, Liujun Tao, Jiajia Jing and Xingyan Liu*

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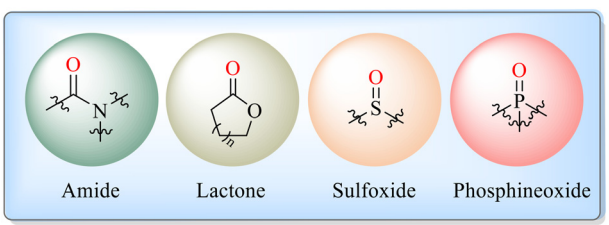

Theoretical study of reductive CO_2 functionalization with amines and phenylsilanes: what kind of solvents can be used as catalysts?

Pan Du, Xinyue Liu, Xinyi Dong, Nianyang Li, Rui Liu, Li Li and Jiyang Zhao*

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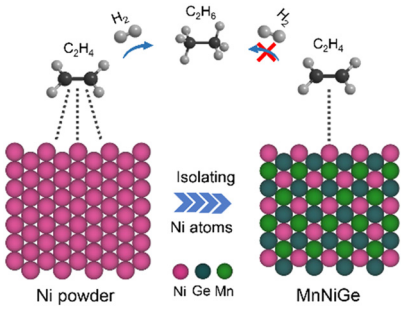
Enhancing selectivity for semi-hydrogenation of Ni by periodic isolation in the MM′X structure

Yinglei Liu, Changjin Xu, Bo Yang, Xiangying Meng, Gaowu Qin and Song Li*



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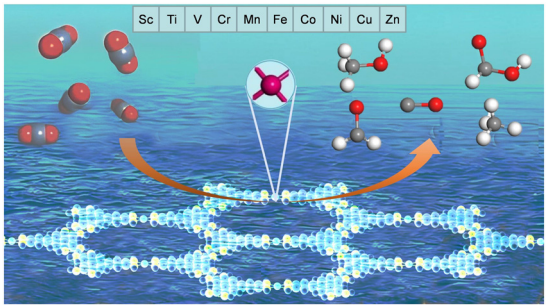
Density functional theory calculation of two-dimensional transition metal–hexaiminotriphenylene (TM-HITP) electrocatalytic CO_2 reduction

Xianshi Zeng, Luliang Liao, Meishan Wang* and Hongming Wang*



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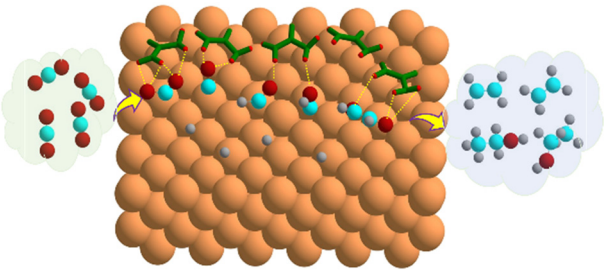
Organic additive for the selective C_2-product formation on Cu(100): a density functional theory mechanistic study

Amitabha Das, Shyama Charan Mandal and Biswarup Pathak*



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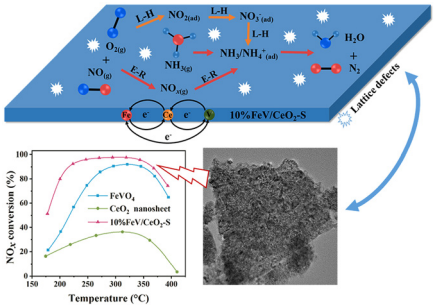
Improved NH_3-SCR activity by the cooperation of $FeVO_4$ and CeO_2 nanosheet catalysts: structure and mechanism

Yuqiu Liu, Biyi Huang, Jianyi Zhang, Yanting Chen, Jinsheng Chen* and Jinxiu Wang*



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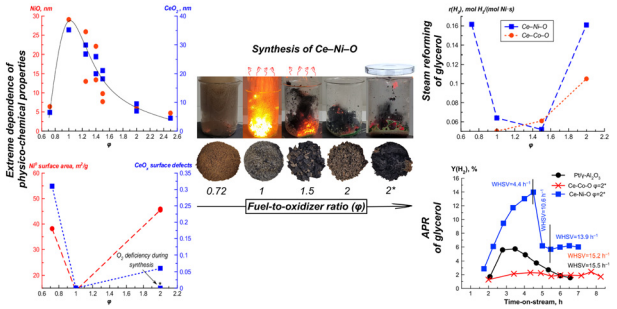

CeO_2-supported Ni and Co catalysts prepared by a solution combustion method for H_2 production from glycerol: the effect of fuel/oxidizer ratio and oxygen excess

Anna N. Matveyeva,* Shamil O. Omarov, Marianna A. Gavrilova, Andrey D. Trofimuk, Johan Wärnå and Dmitry Yu. Murzin*

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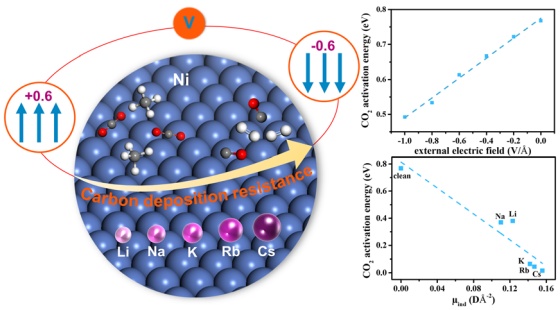

Theoretical study on dry reforming of methane over a Ni(111) surface under electric fields and with alkali metal additives

Hui Jiao and Gui-Chang Wang*

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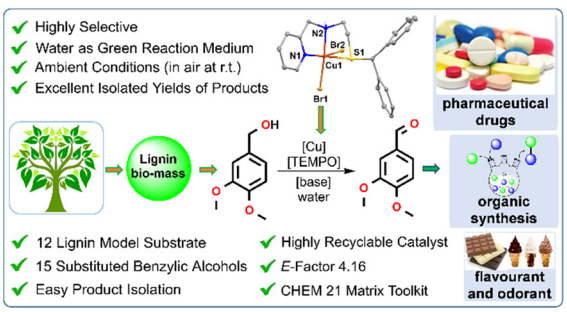

Selective aerobic oxidation of biomass model compound veratryl alcohol catalyzed by air-stable copper(II) complexes in water

Narayan Ch. Jana, Sourav Behera, Suraj Kumar Maharana, Rakesh R. Behera and Bidraha Bagh*

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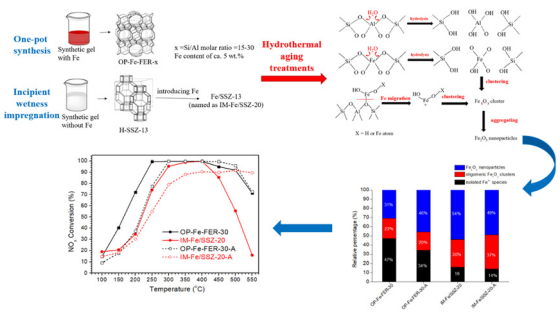

Study on the catalytic activity and hydrothermal stability of one-pot synthesized Fe-based FER zeolites for NH_3-SCR

Xinyue Hu, Jialing Chen,* Shaokang He, Tingyu Liang,* Shenke Zheng,* Lijun Lu, Chenxi Hao, Kaixin Chen, Tingting Li, Lan Yi, Li Guo and Xiaoqin Wu

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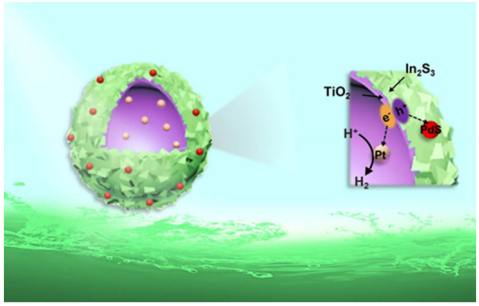
Hierarchical hollow TiO_2/In_2S_3 heterojunction photocatalyst decorated with spatially separated dual co-catalysts for enhanced photocatalytic H_2 evolution

Ruyu Zhang, Xiaowei Jia, Xianchun Liu,* Mingliang Sun, Yuyu Wang, Anqi Xie, Xiaodan Yu, Zhan Shi and Yan Xing*



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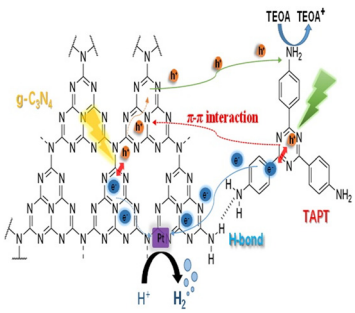
g-C_3N_4 coupled with 2,4,6-tris(4-aminophenyl)-1,3,5-triazine *via* π–π interactions enhanced visible-light photocatalytic H_2 evolution from water splitting

Chen-Chuang Li, Ikram Ullah, Gang Wang* and An-Wu Xu*



CORRECTION

5462

Correction: Design of gold catalysts for activation of H_2 and H-donor molecules: transfer hydrogenation and CO_2 hydrogenation

Jhonatan Luiz Fiorio, Lais Reis Borges, Tomaz Neves-Garcia, Danielle Kimie Kikuchi, Raíza Rosa Garcia Guerra and Liane Marcia Rossi*