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A multidisciplinary journal focussing on all fundamental science and technological aspects of catalysis

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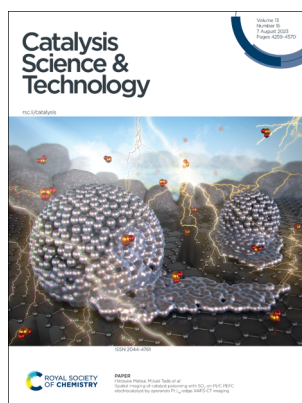
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See Evgenii V. Kondratenko *et al.*, pp. 4353–4359.
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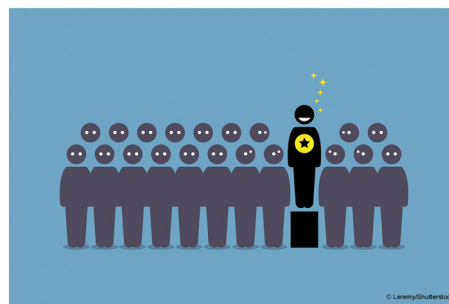
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See Hirotsuke Matsui, Mizuki Tada *et al.*, pp. 4360–4366.
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EDITORIAL

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Outstanding Reviewers for *Catalysis Science & Technology* in 2022



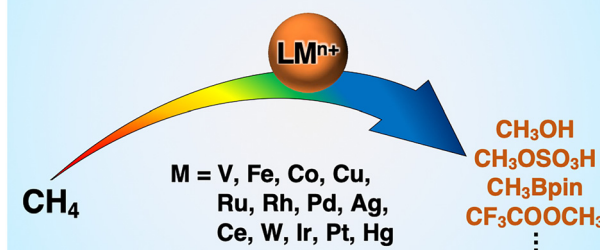
MINI REVIEWS

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Functionalization of methane using molecular metal complexes as catalysts

Hiroto Fujisaki and Takahiko Kojima*

Methane functionalization by molecular catalysts



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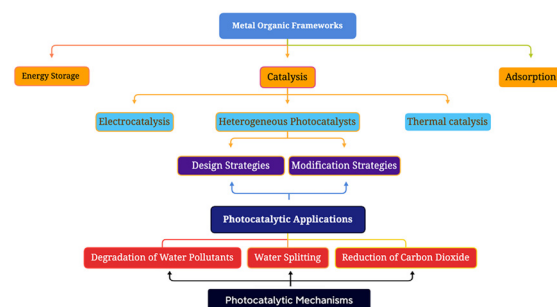


MINI REVIEWS

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State of the art and prospectives of heterogeneous photocatalysts based on metal–organic frameworks (MOFs): design, modification strategies, and their applications and mechanisms in photodegradation, water splitting, and CO₂ reduction

Zeren Ma, Bin Guan,* Jiangfeng Guo, Xingze Wu, Yujun Chen, Jinhe Zhang, Xing Jiang, Shibo Bao, Lei Chen, Kaiyou Shu, Hongtao Dang, Zelong Guo, Zekai Li, Shunyu Yao and Zhen Huang

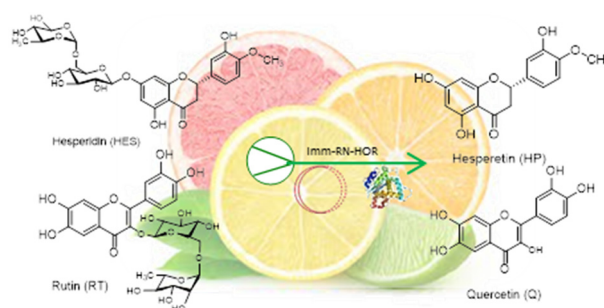


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Flow bioprocessing of citrus glycosides for high-value aglycone preparation

Agostina Colacicco, Giorgia Catinella, Cecilia Pinna, Alessandro Pellis, Stefano Farris, Lucia Tamborini, Sabrina Dallavalle, Francesco Molinari, Martina Letizia Contente* and Andrea Pinto

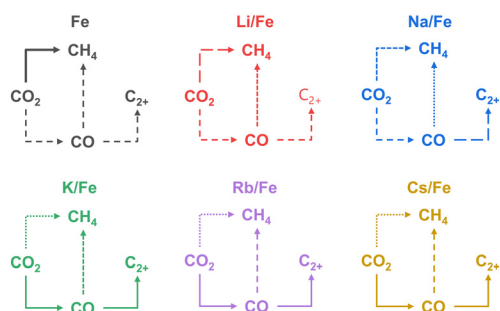


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Spatial analysis of CO₂ hydrogenation to higher hydrocarbons over alkali-metal promoted iron(II) oxalate-derived catalysts

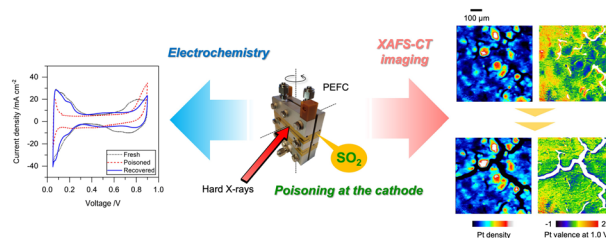
Andrey S. Skrypnik, Henrik Lund, Qingxin Yang and Evgenii V. Kondratenko*



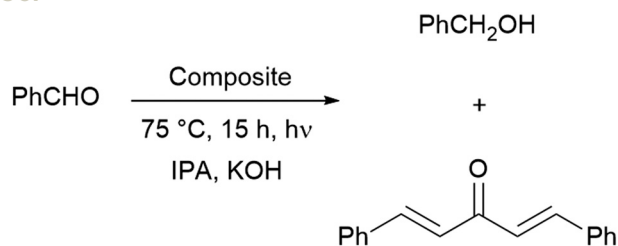
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Spatial imaging of catalyst poisoning with SO₂ on Pt/C PEFC electrocatalyst by *operando* Pt L_{III}-edge XAFS-CT imaging

Hirosuke Matsui,* Koshin Sato, Naoko Isobe, Gabor Samjeské, Tomoya Uruga and Mizuki Tada*



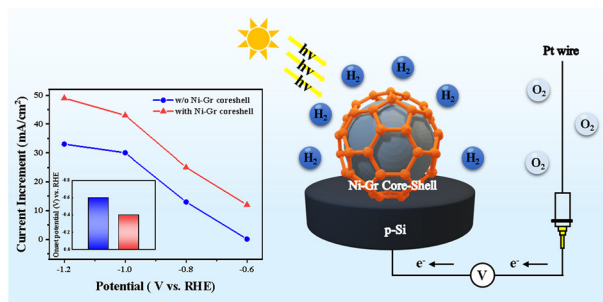
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Synthesis of new graphene oxide/TiO₂ and TiO₂/SiO₂ nanocomposites and their evaluation as photocatalysts

Marta Rosenthal, Timur Biktagirov,
Wolf Gero Schmidt and René Wilhelm*

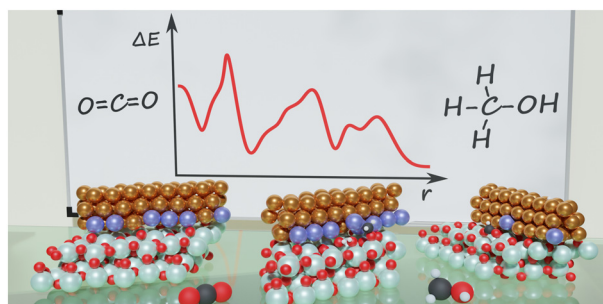
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A surface-engineered Si photocathode with synergistic Ni-graphene core-shell for efficient hydrogen evolution

Chaewon Seong, Hyesu Ryu, Hokyun Rho, Hyojung Bae,
Pratik Mane, Sang Hyun Lee* and Jun-Seok Ha*

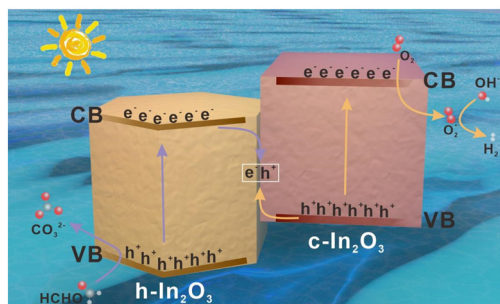
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Exploring CO₂ hydrogenation to methanol at a CuZn-ZrO₂ interface via DFT calculations

Aku Lempelto, Lars Gell, Toni Kiljunen
and Karoliina Honkala*

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Enhanced adsorption of oxygen species on c/h-In₂O₃ Z-scheme heterophase junctions for oxygen-mediated photocatalytic hydrogen production

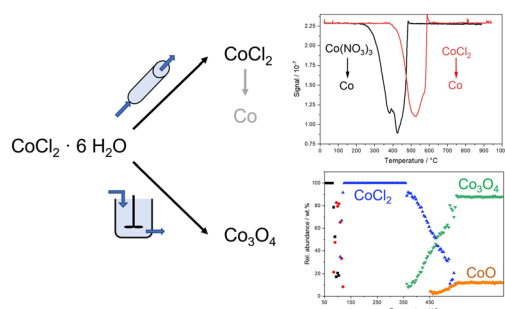
Zhengxin Peng, Xiangbowen Du, Nan Lu, Jing Sui,
Xiaofan Zhang, Renhong Li and Xiaoqing Yan*



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On the problem of cobalt chloride-based catalysts in the Fischer–Tropsch synthesis

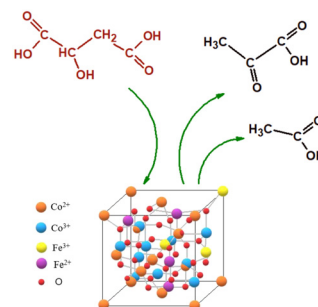
Madita Einemann,* Simon Haida, Nico Fischer, Nattawut Osakoo, Jatuporn Wittayakun and Frank Roessner



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Iron-doped Co_3O_4 catalysts prepared by a surfactant-assisted method as effective catalysts for malic acid oxidative decarboxylation

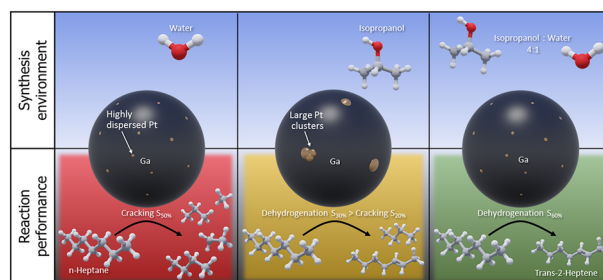
Gheorghița Mitran,* Ștefan Neațu, Octavian Dumitru Pavel, Adriana Urdă, Anca G. Mirea, Mihaela Florea and Florentina Neațu*



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Ga–Pt supported catalytically active liquid metal solutions (SCALMS) prepared by ultrasonication – influence of synthesis conditions on *n*-heptane dehydrogenation performance

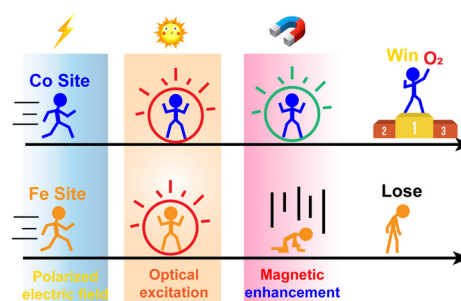
Oshin Sebastian, Asem Al-Shaibani, Nicola Taccardi, Umair Sultan, Alexandra Inayat, Nicolas Vogel, Marco Haumann* and Peter Wasserscheid*



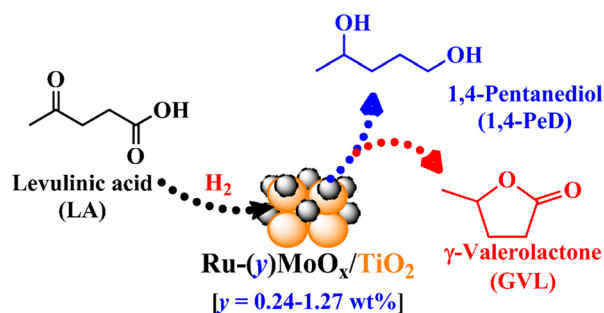
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Magnetic field enhancement of the FeCoSe_2 photoanode for the oxygen evolution reaction by adjusting the hole density to reduce competitive adsorption between Fe and Co in a photoelectrochemical water-splitting system

Ben Fan, Zebin Yu,* Ling Ding, Ronghua Jiang, Yanping Hou, Shuang Li and Jianhua Chen



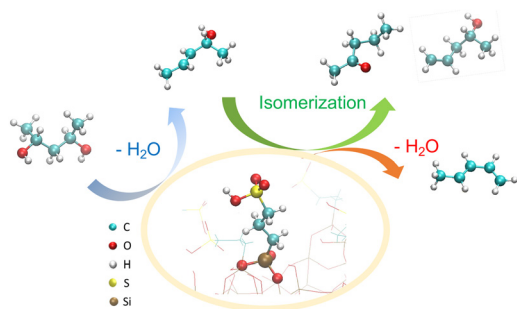
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MoO_x-decorated Ru/TiO₂ with a monomeric structure boosts the selective one-pot conversion of levulinic acid to 1,4-pentanediol

Rodiansono,* Atina Sabila Azzahra, Heny Puspita Dewi, Indri Badria Adilina and Kiky Corneliasari Sembiring

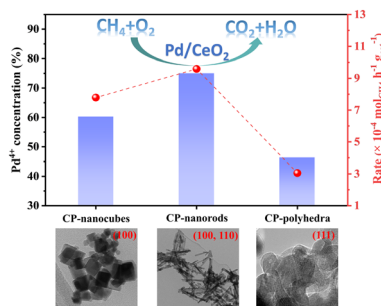
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Mechanistic insights into the conversion of polyalcohols over Brønsted acid sites

Quy P. Nguyen, Han K. Chau, Lance Lobban, Steven Crossley and Bin Wang*

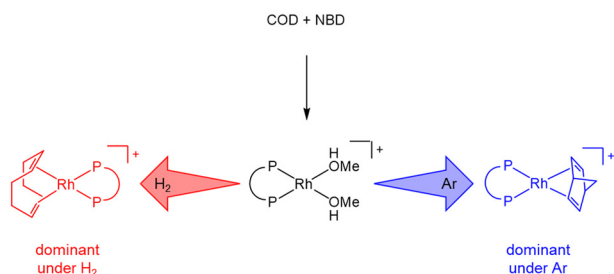
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Ceria crystal facet impact for methane C–H activation in Pd/CeO₂ catalysts

Kewu Yang, Ke Wang, Xianfeng Shen, Fanxing Zhang, Bei Huang, Keping Yan, Yao Shi, Yi He* and Pengfei Xie*

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Major–minor concept revisited: causes for the reversal of thermodynamically determined intermediate ratios under reaction conditions

Nora Jannsen, Julia Jurrat, Helfried Neumann, Christian Fischer, Richard Thede and Detlef Heller*

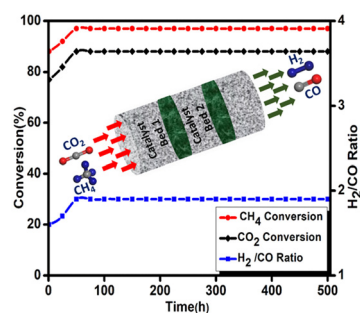


PAPERS

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Enhanced coke-resistant Co-modified Ni/modified alumina catalyst for the bireforming of methane

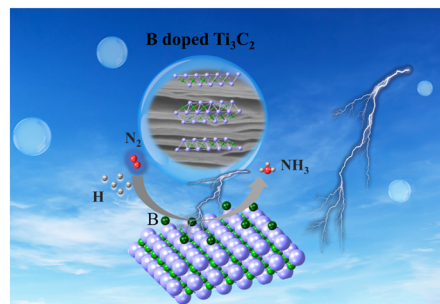
Satyajit Panda, Vedant Joshi, Vivek Kumar Shrivastaw, Subhashis Das, Mukesh Poddar, Rajaram Bal and Ankur Bordoloi*



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Facile fabrication of boron-doped titanium carbide for efficient electrocatalytic nitrogen reduction

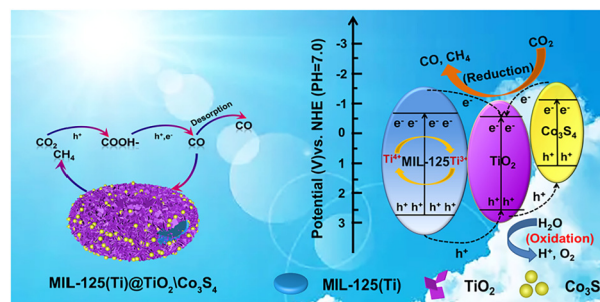
Tao Leiming,* Pang Kui, Qin Wen, Huang Liming, Duan Linhai, Zhu Guanhua, Li Qiuye* and Yu Changlin*



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MIL-125(Ti)@ZIF-67-derived MIL-125(Ti)@TiO2 hollow nanodiscs decorated with Co3S4 for remarkable photocatalytic CO2 reduction

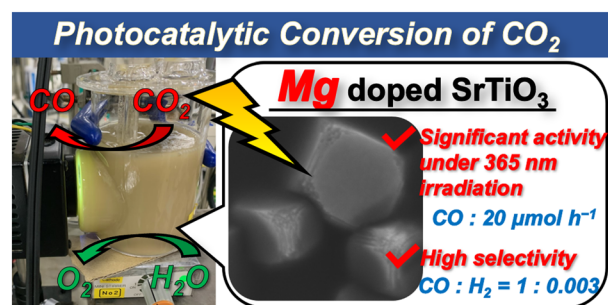
Qiuyu Zhang, Yajie Chen, Xinyan Yu, Yuejia Yin, Yaxin Ru and Guohui Tian*



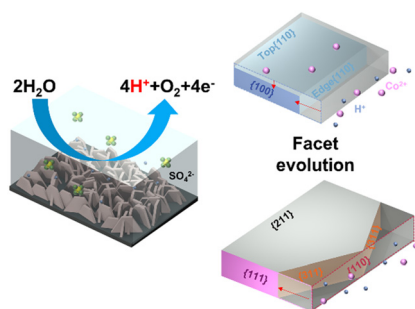
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Mg-doped SrTiO3 photocatalyst with Ag-Co cocatalyst for enhanced selective conversion of CO2 to CO using H2O as the electron donor

Takechi Nakamoto, Shoji Iguchi,* Shimpei Naniwa, Tsunehiro Tanaka and Kentaro Teramura*



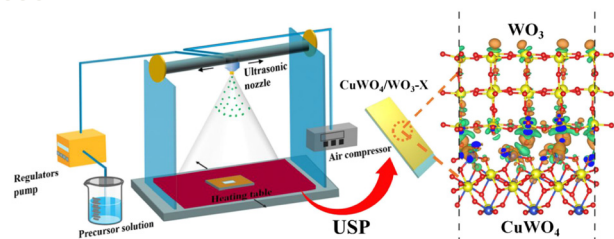
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Crystal facet evolution of spinel Co_3O_4 nanosheets in acidic oxygen evolution catalysis

Ziyang Sheng, Sihong Wang, Qu Jiang, Yuanman Ni, Chaoran Zhang, Ashfaq Ahmad and Fang Song*

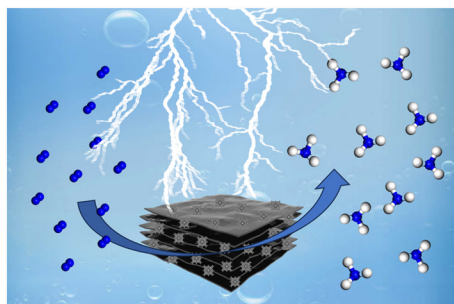
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Interfacial engineering of $\text{CuWO}_4/\text{WO}_3$ thin films precisely fabricated by ultrasonic spray pyrolysis for improved solar water splitting

Feng Cao, Yuhua Sun, Xiaoyu Duan, Mengyang Li, Biao Chen, Yang Cao, Qinghua Liang,* Amany M. El Nahrawy and Gaowu Qin*

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A simple approach to synthesize $\text{NiFe-LDH-Nb}_2\text{C}$ MXene for enhanced electrochemical nitrogen reduction reactions by a synergistic effect

Qianqian Hua, Haidong Zhu, Sensen Xue, Fang Zhao, Zhuangzhuang Liang, Xuefeng Ren, Liguang Gao, Tingli Ma and Anmin Liu*

