

# Catalysis Science & Technology

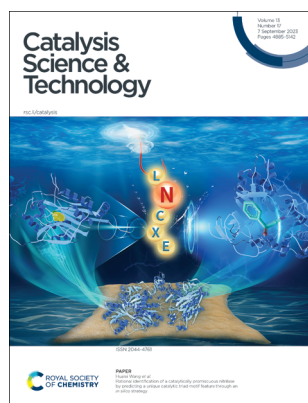
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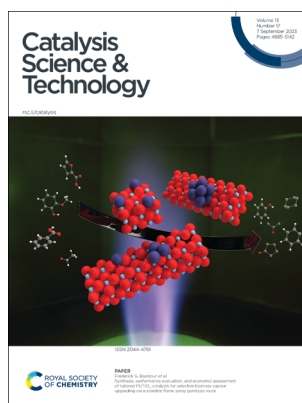
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See Hualei Wang *et al.*, pp. 4932–4940.  
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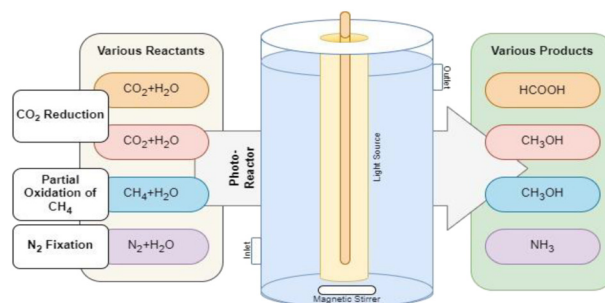
See Frederick G. Baddour *et al.*, pp. 4941–4954.  
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## REVIEW

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### Photocatalytic conversion of carbon dioxide, methane, and air for green fuels synthesis

Amira Chebbi, Alessandro Sinopoli, Ahmed Abotaleb and Yusuf Bicer\*

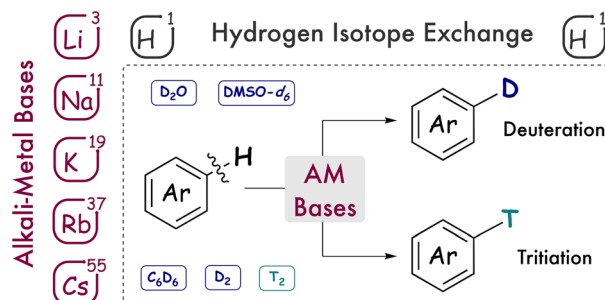


## MINI REVIEW

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### Alkali-metal bases in catalytic hydrogen isotope exchange processes

Andreu Tortajada\* and Eva Hevia\*



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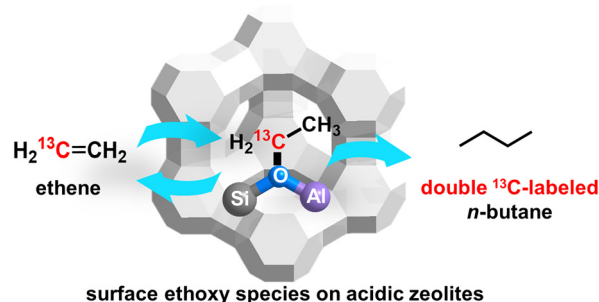


## COMMUNICATION

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**Observation of reactive intermediates in the initial stage during ethene conversion over acidic zeolites**

Jing Niu, Yu-Ting Miao, Wei David Wang, Meng-Tong Ruan, Zhi-Peng Wang, Hua-Dong Xue, Si-Min Yu,\* Chong Liu,\* Jian-Feng Wu\* and Wei Wang\*

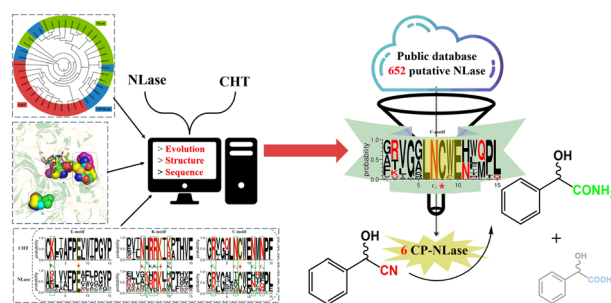


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**Rational identification of a catalytically promiscuous nitrilase by predicting a unique catalytic triad motif feature through an *in silico* strategy**

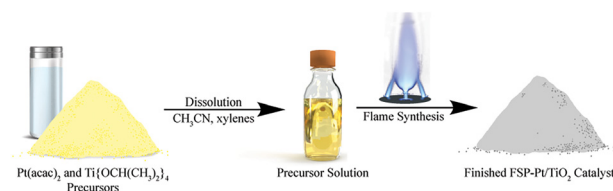
Ke Zhang, Tingze Pan, Yangyang Sun, Zhuzhu Tang, Yuhong Ren, Hualei Wang\* and Dongzhi Wei



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**Synthesis, performance evaluation, and economic assessment of tailored Pt/TiO<sub>2</sub> catalysts for selective biomass vapour upgrading via a scalable flame spray pyrolysis route**

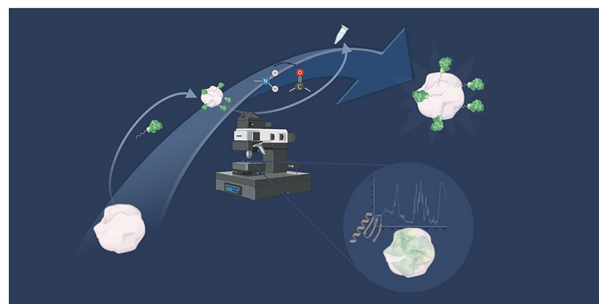
Anurag Kumar, Rongyue Wang, Kellene A. Orton, Kurt M. Van Allsburg, Calvin Mukarakate, Evan C. Wegener, Qiyuan Wu, Susan E. Habas, Krzysztof Z. Pupek, Joseph A. Libera and Frederick G. Baddour\*



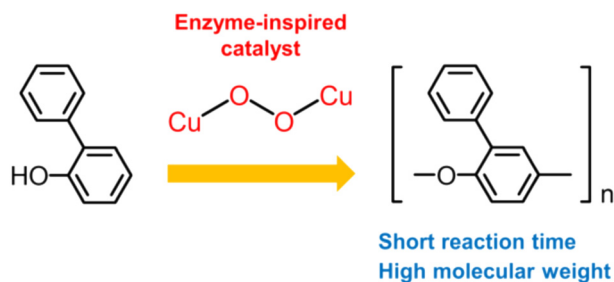
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**FTIR microscopy for direct observation of conformational changes on immobilized ω-transaminase: effect of water activity and organic solvent on biocatalyst performance**

Iulia-Ioana Rădoi, Diana Eva Bedolla, Lisa Vaccari, Anamaria Todea, Federico Zappaterra, Alexey Volkov and Lucia Gardossi\*



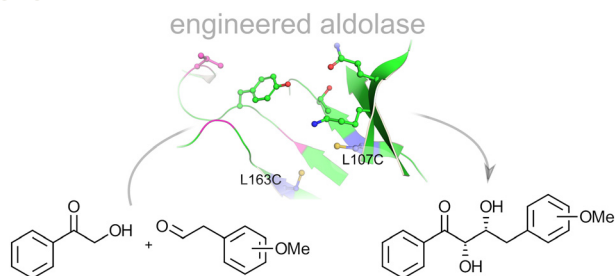
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### Enzyme-inspired catalysts with high activity and selectivity for oxidative polymerization of 2-phenylphenol

Akiyuki Nakano, Vivek S. Raut, Naoki Asao,\* Akane Ando, Kiyoshi Fujisawa\* and Hideyuki Higashimura\*

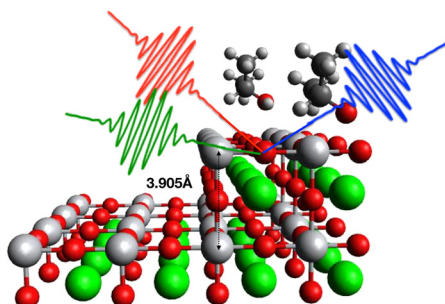
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### Engineered aldolases catalyzing stereoselective aldol reactions between aryl-substituted ketones and aldehydes

Eugenia Chukwu Cornelius, Michael Bartl, Louise J. Persson, Ruisheng Xiong, Daniela Cederfelt, Farshid Mashayekhy Rad, Thomas Norberg, Sarah Engel, Erik G. Marklund, Doreen Dobritzsch and Mikael Widersten\*

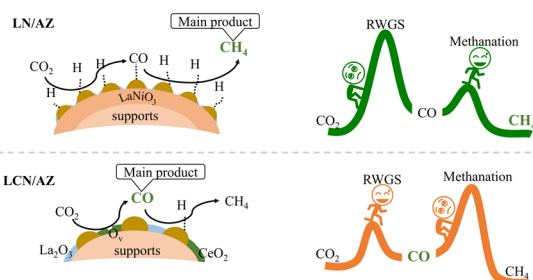
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### Interaction of 2-propanol with predominantly SrO- and TiO<sub>2</sub>-terminated SrTiO<sub>3</sub>(100) surfaces studied by vibrational sum frequency spectroscopy

Anupam Bera, Denise Bullert, Matthias Linke, Steffen Franzka, Ulrich Hagemann, Nils Hartmann and Eckart Hasselbrink\*

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### Effect of catalyst properties on selectivity in CO<sub>2</sub> methanation with coupling pathway of RWGS and CO methanation

Hongwei Wang, Huicong Feng, Yali Bao, Junxia Wu, Xiaotong Qu, Xianjun Zhang, Jinrong Liu\* and Hong Wang\*

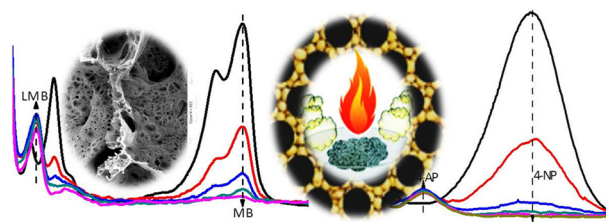


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**Chemistry of iron and copper co-doped zinc oxide: reduction and degradation of pollutants**

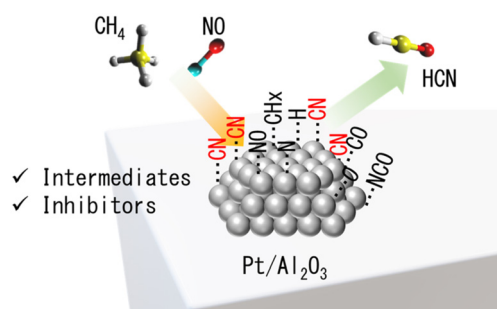
Hiwot Belay, Buzuayehu Abebe,\* Dereje Tsegaye,\*  
C. R. Ravikumar, S. Giridhar Reddy  
and H. C. Ananda Murthy\*



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**Insights into Pt-CN species on an alumina-supported platinum catalyst as active intermediates or inhibitors for low-temperature hydrogen cyanide synthesis from methane and nitric oxide**

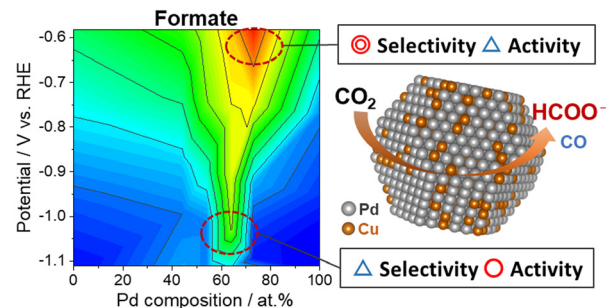
Atsushi Takagaki,\* Kyoko K. Bando,\* Tatsuya Yamasaki,  
Junichi Murakami, Nobuya Suganuma,  
I. Tyrone Ghampson, Tetsuya Kodaira, Tatsumi Ishihara  
and Tetsuya Shishido\*



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**Composition sensitive selectivity and activity of electrochemical carbon dioxide reduction on Pd-Cu solid-solution alloy nanoparticles**

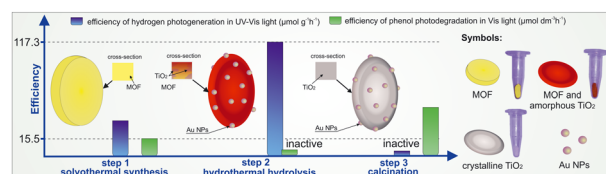
Naoto Todoroki,\* Masanao Ishijima,\*  
Jhon L. Cuya Huaman, Yuto Tanaka  
and Jeyadevan Balachandran



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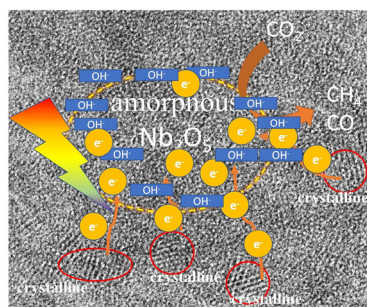
**MOF/TiO<sub>2</sub> erythrocyte-like heterostructures decorated by noble metals for use in hydrogen photogeneration and pollutant photodegradation**

Mateusz A. Baluk,\* Paweł Mazierski,  
Aleksandra Pieczyńska, Kostiantyn Nikiforow,  
Grzegorz Trykowski, Tomasz Klimczuk  
and Adriana Zaleska-Medynska\*





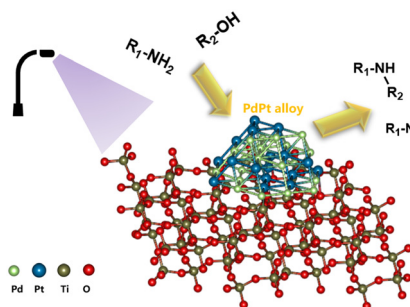
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### Constructing a crystalline–amorphous hydrated niobium pentoxide homojunction for superior photocatalytic CO<sub>2</sub> reduction into CH<sub>4</sub> with high selectivity

Fengyun Su,\* Zhishuai Wang, Mengzhen Tian, Kecheng Liu, Haiquan Xie, Wenguang Tu,\* Yezhen Zhang, Xiang Li, Xiaoli Jin and Xin Ying Kong\*

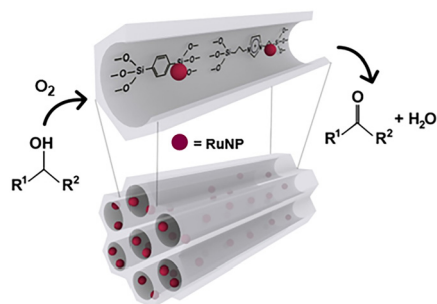
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### Bimetallic Pt–Pd catalysts supported on TiO<sub>2</sub> for enhanced photocatalytic *N*-alkylation of amines with alcohols: the synergistic effect

Zihan Lv, Zeng Hong,\* Chao Qian and Shaodong Zhou\*

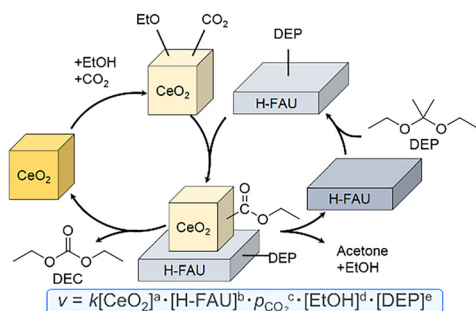
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### Improved catalytic performance by changing surface and textural properties of Ru supported bifunctional periodic mesoporous organosilicas in aerobic oxidation of alcohols

Omid Pourshiani, Babak Karimi,\* Hesamodin Moradi, Werner R. Thiel,\* Hojatollah Vali, Pietro Mastorilli and Stefano Todisco

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### Mechanistic insights into CeO<sub>2</sub>-catalyzed direct synthesis of diethyl carbonate from CO<sub>2</sub> and ethanol assisted by zeolite and 2,2-diethoxypropane

Tao Chang, Mizuho Yabushita, Yoshinao Nakagawa, Norihisa Fukaya, Jun-Chul Choi, Takayoshi Mishima, Seiji Matsumoto, Satoshi Hamura and Keiichi Tomishige\*

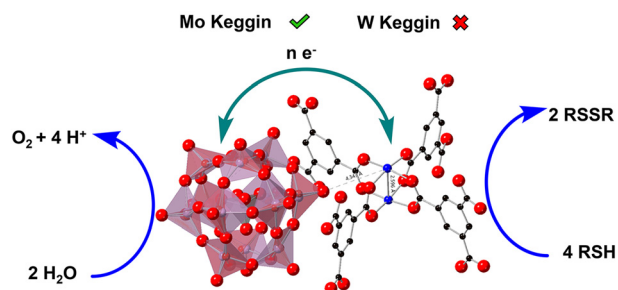


## PAPERS

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# Reactivity and stability synergism directed by the electron transfer between polyoxometalates and metal–organic frameworks

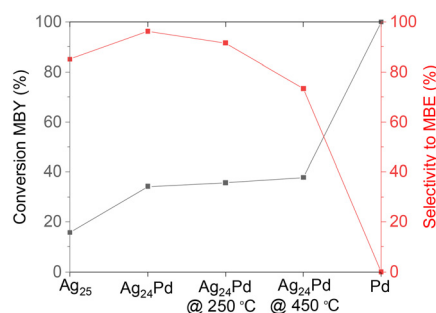
Xinlin Lu, Ting Cheng, Yurii V. Geletii,\* John Bacsa and Craig L. Hill\*



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# Atom-precise silver–palladium bimetallic clusters on carbon supports as selective hydrogenation catalysts

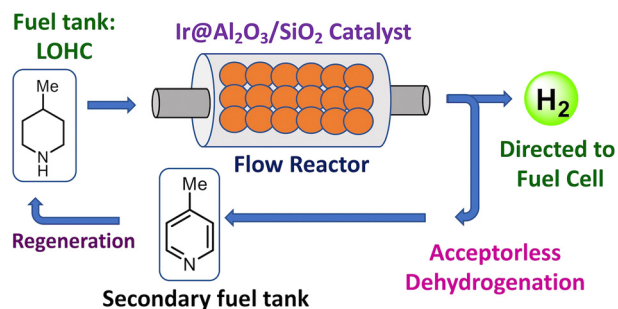
Kazeem O. Sulaiman and Robert W. J. Scott\*



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# Acceptorless dehydrogenation of 4-methylpiperidine by supported pincer-ligated iridium catalysts in continuous flow

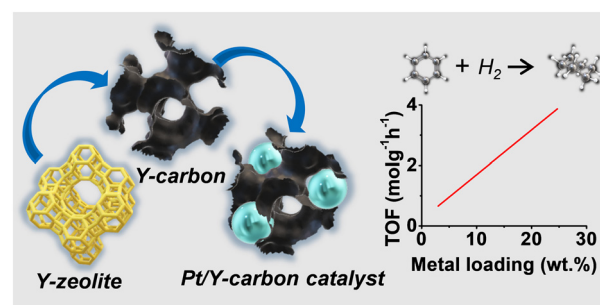
Kaushik Chakrabarti, Alice Spangenberg, Vasudevan Subramanian, Andreas Hederstedt, Omar Y. Abdelaziz, Alexey V. Polukeev, Reine Wallenberg, Christian P. Hultberg and Ola F. Wendt\*

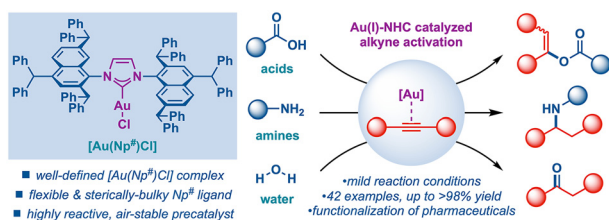


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# Platinum nanoparticles on 3D graphene-like zeolite-templated carbon for benzene hydrogenation

Somayeh F. Rastegar, Radim Pilar, Jaroslava Moravkova, Galina Sadovska, Vasile I. Parvulescu, Jana Pastvova, Jan Plsek, Dalibor Kaucky, Nikola Kostkova and Petr Sazama\*





## [Au(Np<sup>\*</sup>)Cl]: highly reactive and broadly applicable Au(I)-NHC catalysts for alkyne $\pi$ -activation reactions

Md. Mahbubur Rahman, Pengcheng Gao, Qun Zhao, Roger Lalancette, Roman Szostak and Michal Szostak\*

