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Reaction Chemistry & Engineering

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ISSN 2058–9883 CODEN RCEEBW 8(8) 1807–2098 (2023)

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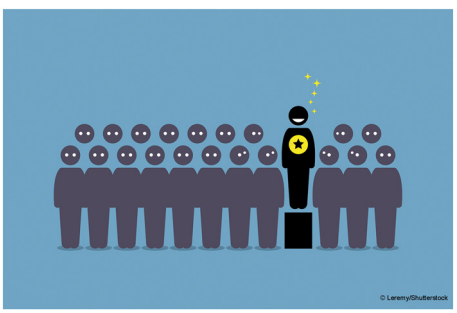
EDITORIAL

1818

Outstanding Reviewers for *Reaction Chemistry & Engineering* in 2022

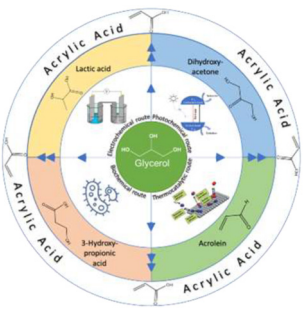


REVIEW

1819

Conversion of glycerol to acrylic acid: a review of strategies, recent developments and prospects

Umar C. Abubakar, Yash Bansod, Luke Forster, Vincenzo Spallina and Carmine D'Agostino*



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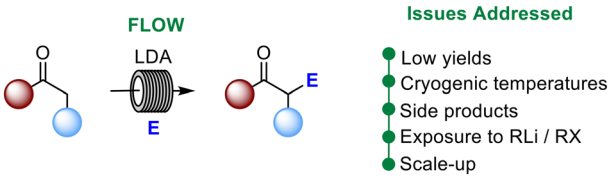
COMMUNICATION

1839

The α-alkylation of ketones in flow

Ella Cooper, Emma Alcock, Mark Power and Gerard McGlacken*

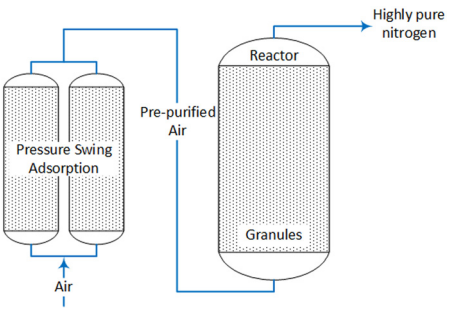


PAPERS

1843

Energetic optimization of thermochemical air separation for the production of sustainable nitrogen

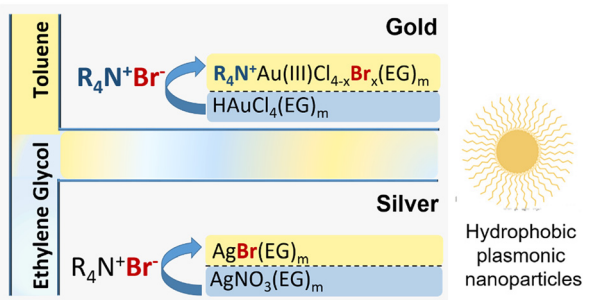
Lena Klaas,* Brendan Bulfin, Dorottya Kriechbaumer, Nicole Neumann, Martin Roeb and Christian Sattler



1855

A biphasic batch and continuous flow synthesis of hydrophobic gold and silver nanoparticles

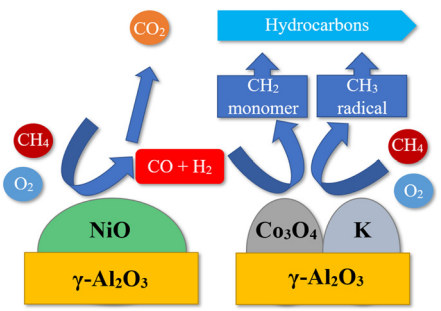
Monica Distaso* and Wolfgang Peukert



1868

Direct conversion of methane to value-added hydrocarbons using hybrid catalysts of Ni/Al_2O_3 and $K–Co/Al_2O_3$

Thitiwut Sukprom, Pooripong Somchuea, Sarannuch Sringam, Thongthai Witoon, Metta Chareonpanich, Pawin Iamprasertkun, Kajornsak Faungnawakij, Günther Rupprechter and Anusorn Seubsai*



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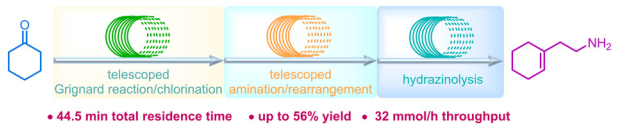
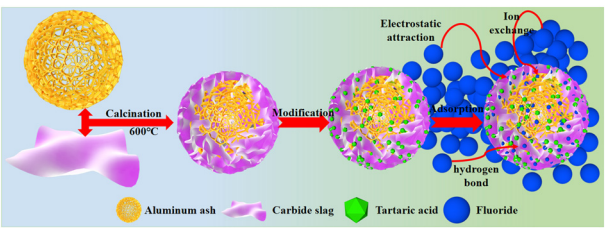
1882



An integrated five-step continuous flow synthesis of 2-(1-cyclohexenyl)ethylamine: a key intermediate for morphinans

Zhining Li, Shiqi Huang, Yuan Tao, Meifen Jiang, Dang Cheng, Li Wan* and Fener Chen*

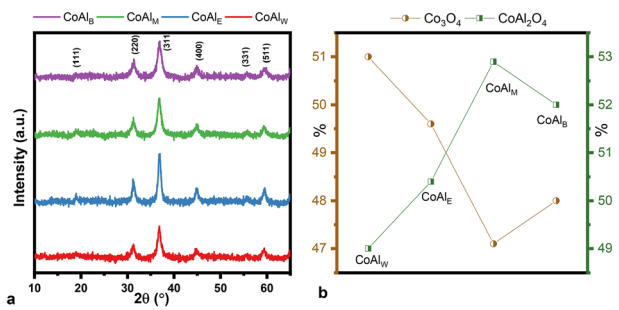
1888



High value-added utilization of secondary aluminum ash & carbide slag: preparation of a high-performance adsorbent for rapid removal of fluoride from wastewater

Yuanchuan Ren, Tao Xia, Guangfei Qu,* Nanqi Ren, Ping Ning, Xiuping Chen, Yuyi Yang, Zuoliang Wang and Yan Hu

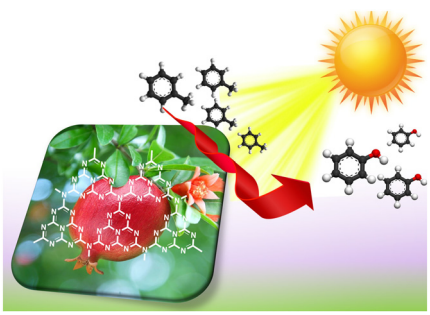
1901



Effect of solvent, in the sol–gel synthesis of $CoAl_2O_4$, on the structure and catalytic properties in 1,4-butanediol dehydrocyclization

Gheorghiţa Mitran,* Tam Le Phuong Nguyen and Dong-Kyun Seo*

1914



Sustainable and green synthesis of C- and N-doped nanoporous g-C_3N_4: powerful sunlight-responsive photocatalysts for aerobic oxidation of toluene

Mina Tavakolain, Mitra Jafari, Mohammad Reza Ebrahimian, Mohammad Reza Rahimpour* and Mona Hosseini-Sarvari*

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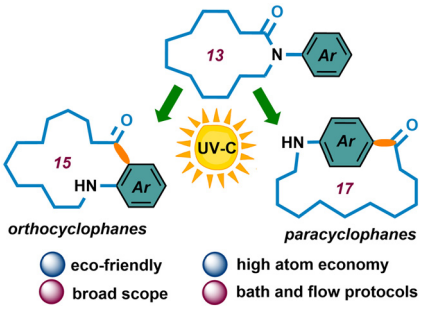
1923

Diversity-oriented synthesis of medium-sized cyclophanes *via* the photo-fries rearrangement of *N*-aryl lactams

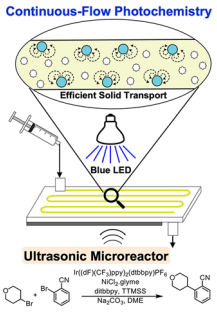
Piotr Szcześniak* and Bartłomiej Furman*



1930

Heterogeneous photochemical reaction enabled by an ultrasonic microreactor

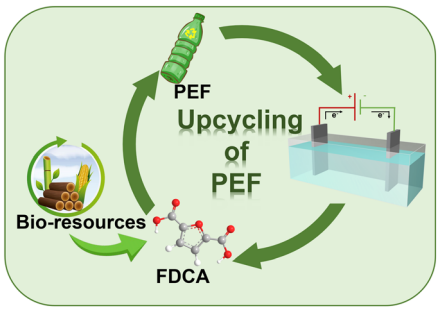
Aniket P. Udepurkar, Kakasaheb Y. Nandiwale, Klavs F. Jensen* and Simon Kuhn*



1937

Electrocatalytic valorization of waste polyethylene furanoate (PEF) bioplastics for the production of formic acid and hydrogen energy

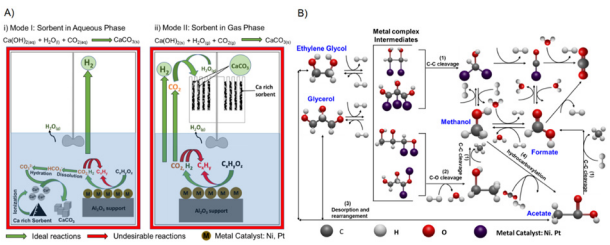
Liwen Ren, Sen Yang, Jianying Wang, Ting Zhang, Xin Li, Tianfu Wang* and Yixin Zhao*



1943

Integrated low carbon H_2 conversion with *in situ* carbon mineralization from aqueous biomass oxygenate precursors by tuning reactive multiphase chemical interactions

Prince Ochonma, Christopher Noe, Sohaib Mohammed, Akanksh Mamidala and Greeshma Gadikota*



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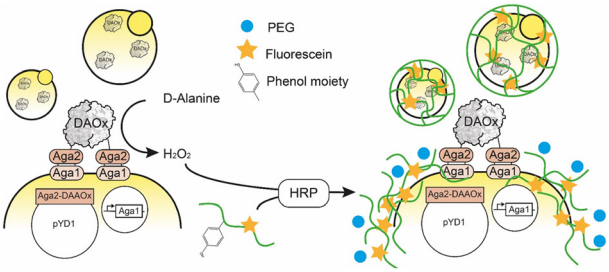
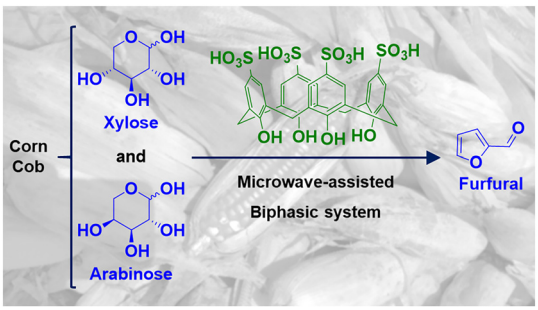
1960



Directed evolution of *Rhodotorula gracilis* D-amino acid oxidase using single-cell hydrogel encapsulation and ultrahigh-throughput screening

Christoph Küng, Rosario Vanella and Michael A. Nash*

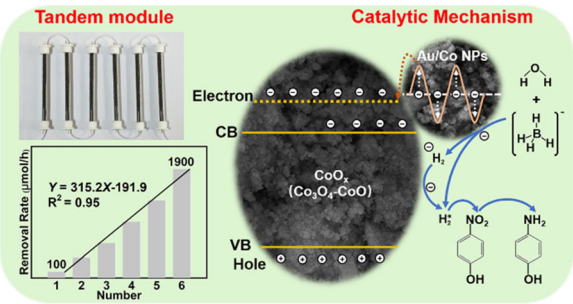
1969



Green synthesis of furfural from xylose and corn cob biomass

Gabriel Abranches Dias Castro, Rodrigo Candido Batista, Rita de Cássia Superbi de Sousa, Angélica de Cássia Oliveira Carneiro and Sergio Antonio Fernandes*

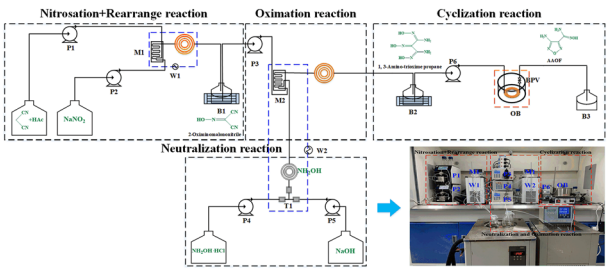
1981



High-efficiency reactor and its tandem module with Au–Co–CoO_x-coated glass beads for continuous-flow reduction of dyeing wastewater

Li Sun,* Mengying Sun, Yuan Zhi, Hua Zhang, Yuejin Shan, Binlin Dou, Jian Chen and Lixin Zhang

1993



Continuous-flow and safe synthesis of 3-amino-4-amidoximinofurazan

Shichun Weng, Wei Feng, Wenqian Wu, Zichao Guo,* Junjie Li, Huanhuan Chen, Liping Chen and Wanghua Chen

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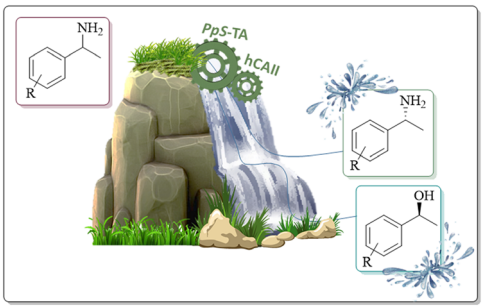
PAPERS

2001

Transaminase – carbonic anhydrase bi-enzymatic cascade for preparation of (*R*)-1-arylethan-1-amines and (*S*)-1-arylethan-1-ols

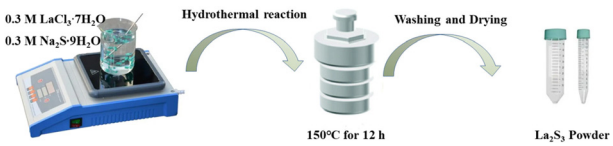
Laura Edit Barabás, Diana Maria Scrob, Andrea Varga, Loránd Kiss, Monica Ioana Toşa and Csaba Paizs*



2011

Ru/La_2S_3 nanorods as an electrocatalyst for efficient N_2 fixation under ambient conditions

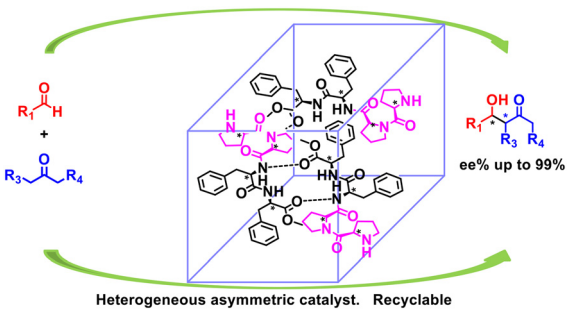
Wang Yingshu,* Wang Hong, Tang Yixin, Shu Yu, Zhao Suying, Hong Lu and Xu Zhenqi



2022

Asymmetric aldol reaction catalyzed by amino acid tetrapeptides (L-Pro-L-Pro-L-Phe-L-Phe-OMe)

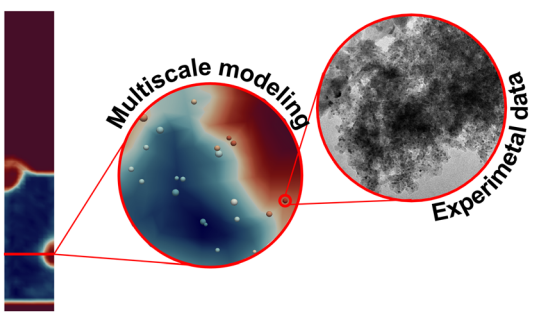
Yaodong Wang, Yudan Wang,* Lijia Liu,* Kexiao Sang, Chunhong Zhang* and Toshifumi Satoh



2029

A combined experimental and multiscale modeling approach for the investigation of lab-scale fluidized bed reactors

Riccardo Uglietti, Daniele Micale, Damiano La Zara, Aristeidis Goulas, Luca Nardi, Mauro Bracconi, J. Ruud van Ommen* and Matteo Maestri*



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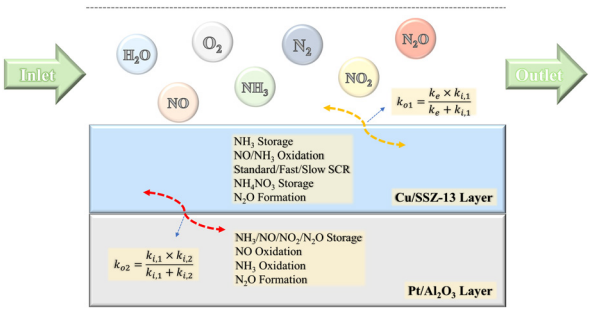
PAPERS

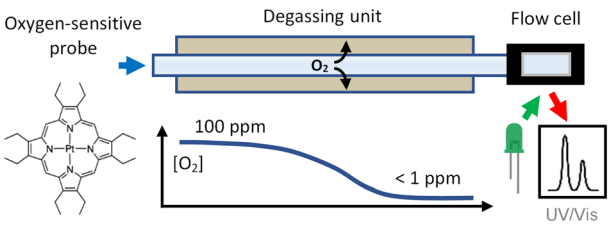
2040



Modeling and analysis of ammonia oxidation and nitrous oxide formation on a dual-layer ammonia slip catalyst for diesel after-treatment

Dongwei Yao,* Yuxi Li, Feng Wu, Weiyang Jin, Ziyan Zhang, Xiaohan Hu and Jiadong Hu

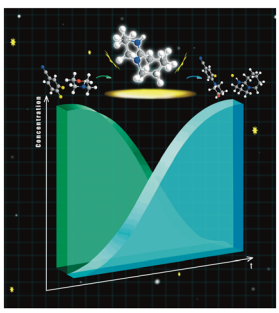
2052



Efficient degassing and ppm-level oxygen monitoring flow chemistry system

Paulius Baronas, Jacob Lynge Elholm and Kasper Moth-Poulsen*

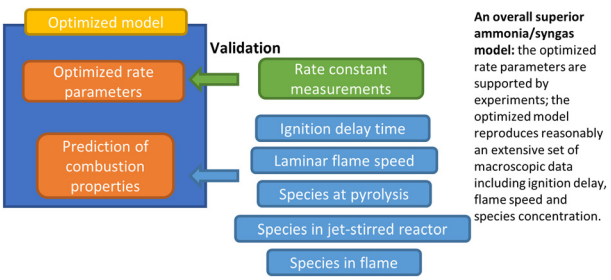
2060



Mechanistic insights into amination *via* nucleophilic aromatic substitution

Junu Kim, Yusuke Hayashi, Sara Badr, Kazuya Okamoto, Toshikazu Hakogi, Haruo Furukawa, Satoshi Yoshikawa, Hayao Nakanishi and Hirokazu Sugiyama*

2071



An optimized model for ammonia/syngas combustion

Wenyu Li, Chun Zou* and Hong Yao

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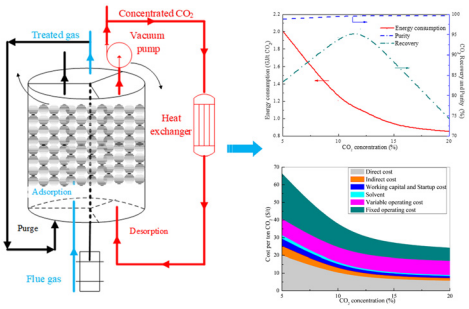
2086

Utilizing solid polyamines in a rotary bed to capture CO_2 in an energy and cost-efficient manner

Jubao Gao, Jun Yan, Xueyi Song, Youkun Gao, Gaofeng Deng, Zhichao Wang* and Lingdi Cao*



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