

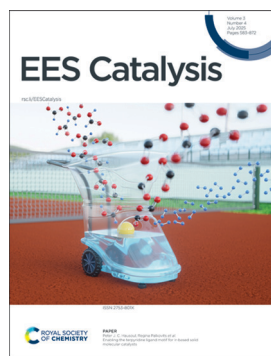
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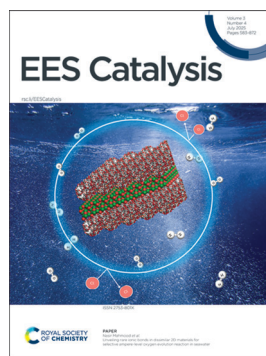
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eISSN 2753–801X CODEN ECEACE 3(4) 583–872 (2025)



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See Peter J. C. Hausoul, Regina Palkovits *et al.*, pp. 701–711. Image reproduced by permission of Regina Palkovits from *EES Catal.*, 2025, 3, 701.



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Introduction to understanding and new approaches to create synergy between catalysis and plasma themed collection

Annemie Bogaerts, Gabriele Centi and Jason C. Hicks

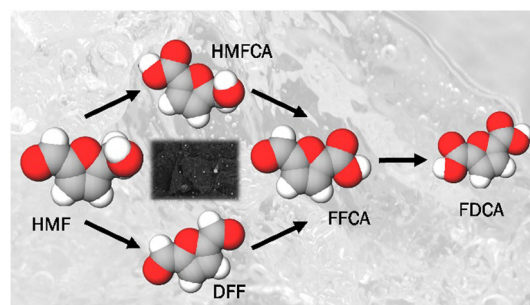


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Recent developments in solvent and catalyst selection for 5-hydroxymethylfurfural oxidation to 2,5-furandicarboxylic acid

Jacob M. Molinaro, Joel Swartzentruber, Van W. Ledger, Zachary T. Fredericks, David Martin Alonso and Stephanie G. Wettstein*



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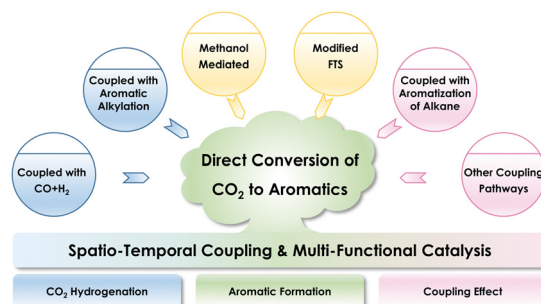
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REVIEWS

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Direct conversion of CO₂ to aromatics based on the coupling strategy and multi-functional catalysis

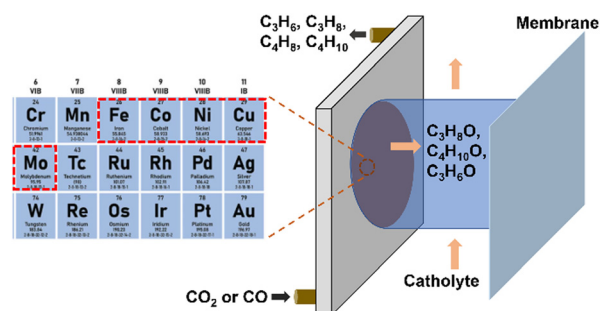
Chang Liu, Yangdong Wang,* Lin Zhang, Junjie Su, Su Liu, Haibo Zhou, Wenqian Jiao and Zaiku Xie*



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Catalysts for selective CO₂/CO electroreduction to C₃₊ compounds

Ngoc Huan Tran, Moritz W. Schreiber and Marc Fontecave*

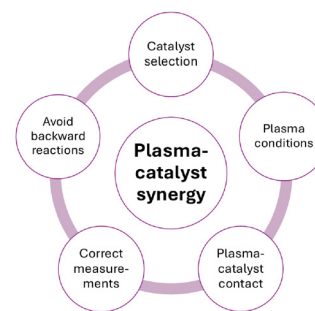


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Plasma catalysis: what is needed to create synergy?

Joran Van Turnhout, Kevin Rouwenhorst, Leon Lefferts* and Annemie Bogaerts*

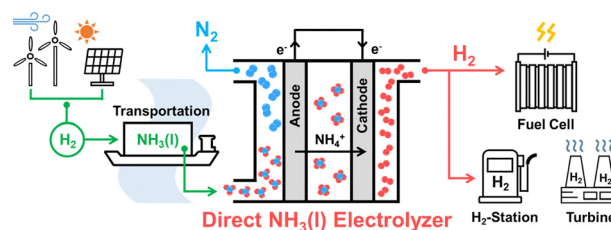


COMMUNICATION

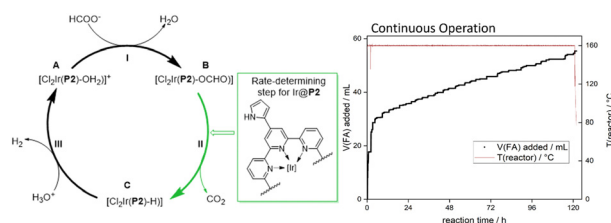
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Direct electrolysis of liquid anhydrous ammonia for continuous production of high-purity, pressurized hydrogen at ambient temperature

Seungmok Han, Junsoo Ha, Jae Seung Lee, Hyukjoo Lee, Chang Hyun Lee, Kangwoo Cho and Chang Won Yoon*



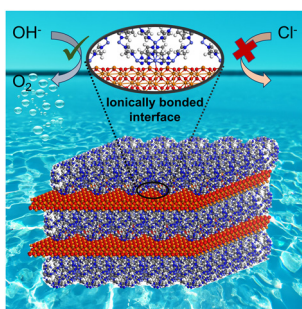
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Enabling the terpyridine ligand motif for Ir-based solid molecular catalysts

Keanu V. A. Birkelbach, Heinrich Hartmann, Astrid Besmehn, Alexander Meledin, Isabella Kappel, Peter J. C. Hausoul* and Regina Palkovits*

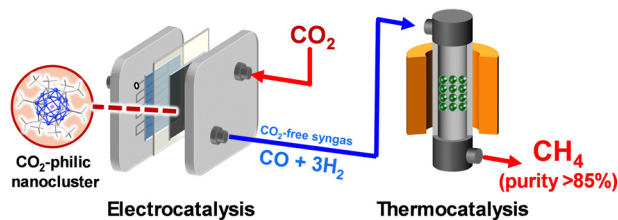
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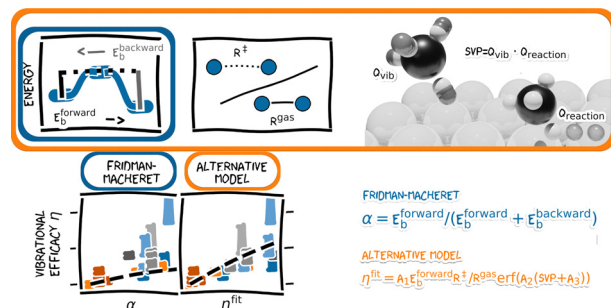
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High purity CH_4 production from CO_2 via cascade electro-thermocatalysis using metal nanoclusters with high CO_2 binding affinity

Sang Myeong Han, Minyoung Park, Seonju Kim, Cheonwoo Jeong, Joonwoo Kim* and Dongil Lee*

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Vibrationally excited molecule-metal surface reactions in heterogeneous and plasma catalysis: going beyond the Fridman-Macheret α model

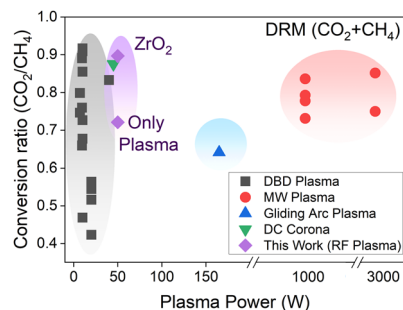
Nick Gerrits* and Annemie Bogaerts



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Leveraging oxygen mobility with zirconia in low-temperature plasma for enhanced methane reforming to syngas

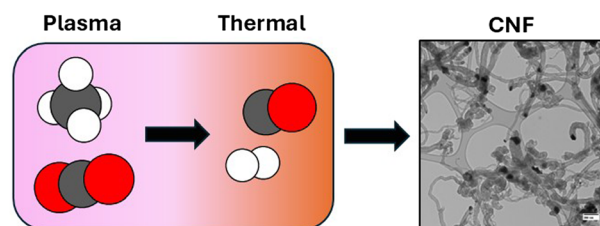
FNU Gorky, Levi Pile, Grace Jones, Apolo Nambo, Mourad Benamara and Maria L. Carreon*



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DBD plasma-thermal tandem reactors for converting biogas to carbon nanofibers

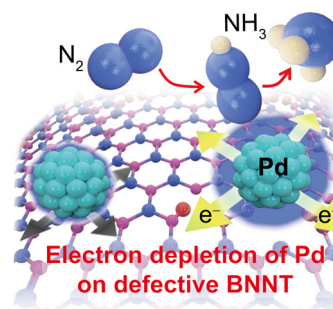
Kevin K. Turaczy, Zhenhua Xie and Jingguang G. Chen*



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Rapid-heating-assisted metal-support interaction formation: Pd nanoparticles on boron nitride nanotubes as electrocatalysts for high N₂-to-ammonia yields

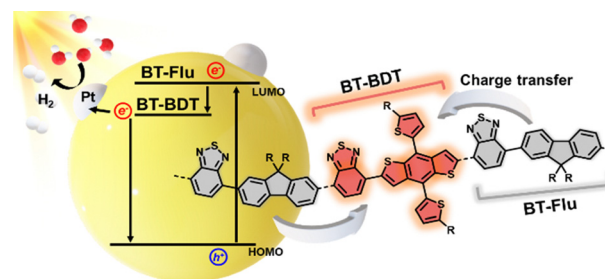
Ji-Yoon Song, Jaehyun Park, Minsung Kang, Wooseok Lee, Jee Ho Ha, Jinpil Ha, Won Bo Lee, Aqil Jamal, Issam Gereige, YongJoo Kim,* Hyeonsu Jeong,* Seokhoon Ahn,* Seok Ju Kang* and Hee-Tae Jung*



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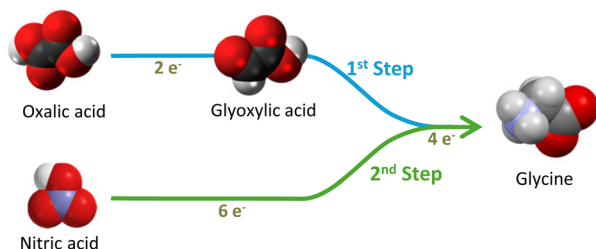
Two-step polymerization for tailored donor-acceptor interactions driving efficient hydrogen evolution in visible-light photocatalysts

Wooteak Jung, Sanghyeok An, Gayoung Ham, Chanhyeok Kim, Soyeon Lee, Jiwoong Yang, Dae Sung Chung,* Hyojung Cha* and Taiho Park*



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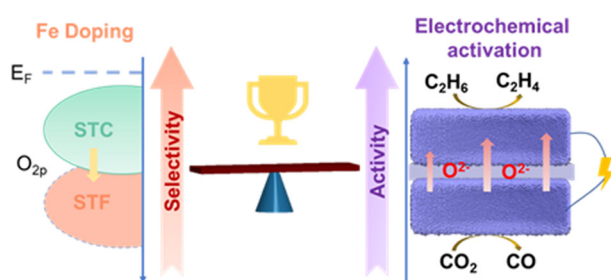
Two-Step Tandem Electrosynthesis of Glycine



Two-step tandem electrochemical conversion of oxalic acid and nitrate to glycine

Yuan-Zi Xu, Daniel F. Abbott, Lok Nga Poon and Victor Mougel*

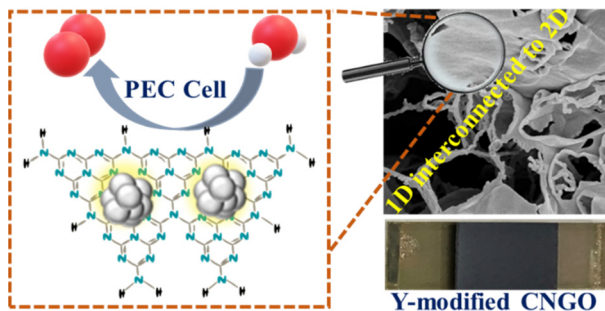
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Breaking the selectivity-activity seesaw in ethane oxidative dehydrogenation via the synergistic effects of doping and electrochemical activation

Xiang Sun, Benchi Chen, Heejae Yang, Mengzhen Zhou, Nian Zhang, Yunkyung Kim, Wonyoung Lee, Jeong Woo Han,* Zhang Lin and Yan Chen*

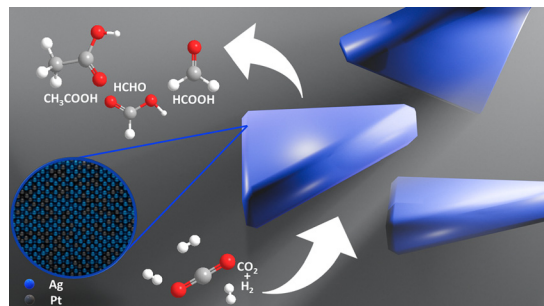
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Enhanced activity and stability of polymeric carbon nitride photoanodes by yttrium incorporation

Sanjit Mondal, Ayelet Tashakory, Gabriel Mark, Shmuel Barzilai, Angus Pedersen, Michael Volokh, Josep Albero, Hermenegildo García and Menny Shalom*

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Visible-light photocatalytic CO_2 hydrogenation using surface-allyed plasmonic AgPt nanoprisms

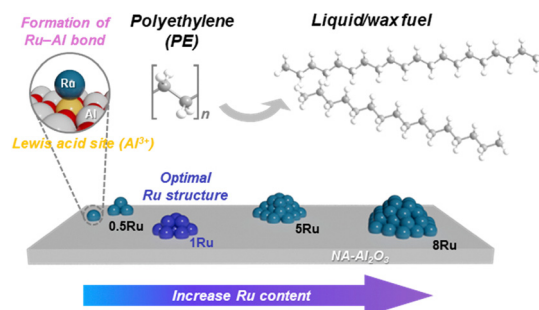
Garv Bhardwaj, Fergus McLaren, Kishan S. Menghrajani, Sanje Mahasivam, Stefan A. Maier, Murali Sastry and Akshat Tanksale*



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Effective production of liquid/wax fuels from polyethylene plastics using Ru/Al₂O₃ catalysts

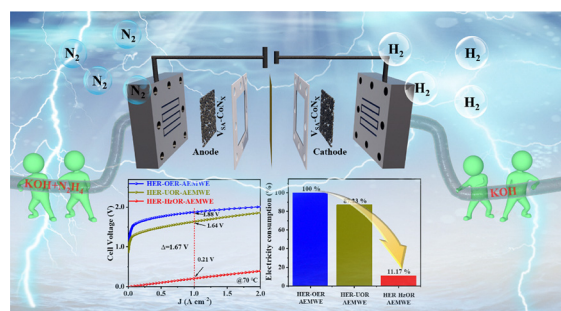
Jueun Kim, Donghyeon Kim, Byung Gwan Park, Daewon Oh, Shinjae Lee, Jihun Kim, Eonu Nam and Kwangjin An*



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Constructing four-in-one catalysts to realize ultralow voltage hydrogen production at ampere-level current densities

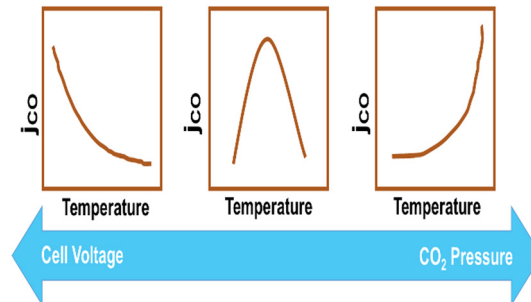
Minghui Xing, Mengting Han, Guoqing Xu, Zhiping Liu, Qinglan Zhao, Minhua Shao, Jimmy Yun, Peng Wang and Dapeng Cao*



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Elevated temperature and pressure driven ampere-level CO₂ electroreduction to CO in a membrane electrode assembly electrolyzer

Yang Li, Huiyue Liu, Jithu Raj, Mohammad Pishnamazi and Jingjie Wu*



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Nb₂C Mxene as a bifunctional acid–base and oxidation/hydrogenation catalyst

Octavian Pavel, Alina Tirsoaga, Bogdan Cojocaru, Dana Popescu, Ruben Ramirez-Grau, Pablo González-Durán, Pablo García-Aznar, Liang Tian, German Sastre, Ana Primo,* Vasile Parvulescu* and Hermenegildo Garcia

