

IN THIS ISSUE

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Cover
See Thomas Simler, Grégory Nocton *et al.*, pp. 21334–21345. Image reproduced by permission of Rishi Saxena and Angus Shephard from *Chem. Sci.*, 2025, **16**, 21334.



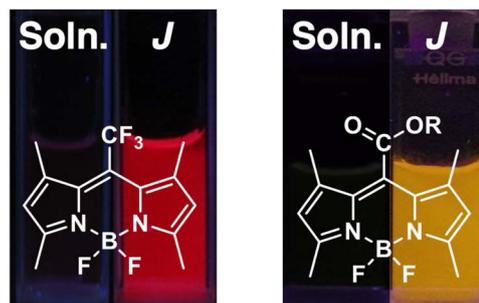
Inside cover
See Ximeng Chen, Zhan Li *et al.*, pp. 21346–21358. Image reproduced by permission of Yaxin Hao, Ximeng Chen and Zhan Li from *Chem. Sci.*, 2025, **16**, 21346.

COMMENTARY

21147

A reflection on 'Aggregation-induced emission enhancement of a *meso*-trifluoromethyl BODIPY via J-aggregation': from fundamental discovery to versatile sensing platforms

Pooja Sharma, Jean Bouffard* and Youngmi Kim*

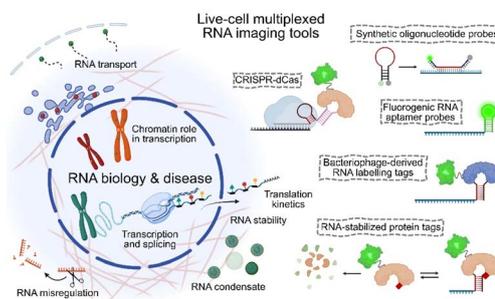


PERSPECTIVES

21152

Multiplexed RNA imaging and *in situ* profiling in living cells

Lan Mi, Sima Khajouei and Mingxu You*



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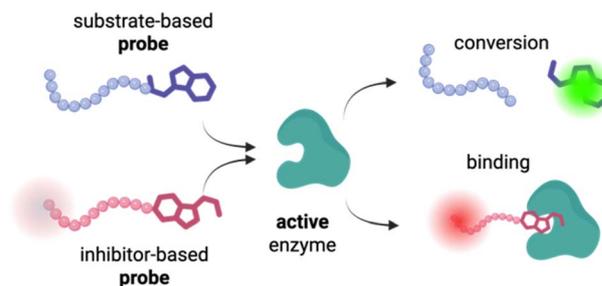
Fundamental questions
Elemental answers

PERSPECTIVES

21174

Chemical probes for enzyme imaging: challenges in design, synthesis and biomedical applications

Julia Nguyen, Maksymilian Zabijak and Marcin Poręba*

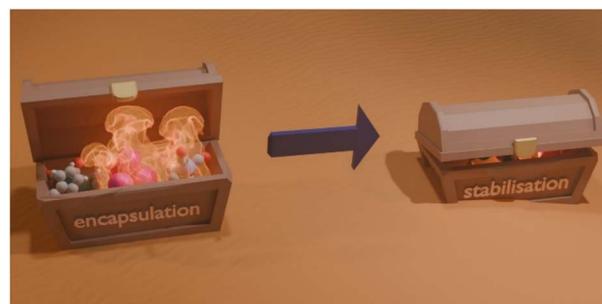


REVIEWS

21238

Encapsulation of reactive species within metal-organic cages

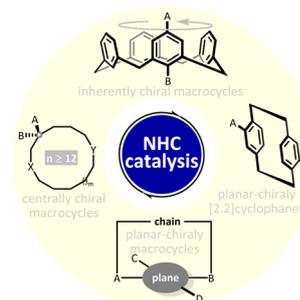
Soumalya Bhattacharyya, Martin R. Black and Ben S. Pilgrim*



21259

Carbene-catalytic enantioselective synthesis of chiral macrocycles

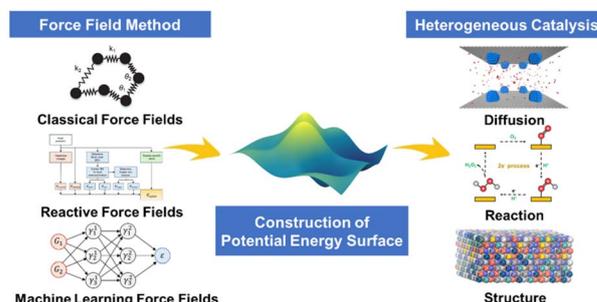
Huikun Yan, Yuanyuan Zhu, Gongming Yang* and Shuangxi Gu*



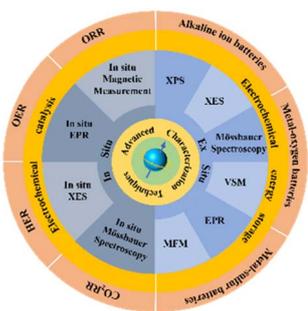
21269

Modeling the potential energy surface by force fields for heterogeneous catalysis: classification, applications, and challenges

Chenglong Qiu, Tore Brinck* and Jiacheng Wang*



21298

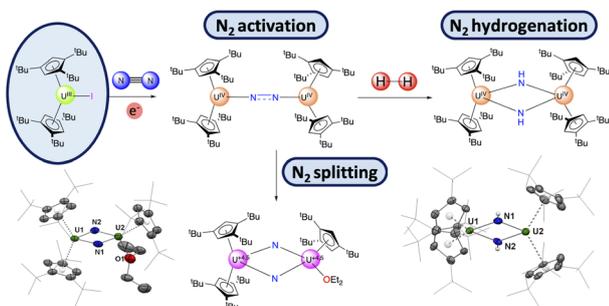


Spin chemistry: the key to revolutionizing energy storage and conversion efficiency

Xiaolin Zhang, Jinhao Pan, Yi Wan, Xueqing Zheng, Yutong Liu, Yan Zhang, Xingyu Liu, Qi Wei, Jiashuo Wu, Pawin lamprasertkun, Bin Wang,* Mingbo Wu and Han Hu*

EDGE ARTICLES

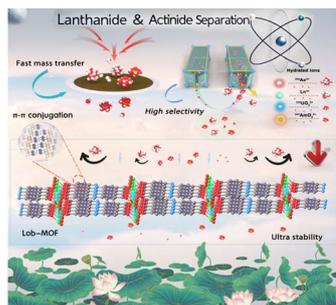
21334



Room temperature dinitrogen cleavage and hydrogenation with organometallic complexes of uranium

Angus C. G. Shephard, Lucie Pedussaut, Linda De Marchi, Luca Demonti, Thayalan Rajeshkumar, Nicolas Casaretto, Laurent Maron, Grégory Danoun, Thomas Simler* and Grégory Nocton*

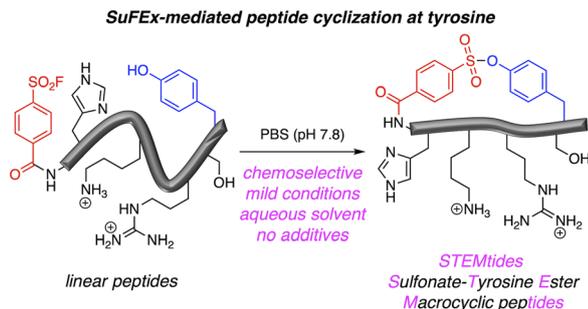
21346



Interlayer-bridged dual-channel 2D MOF membranes for ultra-stable ion sieving in extreme environments

Yaxin Hao, Qifeng Gao, Xiaonan Mao, Zhencun Cui, Youqian Ding, Wangsuo Wu, Ximeng Chen* and Zhan Li*

21359



Chemoselective sulfonyl fluoride exchange (SuFEx)-induced macrocyclization of tyrosine-containing peptides in aqueous media

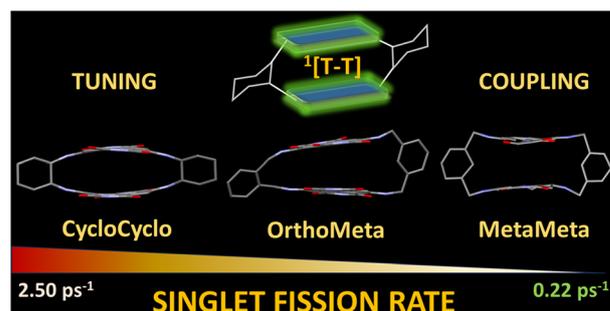
Hassan Seyrani, Hossein Heidarzadeh Vazifekhorani and Victor K. Outlaw*



21368

An order of magnitude modulation of singlet fission rates in NDI cyclophanes by tuning inter-chromophoric electronic coupling

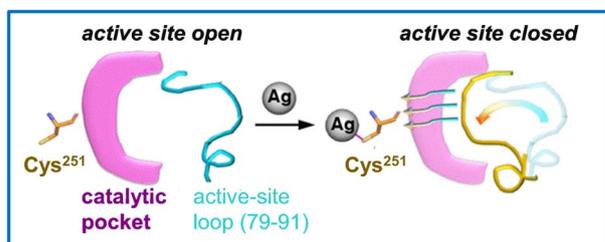
Aisworika Mohanty, Vijay Pal Singh, Ch. Mudasar Hussain, Mandira Dey, Debashree Ghosh,^{*} Pritam Mukhopadhyay^{*} and Jyotishman Dasgupta^{*}



21379

Unprecedented allosteric inhibition of *E. coli* malate dehydrogenase by silver(I) from atomic resolution analysis

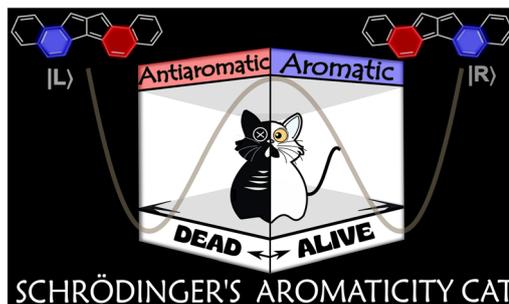
Haibo Wang, Minji Wang, Xinming Yang, Aixin Yan, Quan Hao, Hongyan Li and Hongzhe Sun^{*}



21386

Aromaticity switching by quantum tunnelling

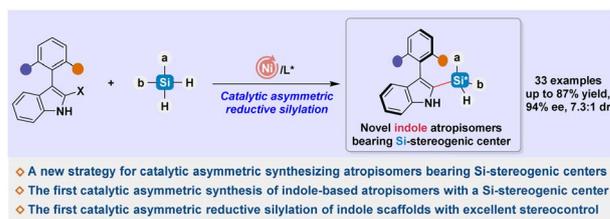
Sindy Julieth Rodríguez-Sotelo,^{*} Juan Julian Santoyo-Flores, Katarzyna Młodzikowska-Pieńko, Renana Gershoni Poranne and Sebastian Kozuch



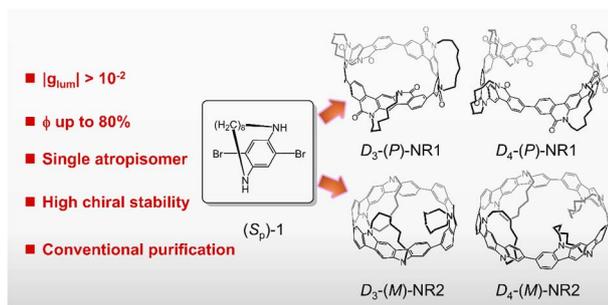
21394

Catalytic asymmetric synthesis of indole-based atropisomers bearing silicon-stereogenic centers

Si-Yi Liu, Zi-Qi Zhu,^{*} Fei-Xiao Chen, Ni-Na Feng, Shao-Fei Ni^{*} and Feng Shi^{*}



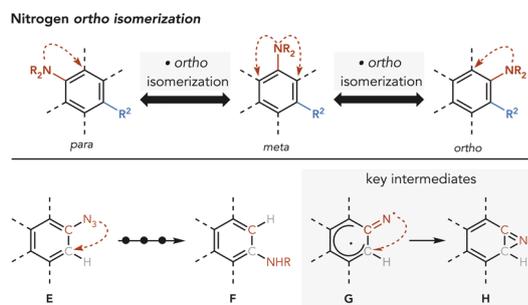
21404



Chiral tether-guided selective synthesis of D_n -symmetric chiral conjugated nanorings

Tai An, Jiayao Yao, Zuo Xiao,* Qi Yu, Yu Wang, Yueyue Gao, Yixiao Song, Zuoxin Huang,* Zheng Ding, Xinyue Zhang, Yuanpeng Xie, Menglan Lv,* Chuantian Zuo,* Junqiao Ding and Liming Ding*

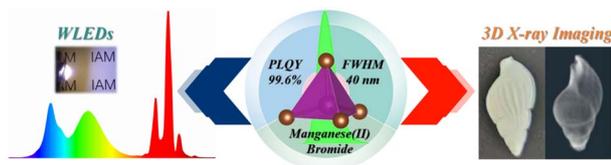
21416



A photochemical strategy for aromatic nitrogen *ortho*-isomerization

Giovanni Lenardon, Xheila Yzeiri, Gael Le Berre, Dilara Berna Yildiz, Daniele Leonori* and Alessandro Ruffoni*

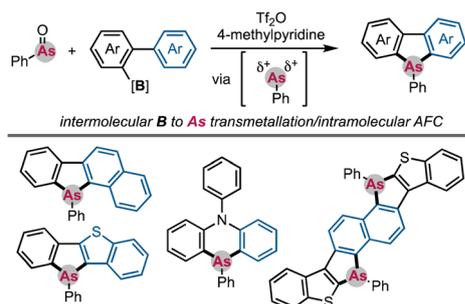
21423



Near-unity and narrow green emission from a manganese(II) bromide for efficient WLEDs and 3D X-ray imaging

Mengzhu Wang, Xiaolong Li, Siwen Zou, Haixia Cui, Yongjing Deng, Jiangang Li, Yi Jiang, Longlu Wang, Shujuan Liu, Qiang Zhao* and Yun Ma*

21433



Synthesis of dibenzoazole derivatives from biarylborates *via* the twofold formation of C–As bonds using arsenium dication equivalents

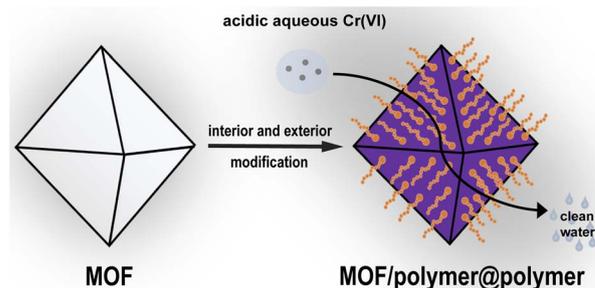
Kazutoshi Nishimura, Hiroki Iwamoto, Yuji Nishii and Koji Hirano*



21440

Enhanced MOF performance in chromium(vi) removal from water using tailored MOF-polymer composites

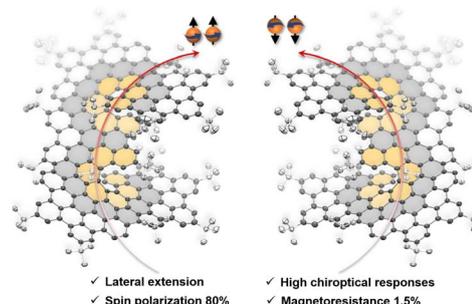
Timo M. O. Felder, Wei Shi, Daniel T. Sun, Till Schertenleib, Emad Oveisi, Jordi Espín and Wendy L. Queen*



21446

Lateral π -extended helical nanographenes with large spin polarization

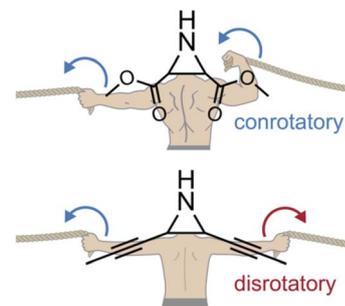
Wenhui Niu,* Chi Fang, Likun Tang, Elif Unsal, Yubin Fu, Jitul Deka, Fupin Liu, Alexey A. Popov, Fupeng Wu, Huanhuan Shi, Hartmut Komber, Arezoo Dianat, Rafael Gutierrez, Ji Ma, Yutao Sang,* Gianauelio Cuniberti* and Stuart S. P. Parkin*



21454

Force-induced transition state rupture enables mechanistic control in aziridine mechanochemistry

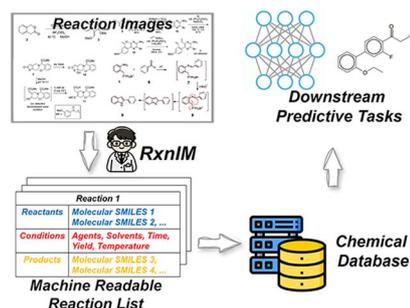
Anne Germann and Jan Meisner*



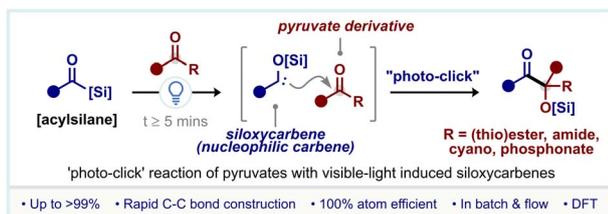
21464

Towards large-scale chemical reaction image parsing via a multimodal large language model

Yufan Chen, Ching Ting Leung, Jianwei Sun, Yong Huang, Linyan Li, Hao Chen and Hanyu Gao*



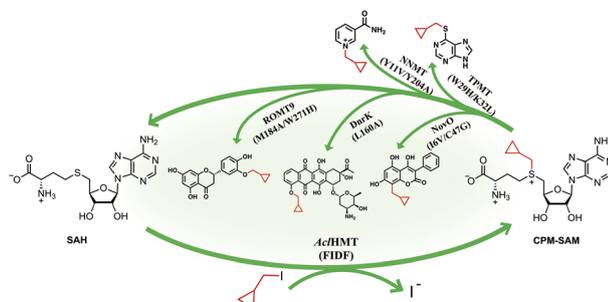
21475



Visible-light induced click reactions of acylsilanes with pyruvate electrophiles

Rowan L. Pilkington, Rosa Kössler, Jesse Molloy, Stefan Bräse and Daniel L. Priebbenow*

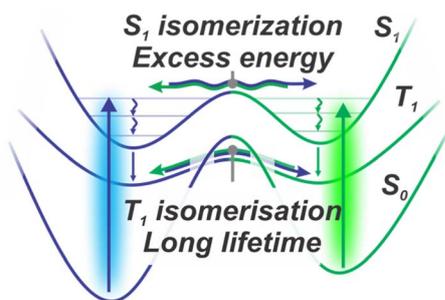
21483



Cyclopropylmethyl S-adenosyl-L-methionine: an enzymatic cyclopropylmethyl donor

Huimin Zhao, Nanhai Yu, Sican Wang and Min Dong*

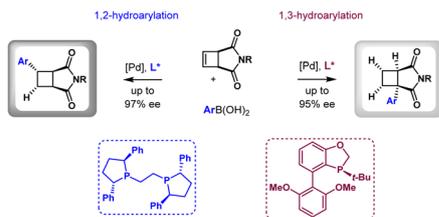
21489



Visible light photo-switching in a conformationally-strained electron acceptor via a dual singlet-triplet mechanism

Sai Shruthi Murali, Aditi Kumar, Damon M. de Clercq, Céline Janiseck, Geoffrey R. Weal, Isabella Wagner, Kai Chen, Michael P. Nielsen, Timothy W. Schmidt, Justin M. Hodgkiss* and Paul A. Hume*

21498



Ligand-controlled divergent enantioselective hydroarylation of cyclobutenes

Renming Pan, Jie Zhu, Xinjie Zhou, Minyan Wang* and Ping Lu*

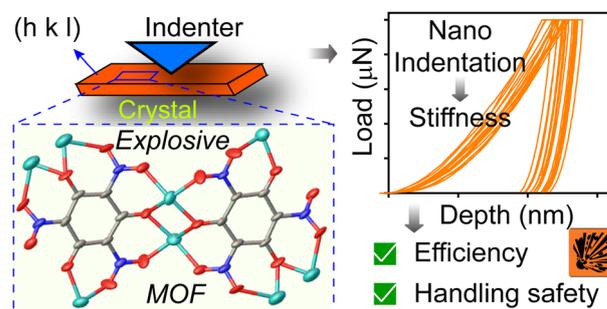
- the generation of [Pd-H] species
- no external base, acid, [red], and [ox]
- the control of two reaction pathways
- the origin of enantioselectivity



21508

Tunable mechanics and energetics in structurally diverse TNP-based metal organic networks

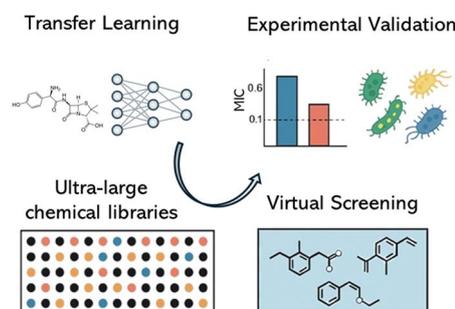
Shayan Karak, Soubhik Khata, Shamim Ahmad, Abhishek Kumar Yadav, Najla AlMasoud, Taghrid S. Alomar, Srinivas Dharavath,* C. Malla Reddy* and Rahul Banerjee*



21518

Transfer learning enables discovery of sub-micromolar antibacterials for ESKAPE pathogens from ultra-large chemical spaces

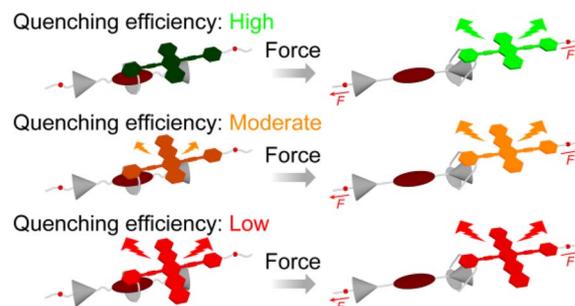
Miguel García-Ortegón,* Srijit Seal,* Emily Geddes, Jenny L. Littler, Collette S. Guy, Jonathan Whiteside, Carl Rasmussen, Andreas Bender and Sergio Bacallado*



21534

Quenching mechanism in rotaxane mechanophores: insights from acene-based luminophores

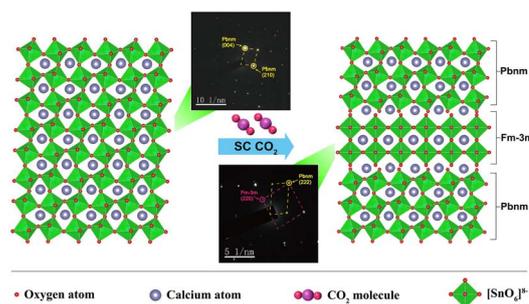
Keigo Nonaka, Hayato Sakai,* Ryusei Mori, Naoki Shimada, Shunsuke Hatatsu, Taku Hasobe* and Yoshimitsu Sagara*



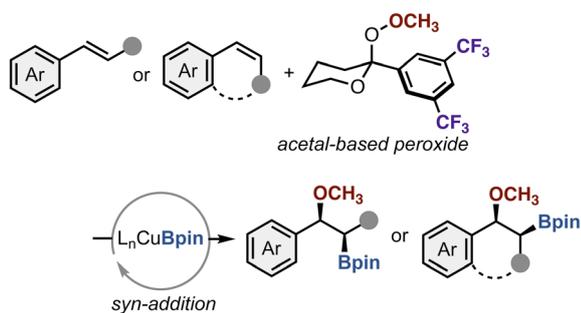
21542

Supercritical CO₂-modulated phase transition in CaSnO₃ from orthorhombic to cubic symmetry for room-temperature ferromagnetism

Lei Xu, Qun Xu* and Buxing Han



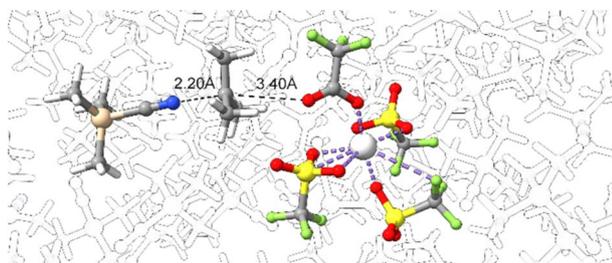
21548



Copper-catalyzed stereospecific methoxyboration of styrenes enabled by oxygen umpolung with acetal-based peroxides

Kyosuke Fujiwara, Shogo Nakamura and Koji Hirano*

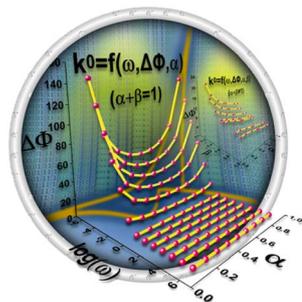
21554



Dynamics-based transition states reveal solvent cage effect and S_N2 transition state motion in Lewis acid catalyzed stereoselective tertiary alcohol nucleophilic substitution reactions

Anthony J. Schaefer, Trevor Mallavia and Daniel H. Ess*

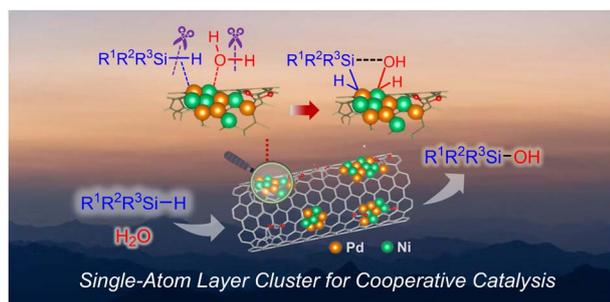
21562



Exploring the determination of the standard rate constant in electrochemical metal deposition: theory and experiment

Rania Saad Guermeche, Abed Mohamed Affoune,* Sabrina Houam, Imene Atek, Christine Vautrin-UI, Mouna Nacef, Mohamed Lyamine Chelaghmia, Hubert H. Girault, Craig E. Banks, Ilhem Djaghout, Jacques Bouteillon and Jean Claude Poignet

21573



Design and synthesis of single-atom layer bimetallic clusters for dehydrogenative silylation of water and alcohols

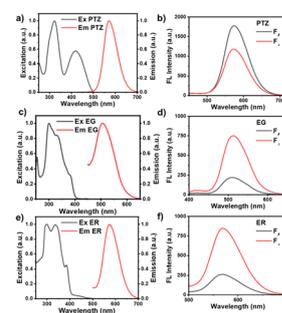
Chunying Chen, Qijie Mo, Fuzhen Li, Haili Song, Qingsheng Gao and Li Zhang*



21583

Excitation-dependent circularly polarized luminescence triggered by selective excitation of achiral dichroic dyes in cholesterol liquid crystals

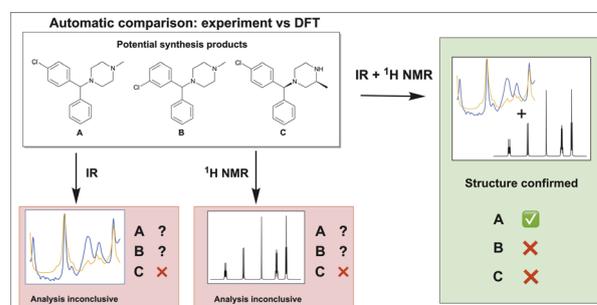
Lulu Li, Peiting Jiang, Lei Chen, Yang Li* and Yixiang Cheng*



21590

Towards automatically verifying chemical structures: the powerful combination of ^1H NMR and IR spectroscopy

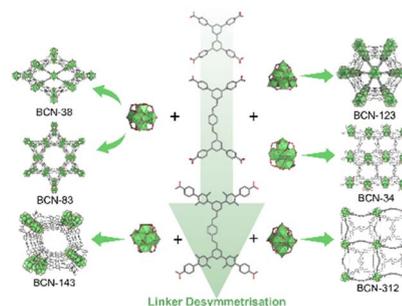
J. Benji Rowlands, Lina Jonsson, Jonathan M. Goodman, Peter W. A. Howe, Werngard Czechtizky, Tomas Leek and Richard J. Lewis*



21600

Linker desymmetrisation unlocks new topologies, defective clusters, and catalytic activity in zirconium- and rare-earth metal-organic frameworks

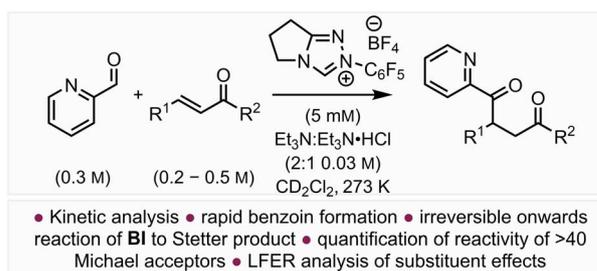
Borja Ortín-Rubio, Yunhui Yang, Emilio Borrego-Marin, Jaume Rostoll-Berenguer, Carlos Vila, Judith Juanhuix, Inhar Imaz,* Jorge A. R. Navarro and Daniel Maspoch*



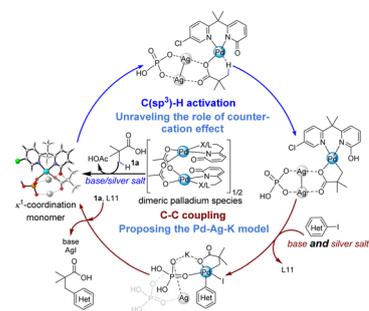
21614

Quantifying Breslow intermediate reactivity in intermolecular Stetter reactions

Zhuan Duan, Jiayun Zhu, Pankaj K. Majhi, Alister S. Goodfellow,* AnnMarie C. O'Donoghue,* Claire M. Young* and Andrew D. Smith*



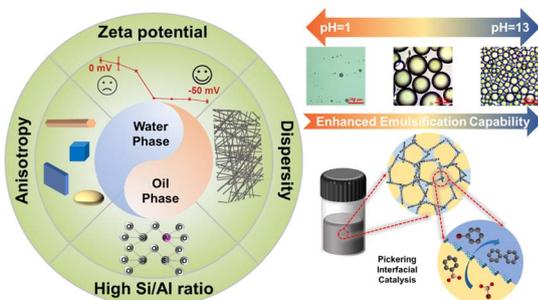
21624



Unraveling the role of counter-cations in Pd-catalyzed carboxylic acid C–H activation

Zhewei Li, Yanhui Tang and Ming Lei*

21633



Fibrous intrinsically zeolitic pickering emulsifier

Shuangjia Wang, Xiaoliang Huang, Fei Ma, Wenjun Jiang, Zhifeng Zeng, Yang Zhang, Yuyan Yao and Jiuxing Jiang*

CORRECTIONS

21641

Correction: Molecular Aharonov–Bohm-type interferometers based on porphyrin nanorings

Chi Y. Cheng, Gil Harari, Igor Rončević, Juan E. Peralta, Harry L. Anderson,* Andrew M. Wibowo-Teale* and Oded Hod*

21642

Correction: Molecular bowls for inclusion complexation of toxic anticancer drug methotrexate

Pratik Karmakar, Tyler J. Finnegan, Darian C. Rostam, Sagarika Taneja, Sefa Uçar, Alexandar L. Hansen, Curtis E. Moore, Christopher M. Hadad, Kornkanya Pratamyot, Jon R. Parquette and Jovica D. Badjić*

