

ChemComm

Chemical Communications

rsc.li/chemcomm

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 1359-7345 CODEN CHCOFS 59(90) 13377-13524 (2023)



Cover

See Dipanjan Pan *et al.*, pp. 13434–13437. Image reproduced by permission of Dipanjan Pan from *Chem. Commun.*, 2023, 59, 13434.



Inside cover

See Martin D. Peeks *et al.*, pp. 13438–13441. Image reproduced by permission of Alan Z. Chen from *Chem. Commun.*, 2023, 59, 13438.

PROFILE

13387

Contributors to the Pioneering Investigators collection 2023: Part 2

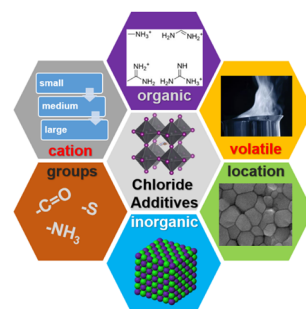


HIGHLIGHT

13394

Advances in chloride additives for high-efficiency perovskite solar cells: multiple points of view

Xue Liu, Yanru Guo, Yu Cheng, Shirong Lu, Ru Li* and Jiangzhao Chen*



Editorial Staff

Executive Editor

Richard Kelly

Deputy Editor

Harriet Riley

Editorial Production Manager

Helen Saxton

Development Editors

Danny Andrews, Ershad Abubacker

Senior Publishing Editor

Becky Webb

Publishing Editors

Kirstine Anderson, Matthew Bown, Laura Cooper, Hannah Fielding, Clare Fitzgerald, Anoushka Handa, Claire Harding, Alan Holder, Charlie Palmer, Rosie Rothwell, Donna Smith, Laura Smith

Editorial Assistant

Jade Holliday

Publishing Assistant

Natalie Ford

Publisher

Jeanne Andres

For queries about submitted papers, please contact Helen Saxton, Editorial Production Manager in the first instance. E-mail chemcomm@rsc.org

For pre-submission queries please contact

Richard Kelly, Executive Editor.

Email chemcomm-rsc@rsc.org

Chemical Communications (print: ISSN 1359-7345; electronic: ISSN 1364-548X) is published 100 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WE.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to the Royal Society of Chemistry Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK
Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £3,553 / US\$6,258. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017;

E-mail advertising@rsc.org

For marketing opportunities relating to this journal, contact marketing@rsc.org

ChemComm

Chemical Communications

rsc.li/chemcomm

Editorial Board

Chair

Douglas Stephan, University of Toronto

Associate Editors

Lutz Ackermann, University of Göttingen

Davide Bonifazi, University of Vienna

Fengtao Fan, Chinese Academy of Sciences

Itaru Hamachi, Kyoto University

Michaele Hardie, University of Leeds

Kim Jelfs, Imperial College London

Chao-Jun Li, McGill University

David Lou, City University of Hong Kong

Connie Lu, University of Minnesota, US

Marinella Mazzanti, EPFL, Switzerland

Amy Prieto, Colorado State University

Yang Tian, East China Normal University

Sandeep Verma, Indian Institute of

Technology Kanpur

Advisory Board

Brendan Abrahams, University of Melbourne

Polly Arnold, University of Edinburgh

Louise Berben, University of California, Davis

Akkattu T. Biju, Indian Institute of Science, Bangalore

Penny Brothers, Australian National University

Wesley Browne, University of Groningen

Raffaella Buonsanti, EPFL

Hong Chen, Soochow University

Xiao-Ming Chen, Sun Yat-Sen University

Arindam Chowdhury, Indian Institute of

Technology Bombay

Derrick Clive, University of Alberta

Seth Cohen, University of California, San Diego

Marcetta Darensbourg, Texas A&M University

Jyotirmayee Dash, Indian Association for the

Cultivation of Science

Gautam R. Desiraju, Indian Institute of

Science, Bangalore

Abhishek Dey, Indian Association for the

Cultivation of Science (IACS)

Josh Figueroa, University of California, San

Diego

Lutz Gade, University of Heidelberg

Sujit Ghosh, Indian Institute of Science

Education of Research, India

Robert Gilliard Jr., Massachusetts Institute of

Technology, USA

David Gonzalez-Rodriguez, Autonomous

University of Madrid

Rebecca Goss, University of

St Andrews

Mike Greaney, University of Manchester

Shaojun Guo, Peking University

Michaele Hardie, University of Leeds

Amanda Hargrove, Duke University

Hongyan He, Institute of Process Engineering,

Chinese Academy of Sciences, China

Eva Hevia, University of Bern, Switzerland

Feihe Huang, Zhejiang University

Todd Hudnall, Texas State University

Ilich A. Ibarra Alvarado, National University

of Mexico

Ajeet Kaushik, Florida Polytechnic University

Jong Seung Kim, Korea University

Shu Kobayashi, University of Tokyo

Mi Hee Lim, Ulsan National Institute of

Science and Technology (UNIST)

Teck-Peng Loh, Nanyang Technological

University

Tien-Yau Luh, National Taiwan University

Doug MacFarlane, Monash University

Hiromitsu Maeda, Ritsumeikan University

Silvia Marchesan, University of Trieste

Nazario Martin, Complutense University of

Madrid

Alexander Miller, University of North Carolina

at Chapel Hill

Wonwoo Nam, Ewha Womans University

Kenneth Ozoemena, University of the

Witwatersrand Johannesburg

Thalappil Pradeep, Indian Institute of

Technology Madras

S Ramakrishnan, Indian Institute of Science

Erwin Reisner, University of Cambridge

Robin Rogers, McGill University

Ilyong Ryu, Osaka Metropolitan University

& NYCU

Paolo Samori, University of Strasbourg

David Scanlon, University of Birmingham

Ellen Sletten, University of California, Los

Angeles

David Smith, University of York

Mizuki Tada, Nagoya University

Zhong-Qun Tian, Xiamen University, China

Tan Tianwei, Beijing University of Chemical

Technology

Tomas Torres, Autonomous University of

Madrid

Judy Wu, University of Houston

Yi Xie, University of Science and Technology

of China

Xianran Xing, University of Science and

Technology Beijing

Shuli You, Shanghai Institute of Organic

Chemistry, Chinese Academy of Sciences

Yan Yu, University of Science and Technology

of China

Fan Zhang, Fudan University

Qiang Zhang, Tsinghua University

Xi Zhang, Tsinghua University

Wenwan Zhong, University of California,

Riverside

Eli Zysman-Colman, University of St. Andrews

Information for Authors

Full details on how to submit material for publication in Chemical Communications are given in the Instructions for Authors (available from <http://www.rsc.org/authors>).

Submissions should be made via the journal's homepage:

rsc.li/chemcomm

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)–Reproduced by permission of the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2023.

Apart from fair dealing for the purposes of research or private study

for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

© The paper used in this publication meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

Registered charity number: 207890

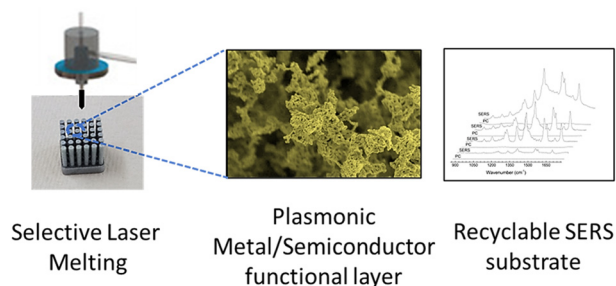


FEATURE ARTICLES

13406

Surface functionalized 3D printed metal structures as next generation recyclable SERS substrates

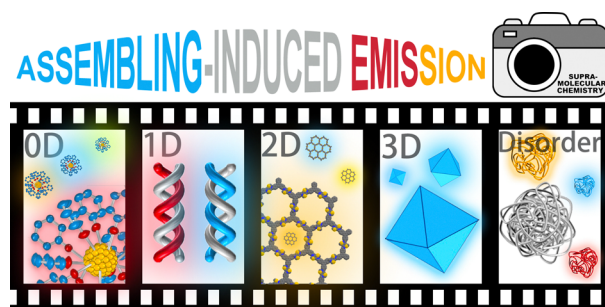
Uzma Malik, Roxanne Hubesch, Paramita Koley, Maciej Mazur, Sunil Mehla, Sai Kishore Butti, Milan Brandt, P. R. Selvakannan* and Suresh Bhargava*



13421

A supramolecular assembly strategy towards organic luminescent materials

Chenjia Yin, Zi-Ang Yan and Xiang Ma*

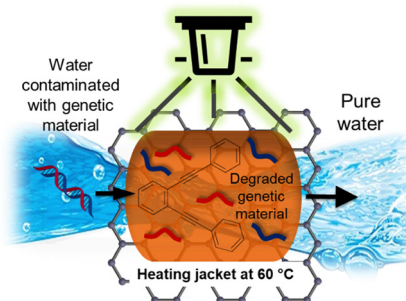


COMMUNICATIONS

13434

Synthesis of an enediyne carbon-allotrope surface for photo-thermal degradation of DNA

Santosh K. Misra, Mao Ye, Parikshit Moitra, Ketan Dighe, Abhinav Sharma, Enrique A. Daza, Aaron S. Schwartz-Duval, Fatemeh Ostadhossein and Dipanjan Pan*



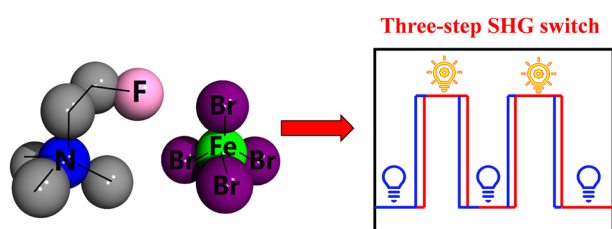
13438

Electronic delocalization in charged macrocycles is associated with global aromaticity

David Bradley, Bethany K. Hillier and Martin D. Peeks*



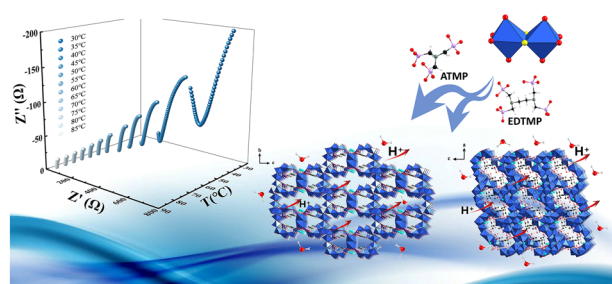
13442



An organic–inorganic hybrid material $[\text{Me}_3\text{NCH}_2\text{CH}_2\text{F}]\text{FeBr}_4$ exhibits three-step SHG on/off

Haina Zhang, Lingyu Wang, Wenjing Guo, Hu Cai* and Zhenhong Wei*

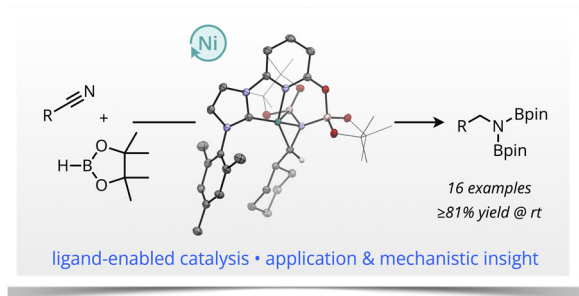
13446



The assembly of $[\text{Mo}_2\text{O}_2\text{S}_2]^{2+}$ based on polydentate phosphonate templates and their proton conductivity

Bo Li, Yu-Xi Meng, Qian-Qian Liu, Xin-Yu Chen, Xin Liu and Hong-Ying Zang*

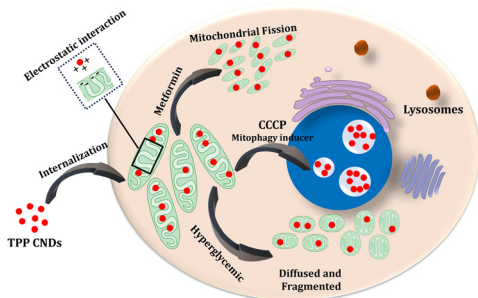
13450



Secondary-sphere preorganization enables nickel-catalyzed nitrile hydroboration

Medina Afandiyeva, Xijue Wu, William W. Brennessel, Abhishek A. Kadam and C. Rose Kennedy*

13454



Tracking the super resolved structure of mitochondria using red emissive carbon nanodots as a fluorescent biomarker

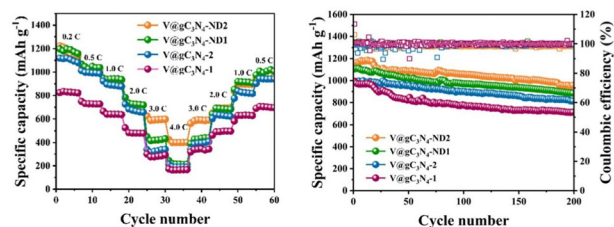
Richa Garg, Farhan Anjum, Abdul Salam, Kush Kaushik, Shagun Sharma, Udisha Sahrawat, Aditya Yadav and Chayan Kanti Nandi*



13458

Vanadium-doped graphitic carbon nitride for high performance lithium–sulfur batteries

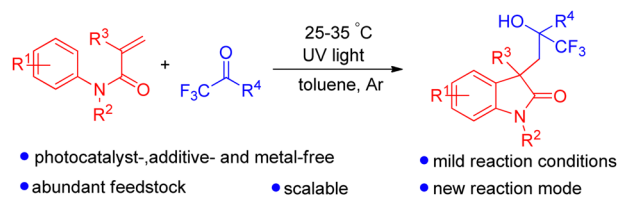
Yankang Wang, Yanbo Wang, Chunhong Huang, Qiang Zhang, Zhanghaoran Liu and Fengxiang Zhang*



13462

Catalyst- and additive-free cascade radical addition/cyclization of *N*-arylacrylamides with trifluoropyruvates

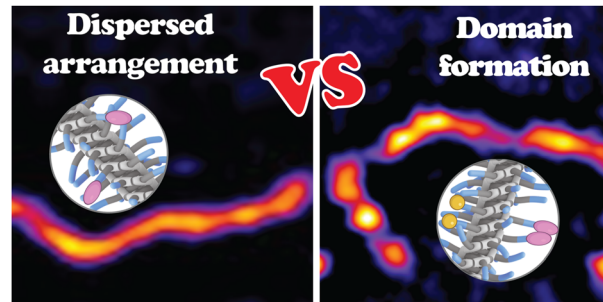
Yongbo Tan and Huawen Huang*



13466

Impact of subtle intermolecular interactions on the structure and dynamics of multicomponent supramolecular polymers

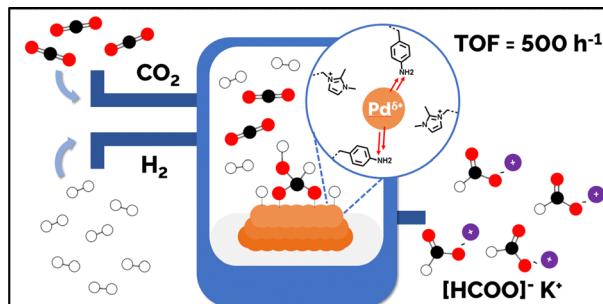
Job N. S. Hanssen and Shikha Dhiman*



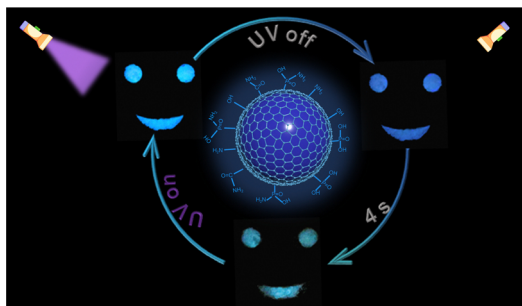
13470

Amine-modified polyionic liquid supports enhance the efficacy of PdNPs for the catalytic hydrogenation of CO₂ to formate

Reece Paterson, Luke E. Fahy, Elisabetta Arca,* Casey Dixon, Corinne Y. Wills, Han Yan, Anthony Griffiths, Sean M. Collins, Kejun Wu, Richard A. Bourne, Thomas W. Chamberlain,* Julian G. Knight and Simon Doherty*



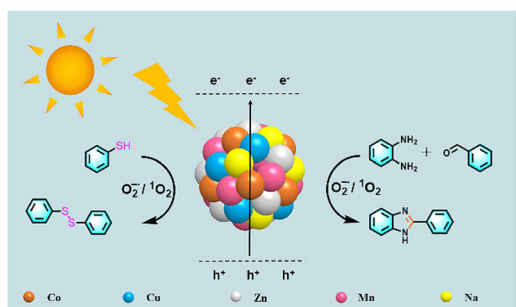
13474



High-efficiency NP-carbon dots above 60% with both delayed fluorescence and room-temperature phosphorescence

Bin Xu, Qun Hao, Xin Tang and Menglu Chen*

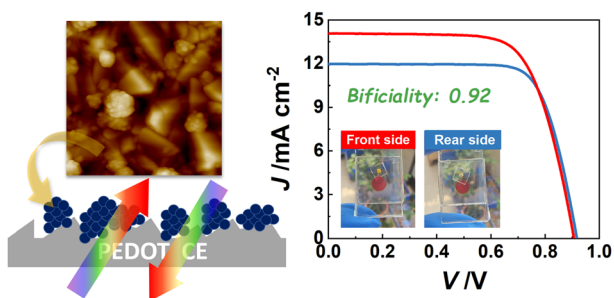
13478



High-entropy oxides as photocatalysts for organic conversion

Mingjin Li, Shuxing Mei, Yong Zheng,* Long Wang* and Liqun Ye*

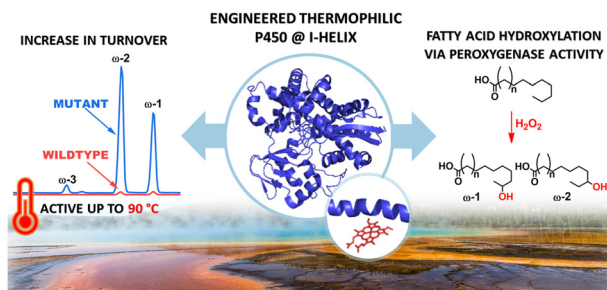
13482



Transparent PEDOT counter electrodes for bifacial dye-sensitized solar cells using a cobalt complex mediator

Yiming Li, Jing Wang, Hao Wang, Zhichao Di, Mingyan Liu, Xueping Zong, Chunsheng Li, Yan Sun, Mao Liang and Zhe Sun*

13486



Efficient biocatalytic C–H bond oxidation: an engineered heme-thiolate peroxxygenase from a thermostable cytochrome P450

Alecia R. Gee, Isobella S. J. Stone, Tegan P. Stockdale, Tara L. Pukala, James J. De Voss and Stephen G. Bell*

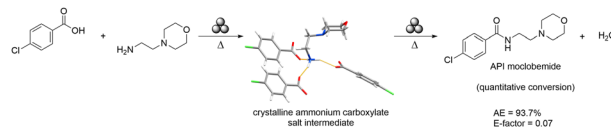


COMMUNICATIONS

13490

Supramolecular intermediates in thermo-mechanochemical direct amidations

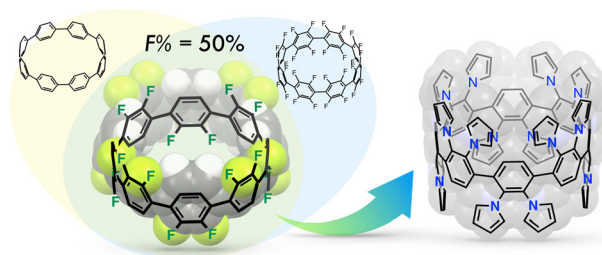
Tomislav Stolar,* Jasna Alić, Gregor Talajić, Nikola Cindro, Mirta Rubčić, Krešimir Molčanov, Krunoslav Užarević* and José G. Hernández*



13494

Half-substituted fluorocycloparaphenylenes with high symmetry: synthesis, properties and derivatization to densely substituted carbon nanorings

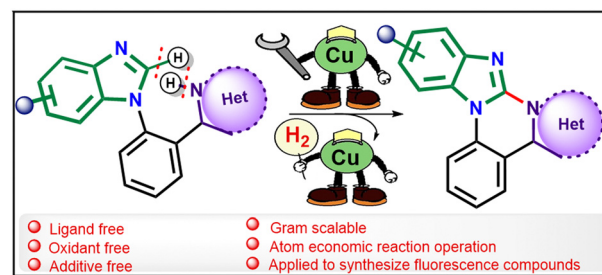
Hiroki Shudo, Motonobu Kuwayama, Yasutomo Segawa, Akiko Yagi and Kenichiro Itami*



13498

Synthesis of benzimidazole fused poly-heterocycles via oxidant free Cu-catalyzed dehydrogenative C–N coupling and photophysical studies

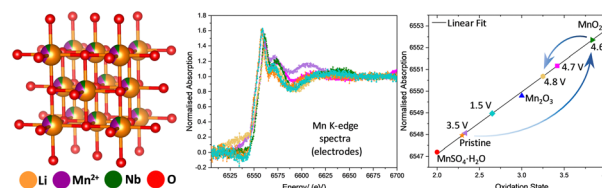
Sakshi Singh and Shantanu Pat*



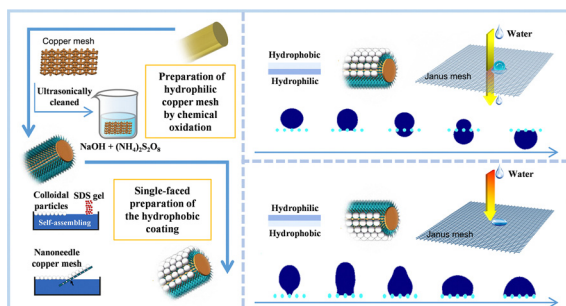
13502

Synthesis of $\text{Li}_{1.20}\text{Mn}_{0.43}^{2+}\text{Nb}_{0.39}\text{O}_2$ disordered rock-salt under reducing conditions for Li-ion batteries

Wilgner Lima da Silva, Ashok S. Menon, Martin R. Lees, Reza J. Kashtiban, Marc Walker, Louis F. J. Piper, Emma Kendrick* and Richard I. Walton*



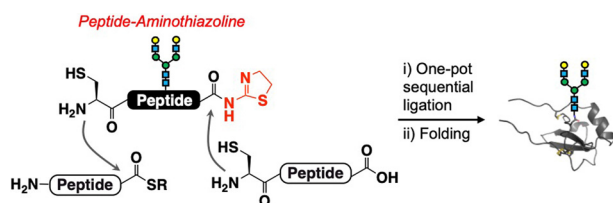
13506



Preparation of a Janus copper mesh via nanoparticle interface self-assembly for unidirectional water transportation

Chaolang Chen, Linfeng Zhu, Ruisong Jiang* and Xuan Li*

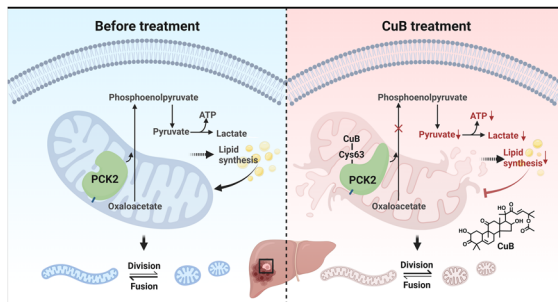
13510



Convergent synthesis of proteins using peptide-aminothiazoline

Ryo Okamoto,* Hiroyuki Shibata, Takahiro Yatsuzuka, Takuya Hanao, Yuta Maki, Kazuya Kabayama, Ayane Miura, Koichi Fukase and Yasuhiro Kajihara*

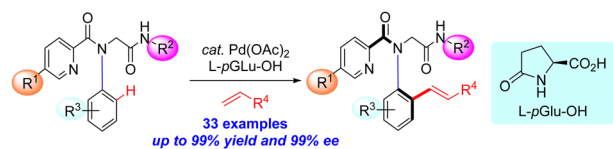
13514



Allosteric regulation of the lid domain of PCK2 as a novel strategy for modulating mitochondrial dynamics

Yang Liu, Ling Li, Zhuo Yang, Li-xi Liao, Xiao-jun Yao, Peng-fei Tu and Ke-wu Zeng*

13518



Pd(II)-Catalyzed atroposelective C–H olefination: synthesis of enantioenriched *N*-aryl peptide atropisomers

Tian-Yu Jiang, Yi-Ting Ke, Yong-Jie Wu, Qi-Jun Yao* and Bing-Feng Shi*

