## **Organic & Biomolecular Chemistry**

An international journal of synthetic, physical and biomolecular organic chemistry

#### rsc.li/obc

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

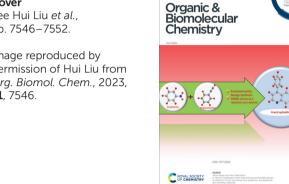
ISSN 1477-0520 CODEN OBCRAK 21(37) 7475-7656 (2023)







Image reproduced by permission of Hui Liu from Org. Biomol. Chem., 2023, **21**, 7546.



## Inside cover

See Simra Faraz and Abu Taleb Khan, pp. 7553-7560.

Image designed by Reshan Faraz and reproduced by permission of Reshan Faraz from Org. Biomol. Chem., 2023, **21**, 7553.

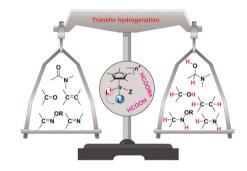
#### **REVIEWS**

ROYAL SOCIETY PAPER
HALFAGE Block on the

#### 7484

Recent advances of Cp\*Ir complexes for transfer hydrogenation: focus on formic acid/formate as hydrogen donors

YiFei Wei, Yuqiu Liang, Renshi Luo\* and Lu Ouyang\*



#### 7498

The how and why of naphthalimide/heterocyclefused hybrid dyes: an overview of the latest developments in the quest for dyes with innovative optical properties

Arnaud Chevalier



#### **Editorial Staff**

**Executive Editor** 

Katie Lim

**Deputy Editor** 

Jack Washington

Development Editor Daniel Robertshaw

**Editorial Production Manager** 

Sarah Whitehouse

#### **Publishing Editors**

Nicola Burton, Tom Cozens, Katie Fernandez, Ryan Kean, Roxane Owen

**Editorial Assistant** 

Amy Cook

**Publishing Assistant** 

Andrea Whiteside

Publisher

Sam Keltie

For queries about submitted papers, please contact Sarah Whitehouse, Editorial Production Manager in the first instance. E-mail: obc@rsc.org

For pre-submission queries please contact Katie Lim, Executive Editor. Email: obc-rsc@rsc.org

Organic & Biomolecular Chemistry (electronic: ISSN 1477-0539) is published 48 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

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 OWF, UK

Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £5164; US\$9267. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version

If you take an institutional subscription to any RSC 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

# **Organic & Biomolecular** Chemistry

Rapid publication of high quality organic chemistry research rsc.li/obc

Organic & Biomolecular Chemistry is a weekly journal for the publication of highly significant original research and reviews in all areas of organic chemistry, including organic synthesis, physical organic chemistry, and organic aspects of supramolecular chemistry and chemical

#### **Editorial Board**

Anthony Davis, University of Bristol. UK

#### **Associate Editors**

Christian Hackenberger, Leibniz-Institut für Molekulare Pharmakologie and Humboldt Universität zu Berlin, Germany Katrina Jolliffe, University of Sydney, Australia

Motomu Kanai, University of Tokyo, Japan

Science, Bangalore, India Scott Silverman, University of Illinois at Urbana-Champaign, USA

Lei Liu, Tsinghua University, China

Xiaohua Liu, Sichuan University, China

Santanu Mukherjee, Indian Institute of

Cristina Truiillo, University of Manchester, UK

#### Members

Ivan Huc, Ludwig-Maximilian University of Munich, Germany S.S.V Ramasastry, Indian Institute of Science

Education and Research Mohali, India Corinna Schindler, University of Michigan,

Judy I-Chia Wu, University of Houston, USA

#### **Advisory Board**

Igor Alabugin, Florida State University, USA Gonçalo Bernardes, University of Cambridge,

Shunsuke Chiba, Nanyang Technological University, Singapore

Andre Cobb, Kings College London, UK Steven Cobb, Durham University, UK Ratmir Derda, University of Alberta, Canada Antonio Echavarren, Institute of Chemical Research of Catalonia, Spain Ben Feringa, University of Groningen, The

Amar Flood, Indiana University Bloomington,

Carmen Galan, University of Bristol, UK

Jason Harper, University of New South Wales,

Elizabeth Krenske, University of Queensland, Australia

Mahesh Lakshman, The City College of New York, USA Shih-Yuan Liu, Boston College, USA

Geraldine Masson, Institut de Chimie des Substances Naturelles (CNRS), France Elizabeth New, University of Sydney, Australia Dhevalapally B. Ramachary, University of Hyderabad, India

Paolo Scrimin, University of Padova, Italy Oliver Seitz, Humboldt University of Berlin, Jay Siegel, University of Zürich, Switzerland Corey Stephenson, University of Michigan,

Dean Tantillo, University of California Davis,

Mark Taylor, University of Toronto, Canada Georgios Vassilikogiannakis, University of Crete, Greece

Helma Wennemers, ETH Zürich, Switzerland Peter Wipf, University of Pittsburgh, USA Shuli You, Shanghai Institute of Organic Chemistry, China

Jian Zhou, East China Normal University,

#### Information for Authors

Full details on how to submit material for publication in Organic & Biomolecular Chemistry 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/obc

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.

Registered charity number: 207890

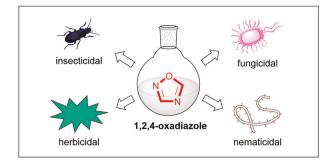


#### **REVIEWS**

#### 7511

# 1,2,4-Oxadiazole as a potential scaffold in agrochemistry: a review

Liangkun Zhong, Changyuan Wu, Mimi Li, Junhui Wu, Yang Chen, Zhiran Ju\* and Chengxia Tan\*



#### **COMMUNICATIONS**

#### 7525

# Regioselective *ortho* C–H insertion of *N*-nitrosoanilines with naphthoquinone carbenes

Rui-jun Peng, Yuan Chen, Xue-jing Zhang and Ming Yan\*

#### 7530

#### Persulfate promoted carbamoylation of N-arylacrylamides and N-arylcinnamamides with 4-carbamoyl-Hantzsch esters

Qi Jing, Fu-Ci Qiao, Jing Sun,\* Jing-Yun Wang and Ming-Dong Zhou\*

\* Carbamovlation under mild conditions

\* tertiary, secondary, and heteroaryl amides applicable

#### 7535

# A concise approach to 2-pyrrolin-5-one scaffold construction from $\alpha\text{-halohydroxamates}$ and $\beta\text{-keto}$ compounds

Wenjie Lan, Xuan Yu, Mengzhu Li, Rongchao Lei, Zhaohai Qin and Bin Fu\*

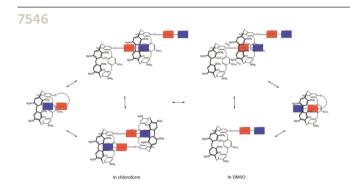
#### **COMMUNICATIONS**

Ph<sub>3</sub>P Ph

*In situ* generation of acyloxyphosphoniums for mild and efficient synthesis of thioesters

Te-Jung Chai, Xin-Shun Chiou, Nian-Xuan Lin, Yu-Tsen Kuo and Cheng-Kun Lin\*

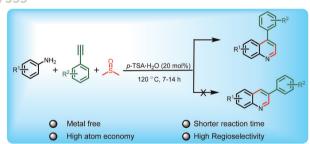
#### **PAPERS**



Effect on the conformation of monosubstituted pillar[5]arene: solvent, temperature, concentration and linker length

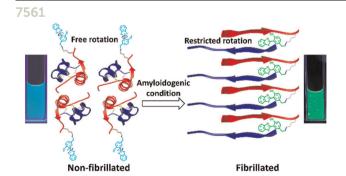
Zhen Fu, Yanqing Jin, Bingqian Xie and Hui Liu\*

7553



p-TSA·H<sub>2</sub>O catalyzed metal-free and environmentally benign synthesis of 4-aryl quinolines from arylamine, arylacetylene, and dimethyl sulfoxide

Simra Faraz and Abu Taleb Khan\*



An unnatural amino acid modified human insulin derivative for visual monitoring of insulin aggregation

Shantanu Sen, Rafat Ali, Harminder Singh, Akanksha Onkar, Pratibha Bhadauriya, Subramaniam Ganesh and Sandeep Verma\*

#### **PAPERS**

#### 7567

#### Regio- and stereocontrolled synthesis of borylated E-enynes, Z-enediynes and derivatives from alkenyl-1,2-bis-(boronates)

Malayath Ratanlal, Javaram Vankudoth, Gangavaram V. M. Sharma, Maruti A. Mali, Bertrand Carboni, Fabienne Berrée\* and Subhash Ghosh\*

#### 7572

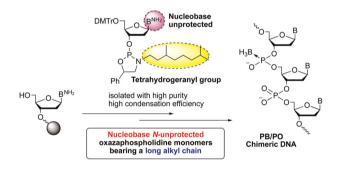
#### Synthesis of amides directly from carboxylic acids and hydrazines

Nivedita Bhardwaj, Nancy Tripathi, Sanjay Kumar and Shreyans K. Jain\*

#### 7580

Solid-phase synthesis of oligodeoxynucleotides using nucleobase N-unprotected oxazaphospholidine derivatives bearing a long alkyl chain

Kiyoshi Kakuta, Ryouta Kasahara, Kazuki Sato and Takeshi Wada\*



#### 7593

## Bifunctionalization of styrene through ring-opening-recombination strategy of phenylpropathiazole salt

Yongbo Fan, Shengting Xu, Xinxin Cai, Zhijing Hou, Tianxiang Chen, Guozhang Fu, Zhongzhi Zhu\* and Xiuwen Chen\*

#### **PAPERS**

#### 7597



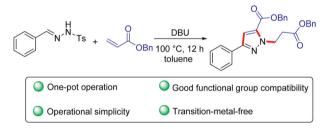
## Aryl sulfonyl fluoride synthesis via organophotocatalytic fluorosulfonylation of diaryliodonium salts

Yuyang Ma, Qijun Pan, Caiyun Ou, Yinxia Cai, Xiaoyu Ma\* and Chao Liu\*



## Palladium-catalyzed synthesis of 2,3-disubstituted indoles via arylation of ortho-alkynylanilines with arylsiloxanes

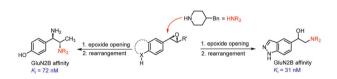
Yang-Ting Hsia, Yu-Lin Lu, Rekha Bai, Satpal Singh Badsara\* and Chin-Fa Lee\*



#### Synthesis of pyrazoles from sulfonyl hydrazone and benzyl acrylate under transition-metal-free conditions

Ligiang Hao, Zhichao Wang, Yangyang Wang, Zhaoziyuan Yang, Xian Liu, Xiaobo Xu and Yafei Ji\*

#### 7616



## Negative allosteric modulators of NMDA receptors with GluN2B subunit: synthesis of β-aminoalcohols by epoxide opening and subsequent rearrangement

Marvin Korff, Judith Lüken, Judith Schmidt, Dirk Schepmann, Gunnar Goerges, Nadine Ritter, Paul Disse, Julian A. Schreiber, Guiscard Seebohm and Bernhard Wünsch\*

#### **PAPERS**

7639

Construction of benzoheterocycles by the reaction of  $\alpha$ -arylglyoxylic acids and ortho-functionalized aniline under mild and minimal conditions

Hang Gong,\* Fangyuan Zhou and Changgun Cai

Metal- and oxidant-free; Mild and minimal conditions; High selectivity; High atomic economic efficiency

7643

Electrochemical direct C-H mono and bischalcogenation of indolizine frameworks under oxidant-free conditions

Amreen Chouhan, Kusum Ucheniya, Lalit Yadav, Pooja Kumari Jat, Asha Gurjar and Satpal Singh Badsara\*

