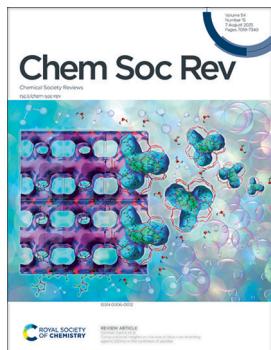


The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 0306-0012 CODEN CSRVBR 54(15) 7019–7340 (2025)



Cover

See German Sastre *et al.*, pp. 7067–7092.
Image reproduced by permission of Katya Cuevas and German Sastre from *Chem. Soc. Rev.*, 2025, **54**, 7067.



Inside cover

See Ruth Pérez-Fernández *et al.*, pp. 7093–7113.
Image reproduced by permission of Ruth Pérez-Fernández from *Chem. Soc. Rev.*, 2025, **54**, 7093.

TUTORIAL REVIEWS

7025

New guidelines and definitions for type I photodynamic therapy

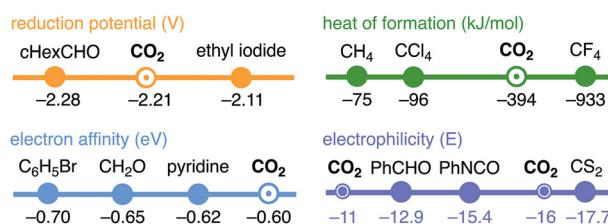
Mingle Li,* Jianhua Xiong, Yingying Zhang, Le Yu, Lizhou Yue, Changyu Yoon, Yujin Kim, Yang Zhou, Xiaoqiang Chen,* Yunjie Xu,* Xiaojun Peng* and Jong Seung Kim*



7058

Revisiting the reactivity of carbon dioxide: from physical and chemical properties to reactive carbon capture

Jerik Mathew Valera Lauridsen* and Ji-Woong Lee*





GOLD
OPEN
ACCESS

EES Solar

Exceptional research on solar
energy and photovoltaics



Part of the EES family

Join
in

Publish with us

rsc.li/EESSolar

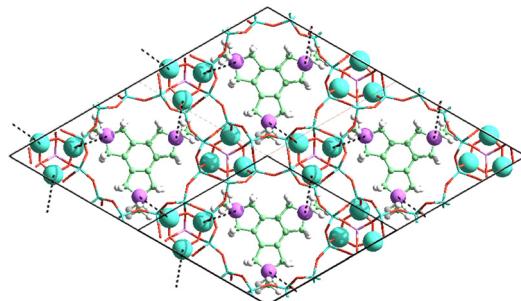
Registered charity number: 207890

REVIEW ARTICLES

7067

Computational insights on the role of structure-directing agents (SDAs) in the synthesis of zeolites

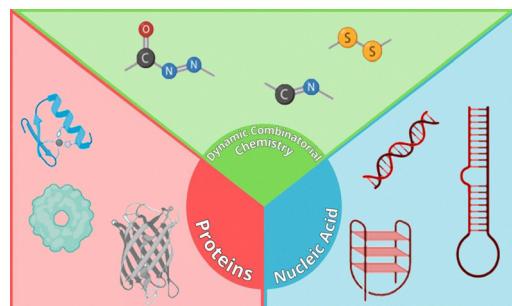
Xiaomin Tang, Omer F. Altundal, Frits Daeyaert, Zhiqiang Liu and German Sastre*



7093

Dynamic combinatorial chemistry directed by proteins and nucleic acids: a powerful tool for drug discovery

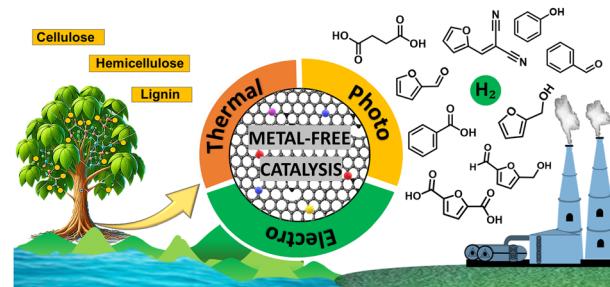
Antonio Aguanell, Marc Hennebelle, Miguel Ángel Ortega and Ruth Pérez-Fernández*



7114

Biomass valorization with metal-free catalysts: innovations in thermocatalytic, photocatalytic, and electrocatalytic approaches

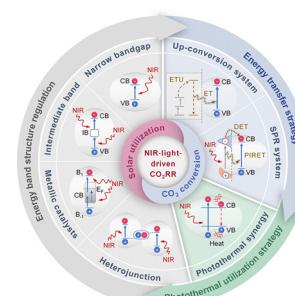
Arzoo Chauhan and Rajendra Srivastava*



7174

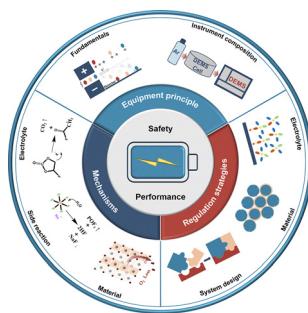
Advancements and prospects of near-infrared-light driven CO_2 reduction reaction

Siheng Yang, Wei Che, Yanhua Shao, Woo Jin Byun, Xiaodong Li, Xingchen Jiao, Ruixiang Li,* Jae Sung Lee, Jiaqi Xu* and Jong-Beom Baek*



REVIEW ARTICLES

7216



Unveiling gas production in rechargeable batteries via *in situ* differential electrochemical mass spectrometry

Guochuan Tang, Jiyu Zhang, Siyu Ma, Junyu Li, Zhangquan Peng* and Weihua Chen*

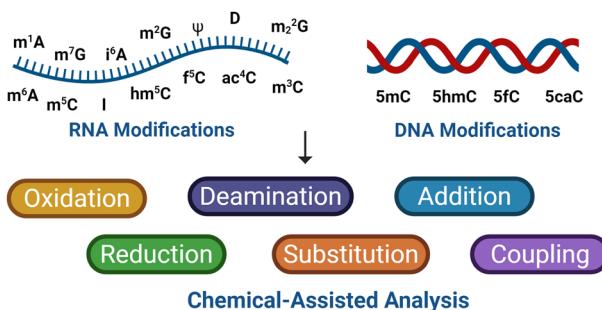
7252



Sustainable decommissioning of perovskite solar cells: from waste to resources

Valentina Larini, Matteo Degani, Silvia Cavalli and Giulia Grancini*

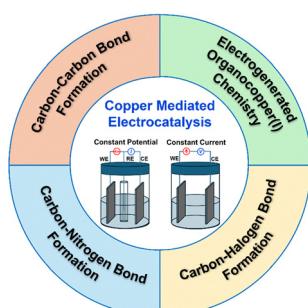
7271



Chemical-assisted analysis of epigenetic modifications

Xucong Teng, Qiushuang Zhang, Yicong Dai, Hongwei Hou and Jinghong Li*

7304



Emerging applications and mechanistic insights of copper mediated electrocatalysts in organic transformations

Masnun Naher,* Miguel A. González, Craig M. Williams and Paul V. Bernhardt

