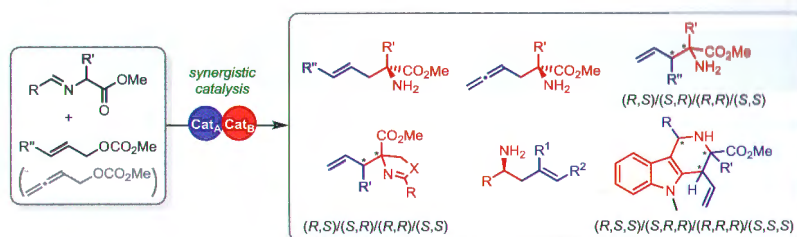


Chemistry Authors Up Close

Synergistic Catalysis with Azomethine Ylides

Liang Wei and Chun-Jiang Wang*

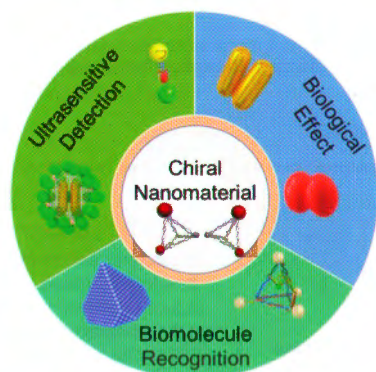
Chin. J. Chem. 2021, 39, 15–24. DOI: 10.1002/cjoc.202000380



Chiral Nanoprobes and Their Biological Effects

Maoshong Sun, Si Li, Changlong Hao, Chunlai Xu, and Hua Kuang*

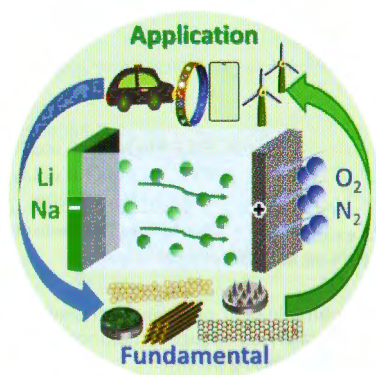
Chin. J. Chem. 2021, 39, 25–31. DOI: 10.1002/cjoc.202000392



Efforts towards Practical and Sustainable Li/Na-Air Batteries

Kai Chen, Gang Huang, and Xin-Bo Zhang*

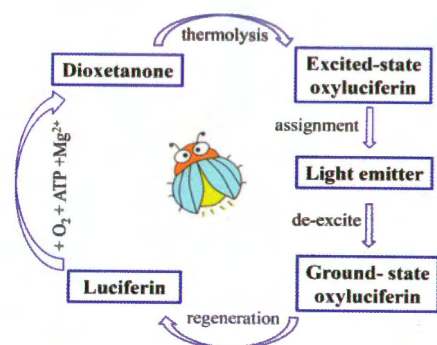
Chin. J. Chem. 2021, 39, 32–42. DOI: 10.1002/cjoc.202000408



Computational Bioluminescence

Yi-Qi Tang and Ya-Jun Liu*

Chin. J. Chem. 2021, 39, 43–49. DOI: 10.1002/cjoc.202000436



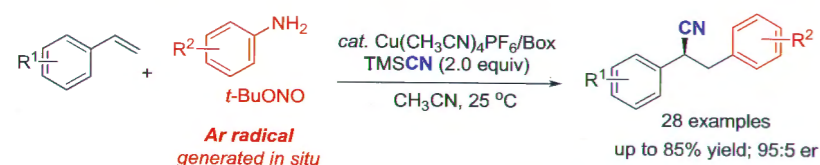
Bioluminescence is an amazing natural phenomenon and has been applied broadly. We have been devoting to the mechanistic investigation of bioluminescence. Here theoretical study on firefly bioluminescence was systematically introduced.

Concise Reports

Enantioselective Arylcyanation of Styrenes via Copper-Catalyzed Radical Relay

Weiwen Zhuang, Pinhong Chen, and Guosheng Liu*

Chin. J. Chem. 2021, 39, 50–54. DOI: 10.1002/cjoc.202000494

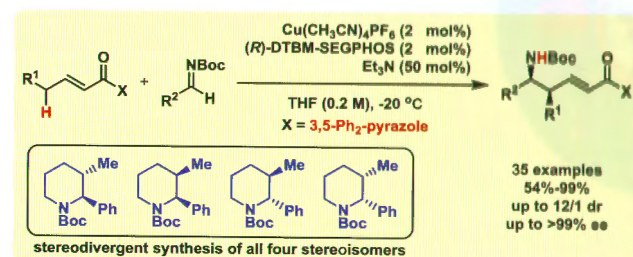


A copper-catalyzed enantioselective arylcyanation of styrenes was developed with the readily available anilines as aryl radical precursors under mild conditions, which allows the access of chiral 2,3-diaryl propionitriles with moderate to good enantioselectivities. This reaction exhibits broad substrate scope and functional group tolerance.

Catalytic Asymmetric Mannich-Type Reaction Enabled by Efficient Dienolization of α,β -Unsaturated Pyrazoleamides

Hai-Jun Zhang, Feng Zhong, Yan-Cheng Xie, and Liang Yin*

Chin. J. Chem. 2021, 39, 55–61. DOI: 10.1002/cjoc.202000432

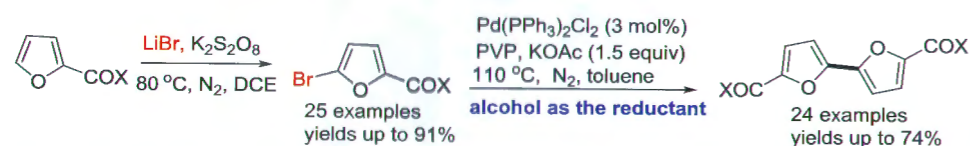


A catalytic asymmetric *syn*-selective vinylogous Mannich-type reaction is developed based on copper(I)-Et₃N-catalyzed facile dienolization of α,β -unsaturated pyrazoleamides. By using β,γ -unsaturated pyrazoleamide, α,β -unsaturated pyrazoleamide, (R)-DTBM-SEGPHOS, and (S)-DTBM-SEGPHOS, all four isomers of both the vinylogous product and a chiral 2,3-disubstituted piperidine are synthesized efficiently.

Synthesis of [2,2']Bifuran-5,5'-dicarboxylic Acid Esters via Reductive Homocoupling of 5-Bromofuran-2-carboxylates Using Alcohols as the Reductants

Yi Xie, Bin Yu, Jiajun Luo, Biaolin Yin,* and Huanfeng Jiang*

Chin. J. Chem. 2021, 39, 62–68. DOI: 10.1002/cjoc.202000303

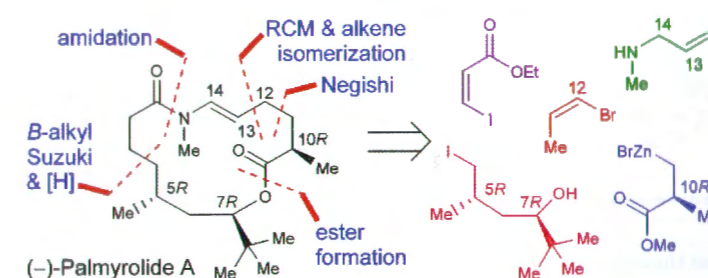


We developed an environmentally benign protocol for α -bromination of furan-2-carboxylates with LiBr and K₂S₂O₈ in good yields. The resulting 5-bromofuran-2-carboxylates further underwent palladium-catalyzed reductive homocoupling reactions in alcohols using as reductants to afford [2,2']bifuran-5,5'-dicarboxylic acid esters as the monomers of promising polymer.

Modular Total Synthesis of (–)-Palmyrolide A and (+)-(5S,7S)-Palmyrolide A via Ring-Closing Metathesis and Alkene Isomerization

Yecai Lai and Wei-Min Dai*

Chin. J. Chem. 2021, 39, 69–74. DOI: 10.1002/cjoc.202000458

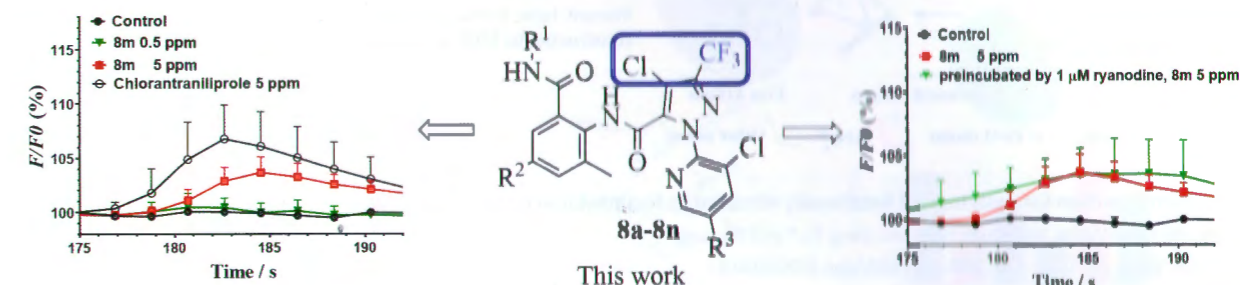


The skeleton of (–)-palmyrolide A is disassembled into five structural modules, each of which possesses two orthogonal functional groups and is ready for modular assembling reactions. Four of the five modules are commercial reagents, enabling concise synthesis of the target molecule.

Synthesis and Insecticidal Evaluation of Novel Anthranilic Diamides Derivatives Containing 4-Chlorine Substituted N-Pyridylpyrazole

Huangong Li, Yangyang Zhao, Pengwei Sun, Li Gao, Yuxin Li, Lixia Xiong, Na Yang, Sha Zhou,* and Zhengming Li*

Chin. J. Chem. 2021, 39, 75–80. DOI: 10.1002/cjoc.202000013

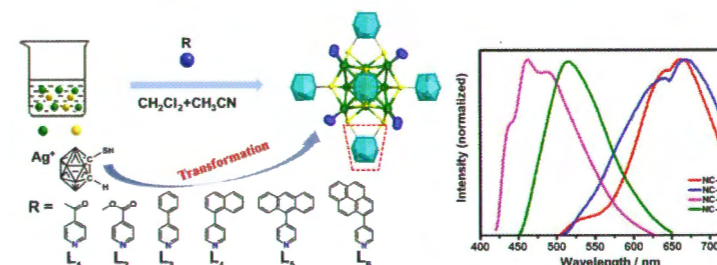


For diamondback moth, **8m** exhibited better activity than Chlorantraniliprole at a hundred fold preference. The calcium imaging technique experiment results suggested that compound **8m** could increase the intracellular [Ca²⁺]_i and further experiments confirmed that the target of this series of compounds could be RyRs in the central larvae neurons of oriental armyworm.

Luminescence Regulation of Silver-Thiolate Clusters Protected by 1,2-Dithiolate-*o*-carborane

Li-Juan Liu, Thomas C. W. Mak, and Shuang-Quan Zang*

Chin. J. Chem. 2021, 39, 81–86. DOI: 10.1002/cjoc.202000250

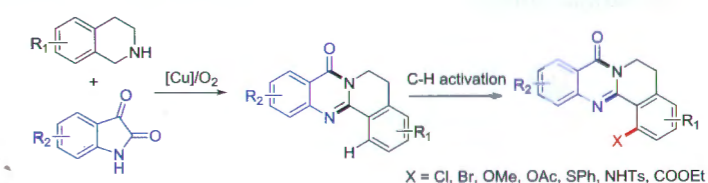


Wide-range photoluminescence modulation of an Ag₁₄ nanocluster was achieved by site-specific surface modification with a variety of fluorescent pyridyl ligands.

Copper-Catalyzed Aerobic Oxidative Ring Expansion of Isatins: A Facile Entry to Isoquinolino-Fused Quinazolinones

Dahan Wang, Fuhong Xiao,* Feng Zhang, Huawen Huang, and Guo-Jun Deng*

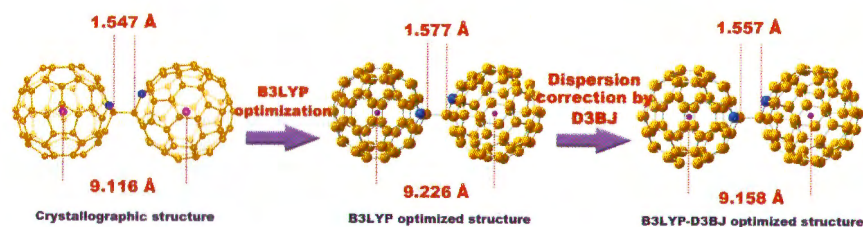
Chin. J. Chem. 2021, 39, 87–92. DOI: 10.1002/cjoc.202000368



Implications of Nitrogen Doping on Geometrical and Electronic Structure of the Fullerene Dimers

Yin Su, Zuo-Chang Chen, Han-Rui Tian, Yun-Yan Xu, Qianyan Zhang,* Su-Yuan Xie, and Lan-Sun Zheng

Chin. J. Chem. 2021, 39, 93–98. DOI: 10.1002/cjoc.202000345

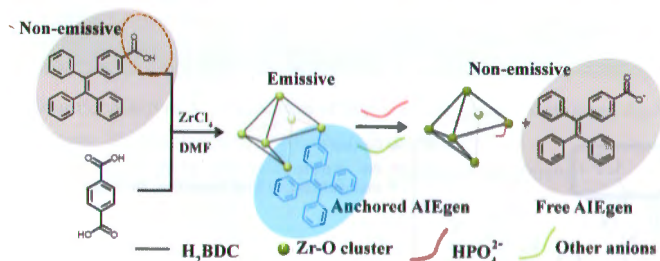


The structures of C_{60} dimer and its nitrogen doping species ($C_{59}N$)₂ are discussed in detail, and the differences between computational and experimental geometries are described. An accurate calculation method is suggested to correct the structural deviation between the theoretical results and the crystallographic data for the fullerene dimers.

Monodentate AlEgen Anchored on Metal-Organic Framework for Fast Fluorescence Sensing of Phosphate

Xinli Gao, Lei Pei, Wenjuan Xue, Hongliang Huang,* Zhuqing Gao, and Xudong Zhao*

Chin. J. Chem. 2021, 39, 99–105. DOI: 10.1002/cjoc.202000364

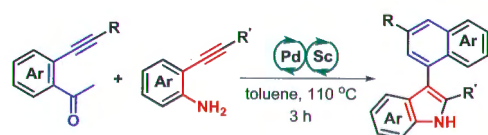


Present here is the selective sensing of HPO_4^{2-} by using a novel sensor constructed by MOF and monodentate AlEgen molecule.

Dual Palladium/Scandium Catalysis toward Rotationally Hindered C₃-Naphthylated Indoles from β -Alkynyl Ketones and *o*-Alkynyl Anilines

Dan Wang, Shi-Chao Wang, Wen-Juan Hao, Shu-Jiang Tu,* and Bo Jiang*

Chin. J. Chem. 2021, 39, 106–114. DOI: 10.1002/cjoc.202000304

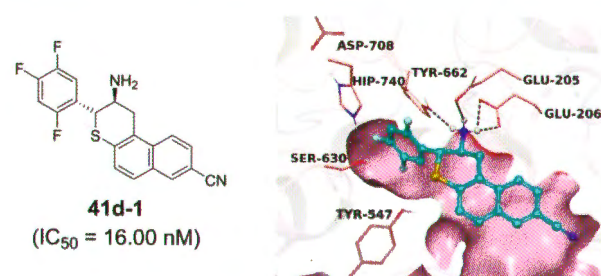


A new dual palladium/scandium catalysis starting from β -alkynyl ketones and *o*-alkynyl anilines is reported for the first time, leading to the atom-economic synthesis of rotationally hindered C₃-naphthylated indoles in moderate to good yields and high regioselectivity under mild conditions.

Design, Synthesis and SAR Studies of Novel and Potent Dipeptidyl Peptidase 4 Inhibitors

Na Luo, Xiaoyu Fang, Mingbo Su, Xinwen Zhang, Dan Li, Honglin Li, Shiliang Li,* and Zhenjiang Zhao*

Chin. J. Chem. 2021, 39, 115–120. DOI: 10.1002/cjoc.202000342

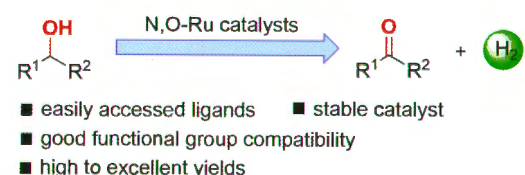


A novel DPP-4 inhibitor **41d-1** was based on the scaffold of dihydrobenzo[*f*]thiochromen amine with an IC_{50} value of 16.00 nM.

Ruthenium(II) Complexes Bearing Schiff Base Ligands for Efficient Acceptorless Dehydrogenation of Secondary Alcohols

Zhiqiang Hao, Kang Liu, Qi Feng, Qing Dong, Dongzhu Ma,* Zhangang Han, Guo-Liang Lu, and Jin Lin*

Chin. J. Chem. 2021, 39, 121–128. DOI: 10.1002/cjoc.202000363

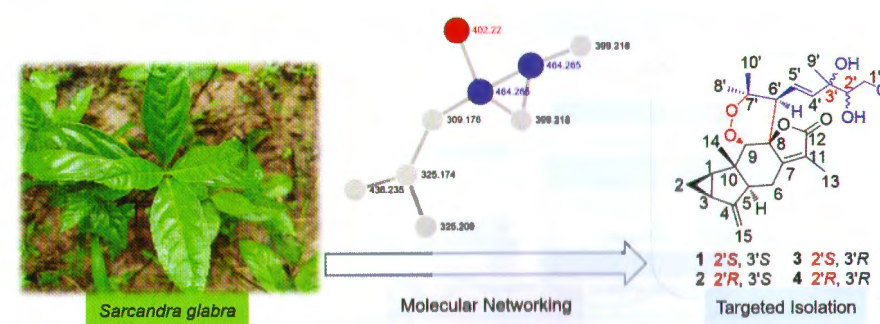


Four ruthenium(II) complexes **1–4** [RN=CH-(2,4-(*t*-Bu)₂C₆H₃O)]RuH(PPh₃)₂(CO) (R = C₆H₅, **1**; R = 4-MeC₆H₄, **2**; R = 4-ClC₆H₄, **3**; R = 4-BrC₆H₄, **4**) bearing Schiff base ligands were successfully synthesized. Their structures were fully characterized by elemental analysis, IR, NMR spectroscopy and X-ray crystallography. These Ru(II) complexes exhibit high catalytic performance and good functional-group compatibility in the acceptorless dehydrogenation of secondary alcohols, affording the corresponding ketones in 82%–94% yields.

Sarcaglarols A–D, Lindenane–Monoterpene Heterodimers from *Sarcandra glabra* Based on Molecular Networks

Yongyue Wang, Zhirong Cui, Jun Chi, Pengfei Tang, Meihui Zhang, Jixin Li, Yongyi Li, Hao Zhang, Jun Luo,* and Lingyi Kong*

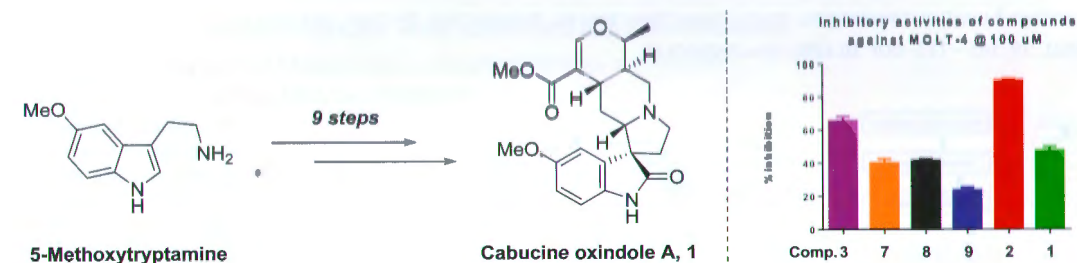
Chin. J. Chem. 2021, 39, 129–136. DOI: 10.1002/cjoc.202000456



Protecting-Group-Free Total Synthesis and Biological Investigation of Cabucine Oxindole A

Shengling Xie, Chengqing Ning, Qingzhen Yu, Jieping Hou, and Jing Xu*

Chin. J. Chem. 2021, 39, 137–142. DOI: 10.1002/cjoc.202000460

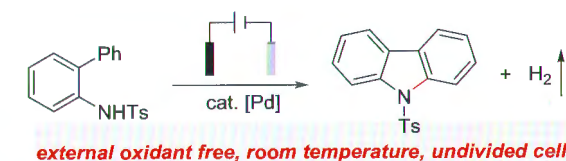


A concise, protecting-group free total synthesis of a putative natural spirooxindole alkaloid, cabucine oxindole A (**1**) is described. Biological investigation of **1** and its synthetic intermediates revealed that lactone **2** has mild inhibitory activity against MOLT-4 and MCF7 cell lines.

Electrochemical Palladium-Catalyzed Intramolecular C–H Amination of 2-Amidobiaryls for Synthesis of Carbazoles

Qingqing Wang, Xiaojing Zhang, Pan Wang, Xinlong Gao, Heng Zhang,* and Aiwen Lei*

Chin. J. Chem. 2021, 39, 143–148. DOI: 10.1002/cjoc.202000407

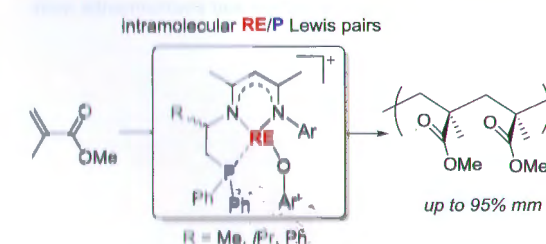


Comprehensive Reports

Isospecific Polymerization of Methyl Methacrylate by Intramolecular Rare-Earth Metal Based Lewis Pairs

Yiqun Zhou, Shengjie Jiang, and Xin Xu*

Chin. J. Chem. 2021, 39, 149–156. DOI: 10.1002/cjoc.202100441

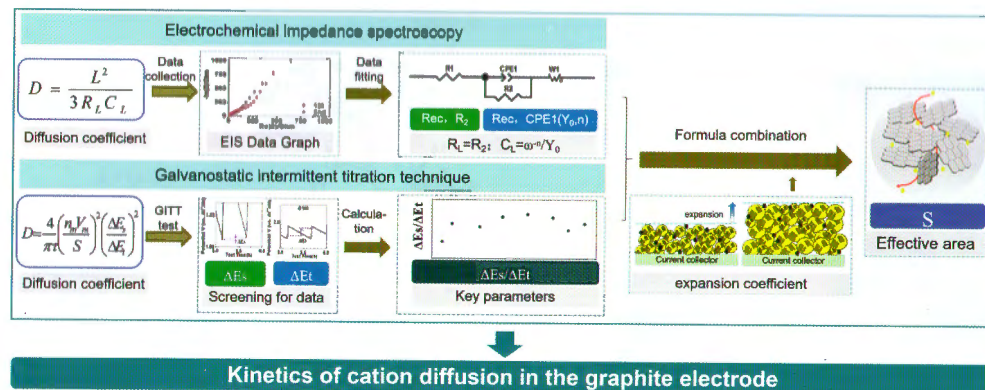


Cationic rare-earth aryloxide complexes based on tridentate NNP ligands are prepared and applied for RE/P Lewis pair polymerization of methyl methacrylate, which afford isotactic polymers when using ligands with substituent on the pendant arm.

Initial Electrode Kinetics of Anion Intercalation and De-intercalation in Nonaqueous Al-Graphite Batteries

Dan Han, Mao-Sheng Cao,* Na Li, Dong-Mei She, Wei-Li Song,* Haosen Chen, Shuqiang Jiao,* and Daining Fang

Chin. J. Chem. 2021, 39, 157–164. DOI: 10.1002/cjoc.202000389



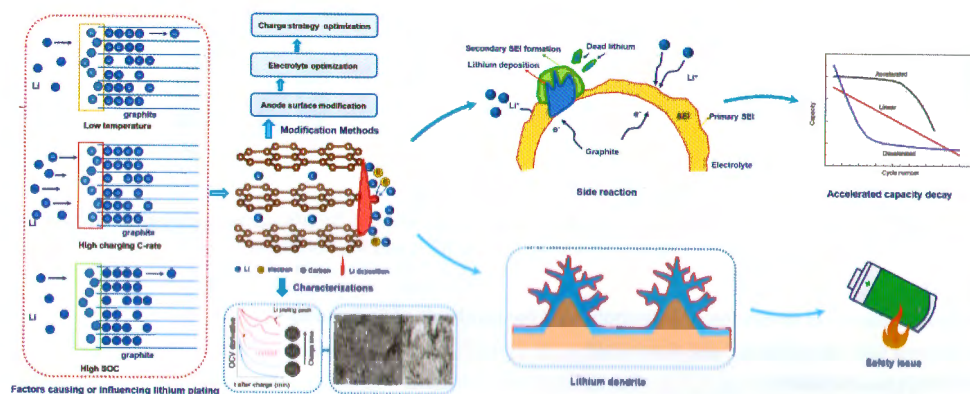
A combined method upon galvanostatic intermittent titration technique and electrochemical impedance spectroscopy has been carried out. As a consequence, more diffusion coefficient at more states could be also calculated. Ultimately, the kinetic parameters including the evolution of transport/reaction resistivity as well as the diffusion coefficient could be determined, and whereby the irreversible ability from the electrochemical kinetics could be well understood.

Recent Advances

Research Progress of Lithium Plating on Graphite Anode in Lithium-Ion Batteries

Daozhong Hu, Lai Chen,* Jun Tian,* Yuefeng Su, Ning Li, Gang Chen, Yulu Hu, Yueshan Dou, Shi Chen, and Feng Wu

Chin. J. Chem. 2021, 39, 165–173. DOI: 10.1002/cjoc.202000512

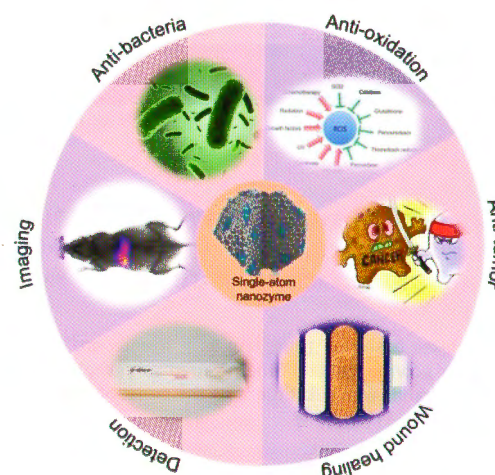


This review focuses on research advances of lithium plating on graphite anode, including the forming mechanisms of Li deposition, corresponding influence factors, detecting methods and hazard of Li plating. Moreover, approaches to suppress Li plating are summarized, including anode surface modification, electrolyte composition optimization and development of optimal charge strategies. The remaining challenges and prospects in terms of mechanism research, detecting approaches, and suppressing methods of Li plating are concluded and proposed.

Advances in Single-Atom Nanozymes Research

Bing Jiang and Minmin Liang*

Chin. J. Chem. 2021, 39, 174–180. DOI: 10.1002/cjoc.202000383

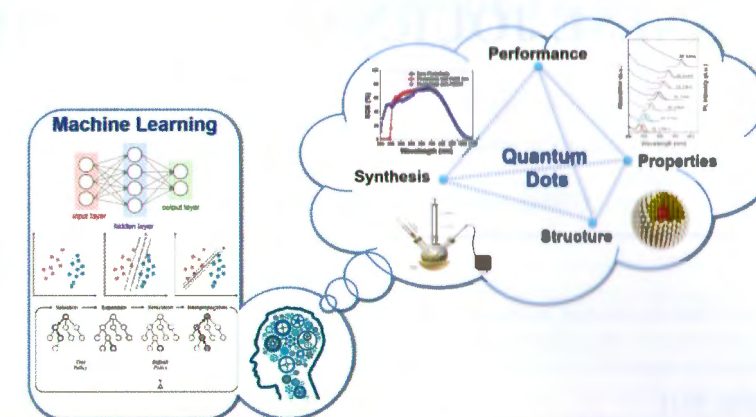


Single-atom nanozymes with extraordinary enzyme-like catalytic characteristics have opened up a broad range of applications from biological detection and environmental monitoring to disease diagnosis and biomedicine development.

How Machine Learning Accelerates the Development of Quantum Dots?

Jia Peng, Ramzan Muhammad, Shu-Liang Wang,* and Hai-Zheng Zhong*

Chin. J. Chem. 2021, 39, 181–188. DOI: 10.1002/cjoc.202000393

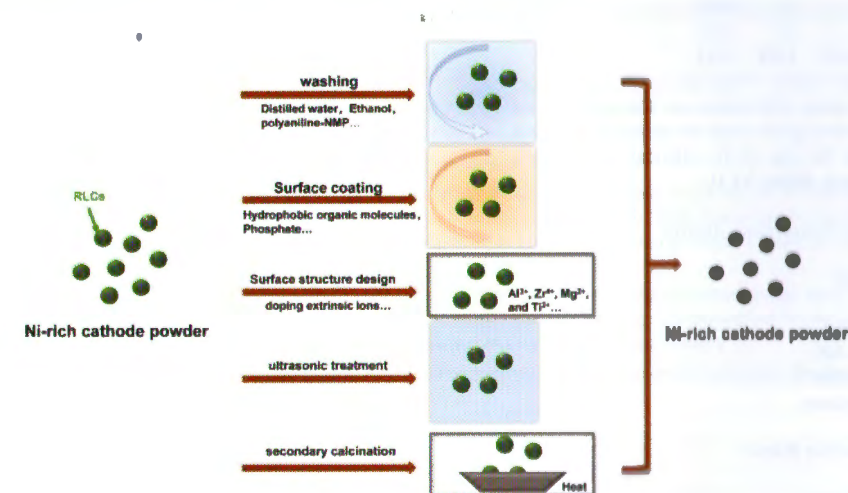


Critical Review

Strategies of Removing Residual Lithium Compounds on the Surface of Ni-Rich Cathode Materials

Yuefeng Su, Linwei Li, Gang Chen, Lai Chen,* Ning Li, Yun Lu, Liying Bao, Shi Chen, and Feng Wu

Chin. J. Chem. 2021, 39, 189–198. DOI: 10.1002/cjoc.202000386



Meeting the 2020 XPLOER PRIZE Winners (Chemistry and New Materials) (pages 199–203)