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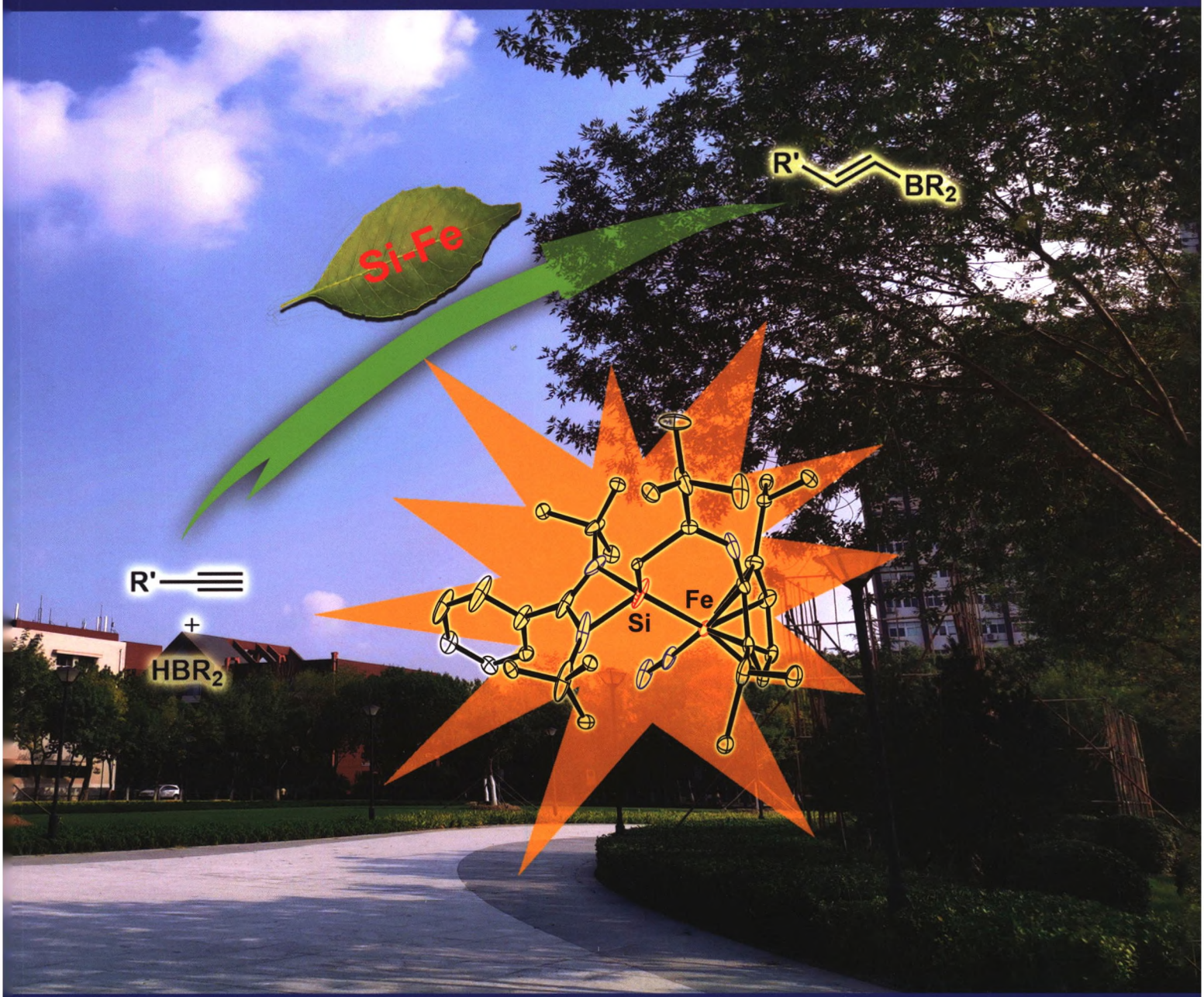

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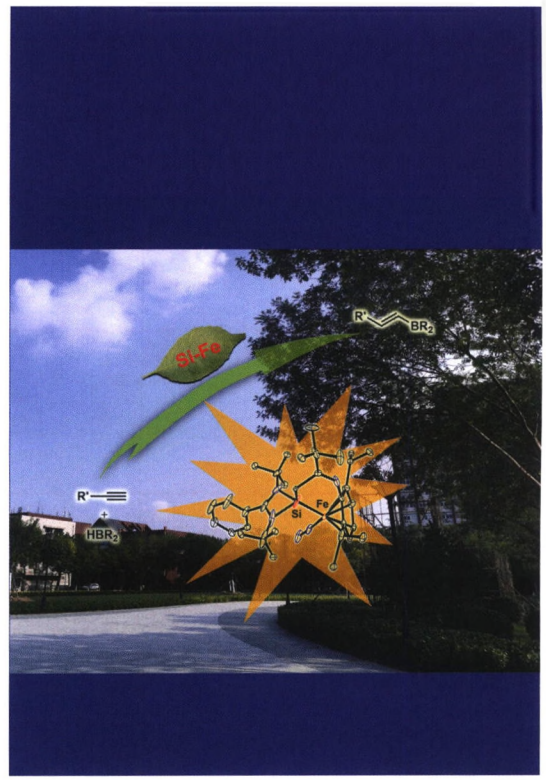
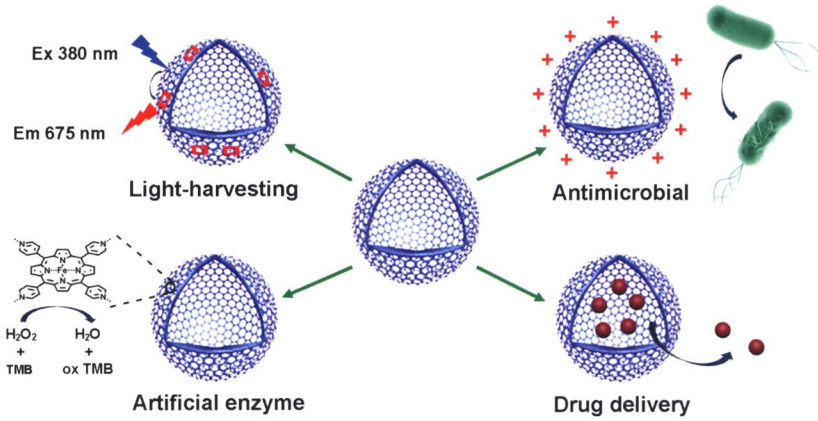


On the cover: Silylenes are isoelectronic with carbenes and potentially powerful for molecular catalysis. The structural analysis discloses the strong interactions of the Si ligand with iron center, which is essential for the control and tuning of catalytic selectivity and activity. The combination of the abundant and nontoxic iron and silicon for catalysis is in line with the concept of the sustainable chemistry. [Cui, Chunming *et al.* on page 763-766.]

Account

Novel Covalent Cross-linked Nanocapsules: Fabrication, Modulation and Functions



Cross-linked polymeric nanocapsules

Yan, Tengfei; Liu, Junqiu*

Acta Chim. Sinica **2020**, *78*(8), 713-718

A novel kind of monomolecular layer nanocapsules were prepared by the covalent self-assembly of the horizontal cross-linking of rigid building blocks and flexible cross-linkers in certain conditions. We have explored the potential application of these polymeric nanocapsules in the area of light harvesting, artificial enzyme, antimicrobial and drug delivery.

Perspective

Challenges and Perspective on Ring-Opening Polymerization-Induced Self-Assembly

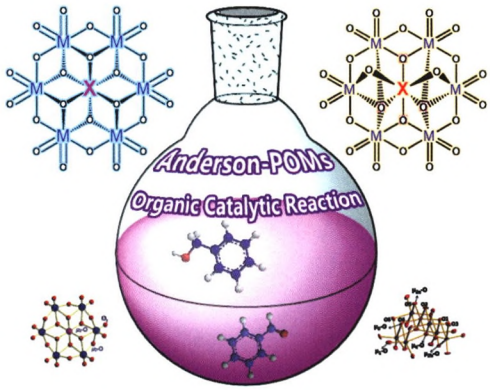
Ring-opening polymerization-induced self-assembly (ROPISA) is a cutting-edge technique for the preparation of various nanoparticle morphologies (spheres, worms and vesicles) for biomedical applications. Novel ROPISA approaches include ring-opening metathesis polymerization-induced self-assembly (ROMPISA), ring-opening polymerization of *N*-carboxyanhydride-induced self-assembly (NCA-PISA), radical ring-opening polymerization-induced self-assembly (rROPISA), and others ("**X**" stands for the new types of ROPISA which should be explored in the near future).

Jiang, Jinhui; Zhu, Yunqing*; Du, Jianzhong*

Acta Chim. Sinica **2020**, *78*(8), 719-724

Review

Application of Anderson Type Heteropoly Acids as Catalysts in Organic Synthesis

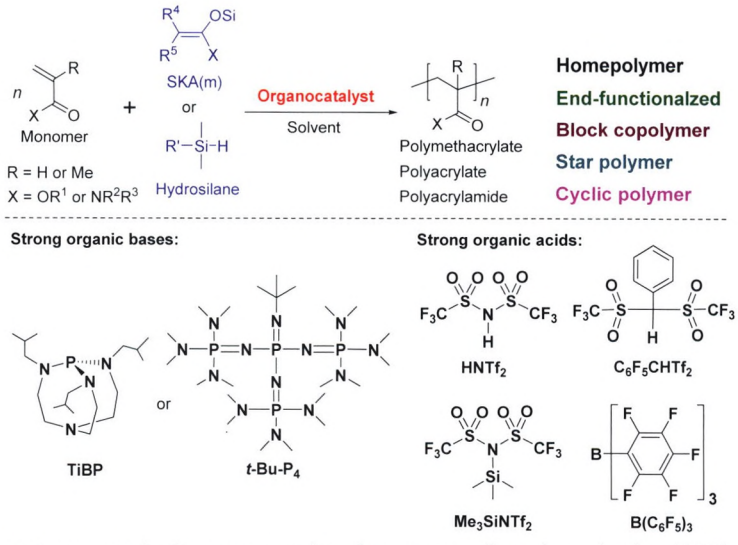


Anderson type heteropoly acids (general formula: $[XM_6O_{24}]^{n-}$) is a kind of polymetallic oxygen cluster inorganic compound with special structure and properties. Since its molecular structure is easy to be chemically modified and can be designed, the application of Anderson type heteropoly acids in catalytic organic oxidation reaction is of great significance to the study of green catalytic process.

Wei, Zheyu; Chang, Yalin; Yu, Han*; Han, Sheng*; Wei, Yongge*

Acta Chim. Sinica **2020**, *78*(8), 725-732

Recent Progress of Organocatalyzed Group Transfer Polymerization

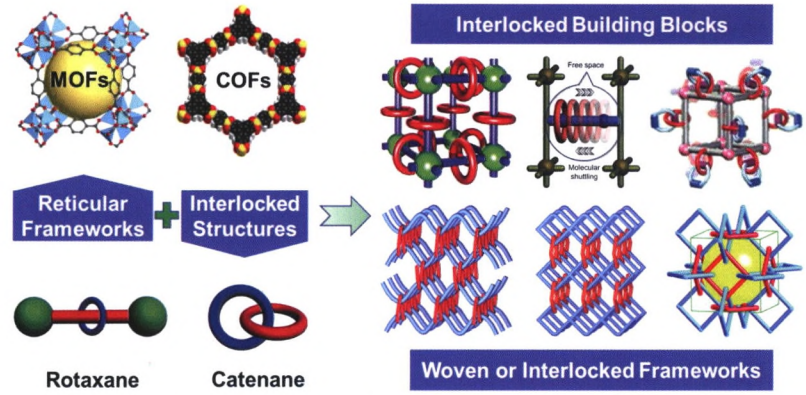


The recent progress in the organocatalyzed group transfer polymerization (GTP), either using strong organic bases or strong Brønsted/Lewis acids is summarized. The details about the polymerizable monomers, the control over molecular weight and molecular weight distribution, polymerization mechanism, and the accurate preparation of end-functionalized, block, star, as well as cyclic polymers are also discussed.

Chen, Yougen*; Ding, Yuansheng

Acta Chim. Sinica **2020**, *78*(8), 733-745

Mechanically Interlocked Structures within Reticular Frameworks



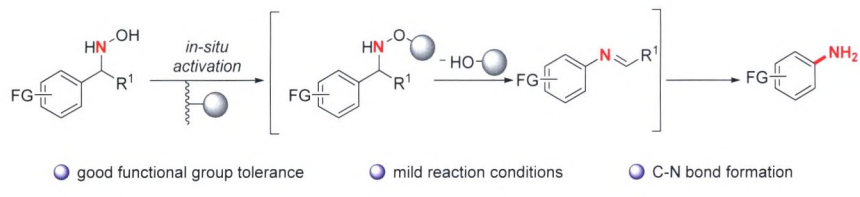
The combination of reticular frameworks and mechanically interlocked structures can promote the basic research of the microscopic interlocked behaviors in solid states; and also organize the interlocked structures in a regular way to achieve more complex functions. The mechanically interlocked structures can be introduced into reticular frameworks in two strategies, using mechanically interlocked structures as building blocks participating in the construction of reticular frameworks; and forming woven or interlocked frameworks through mechanical interaction within whole framework skeleton from unlocked precursors.

Wang, Youfu*; Liu, Hanghai; Zhu, Xinyuan

Acta Chim. Sinica **2020**, *78*(8), 746-757

Communication

From Hydroxylamine to Anilines via Trifluoroacetic Anhydride (TFAA) Assisted Stieglitz Rearrangement

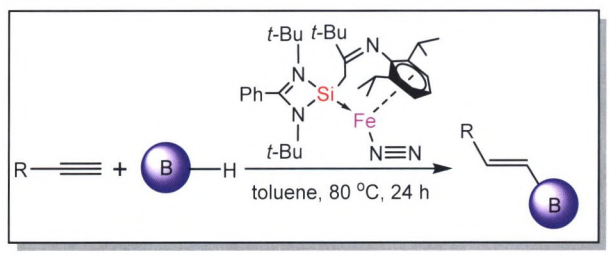


Luo, Xiao; Jiao, Ning*

Acta Chim. Sinica **2020**, *78*(8), 758-762

Article

Selective Hydroboration of Alkynes Enabled by a Silylene Iron(0) Dinitrogen Complex

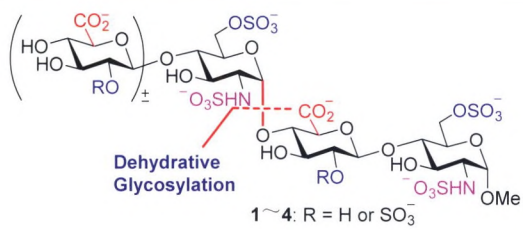


Bai, Yunping, Cui, Chunming*

Acta Chim. Sinica **2020**, *78*(8), 763-766

The neutral silylene-imine iron(0) dinitrogen complex enabled catalytic hydroborylation of terminal alkynes.

Synthesis of Oligosaccharides Relevant to the Substrates of Heparanase via Dehydrative Glycosylation

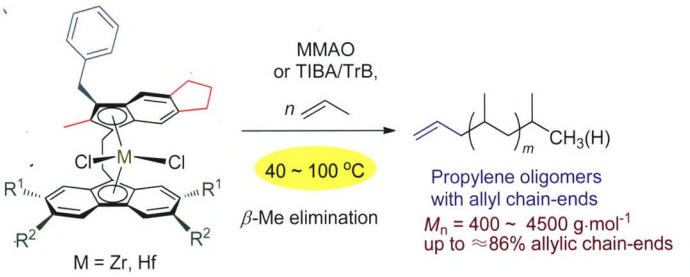


An efficient approach to chemical synthesis of oligosaccharides relevant to the substrates of heparinase has been developed. Dehydrative glycosylation to construct α-(1→4) glycosidic linkages are achieved to provide the coupled tri- and tetrasaccharide **5**~**8** (>65% yield, α/β>5.4/1.0). The fully elaborated oligosaccharide **5**~**8** have been successfully transformed to the target oligosaccharide **1**~**4** via an effective manipulation of the protecting groups, including saponification (for benzyl ester and benzoyl group), *O*-sulfonation (for hydroxyl groups), reduction and *N*-sulfonation (for azido group), and hydrogenolysis (for benzyl groups) (>52% yield for 5 steps).

Xu, Weichang; Liu, Wei; Li, Xiang; Xu, Peng*; Yu, Biao*

Acta Chim. Sinica **2020**, *78*(8), 767-777

Ethylene-Bridged Multi-Substituted Indenyl-Fluorenyl Zirconocene and Hafnocene Complexes: Synthesis, Structure and Catalytic Behavior for Propylene Selective Oligomerization

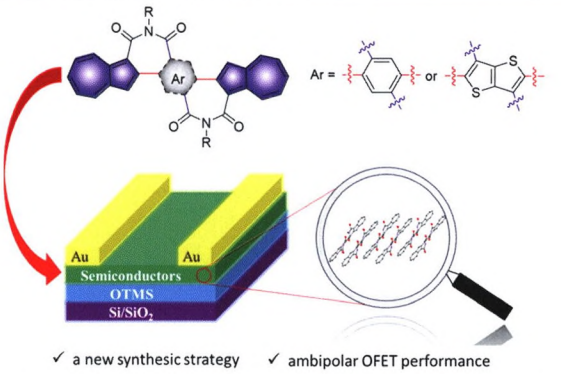


Zhang, Lei; Ma, Haiyan*

Acta Chim. Sinica **2020**, *78*(8), 778-787

Novel bridged indenyl-fluorenyl metallocene complexes have been synthesized. Upon activation with MMAO or $Al^iBu_3/[Ph_3C][B(C_6F_5)_4]$, most of these complexes demonstrate high efficiency for propylene oligomerization, selectively affording allyl-terminated oligomers via β-methyl elimination (up to 86%).

Design, Synthesis and Field Effect Characteristics of Diazulene Diimides Bridged by Aromatic Group

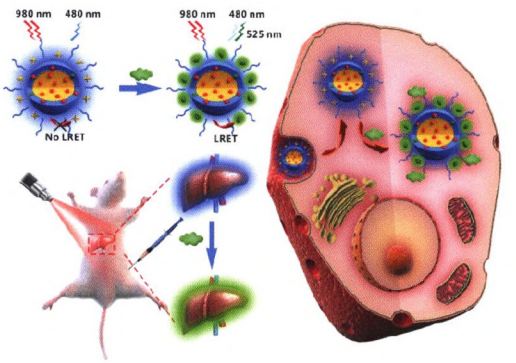


Hou, Bin; Li, Jing; Xin, Hanshen; Yang, Xiaodi*; Gao, Honglei; Peng, Peizhen; Gao, Xike*

Acta Chim. Sinica **2020**, *78*(8), 788-796

New azulene-based diimides bridged by aromatic group were designed and synthesized by using the different reactivity of each site in azulene. Single crystal analysis of a model compound revealed the twisted molecular backbone and one-dimensional (1D) packing motif. Organic field-effect transistors based on these diimides display electron-dominated ambipolar charge transport behaviors.

A Ratiometric Upconversion Nanoprobe for Detection of HNO Based on Luminescence Resonance Energy Transfer

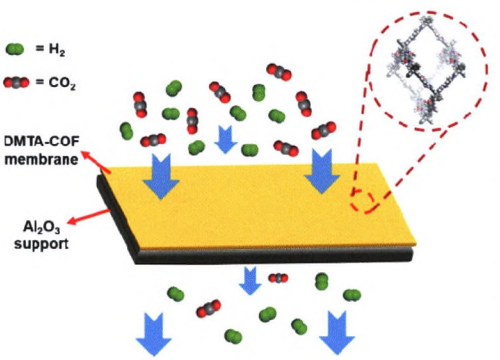


Wang, Peipei; Liang, Tao; Zuo, Miaomiao; Li, Zhen*; Liu, Zhihong*

Acta Chim. Sinica **2020**, *78*(8), 797-804

A luminescence resonance energy transfer (LRET)-based ratiometric upconversion probe for nitroxyl (HNO) detection has been designed with a decreased donor's emission and an increased acceptor's emission, which has the potential to detect HNO in living systems.

Fabrication of a Novel Covalent Organic Framework Membrane and Its Gas Separation Performance



Fu, Jingru; Ben, Teng*

Acta Chim. Sinica **2020**, *78*(8), 805-814

A novel and defect-free COF membrane on the surface of porous Al_2O_3 support modified with polyaniline utilizing the covalent linkage was synthesized. The COF membrane exhibited high affinity for CO_2 adsorption because of the abundant of ether oxygen groups in the framework. Finally, the DMTA-COF membrane displayed an outstanding gas separation performance for H_2/CO_2 mixture on the basis of the synergistic effect of adsorption and sieving.

