

基本信息

姓名	曹洁	
职务		
职称	副教授	
学术兼职	《质谱学报》编委	
联系电话		
电子邮件	jcao@bit.edu.cn	
系/研究所	分析化学研究所	

教育背景

1996.09-2001.03	渥太华大学，化学专业，理学博士
1986.09-1989.06	南开大学，化学专业，理学硕士
1982.09-1989.06	南开大学，化学专业，理学学士

工作经历

2009.10-至今	北京理工大学化学与化工学院，副教授
2004.05-2009.10	中国科学院大学化学与化工学院，副教授
2000.11-2002.04	渥太华大学，化学系，博士后

研究方向

1.	质谱 <ul style="list-style-type: none">➢ 无机/有机/生物分子的结构表征➢ 反应机理研究➢ 手性识别➢ 界面催化及反应质谱
2.	色谱法分离手性化合物
3.	纳米催化剂的可控合成及其在环境污染物去除等方面的应用

荣誉奖励

1.	获中国科学院教学成果奖二等奖
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承担项目

1.	国家自然科学基金 (21371025)
2.	教育部留学回国基金项目
3.	教育部重点项目
4.	973 计划前期研究专项
5.	中国科学院院长基金

研究成果

主持国家自然科学基金项目、教育部留学回国基金项目和中国科学院院长基金项目各 1 项；参与教育部重点项目等 3 项。迄今在国内外学术刊物及会议上发表学术论文 38 篇，其中 SCI 收录 31 篇，EI 收录 7 篇，获授权国家发明专利 2 项。

代表性论文

1.	J. Cao* , Q.Q. Wang, S.Q. An, S.F. Lu and Q.Z. Jia, Facile and efficient preparation of organoimido derivatives of $[\text{Mo}_6\text{O}_{19}]^{2-}$ using accelerated reactions in Leidenfrost droplets, <i>Analyst</i> , 2020 , 145, 4844-4851.
2.	S.Q. An, S. Liu, J. Cao* , S.F. Lu, Nitrogen-Activated Oxidation in Nitrogen Direct Analysis in Real Time Mass Spectrometry (DART-MS) and Rapid Detection of Explosives Using Thermal Desorption DART-MS, <i>J. Am. Soc. Mass Spectrom.</i> , 2019 , 30, 2092-2100.
3.	Y.X. Fan, S.F. Lu, J. Cao* , A novel inorganic-organic hybrid complex between polyoxometalate and cyclodextrin: Synthesis, structure and catalytic activity, <i>Int. J. Mass spectrom.</i> , 2019 , 435, 163-167.
4.	J. Cao* , Q.Q. Wang, C. Liu, S.Q. An, Gas-phase chemistry of arylimido-functionalized hexamolybdates $[\text{Mo}_6\text{O}_{19}]^{2-}$. <i>J. Am. Soc. Mass Spectrom.</i> , 2018 , 29, 1331-1334.
5.	J. Cao* , C. Liu, Q.Q. Wang, Y.Z. Li, Q. Yu. A novel catalytic application of heteropolyacids: chemical transformation of major ginsenosides into rare ginsenosides exemplified by $\text{R}_{\text{g}1}$. <i>Sci. China Chem.</i> , 2017 , 60 (6): 748-753.
6.	C. Liu, J. Cao* , Q.Q. Wang, and J.C. Zang, C.G. Ci*. Effect of vanadium valence state on the solution chemistry and the stability of vanadium substituted polyoxometalates. <i>RSC Adv.</i> , 2016 , 6, 110922-110927.
7.	J. Cao* , C. Liu and Q.D. Jia. Complex solution chemistry behind the simple “one-pot” synthesis of vanadium-substituted polyoxometalates unraveled by electrospray ionization mass spectrometry. <i>Rapid Commun. Mass Spectrom.</i> , 2016 , 30 (Suppl. 1), 14-19.
8.	L.Y. Fan, Y.Y. Hong, J. Cao* and C.W. Hu*. Investigation into the mechanism of polyoxotungstates-catalyzed cyclooctene epoxidation by ESI-MS. <i>RSC Adv.</i> , 2016 , 6, 56656-56660.

9.	J. Cao* , C. Xu, C. Liu, W.Q. Liu. Cation-anion interactions and synergistic catalysis by supramolecular polyoxometalate complexes [C ₁₀ H ₁₈ N] _n [XM ₁₂ O ₄₀]. <i>ChemistrySelect</i> , 2016 , 6, 1268-1272.
10.	L.Y. Fan [†] , Z.G. Lin [†] , J. Cao* and C.W. Hu*. Probing the self-assembly mechanism of Lanthanide-containing sandwich-Type silicotungstates [$\{\text{Ln}(\text{H}_2\text{O})_n\}_2\{\text{Mn}_4(\text{B}-\alpha\text{-SiW}_9\text{O}_{34})_2(\text{H}_2\text{O})_2\}$] ⁶⁻ using time-resolved mass spectrometry and X-ray crystallography. <i>Inorg. Chem.</i> , 2016 , 55 (6), 2900-2908 (†Equal contribution).
11.	L.Y. Fan, J. Cao* and C.W. Hu*. <u>What can electrospray mass spectrometry of paratungstates in an equilibrating mixture tell us?</u> <i>RSC Adv.</i> , 2015 , 5, 83377-83382.
12.	Y.X. Fan, Y. Zhang, Q.D. Jia, J. Cao* , W.J. Wu*. The stabilizing role of cyclodextrins on Keggin phosphotungstic acid by complexation unveiled by electrospray mass spectrometry. <i>Mass Spectrom. Lett.</i> , 2015 , 6(1), 13-16.
13.	Q.D. Jia, Y. Zhang, J. Cao* . Characterization of polyoxometalates by electrospray ionization mass spectrometry. <i>Sci. China Chem.</i> , 2015 , 58(7), 1206-1210.
14.	Q.D. Jia, J. Cao* , Y.P. Duan and C.W. Hu*. The solution chemistry and reactivity of lacunary Keggin silicotungstates monitored in real-time by a combination of mass spectrometry and electrochemistry. <i>Dalton Trans.</i> , 2015 , 44, 553-559.
15.	J. Cao* , C. Xu, Y.X. Fan, L.Y. Fan, X.H. Zhang* and C.W. Hu. Selective production of electrostatically-bound adducts of alkyl cations/polyoxoanions by the collision induced fragmentations of their quaternary ammonium counterparts. <i>J. Am. Soc. Mass Spectrom.</i> , 2013 , 24, 884-894.
16.	J. Cao* , C.C Li, Z.X. Zhang, C. Xu, J. Yan, F.Y. Cui, C.W. Hu*. Intriguing role of a quaternary ammonium cation in the dissociation chemistry of Keggin polyoxometalate anions. <i>J. Am. Soc. Mass Spectrom.</i> , 2012 , 23, 366-374.
17.	X.F. Wang [†] , J. Cao[†] , K.L. Huang, Y.Q. Xu, Y.N. Chi*, C.W. Hu*. A novel 3D coordination polymer from [HW ₇ O ₂₄] ⁵⁻ stabilized by copper(II)-complex and sodium cations: structure, solid-state stability and aqueous solution behavior. <i>Eur. J. Inorg. Chem.</i> , 2013 , 1788-1792 (†Equal contribution).
18.	J. Cao* , R.F Xu, H. Tang, S.S. Tang, M.H. Cao*. Synthesis of monodispersed CMC-stabilized Fe–Cu bimetal nanoparticles for in situ reductive dechlorination of 1, 2, 4-trichlorobenzene. <i>Sci. Total Environ.</i> , 2011 , 409, 2336-2341.
19.	X.M. Hu, Q. Chen, D. Zhou, J. Cao* , Y.J. He*, B.H. Han*. One-step preparation of fluorescent inorganic–organic hybrid material used for explosive sensing. <i>Polym. Chem.</i> , 2011 , 2, 1124-1128.
20.	X.M. Hu, Q. Chen, J.X. Wang, Q.Y. Cheng, C.G. Yan, J. Cao* , Y.J. He*, B.H. Han*. Tetraphenylethylene-based glycoconjugate as a fluorescence “turn-on” sensor for cholera toxin. <i>Chem. Asian J.</i> , 2011 , 6, 2376-2381.

21.	Q. Chen, Y. Cui, T.L. Zhang, J. Cao [*] , B.H. Han [*] . Fluorescent conjugated polyfluorene with pendant lactopyranosyl ligands for studies of Ca ²⁺ -mediated carbohydrate-carbohydrate interaction. <i>Biomacromolecules</i> , 2010 , 11, 13-19.
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23.	Q. Yu, J. Cao [*] , G. Lu, Z.X. Wang [*] . The role of central ion in the chiral recognition by taking phenylalanine as an example. <i>Sci. China Chem.</i> , 2009 , 52(8), 1136-1141.
24.	C. Xu, Y.X. Fan, L.Y. Fan, J. Cao [*] , C.W. Hu [*] . Application of Mass Spectrometry in Polyoxometalate Chemistry. <i>Progress In Chemistry</i> , 2013 , 25(5), 809-820.
25	于擎, 曹洁 [*] , 张成根. 三元非对映异构体复合物的直接实验证据及其在对映体手性分离中的作用. <i>高等学校化学学报</i> , 2009 , 30(5), 988-991.