

# Shengqian Ma (马胜前)

Full Professor

Robert A. Welch Chair in Chemistry

Department of Chemistry, University of North Texas

CHEM 305D

1508 W Mulberry St, Denton, TX 76201

Phone: 940-369-7137; Fax: 940-565-4318

E-mail: [Shengqian.Ma@unt.edu](mailto:Shengqian.Ma@unt.edu)

Research Group Webpage: [www.chemistry.unt.edu/~sqma](http://www.chemistry.unt.edu/~sqma)

Research ID: B-4022-2012

Google Scholar: [http://scholar.google.com/citations?user=YrK\\_O3IAAAAJ](http://scholar.google.com/citations?user=YrK_O3IAAAAJ)

## Biographical Sketch



Shengqian Ma obtained his B.S. degree from Jilin University, China in 2003, and graduated from Miami University (Ohio) with a Ph.D. degree under the supervision of Hong-Cai Joe Zhou (currently at Texas A&M University) in 2008. After finishing two-year Director's Postdoctoral Fellowship at Argonne National Laboratory, he joined the Department of Chemistry at University of South Florida (USF) as an Assistant Professor in August 2010. He was promoted to an Associate Professor with early tenure in 2015 and to a Full Professor in 2018. In August 2020, he joined the Department of Chemistry at University of North Texas (UNT) as the Robert A. Welch Chair in Chemistry.

He received the 2015 USF *Faculty Outstanding Research Achievement Award* and 2018 **Outstanding Faculty Award**. He is the recipient of 2014 *NSF CAREER Award* and has been selected as the Clarivate/Thomson Reuters *Highly Cited Researcher* in 2014, 2015, 2016, 2017, 2018, 2019, 2020, and 2021; he was also awarded the *IUPAC-2015 Young Chemist Travel Award* and the **2009 IUPAC Prize for Young Chemists** from International Union of Pure & Applied Chemistry (IUPAC); he received the *Young Investigator Award* from American Chemical Society (ACS) Division of Inorganic Chemistry and the *Director's Postdoctoral Fellowship* from Argonne National Laboratory in 2008 as well.

His current research interest focuses on the development of functional porous materials including metal-organic frameworks (MOFs), covalent organic frameworks (COFs), porous organic polymers (POPs), and microporous carbon materials for energy, biological, environmental-related applications. He has published more than 300 papers (over 260 since independent career) with the total citations over 36000 and the H-index of 100.

## Education

2003 Jilin University, Changchun, China, BS in Applied Chemistry

2008 Miami University, Oxford, OH, PhD in Chemistry (Advisor: Hong-Cai Joe Zhou)

## Professional Experience

2001-2003 *Undergraduate Research Assistant*, State Key Laboratory of Inorganic Synthesis and Preparative Chemistry, Jilin University, China (Supervisor: Feng-Shou Xiao)

2003-2008 *Graduate Research Assistant*, Department of Chemistry & Biochemistry, Miami University, Oxford, OH (Advisor: Hong-Cai Joe Zhou)

2008-2010 *Director's Postdoctoral Fellow*, Argonne National Laboratory, Argonne, IL (Supervisor: Dijia Liu)

2010-2015 *Assistant Professor*, Department of Chemistry, University of South Florida, Tampa, FL

2015-2018 *Associate Professor*, Department of Chemistry, University of South Florida, Tampa, FL

2018-2020 *Full Professor*, Department of Chemistry, University of South Florida, Tampa, FL

2020-present *Full Professor and Welch Chair in Chemistry*, Department of Chemistry, University of North Texas, Denton, TX

## Honors and Awards

- **Web of Science/Clarivate Highly Cited Researcher (2022)**
- **2022 Top 2% of Scientists on Stanford University List**
- **Web of Science/Clarivate Highly Cited Researcher (2021)**
- **2021 Top 2% of Scientists on Stanford University List**
- **Featured on Author Spotlight of *CCS Chemistry* (2021)**
- **Web of Science/Clarivate Cited Researcher (2020)**
- **Featured on Author Profile of *Angewandte Chemie* (2019)**
- **Gordon Lectureship, Department of Chemistry and Biochemistry, Miami University (2019)**
- **Web of Science/Clarivate Highly Cited Researcher (2019)**
- **Web of Science/Clarivate Highly Cited Researcher (2018)**
- **Outstanding Faculty Award, University of South Florida (2018)**
- **Web of Science/Clarivate Highly Cited Researcher (2017)**
- **Web of Science/Clarivate Highly Cited Researcher (2016)**

- *Inorganic Chemistry Frontiers* 'Emerging Investigator' (2016)
- Web of Science/Clarivate/Thomson Reuters Highly Cited Researcher (2015)
- Faculty Outstanding Research Achievement Award, University of South Florida (2015)
- Young Chemist Travel Award from IUPAC (2015)
- Web of Science/Clarivate/Thomson Reuters Highly Cited Researcher and The World's Most Influential Scientific Minds (2014)
- NSF CAREER Award (2014)
- Visiting Scholar of National Research Council of Taiwan (2014)
- ChemComm 'Emerging Investigator' (2014)
- Faculty Research & Development Award, University of South Florida (2011, 2013, 2014)
- 2009 IUPAC Prize for Young Chemists from IUPAC (2009)
- Young Investigator Award from ACS Division of Inorganic Chemistry (2008)
- Director's Postdoctoral Fellowship of Argonne National Laboratory (2008-2010)
- Chinese Government Award for Outstanding Self-financed Students Abroad of Year 2007 (2008)
- Sigma Xi Grant-in-Aid of Research Award from Sigma Xi, The Scientific Research Society (2007-2008)
- Dissertation Scholarship, Miami University (2007-2008)
- Marjorie Post Farrington Scholarship, Miami University (2007-2008)
- Graduate Student Achievement Award, Miami University (2006-2007)
- Student Initiative Fund Award, Miami University (2007)
- Student Travel Award from the ACS Division of Inorganic Chemistry (2007)
- The Miami Co-Op Book Store Award, Miami University (2004)
- The William Hale Charch Scholarship, Miami University (2003-2004)
- Outstanding Undergraduate Scholarship, Jilin University (2000-2003)

## PUBLICATIONS

### Peer Reviewed PAPERS (Total Citations: +36000; H-index: 100)

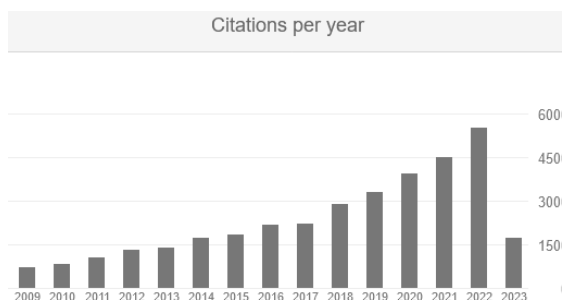
#### Highlights:

100 papers have been cited over 100 times.

45 papers have been cited over 200 times.

30 papers have been cited over 300 times.

18 papers have been cited over 400 times.  
 13 papers have been cited over 500 times.  
 7 papers have been cited over 600 times.  
 6 papers have been cited over 700 times.  
 4 papers have been cited over 900 times.  
 3 papers have been cited over 1000 times.



#### As an Independent Investigator:

1. "A Microporous Metal-Organic Framework with Unique Aromatic Pore Surfaces for High Performance C<sub>2</sub>H<sub>6</sub>/C<sub>2</sub>H<sub>4</sub> Separation" Ye, Y.; Xie, Y.; Shi, Y.; Gong, L.; Phipps, J.; Al-Enizi, A. M.; Nafady, A.; Chen, B.\*; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2023**, 62, e202302564.
2. "Tuning Excited State Electronic Structure and Charge Transport in Covalent Organic Frameworks for Enhanced Photocatalytic Performance" Chen, Z.; Wang, J.; Hao, M.; Xie, Y.; Liu, X.; Yang, H.\*; Waterhouse, G.; Wang, X.\* **Ma, S.\***; *Nat Commun.*, **2023**, 14, 1106.
3. "Spatially Confined Protein Assembly in Hierarchical Mesoporous Metal-Organic Framework" Wang, X.; He, L.\*; Sumner, J.; Qian, S.; Zhang, Q.; O'Neill, H.; Mao, Y.; Chen, C.; Al-Enizi, A. M.; Nafady, A.; **Ma, S.\*** *Nat Commun.*, **2023**, 14, 973.
4. "Desalination behavior of composite membrane with petal shaped pore—formed by superimposition of covalent organic framework with large aperture difference" Guan, M.; Yang, D.; Li, Q.; Zhang, H.; Xu, J.; Cai, M.; Lin, W.; **Ma, S.\***; Liu, S.\* *Appl. Surf. Sci.*, **2023**, 616, 156441.
5. "Modulating Uranium Extraction Performance of Multivariate Covalent Organic Frameworks through Donor-Acceptor Linkers and Amidoxime Nanotraps" Hao, M.; Xie, Y.; Liu, X.; Chen, Z.; Yang, H.\*; Waterhouse, G.; **Ma, S.\***; Wang, X.\* *JACS Au*, **2023**, 3, 239–251.
6. "Rational Design of Cooperative Chelating Sites on Covalent Organic Frameworks for Highly Selective Uranium Extraction from Seawater" Yang H.; Xie, Y.; Wu, Y.; Liu, X.; Hao, M.; Chen, Z.; Waterhouse, G. I. N.; Wang, X.; **Ma, S.** *Cell Reports Physical Science*, **2023**, 4, 101220.
7. "Porous Materials for Water Purification" Song, Y.; Phipps, J.; Zhu, C.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2023**, 62, e202216724.
8. "Naringin@Metal-Organic Framework as a Multifunctional Bioplatform" Ge, X.; Jiang, F.; Wang, M.; Chen, M.; Li, Y.; Phipps, J.; Cai, J.; Xie, J.; Ong, J.; Dubovoy, V.; Masters, J.; Pan, L.\*; **Ma, S.\*** *ACS Appl. Mater. Interfaces* **2023**, 15, 677–683.

9. "Uranium extraction from seawater: material design, emerging technologies and marine engineering" Xie, Y.; Liu, Z.; Geng, Y.; Li, H.; Wang, N.; Song, Y.; Wang, X.\*; Chen, J.; Wang, J.; **Ma, S.\***; Ye, G.\* *Chem. Soc. Rev.*, **2023**, *52*, 97-162.
10. "Mimicking enzymatic non-covalent interactions with functionalized covalent organic frameworks for improved adsorption and hydrolysis of cellobiose" Lan, P. C.; Zhang, Y.; Zhang, W.; Ge, X.; **Ma, S.\*** *Macromolecul. Rapid Commun.* **2023**, *44*, DOI: 10.1002/marc.202200724.
11. "Chiral Frustrated Lewis Pair@Metal-Organic Framework as a New Platform for Heterogeneous Asymmetric Hydrogenation" Zhang, Y.; Chen, S.; Al-Enizi, A. M.; Nafady, A.; Tang, Z.\*; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2023**, *62*, e202213399.
12. "Artificial enzymes for artificial photosynthesis" Zhang, Y.; Phipps, J.; **Ma, S.\*** *Nature Catalysis*, **2022**, *5*, 973-974. (News & Views)
13. "Emerging technologies for uranium extraction from seawater" Yang, H.; Liu, Y.; Chen, Z.; Waterhouse, G. I. N.; Ma, S.; Wang, X. *Sci. China Chem.*, **2022**, *65*, 2335-2337.
14. "Metal-organic framework nanocrystal-derived hollow porous materials: Synthetic strategies and emerging applications" Liu, X.; Verma, G.; Chen, Z.; Hu, B.; Huang, Q.; Yang, H.\*; **Ma, S.\***; Wang, X.\* *The Innovation*, **2022**, *3*, 100281.
15. "Integration of Thermoelectric Conversion with Reverse Electrodialysis for Mitigating Ion Concentration Polarization and Achieving Enhanced Output Power Density" Zhu, C.; Zuo, X.; Xian, W.; Guo, Q.; Meng, Q.-W.; Wang, S.; **Ma, S.**; Sun, Q. *ACS Energy Lett.* **2022**, *7*, 2937-2943.
16. "Substituent engineering in g-C<sub>3</sub>N<sub>4</sub>/COF heterojunctions for rapid charge separation and high photo-redox activity" Guo, J.; Ma, D.; Sun, F.; Zhuang, G.; Wang, Q.\*; Al-Enizi, A. M.; Nafady, A.; **Ma, S.\*** *Sci. China Chem.*, **2022**, *65*, 1704-1709.
17. "Advanced porous organic polymer membranes: Design, fabrication, and energy-saving applications" Song, Y.; Zhu, C.; **Ma, S.\*** *EnergyChem*, **2022**, *4*, 100079. (Invited Contribution)
18. "Regulating C<sub>2</sub>H<sub>2</sub>/CO<sub>2</sub> Adsorption Selectivity by Electronic-State Manipulation of Iron in Metal-Organic Frameworks" Chen, C.-X.; Pham, T.; Tan, K.; Krishna, R.; Lan, P. C.; Wang, L.; Chen, S.; Al-Enizi, A. M.; Nafady, A.; Forrest, K. A.; Wang, H.; Wang, S.; Shan, C.; Zhang, L.; Su, C.-Y.\*; **Ma, S.\*** *Cell Reports Physical Science*, **2022**, *3*, 100977.
19. "Anomalous thermo-osmotic conversion performance of ionic covalent-organic-framework membranes in response to charge variations" Xian, W.; Zuo, X.; Zhu, C.; Guo, Q.; Meng, Q.-W.; Zhu, X.; Wang, S.; Ma, S.; Sun, Q.\* *Nat Commun.*, **2022**, *13*, 3386.

20. "Enhanced ultrasensitive photoelectrochemical probe for phosphate detection in water based on a zirconium-porphyrin framework" Han, M.; Zhang, W.; Lu, L.\*; **Ma, S.\***; Feng, S.\* *ACS Appl. Mater. Interfaces*, **2022**, *14*, 28280–28288.
21. "Highly Efficient Electrocatalytic Uranium Extraction from Seawater over an Amidoxime-Functionalized In-N-C Catalyst" Liu, X.; Xie, Y.; Hao, M.; Chen, Z.; Yang, H.\*; Waterhouse, G. I. N.; **Ma, S.\***; Wang, X.\* *Adv. Sci.* **2022**, *9*, 2201735.
22. "Facile and efficient photocatalyst for degradation of chlortetracycline promoted by H<sub>2</sub>O<sub>2</sub>" Bai, Y.; Han, M.; Li, X.; Feng, S.\*; Lu, L.; **Ma, S.\*** *Inorg. Chem. Front.*, **2022**, 2952-2963.
23. "Methane storage in flexible and dynamical metal-organic frameworks" Forrest, K. A.; Verma, G.; Ye, Y.; Ren, J.; **Ma, S.**; Pham, T. Space, B. *Chem. Phys. Rev.*, **2022**, *3*, 021308.
24. "Installation of Synergistic Binding Sites onto Porous Organic Polymers for Efficient Removal of Perfluorooctanoic Acid" Liu, X.; Zhu, C.; Yin, J.; Li, J.; Zhang, Z.; Li, J.; Feng, S.; You, Z.; Shi, Z.; Li, B.\*; Bu, X.-H.\*; Nafady, A.; **Ma, S.\*** *Nature Commun.* **2022**, *12*, 2132.
25. "Utilization of Cationic Microporous Metal-Organic Framework for Efficient Xe/Kr Separation" Gong, L.; Liu, Y.; Ren, J.; Al-Enizi, A. M.; Nafady, A.; Ye, Y.\*; Bao, Z.\*; **Ma, S.\*** *Nano Res.*, **2022**, *15*, 7559-7564.
26. "Porous Cationic Electrospun Fibers with Sufficient Adsorption Sites for Effective and Continuous <sup>99</sup>TcO<sub>4</sub><sup>-</sup> Uptake" Zhao, R.; Chen, D.; Gao, N.; Yuan, L.; Hu, W.; Cui, F.; Tian, Y.; Shi, W.; Ma, S.; Zhu, G. *Adv. Funct. Mater.* **2022**, *32*, 2200618.
27. "Converging Cooperative Functions into the Nanospace of Covalent Organic Frameworks for Efficient Uranium Extraction from Seawater" Hao, M.; Chen, Z.; Liu, X.; Liu, X.; Zhang, J.; Yang, H.\*; Waterhouse, I. N. G.; Wang, X.\*; Ma, S.\* *CCS Chemistry*, **2022**, *4*, 2294-2307.
28. "Striking 2D materials: exfoliation of molecular crystals" Zhang, Y.; Ma, S.\* *Sci. China Chem.*, **2022**, *65*, 1005-1006.
29. "Laser-induced Synthesis of Ultrafine Gold Nanoparticles in Covalent Organic Frameworks" Zhang, Y.; Ma, S.\* *Chem. Res. Chinese Universities*, **2022**, *38*, 468-471.
30. "Pyridinium salt-based covalent organic framework with well-defined nanochannels for efficient and selective capture of aqueous <sup>99</sup>TcO<sub>4</sub><sup>-</sup>" Hao, M.; Chen, Z.; Yang, H.\*; Waterhouse, G. I. N.; **Ma, S.\***; Wang, X.\* *Science Bulletin*, **2022**, *67*, 924-932.
31. "Large-Scale Synthesis of N-doped Carbon Capsules Supporting Atomically Dispersed Iron for Efficient Oxygen Reduction Reaction Electrocatalysis" Yang, H.; Liu, Y.; Liu, X.; Wang, X.; Tian, H.; Waterhouse, G. I. N.; Kruger, P. E.; Telfer, S. G.; **Ma, S.\*** *eScience*, **2022**, *2*, 227-234.

32. "Thermo-Osmotic Energy Conversion Enabled by Covalent-Organic-Framework Membranes with Record Output Power Density" Zuo, X.; Zhu, C.; Xian, W.; Meng, Q.-W.; Guo, Q.; Zhu, X.; Wang, S.; Wang, Y.; **Ma, S.**; Su, Q. *Angew Chem. Int. Ed.*, **2022**, *61*, e202116910.
33. "Unusual Properties of Hydrogen-Bonded Ferroelectrics: The Case of Cobalt Formate" Ghosh, P. S.; DeTellem, D.; Ren, J.; Witanachchi, S.; Ma, S.; Lisenkov, S.; Ponomareva, I. *Phys. Rev. Lett.*, **2022**, *128*, 077601.
34. "Self-Adjusting Metal-Organic Framework for Efficient Capture of Trace Xenon and Krypton" Niu, Z.\*; Fan, Z.; Pham, T.; Verma, G.; Forrest, K. A.; Space, B.; Thallapally, P. K.\*; Al-Enizi, A. M.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2022**, *61*, e202117807. (Highlighted by [C&EN](#))
35. "Efficient Oral Insulin Delivery Enabled by Transferrin Coated Acid-Resistant Metal-Organic Framework" Zou, J.-J.; Wei, G.; Xiong, C.; Yu, Y.; Li, S.; Hu, L.; **Ma, S.\***, Tian, J.\* *Sci. Adv.*, **2022**, *8*, eabm4677.
36. "Metal-Organic Framework Based Hydrogen-Bonding Nanotrap for Efficient Acetylene Storage and Separation" Ye, Y.; Xian, S.; Cui, H.; Tan, K.; Gong, L.; Liang, B.; Pham, T.; Pandey, H.; Krishna, R.; Lan, P. C.; Forrest, K.; Space, B.; Thonhauser, T.; Li, J.\*; **Ma, S.\*** *J. Am. Chem. Soc.*, **2022**, *144*, 1681-1689.
37. "Precise Modification of Poly (Aryl Ether Ketone Sulfone) Proton Exchange Membranes with Positively Charged Bismuth Oxide Clusters for High Proton Conduction Performance" Yin, Y.-Z.; Zhang, Z.-G.; He, W.\*; Xu, J.-M.\*; Jiang, F.-Y.; Han, X.; Di, W.-T.; Wang, Z.; **Ma, S.\*** *SuSMat*, **2022**, *2*, 76-89.
38. "Recent development of metal-organic framework nanocomposites for biomedical applications" Ge, X.; Wong, R.; Anisa, A.; **Ma, S.\*** *Biomaterials* **2022**, *281*, 121322. (Invited Review)
39. "Porous Frustrated Lewis Pair Catalysts: Advance and Perspective" Zhang, Y.; Lan, P. C.; Martin, K.; **Ma, S.\*** *Chem Cat.* **2022**, *281*, 121322. (Invited Review)
40. "Efficient Collection of Perrhenate Anion from Water Using Poly(pyridinium salts) via Pyrylium Mediated Transformation" Li, X.; Chai, L.; Ren, J.; Jin, L.; Wang, H.\*; Li, Y.\*; **Ma, S.\*** *Polymer Chemistry*, **2022**, *13*, 156-160.
41. "Nanospace Engineering of Metal-Organic Frameworks for Heterogeneous Catalysis" Wang, Q.\*; Yang, G.; Fu, Y.; Li, N.; Hao, D.; **Ma, S.\*** *ChemNanoMat.*, **2022**, *8*, e202100396. (Invited contribution)
42. "Metalloporphyrin-based porous organic polymers as a heterogeneous catalytic nanoplatforM for efficient carbon dioxide conversion" Zhao, Y.; Peng, Y.; Shan, C.; Lu, Z.; Wojtas, L.; Zhang, Z.; Zhang, B.\*; Feng, Y.; **Ma, S.\*** *Nano Res.*, **2022**, *15*, 1145-1152.

43. "Enhancing Photocatalytic Hydrogen Production via the Construction of Robust Multivariate Ti-MOF/COF Composite" Chen, C.-X.; Xiong, Y.-Y.; Zhong, X.; Lan, P. C.; Wei, Z.-W.; Pan, H.; Su, P.-Y.; Song, Y.; Chen, Y.-F.;\* Nafady, A.; Uddin, S.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2022**, *61*, e202114071. (VIP)
44. "Manipulating Charge Density in Nanofluidic Membranes for Optimal Osmotic Energy Production Density" Zhu, C.; Xian, W.; Song, Y.; Zuo, X.; Wang, Y.; **Ma, S.\*** Sun, Q.\* *Adv. Funct. Mater.* **2022**, *32*, 2109210.
45. "Metal-Organic Frameworks as a New Platform for Enantioselective Separations" Verma, G.; Mehta, R.; Kumar, S.\*; **Ma, S.\*** *Isr. J. Chem.* **2021**, *61*, 708-726.
46. "Cetylpyridinium Trichlorostannate: Synthesis, Antimicrobial Properties and Controlled-Release Properties via Electrical Resistance Tomography" Teoman, B.; Muneeswaran, Z.; Verma, G.; Chen, D.; Brinzari, T.; Almeda-Ahmadi, A.; Norambuena, J.; Xu, S.; **Ma, S.**; Boyd, J.; Armenante, P.; Potanin, A.; Pan, L.; Asefa, T.; Dubovoy, V. *ACS Omega* **2021**, *6*, 35433-35441.
47. "Functionalized Iron–Nitrogen–Carbon Electrocatalyst Provides a Reversible Electron Transfer Platform for Efficient Uranium Extraction from Seawater" Yang, H.; Liu, X.; Hao, M.; Xie, Y.; Wang, X.\*; Tian, H.\*; Waterhouse, I. N. G.; Kruger, E. P.; Telfer, S.; Ma, S.\* *Adv. Mater.* **2021**, *33*, 2106621.
48. "Cotton cloth supported tungsten carbide/carbon nanocomposites as a Janus film for solar driven interfacial water evaporation" Sun, B.; Han, Y.; Li, S.; Xu, P.; Han, X.; Nafady, A.; **Ma, S.\***; Du, Y.\* *J. Mater. Chem. A*, **2021**, *9*, 23140-23148.
49. "Functional Porphyrinic Metal-Organic Framework as a New Class of Heterogeneous Halogen Bond Donor Catalyst" Zhang, W.; Nafady, A.; Shan, C.; Wojtas, L.; Chen, Y.-S.; Cheng, Q.; Zhang, X. P.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2021**, *60*, 24312-24317.
50. "Imidazolium-based Cationic Polymeric Nanotraps for Efficient Removal of Cr<sub>2</sub>O<sub>7</sub><sup>2-</sup>" Li, X.; Jin, L.; Huang, L.; Ge, X.; Deng, H. Li, Y.\*; Chai, L.\*; **Ma, S.\*** *J. Envi. Chem. Eng.*, **2021**, *9*, 106357.
51. "Nanospace Decoration with Uranyl-Specific "Hooks" for Selective Uranium Extraction from Seawater with Ultrahigh Enrichment Index" Song, Y.; Zhu, C.; Sun, Q.\*; Aguila, B.; Abney, C.; Wojtas, L.; **Ma, S.\*** *ACS Cent. Sci.*, **2021**, *7*, 1650-1656. (Highlighted by ACS Central Science in [First Reaction](#))
52. "Second-Sphere Interaction Promoted "Turn-on" Fluorescence for Selective Sensing of Organic Amines in a Tb(III)-based Macrocyclic Framework" Ren, J.; Niu, Z.; Ye, Y.; Tsai, C.-Y.; Liu, S.-X.; Liu, Q.; Huang, X.; Nafady, A.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2021**, *60*, 23705-23712.



53. "In situ monitoring the protein transfer into nanoscale channels" Pan, Y.; Wang, X.; Li, H.; Farmakes, J.; Yang, Z.\*; **Ma, S.\*** *Cell Reports Physical Science*, **2021**, 2, 100576.
54. "New Paradigms in Porous Framework Materials for Acetylene Storage and Separation" Verma, G.; Kumar, S.\*; **Ma, S.\*** *Eur. J. Inorg. Chem.* **2021**, 4498-4507. [Issue Cover](#); [pdf](#) (VIP; Invited review)
55. "Porous Anionic Co(II) Metal-Organic Framework, with a High Density of Amino Groups, as a Superior Luminescent Sensor for Turn-on Al(III) Detection" Chand, S.; Verma, V.; Pal, A.; Pal, S. C.; **Ma, S.**; Das, M. C. *Chem. Eur. J.* **2021**, 27, 11804–11810.
56. "Rational design of bifunctional conjugated microporous polymers" Song, Y.; Lan, P. C.; Martin, K.; **Ma, S.\*** *Nanoscale Adv.*, 2021, 3, 4891–4906.
57. "Structural visualization of ultrathin chiral porous metal-organic framework nanosheet" Zhang, Y.; Lan, P. C.; **Ma, S.\*** *Matter*, **2021**, 4, 2669-2671. (Preview)
58. "Bionic Thermosensation Inspired Temperature Gradient Sensor Based on Covalent Organic Framework Nanofluidic Membrane with Ultrahigh Sensitivity" Xian, W.; Zhang, P.; Zhu, C.; Zuo, X.; **Ma, S.\***; Sun, Q.\* *CCS Chemistry*, **2021**, 3, 2464–2472.
59. "Facile fabrication of Fe-BDC/Fe-2MI heterojunction with boosted photocatalytic activity for Cr(VI) reduction" He, Q.; Fu, Y.; Ge, X.; Al-Enizi, A. M.; Nafady, A.; Wang, Q.\*; **Ma, S.\*** *J. Envi. Chem. Eng.*, **2021**, 9, 105961.
60. "Indium-Organic Framework with soc Topology as a Versatile Catalyst for Highly Efficient One-Pot Strecker Synthesis of  $\alpha$ -aminonitriles" Verma, G.; Forrest, K.; Carr, B.; Vardhan, H.; Ren, J.; Pham, T.; Space, B.; Kumar, S.\*; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2021**, 13, DOI: 10.1021/acscami.1c09074. (Invited contribution to the Forum on "Emerging Materials for Catalysis and Energy Applications--- A Special Forum in Memory of Professor Chia-Kuang (Frank) Tsung")
61. "Controllable immobilization of enzymes in metal-organic frameworks for biocatalysis" Zhang, Y.; **Ma, S.\*** *Chem Cat.* **2021**, 1, 20-22. (Preview)
62. "Imparting Ion Selectivity to Covalent Organic Framework Mem-branes Using de Novo Assembly for Blue Energy Harvesting" Chen, S.; Zhu, C.; Xian, W.; Liu, X.; Liu, X.; Zhang, Q.; **Ma, S.**; Sun, Q. *J. Am. Chem. Soc.*, **2021**, 143, 9415-9422.
63. "Porous Covalent Organic Polymers for efficient Fluorocarbon based Adsorption Cooling" Zheng, J.; Wahiduzzaman, M.; Barpaga, D.; Trump, B. A.; Gutierrez, O. Y.; Thallapally, P.; **Ma, S.**; McGrail, B. P.; Maurin, G.; Motkuri, R. K. *Angew Chem. Int. Ed.*, **2021**, 60, 18037-18040. ([Inside Cover](#))
64. "Highly Stable Single Crystals of Three-Dimensional Porous Oligomer Frameworks Synthesized under Kinetic Conditions" Hou, L.; Shan, C.; Song, Y.; Chen, S.; Wojtas, L.; **Ma, S.\***; Sun, Q.\*; Zhang, L. *Angew Chem. Int. Ed.*, **2021**, 60, 14664-14670.

65. "Two Manganese Metalloporphyrin Frameworks Constructed from a Custom-Designed Porphyrin Ligand Exhibiting Selective Uptake of CO<sub>2</sub> over CH<sub>4</sub> and Catalytic Activity for CO<sub>2</sub> Fixation" Magnuson, Z.; Cheng, Q.; Zhang, W.; Chen, Y.-S.; Wojtas, L.; Nafady, A.; Al-Enizi, A.; Larsen, R.; Zhang, X. P.; Ma, S.\* *Cryst. Growth Des.* **2021**, *21*, 2786-2792.
66. "Green synthesis of olefin-linked covalent organic frameworks for hydrogen fuel cell applications" Wang, Z.; Yang, Y.; Zhao, Z.; Zhang, P.; Zhang, Y.; Liu, J.; **Ma, S.**; Cheng, P.; Chen, Y.; Zhang, Z. *Nat Commun.*, **2021**, *12*, 1982.
67. "Bio-Inspired Construction of Ion Conductive Pathway in Covalent Organic Framework Membranes for Efficient Lithium Extraction" Bing, S.; Xian, W.; Chen, S.; Song, Y.; Hou, L.; Liu, X.; **Ma, S.**; Sun, Q.\* Zhang, L. *Matter*, **2021**, *3*, 2027-2038. (Featured by [Matter](#))
68. "Covalent organic framework nanofluidic membrane as a platform for highly sensitive bionic thermosensation" Zhang, P.; Chen, S.; Zhu, C.; Hou, L.; Xian, W.; Zuo, X.; Zhang, Q.; Zhang, L.; **Ma, S.**; Sun, Q.\* *Nat Commun.*, **2021**, *12*, 1844.
69. "A window-space-directed assembly strategy for the construction of supertetrahedron-based zeolitic mesoporous metal-organic frameworks with ultramicroporous apertures for selective gas adsorption" Zhang, L.\*; Li, F.; You, J.; Hua, N.; Wang, Q.; Shi, J.; Chen, W.; Wang, W.; Wu, X.; Yang, W.; Yuan, D.; Liu, Y.; Lu, C.\*; Al-Enizi, A. M.; Nafady, A.; **Ma, S.** *Chem. Sci.*, **2021**, *12*, 5767-5773.
70. "3D Cationic Polymeric Network Nanotrap for Efficient Collection of Perrhenate Anion from Wastewater" Li, X.; Li, Y.; Wang, H.; Niu, Z.; He, Y.; Jin, L.; Wu, M.; Wang, H.\*; Chai, L.\*; Al-Enizi, A. M.; Nafady, A.; Shaikh, S. F.; **Ma, S.** *Small*, **2021**, *17*, 2007997.
71. "Efficient Electron Transfer from Electron-Sponge Polyoxometalate to Single-Metal Site MOF for Highly Selective Electroreduction of CO<sub>2</sub>" Sun, M.-L.; Wang, Y.-R.; He, W.-W.\*; Zhong, R.-L.; Liu, Q.-Z.; Xu, S.; Xu, S.; Han, X.-L.; Ge, X.; Li, S.-L.; Lan, Y.-Q.\*; Al-Enizi, A. M.; Nafady, A.; **Ma, S.** *Small*, **2021**, *17*, 2100762.
72. "Fabrication of Robust Covalent Organic Frameworks for Enhanced Visible-Light-Driven H<sub>2</sub> Evolution" Zhao, Z.; Zheng, Y.; Wang, C.; Zhang, S.; Song, J.; Li, Y.; Ma, S.; Cheng, P.; Zhang, Z.; Chen, Y. *ACS Catalysis*, **2021**, *11*, 2098-2107.
73. "Nanospace Engineering of Metal-Organic Frameworks through Dynamic Spacer Installation of Multi-functionalities for Efficient Separation of Ethane from Ethane/Ethylene Mixture" Chen, C.-X.; Wei, Z.-W.; Pham, T.; Lan, P. C.; Zhang, L.; Forrest, K. A.; Chen, S.; Al-Enizi, A. M.; Nafady, A.; Su, C.-Y.\*; **Ma, S.** *Angew Chem. Int. Ed.*, **2021**, *60*, 7680-7685.
74. "Understanding the ion transport behavior across nanofluidic membranes in response to the charge variations" Hou, L.; Xian, W.; Bing, S.; Song, Y.; Sun, Q.\*; Zhang, L.; **Ma, S.** *Adv. Funct. Mater.* **2021**, *31*, 2009970.
75. "A MOF-based Ultra-Strong Acetylene Nano-trap for Highly Efficient C<sub>2</sub>H<sub>2</sub>/CO<sub>2</sub> Separation" Niu, Z.\*; Cui, X.; Pham, T.; Verma, G.; Lan, P. C.; Shan, C.; Xing, X.; Forrest, K. A.; Suepaul, S.; Space, B.; Al-Enizi, A. M.; Nafady, A.; **Ma, S.** *Angew Chem. Int. Ed.*, **2021**, *60*, 5283-5288.

76. "Chromium Nitride-Encapsulated Hollow Chromium-Nitrogen-Carbon Capsules Boosting Oxygen Reduction Catalysis in Proton Exchange Membrane Fuel Cell" Yang, H.; Wang, X.; Zheng, T.; Cuello, N.; Goenaga, G.; Zawodzinski, T.; Tian, H.\*; Wright, J.; Meulenbergh, R.; Wang, X.\*; Xia, Z.; **Ma, S.\*** *CCS Chemistry*, **2021**, 3, 208-218.
77. "Multifunctional Platforms: Metal-Organic Frameworks for Cutaneous and Cosmetic Treatment" Duan, W.; Qiao, S.; Zhuo, M.; Sun, J.; Guo, M.; Xu, F.; Liu, J.; Wang, T.; Guo, X.; Zhang, Y. Gao, J.; Huang, Y.; Zhang, Z.; Cheng, P.; **Ma, S.\***; Chen, Y.\* *Chem*, **2021**, 5, 450-462.
78. "Rational Construction of Borromean Linked Crystalline Organic Polymers" Guo, X.; Lin, E.; Guo, J.; Miao, T.; Yan, D.; Cheng, P.; **Ma, S.**; Chen, Y.; Zhang, Z. *Angew Chem. Int. Ed.*, **60**, 2974-2979.
79. "Spatial Engineering Direct Cooperativity between Binding Sites for Uranium Sequestration" Sun, Q.; Song, Y.; Aguila, B.; Ivanov, A. S.; Bryantsev, V. S.; **Ma, S.\*** *Adv. Sci.*, **2028**, 8, 2001573.
80. "Single pore vs Dual pore Bipyridine-based Covalent Organic Frameworks: An Insight into the Heterogeneous Catalytic activity for Selective C—H Functionalization" Vardhan, H.; Al-Enizi, A. M.; Nafady, A.; Pan, Y.; Yang, Z.; Gutiérrez, H. R.; Han, X.; **Ma, S.\*** *Small*, **2021**, 17, 2003970.
81. "De Novo Synthesis of Bifunctional Conjugated Microporous Polymers for Synergistic Coordination Mediated Uranium Entrapment" Yu, B.; Zhang, L.; Ye, G.\*; Liu, Q.; Li, J.; Wang, X.; Chen, J.; Xu, S.\*; Ma, S.\* *Nano Res.*, **2021**, 14, 788-796.
82. "A Robust soc-MOF Platform Exhibiting High Gravimetric Uptake and Volumetric Deliverable Capacity for On Board Methane Storage" Verma, G.; Kumar, S.; Vardhan, H.; Ren, J.; Niu, Z.; Pham, T.; Wojtas, L.; Butikofer, S.; Garcia, J. C. E.; Chen, Y.-S.; Space, B.; Ma, S.\* *Nano Res.*, **2021**, 14, 512-517.
83. "COF-inspired fabrication of two-dimensional polyoxometalate based open frameworks for biomimetic catalysis" Zhao, Y.; Wang, Z.; Gao, J.; Zhao, Z.; Li, X.; Wang, T.; Cheng, P.; Ma, S.; Chen, Y.; Zhang, Z. *Nanoscale*, **2020**, 12, 21218-21224.
84. "Efficient Separation of Xylene Isomers by A Guest-Responsive Metal-organic Framework with Rotational Anionic Sites" Cui, X.; Niu, Z.; Shan, C.; Yang, L.; Hu, J.; Wang, Q.; Lan, P. C.; Li, Y.; Wojtas, L.; **Ma, S.\***; Xing, H.\* *Nature Commun.* **2020**, 11, 5456.
85. "The first ternary Nd-MOF/GO/Fe<sub>3</sub>O<sub>4</sub> nanocomposite exhibiting excellent photocatalytic performance for dye degradation" Bai, Y.; Zhang, S.; Feng, S.\*; Zhu, M.\*; **Ma, S.\*** *Dalton Trans.*, **2020**, 49, 10745-10754.
86. "Ultrahigh and Economical Uranium Extraction from Seawater Via Interconnected Open-Pore Architecture Poly(amidoxime) Fiber" Xu, X.; Xu, L.; Ao, J.; Liang, Y.; Li, C.; Wang, Y.; Huang, C.; Ye, F.; Li, Q.; Guo, X.; Li, J.; Wang, H.; **Ma, S.\***; Ma, H.\* *J. Mater. Chem. A*, **2020**, 8, 22032-22044.

87. "Exploration of advanced porous organic polymers as a platform for biomimetic catalysis and molecular recognition" Zhang, P.; Wang, S.; Ma, S.; Xiao, F.-S.; Sun, Q. *Chem. Commun.* **2020**, *56*, 10631-10641.
88. "Metal-Organic Frameworks for Enzyme Immobilization: Beyond Host Matrix Materials" Wang, X.; Lan, P. C.; **Ma, S.\*** *ACS Central Science*, **2020**, *6*, 1497-1506.
89. "Core-satellite metal-organic framework@upconversion nanoparticle superstructures via electrostatic self-assembly for efficient photodynamic theranostics" Li, Z.; Qiao, X.; He, G.; Sun, X.; Feng, D.; Hu, L.; Xu, H.; Xu, H.-B.; **Ma, S.\***; Tian, J.\* *Nano Res.*, **2020**, *13*, 3377-3386.
90. "A Mixed-Metal Porphyrinic Framework Promoting Gas Phase CO<sub>2</sub> Photoreduction without Organic Sacrificial Agents" Gao, W.-Y.; Ngo, H. T.; Niu, Z.; Zhang, W.; Pan, Y.; Yang, Z.; Bhethanabotla, V.R.; Joseph, B.\*; Aguila, B.; **Ma, S.\*** *ChemSusChem*, **2020**, 6273-6277.
91. "Comparison of the Use of Functional Porous Organic Polymer (POP) and Natural Material Zeolite for Nitrogen Removal and Recovery from Source-Separated Urine" Zhang, Y.; Aguila, B.; **Ma, S.**; Zhang, Q. *J. Envi. Chem. Eng.* **2020**, *8*, 104296.
92. "Secondary Sphere Effects on Porous Polymeric Organocatalysts for CO<sub>2</sub> Transformations: Subtle Modifications Resulting in Superior Performance" Song, Y.; Sun, Q.\*; Lan, P. C.; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2020**, *12*, 32827-32833.
93. "Metal-Organic Framework Disintegrants: A New Generation of Enzyme Preparation Platforms with Boosted Activity" An, H.; Song, J.; Wang, T.; Xiao, N.; Zhang, Z.; Cheng, P.; **Ma, S.**; Huang, H.; Chen, Y. *Angew Chem. Int. Ed.*, **2020**, *59*, 16764-16769.
94. "Postsynthetic Oxidation of Coordination Site in a Heterometallic Metal-Organic Framework: Tuning Catalytic Behaviors" Han, Y.; Sinnwell, M. A.; Surbella III, R. G.; Xue, W.; Huang, H.; Zheng, J.; Peng, B.; Verma, G.; Yang, Y.; Liu, L.; Ma, S.; Thallapally, P. K. *Chem. Mater.* **2020**, *32*, 5192-5199.
95. "Synthesis, Characterization, and Antimicrobial Investigation of a Novel Chlorhexidine Cyclamate Complex" Dubovoy, V.; Desai, P.; Hao, Z.; Cheng, Ch.-Y.; Verma, G.; Wojtas, L.; Brinzari, T. V.; Boyd, J. M.; Ma, S.; Asefa, T.; Pan, L. *Cryst. Growth Des.* **2020**, *20*, 4991-4999.
96. "Synthesis, Characterization, and Investigation of the Antimicrobial Activity of Cetylpyridinium Tetrachlorozincate" Dubovoy, V.; Nawrocki, S.; Verma, G.; Wojtas, L.; Desai, P.; Al-Tameemi, H.; Brinzari, T. V.; Stranick, M.; Chen, D.; Xu, S.; Ma, S.; Boyd, J. M.; Asefa, T.; Pan, L. *ACS Omega* **2020**, *5*, 10359-10365.
97. "Porous Organic Polymer Nanotrap for Efficient Extraction of Palladium" Aguila, B.; Sun, Q.\*; Cassidy, H. C.; Shan, C.; Liang, Z.; Al-Enizi, A. M.; Nafady, A.; Wright, J. T.; Meulenberg, R. W.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2020**, *59*, 19618-19622.
98. "Fabrication of Photoresponsive Crystalline Artificial Muscles Based on PEGylated Covalent Organic Framework Membranes" Guo, X.; Mao, T.; Wang, Z.; Cheng, P.; Chen, Y.; Ma, S.; Zhang, Z. *ACS Central Science*, **2020**, *6*, 787-794.

99. "Fabrication of Fe-POMs as Visible-light-active Heterogeneous Photocatalyst" Cen, Q.; Xiao, W.; Liu, Y.; Wang, Q.\*; Nafady, A.; Ma, S.\* *Chem. Res. Chinese Universities*, **2020**, *36*, 1128-1135.
100. "Tailored Porous Organic Polymers for Task-Specific Water Purification" Sun, Q.; Aguila, B.; Song, Y.; **Ma, S.\*** *Acc. Chem. Res.*, **2020**, *53*, 812-821.
101. "PEG@ZIF-8/PVDF Nanocomposite Membrane for Efficient Pervaporation Desulfurization via a Layer-by-Layer Technology" Sun, H.; Magnuson, Z.; He, W.; Zhang, W.; Vardhan, H.; Han, X.\*; He, G.\*; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2020**, *12*, 20664-20671.
102. "Fabricating Covalent Organic Framework Capsules with Commodious Microenvironment for Enzymes" Li, M.; Qiao, S.; Zheng, Y.; Andaloussi, Y. H.; Li, X.; Zhang, Z.; Li, A.; Cheng, P.; **Ma, S.**; Chen, Y. *J. Am. Chem. Soc.*, **2020**, *142*, 6675-6681.
103. "Robust Bimetallic Ultramicroporous Metal–Organic Framework for Separation and Purification of Noble Gases" Wang, T.; Peng, Y.-L.; Lin, E.; Niu, Z.; Li, P.; **Ma, S.**; Zhao, P.; Chen, Y.; Cheng, P.; Zhang, Z. *Inorg. Chem.* **2020**, *59*, 4868-4873.
104. "Highly Efficient Electrocatalytic Hydrogen Evolution Promoted by O–Mo–C Interfaces of Ultrafine  $\beta$ -Mo<sub>2</sub>C Nanostructures" Yang, H.; Chen, X.; Hu, G.; Chen, W.-T.; Bradley, S.; Zhang, W.; Verma, G.; Nann, T.; Jiang, D.; Kruger, P.; Wang, X.\*; Tian, H.\*; Waterhouse, G.; Telfer, S.; **Ma, S.\*** *Chem. Sci.*, **2020**, *11*, 3523-3530.
105. "Protein Structure-Directed Metal-Organic Zeolite-Like Networks as Biomacromolecule Carriers" Wang, H.; Han, L.; Zheng, D.; Yang, M.; Andaloussi, Y. H.; Cheng, P.; Zhang, Z.; **Ma, S.**; Zaworotko, M. J.; Feng, Y.; Chen, Y. *Angew Chem. Int. Ed.*, **2020**, *59*, 6263-6267.
106. "A Corrole-Based Covalent Organic Framework Featuring Desymmetrized Topology" Zhao, Y.; Dai, W.; Peng, Y.; Niu, Z.; Sun, Q.; Shan, C.; Yang, H.; Wojtas, L.; Yuan, D.; Zhang, Z.\*; Dong, H.\*; Zhang, X.\*; Zhang, B.\*; Feng, Y.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2020**, *59*, 4354-4359.
107. "Predisposed Intrinsic and Extrinsic Proton Conduction in Robust Covalent Organic Frameworks for Hydrogen Fuel Cell Application" Yang, Y.; He, X.; Zhang, P.; Andaloussi, Y.; Zhang, H.; Jiang, Z.; Chen, Y.; **Ma, S.**; Cheng, P.; Zhang, Z. *Angew Chem. Int. Ed.*, **2020**, *59*, 3678-3684.
108. "Programming Covalent Organic Frameworks for Photocatalysis: Investigation of Chemical and Structural Variations" Wang, S.; Sun, Q.\*; Chen, W.; Tang, Y.; Aguila, B.; Pan, Y.; Zheng, A.; Yang, Z.; Wojtas, L.; **Ma, S.\*** Xiao, F.-S.\* *Matter*, **2020**, *2*, 416-427.
109. "Covalent organic frameworks for separation applications" Wang, Z.; Zhang, S.; Chen, Y.\*; Zhang, Z.\*; **Ma, S.\*** *Chem. Soc. Rev.*, **2020**, *49*, 708-735. (Invited contribution to the themed collection in *Chem. Soc. Rev.* on "New frontiers in Covalent Organic Frameworks: Design and Applications")
110. "Beyond Confined Catalysis in Porous Materials" Wang, X.; Lan, P. C.; Wang, S.; **Ma, S.\*** *Natl. Sci. Rev.*, **2020**, *7*, 994-995. (Research Highlight)

111. "Skeleton Engineering of Homo-Coupled Conjugated Microporous Polymers for Highly Efficient Uranium Capture via Synergistic Coordination" Zhang, L.; Ye, G.\*; Pu, N.; Yu, B.; Chen, J.; Xu, S.\*; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2020**, *12*, 3688-3696.
112. "Optimizing the performance of porous pyridinium frameworks for carbon dioxide transformation" Song, Y.; Sun, Q.\*; Aguila, B.; **Ma, S.\*** *Catal. Today*, **2020**, *356*, 557-562.
113. "Regulation of the degree of interpenetration in metal-organic frameworks" Verma, G.; Butikofer, S.; Kumar, S.; **Ma, S.\*** *Top. Curr. Chem.*, **2020**, *378*, 4.
114. "Recent advances in MOF-based photocatalysis: environmental remediation under visible light" Wang, Q.\*; Gao, Q.; Al-Enizi, A. M.; Nafady, A.; **Ma, S.\*** *Inorg. Chem. Front.*, **2020**, *7*, 300-339. ([Best Review 2020](#))
115. "Pore Surface Engineering of Covalent Organic Frameworks: Structural Diversity and Applications" Vardhan, H.; Al-Enizi, A. M.; Nafady, A.; **Ma, S.\*** *Nanoscale*, **2019**, *11*, 21679 - 21708.
116. "Mapping out the Degree of Freedom of Hosted Enzymes in Confined Spatial Environments" Sun, Q.; Pan, Y.; Wang, X.; Li, H.; Farmakes, J.; Aguila, B.; Yang, Z.\*; **Ma, S.\*** *Chem*, **2019**, *5*, 3184-3195.
117. "Iridium complex Immobilization on Covalent Organic Framework for Effective C-H Borylation" Vardhan, H.; Pan, Y.; Yang, Z.; Verma, G.; Nafady, A.\*; El-enizi, A.; Alotaibi, T.; Almaghrabi, O.; **Ma, S.\*** *APL Materials*, **2019**, *7*, 101111. (invited contribution to the Special Topic on "Open Framework Materials for Energy Applications" in *APL Materials*)
118. "Microporous Cyclen-Based Octacarboxylate Hydrogen-Bonded Organic Framework Exhibiting Selective Gas Adsorption" Stackhouse, C.; Ren, J.; Shan, C.; Nafady, A.; Al-Enizi, A.; Ubaidullah, M.; Niu, Z.; **Ma, S.\*** *Cryst. Growth Des.* **2019**, *19*, 6377-6380. (invited contribution to *Crystal Growth & Design* Virtual Special Issue on "Structure Property relationship in Crystalline Solids")
119. "Robust Corrole-Based Metal-Organic Frameworks with Rare 9-Connected Zr/Hf-Oxo Clusters" Zhao, Y.; Qi, S.; Niu, Z.; Peng, Y.; Shan, C.; Verma, G.; Wojtas, L.; Zhang, Z.; Zhang, B.\*; Feng, Y.; Chen, Y.-S.; Ma, S.\* *J. Am. Chem. Soc.*, **2019**, *141*, 14443-14450.
120. "De Novo Design and Facile Synthesis of 2D Covalent Organic Frameworks: A Two-in-One Strategy" Li, Y.; Chen, Q.; Xu, T.; Xie, Z.; Liu, J.; Yu, X.; **Ma, S.**; Qin, T.; Chen, L.\* *J. Am. Chem. Soc.*, **2019**, *141*, 13822-13828.
121. "Heterogenization of Trinuclear Palladium Complex into an Anionic Metal-Organic Framework through Post-synthetic Cation Exchange" Ren, J.; Lan, P. C.; Chen, M.; Zhang, W.; **Ma, S.\*** *Organometallics*, **2019**, *38*, 3460-3465.
122. "Design Strategies to Enhance Amidoxime Chelators for Uranium Recovery" Aguila, B.; Sun, Q.; Cassady, H.; Abney, C.; Li, B.; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2019**, *11*, 30919-30926.

123. "Membrane-supported 1D MOF hollow superstructure array prepared by polydopamine-regulated contra-diffusion synthesis for uranium entrapment" Yu, B.; Ye, G.\*; Chen, J.\*; **Ma, S.** *Environ. Pollut.*, **2019**, *253*, 39-48.
124. "Bio-inspired Creation of Heterogeneous Reaction Vessels via Polymerization of Supramolecular Ion Pair" Dong, K.; Sun, Q.\*; Tang, Y.; Shan, C.; Aguila, B.; Wang, S.; Meng, X.; **Ma, S.\***; Xiao, F.-S.\* *Nature Commun.* **2019**, *10*, 3059. ([Featured by Editor](#))
125. "Tunable Synthesis of Hollow Metal-Nitrogen-Carbon Capsules for Efficient Oxygen Reduction Catalysis in Proton Exchange Membrane Fuel Cells" Yang, H.; Chen, X.; Chen, W.-T.; Wang, Q.; Cantillo Cuello, N.; Nafady, A.; Al-Enizi, M. A.; Waterhouse, I. N. G.; Goenaga, A. G.; Zawodzinski, A. T.; Kruger, E. P.; Clements, E. J.; Zhang, J.\*; Tian, H.\*; Telfer, S.\*; **Ma, S.\*** *ACS Nano*, **2019**, *13*, 8087-8098.
126. "PolyCOFs: A New Class of Freestanding Responsive Covalent Organic Framework Membranes with High Mechanical Performance" Wang, Z.; Yu, Q.; Huang, Y.; An, H.; Zhao, Y.; Feng, Y.; Li, X.; Shi, X.; Liang, J.; Pan, F.; Cheng, P.; Chen, Y.\*; **Ma, S.\***; Zhang, Z.\* *ACS Central Science*, **2019**, *5*, 1352-1359. (Highlighted in [C&EN](#); selected in [ACS Weekly PressPac](#); reported by [ScienceDaily](#))
127. "Investigation of the Anticancer Activity of Coordination-Driven Self-Assembled Two-Dimensional Ruthenium Metalla-Rectangle" Vardhan, H.; Nafady, A.\*; Al-Enizi, A. M.; Khandker, K.; El-Sagher, H. M.; Verma, G.; Duncan, M. A.; Alotaibi, T. M.; **Ma, S.\*** *Molecules*, **2019**, *24*, 2284.
128. "Solvent-assisted coordination driven assembly of a supramolecular architecture featuring two types of connectivity from discrete nanocages" Niu, Z.; Wang, L.; Fang, S.; Lan, P. C.; Aguila, B.; Perman, J.; Ma, J.-G.\*; Cheng, P.; Li, X.; **Ma, S.\*** *Chem. Sci.*, **2019**, *10*, 6661-6665.
129. "Pore Environment Engineering in Metal-Organic Frameworks for Efficient Ethane/Ethylene Separation" Wang, X.; Niu, Z.; Al-Enizi, A.; Nafady, A.; Wu, Y.; Aguila, B.; Verma, G.; Wojtas, L.; Chen, Y.-S.; Li, Z.\*; **Ma, S.\*** *J. Mater. Chem. A*, **2019**, *7*, 13585-13590.
130. "Metal-Organic Framework Based Methane Nano-trap for the Capture of Coal-Mine Methane" Niu, Z.; Cui, X.; Pham, T.; Lan, P. C.; Xing, H.; Forrest, K. A.; Wojtas, L.; Space, B.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2019**, *58*, 10138-10141. (VIP) ([Inside Back Cover](#))
131. "Porous Metal-Metalloporphyrin Gel as Catalytic Binding Pocket for Highly Efficient Synergistic Catalysis" Zhang, W.; Dynes, J. J.; Hu, Y.; Jiang, P.\*; **Ma, S.\*** *Nature Commun.* **2019**, *10*, 1913.
132. "Reaction Environment Modification in Covalent Organic Frameworks for Catalytic Performance Enhancement" Sun, Q.; Tang, Y.; Aguila, B.; Wang, S.; Xiao, F.-S.\*; Thallapally, P. K.; Al-Enizi, A. M.; Nafady, A.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2019**, *58*, 8670-8675. ([Front piece](#))



133. "Promoting Frustrated Lewis Pair for Heterogeneous Chemoselective Hydrogenation via Tailored Pore Environment within Metal-Organic Framework" Niu, Z.; Zhang, Z.; Lan, P. C.; Aguila, B.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2019**, *58*, 7420-7424.
134. "Squaramide-Decorated Covalent Organic Framework as a New Platform for Biomimetic Hydrogen-Bonding Organocatalysis" Li, X.; Wang, Z.; Sun, J.; Gao, J.; Zhao, Y.; Cheng, P.; Aguila, B.; **Ma, S.\***; Chen, Y.\*; Zhang, Z.\* *Chem. Commun.*, **2019**, *55*, 5423-5426.
135. "Optimizing Radionuclide Sequestration in Anion Nanotraps with Record Pertechtetate Sorption" Sun, Q.; Zhu, L.; Aguila, B.; Thallapally, P. K.; Xu, C.; Chen, J.; Wang, S.\*; Rogers, D.; **Ma, S.\*** *Nature Commun.* **2019**, *10*, 1646. [Behind the Paper](#) (Highlighted by [DOE](#))
136. "Tuning Pore Heterogeneity in Covalent Organic Frameworks for Enhanced Enzyme Accessibility and Resistance against Denaturants" Sun, Q.; Aguila, B.; Lan, P. C.; **Ma, S.\*** *Adv. Mater.* **2019**, *31*, 1900008. ([Back cover](#))
137. "Siderophore-inspired chelator hijacks uranium from aqueous medium" Ivanov, A. S.; Parker, B. F.; Zhang, Z.; Aguila, B.; Sun, Q.; **Ma, S.**; Jansone-Popova, S.; Arnold, J.; Mayes, R. T.; Dai, S.; Bryantsev, V. S.\*; Rao, L.\*; Popovs, I.\* *Nature Commun.* **2019**, *10*, 819. (Highlighted in [C&EN](#))
138. "Opportunities of Porous Organic Polymers for Radionuclide Sequestration" Sun, Q.; Aguila, B.; **Ma, S.\*** *Trends in Chemistry*, **2019**, *1*, 292-303.
139. "Vanadium Docked Covalent-Organic Frameworks: An Effective Heterogeneous Catalyst for Modified Mannich-Type Reaction" Vardhan, H.; Hou, L.; Yee, E.; Nafady, A.; Al-Abdrabnabi, M.; Al-Enizi, A.; Pan, Y.; Yang, Z.; **Ma, S.\*** *ACS Sustainable Chem. Eng.*, **2019**, *7*, 4878-4888.
140. "Hollow Capsules of Doped Carbon Incorporating Metal@Metal Sulfide and Metal@Metal Oxide Core-Shell Nanoparticles Derived from Metal-Organic Framework Composites for Efficient Oxygen Electrocatalysis" Guo, F.; Yang, H.\*; Liu, L.; Han, Y.; Al-Enizi, A.; Nafady, A.; Kruger, P.; Telfer, S.\*; **Ma, S.\*** *J. Mater. Chem. A*, **2019**, *7*, 3624-3631.
141. "Indium-Organic Frameworks Based on Dual Secondary Building Units Featuring Halogen-Decorated Channels for Highly Effective CO<sub>2</sub> Fixation" Yuan, Y.; Li, J.; Sun, X.; Li, G.; Liu, Y.\*; Verma, G.; **Ma, S.\*** *Chem. Mater.* **2019**, *31*, 1084-1091.
142. "Photomechanical organic crystals as smart materials for advanced applications" Yu, Q.; Aguila, B.; Gao, J.; Xu, P.; Chen, Q.; Yan, J.; Xing, D.; Chen, Y.; Cheng, P.; Zhang, Z.\*; **Ma, S.\*** *Chem. Eur. J.*, **2019**, *25*, 5611-5622. (Invited Mini-review)
143. "Incorporation of Biomolecules in Metal-Organic Frameworks for Advanced Applications" An, H.; Li, M.; Gao, J.; Zhang, Z.; **Ma, S.**; Chen, Y.\* *Coord. Chem. Rev.* **2019**, *384*, 90-106.
144. "Chemical Detection using a Metal-organic Framework Single Crystal Coupled to an Optical Fiber" Zhu, C.; Perman, J.; Gerald II, R.; **Ma, S.\***; Huang, J.\* *ACS Appl. Mater. Interfaces*, **2019**, *11*, 4393-4398.



145. "Covalent Organic Framework Decorated with Vanadium as a New Platform for Prins Reaction and Sulphide Oxidation" Vardhan, H.; Verma, G.; Ramani, S.; Nafady, A.; Al-Enizi, A.; Pan, Y.; Yang, Z.; Yang, H.; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2019**, *11*, 3070-3079.
146. "Antibodies@MOFs: in Vitro Protective Coating for Biopharmaceuticals Preparation and Storage" Feng, Y.; Wang, H.; Zhang, S.; Zhao, Y.; Gao, J.; Zhang, Z.; Zaworotko, M. J.; Cheng, P.; **Ma, S.\***; Chen, Y.\* *Adv. Mater.* **2019**, *31*, 1805148. ([Front Piece](#))
147. "Opportunities of Covalent Organic Frameworks for Advanced Applications" Song, Y.; Sun, Q.\*; Aguila, B.; **Ma, S.\*** *Adv. Sci.*, **2019**, *6*, 1801410. ([Front Piece](#))
148. "Metalloenzyme Mimicry at the Nodes of Metal-Organic Frameworks" Sun, Q.; Aguila, B.; **Ma, S.\*** *Chem*, *4*, 2736-2738. (Preview)
149. "How do Enzymes Orient when Trapped on Metal-Organic Framework (MOF) Surfaces?" Pan, Y.; Li, H.; Farmakes, J.; Xiao, F.; Chen, B.; **Ma, S.\***; Yang, Z.\* *J. Am. Chem. Soc.*, **2018**, *140*, 16032-16036.
150. "Covalent Organic Frameworks with Chirality Enriched by Biomolecules for Efficient Chiral Separation" Zhang, S.; Zheng, Y.; An, H.; Aguila, B.; Yang, C.-X.; Dong, Y.; Xie, W.; Cheng, P.; Zhang, Z.\*; Chen, Y.\*; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2018**, *57*, 16754-16759.
151. "Simultaneously Trapping C<sub>2</sub>H<sub>2</sub> and C<sub>2</sub>H<sub>6</sub> into a Robust Metal - Organic Framework from a Ternary Mixture of C<sub>2</sub>H<sub>2</sub>/C<sub>2</sub>H<sub>4</sub>/C<sub>2</sub>H<sub>6</sub> for Purification of C<sub>2</sub>H<sub>4</sub>" Hao, H.-G.; Zhao, Y.-F.; Chen, D.-M.; Yu, J.-M.; Tan, K.; **Ma, S.**; Chabal Y.; Zhang, Z.-M.; Dou, J.-M.; Xiao, Z.-H.; Day, G.; Zhou, H.-C.; Lu, T.-B. *Angew Chem. Int. Ed.*, **2018**, *57*, 16067-16071.
152. "Mussel-Inspired Polydopamine Chemistry to Modulate Template Synthesis of 1D Metal-Organic Framework Superstructures" Yu, B.; Ye, G.\*; Zeng, Z.; Zhang, L.; Chen, J.\*; **Ma, S.\*** *J. Mater. Chem. A*, **2018**, *6*, 21567-21576.
153. "Porous Brønsted Superacid as an Efficient and Durable Solid Catalyst" Sun, Q.; Hu, K.; Leng, K.; Yi, X.; Aguila, B.; Sun, Y.; Zheng, A.; Meng, X.; **Ma, S.**; Xiao, F.-S. *J. Mater. Chem. A*, **2018**, *6*, 18712-18719.
154. "Cobalt Nanoparticles Incorporated into Hollow Doped Porous Carbon Capsules as Highly Efficient Oxygen Reduction Electrocatalyst" Guo, F.\*; Yang, H.\*; Aguila, B.; Al-Enizi, A.; Nafady, A.; Singh, M.; Bansal, V.; **Ma, S.\*** *Catal. Sci. Technol.*, **2018**, *8*, 5244-5250.
155. "Metal-Organic Framework Anchored with Lewis Pair as a New Paradigm for Catalysis" Niu, Z.; Gunatilleke, W. D. C. B.; Sun, Q.; Lan, P. C.; Perman, J.; Ma, J.-G.; Cheng, Y.; Aguila, B.; **Ma, S.\*** *Chem*, **2018**, *4*, 2587-2599. (Highlighted in [C&EN](#); [Preview](#) by Prof. Douglas Stephan; Featured on [the 2018 November Issue Cover of Chem](#))
156. "Visualizing Structural Transformation and Guest Binding in a Flexible Metal–Organic Framework under High Pressure and Room Temperature" Yang, H.; Guo, F.; Lama, P.; Gao, W.-Y.; Wu, H.; Barbour, L.; Zhou, W.; Zhang, J.; Aguila, B.; **Ma, S.\*** *ACS Central Science*, **2018**, *4*, 1194-1200.

157. "Facile Approach to Graft Ionic Liquid into MOF for Improving the Efficiency of CO<sub>2</sub> Chemical Fixation" Sun, Y.; Huang, H.; Vardhan, H.; Aguila, B.; Zhong, C.; Perman, J. A.\*; Al-Enizi, A. M.; Nafady, A.; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2018**, *10*, 27124–27130.
158. "Creating Solvation Environments in Heterogeneous Catalysts for Efficient Biomass Conversion" Sun, Q.; Wang, S.; Aguila, B.; Meng, X.; **Ma, S.**; Xiao, F.-S. *Nature Commun.* **2018**, *9*, 3236.
159. "Fabrication of Light-Triggered Soft Artificial Muscles via a Mixed Matrix Membrane Strategy" Yu, Q.; Yang, X.; Chen, Y.; Yu, K.; Gao, J.; Liu, Z.; Cheng, P.\*; Zhang, Z.\*; Aguila, B.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2018**, *57*, 10192-10196. (VIP)
160. "Imparting Superwettability within Covalent Organic Frameworks for Functional Coating" Sun, Q.; Aguila, B.; Perman, J.; Butts, T.; Xiao, F.-S.; **Ma, S.\*** *Chem*, **2018**, *4*, 1726-1739.
161. "Lower Activation Energy for Catalytic Reactions through Host-Guest Cooperation within Metal-Organic Frameworks" Aguila, B.; Sun, Q.\*; Wang, X.; O'Rourke, E.; Al-Enizi, A. M.; Nafady, A.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2018**, *57*, 10107-10111. (VIP)
162. "Reversible switching between highly porous and non-porous phases of an interpenetrated diamondoid coordination network that exhibits gate-opening at methane storage pressures" Yang, Q.; Lama, P.; Sen, S.; Lusi, M.; Chen, K.-J.; Gao, W.; S, M.; Pham, T.; Kusaka, S.; Hosono, N.; Perry J.; **Ma, S.**; Space, B.; Barbour, L.; Kitagawa, S.; Zaworotko, M.\* *Angew Chem. Int. Ed.*, **2018**, *57*, 5684-5689.
163. "A General Synthetic Strategy to Libraries of Supported Multicomponent Metal Nanoparticles" Yang, H.; Bradley, S.; Wu, X.; Chan, A.; Waterhouse, G.; Nann, T.; Zhang, J.\*; Kruger, P.; **Ma, S.\***; Telfer, S\* *ACS Nano*, **2018**, *12*, 4594-4604.
164. "Bio-Inspired Nano-Traps for Uranium Extraction from Seawater and Recovery from Nuclear Waste" Sun, Q.; Aguila, B.; Perman, J.; Ivanov, A. S.; Bryantsev, V. S.; Earl, L.; Abney, C.; Wojtas, L.; **Ma, S.\*** *Nature Commun.* **2018**, *9*, 1644.
165. "Hydrogen-Bonding-Driven 3D Supramolecular Assembly of Peptidomimetic Zipper" Teng, P.; Niu, Z.; She, F.; Zhou, M.; Sang, P.; Gray, G.; Verma, G.; Wojtas, L.; van der Vaart, A.; **Ma, S.\***; Cai, J.\* *J. Am. Chem. Soc.*, **2018**, *140*, 5661-5665.
166. "A Stable Metal-Organic Framework Featuring Local Buffer Environment for Carbon Dioxide Fixation" He, H.; Sun, Q.; Gao, W.; Perman, J. A.; Sun, F.; Zhu, G.\*; Aguila, B.; Forrest, K.; Space B.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2018**, *57*, 4657-4662.
167. "Covalent Organic Frameworks as a Decorating Platform for Utilization and Affinity Enhancement of Chelating Sites for Radionuclide Sequestration" Sun, Q.; Aguila, B.; Earl, L. D.; Abney, C. W.; Wojtas, L.; Thallapally, P. K.; **Ma, S.\*** *Adv. Mater.* **2018**, *30*, 1705479.
168. "Azamacrocyclic-based Metal Organic Frameworks: Design Strategies and Applications" Stackhouse, C.; **Ma, S.\*** *Polyhedron*, **2018**, *145*, 154-165. (invited contribution)

169. "Pore Environment Control and Enhanced Performance of Enzymes Infiltrated in Covalent Organic Frameworks" Sun, Q.; Fu, C.-W.; Aguila, B.; Perman, J.; Wang, S.; Huang, H.-Y.\*; Xiao, F.-S.; **Ma, S.\*** *J. Am. Chem. Soc.*, **2018**, *140*, 984-992.
170. "A Metal-Metalloporphyrin Framework based on an Octatopic Porphyrin Ligand for Chemical Fixation of CO<sub>2</sub> with Aziridines" Wang, X.; Gao, W.-Y.; Niu, Z.; Wojtas, L.; Perman, J. A.; Chen, Y.-S.; Li, Z.\*; Aguila, B.; **Ma, S.\*** *Chem. Commun.* **2018**, *54*, 1170-1173.
171. "Boosting catalytic performance of metal-organic framework by increasing the defects via a facile and green approach" Ye, G.; Zhang, D.; Li, X.; Leng, K.; Zhang, W.; Ma, J.; Sun, Y.\*; Xu, W.; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2017**, *9*, 34937-34943.
172. "Thermal Conductivity of Perovskite-type Metal-Organic Framework Crystal" Gunatilleke, W. D. C. B.; Wei, K.; Niu, Z.; Wojtas, L.; Nolas, G.\*; **Ma, S.\*** *Dalton Trans.*, **2017**, *46*, 13342-13344.
173. "Molecular-level superhydrophobic external-surface to improve the stability of metal-organic frameworks" Sun, Y.; Sun, Q.; Huang, H.; Aguila, B.; Niu, Z.; Perman, J. A.\*; **Ma, S.\*** *J. Mater. Chem. A*, **2017**, *5*, 18770-18776.
174. "Post-Synthetic Transformation of a Zn(II) Polyhedral Coordination Network into a New Supramolecular Isomer of HKUST-1" Chen, Y.; Wojtas, L.; **Ma, S.**; Zaworotko, M. J.; Zhang, Z. *Chem. Commun.* **2017**, *53*, 8866-8869.
175. "Acid-base directed supramolecular isomers of isophthalate based MOFs for CO<sub>2</sub> adsorption and transformation" Perman, J. A.; Chen, M.; Antony, M.; Niu, Z.; **Ma, S.\*** *CrystEngComm*, **2017**, *19*, 4171 - 4174.
176. "Efficient Mercury Capture Using Functionalized Porous Organic Polymer" Aguila, B.; Sun, Q.; Perman, J. A.; Earl, L. D.; Abney, C. W.; Elzein, R.; Schlaf, R.; **Ma, S.\*** *Adv. Mater.* **2017**, *29*, 1700665.
177. "Partially Interpenetrated NbO Topology MOF Exhibiting Selective Gas Adsorption" Verma, G.; Kumar, S.\*; Pham, T.; Niu, Z.; Wojtas, L.; Perman, J. A.\*; Chen, Y.-S.; **Ma, S.\*** *Cryst. Growth Des.* **2017**, *17*, 2711-2717. (invited contribution to *Crystal Growth & Design* Virtual Special Issue on "Crystal Engineering of Nanoporous Materials for Gas Storage and Separation")
178. "Metal-organic framework and conducting polymer based electrochemical sensor for high performance cadmium ions detection" Wang, Y.\*; Wang, L.; Huang, W.; Zhang, T.; Hu, X.; Perman, J. A.; **Ma, S.\*** *J. Mater. Chem. A*, **2017**, *5*, 8385 - 8393.
179. "Functionalized Porous Aromatic Framework for Efficient Uranium Adsorption from Aqueous Solutions" Li, B.; Sun, Q.; Zhang, Y.; Abney, C.; Aguila, B.; Lin, W.; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2017**, *9*, 12511-12517.
180. "Investigation of Mesoporous Metal-Organic Framework as a New Platform to Study the Transport Phenomena of Biomolecules" Chen, Y.; Hong, S.; Fu, C.-W.; Hoang, T.; Li, X.; Valencia, V.; Zhang, Z.; Perman, J. A.; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2017**, *9*, 10874-10881.

181. "Post-synthetically Modified Covalent Organic Frameworks for Efficient and Effective Mercury Removal" Sun, Q.; Aguila, B.; Perman, J.; Earl, L.; Abney, C.; Cheng, Y.; Wei, H.; Nguyen, N.; Wojtas, L.; **Ma, S.\*** *J. Am. Chem. Soc.*, **2017**, *139*, 2786-2793.
182. "Enhancing the Biofuel Upgrade Performance for Pd Nanoparticles via Increasing the Support Hydrophilicity of Metal-Organic Frameworks" Sun, Q.; Chen, M.; Aguila, B.; Nguyen, N.; **Ma, S.\*** *Faraday Discuss.*, **2017**, *201*, 317-326. (invited contribution to the themed issue of "New directions in porous crystalline materials" in *Faraday Discussions*)
183. "Bifunctional Covalent Organic Framework as an Efficient Platform for Cascade Catalysis" Sun, Q.; Aguila, B.; **Ma, S.\*** *Mater. Chem. Front.*, **2017**, *1*, 1310-1316. (invited contribution to the themed collection of "Functional Open Framework Materials" from *Materials Chemistry Frontiers*)
184. "Anchoring Triazole-Gold(I) Complex into Porous Organic Polymer to Boost the Stability and Reactivity of Gold(I) Catalyst" Cai, R.; Ye, X.; Sun, Q.; He, Q.; He, Y.; **Ma, S.\***; Shi, X.\* *ACS Catal.*, **2017**, *7*, 1087-1092.
185. "Porous Ionic Polymers as a Robust and Efficient Platform for Capture and Chemical Fixation of Atmospheric CO<sub>2</sub>" Sun, Q.; Jin, Y.; Aguila, B.; Meng, X.\*; **Ma, S.\***; Xiao, F.-S. *ChemSusChem*, **2017**, *10*, 1160-1165.
186. "Flexibility Matters: Cooperative Active Sites in Covalent Organic Framework and Threaded Ionic Polymer" Sun, Q.; Aguila, B.; Perman, J. A.; Nguyen, N. T.-K.; **Ma, S.\*** *J. Am. Chem. Soc.*, **2016**, *138*, 15790-15796.
187. "From equilibrium based MOF adsorbent to kinetic selective carbon molecular sieve for paraffins/iso-paraffins separation" Li, B.; Belmabkhout, Y.; Zhang, Y.; Bhatt, P.; He, H.; Zhang, D.; Han, Y.; Eddaoudi, M.\*; Perman, J. A.; **Ma, S.\*** *Chem. Commun.* **2016**, *52*, 13897-13900.
188. "Advanced Photoemission Spectroscopy investigations correlated with DFT calculations on the self-assembly of 2D Metal Organic Frameworks nano thin films" Elzein, R.; Chang, C.-M.; Ponomareva, I.; Gao, W.Y.; **Ma, S.**; Schlaf, R. *ACS Appl. Mater. Interfaces*, **2016**, *8*, 31403-31412.
189. "Removal of Perchnetate-Related Oxyanion from Solution Using Functionalized Hierarchical Porous Frameworks" Banerjee, D.; Elsaidi, S. K.; Aguila, B.; Li, B.; Kim, D.; Schweiger, M. J.; Kruger, A. A.; Doonan, C. J.; **Ma, S.\***; Thallapally, P.\* *Chem. Eur. J.*, **2016**, *22*, 17581-17584.
190. "Metal-Organic Frameworks for CO<sub>2</sub> Chemical Transformations" He, H.; Perman, J. A.; Zhu, G.\*; **Ma, S.\*** *Small*. **2016**, *12*, 6309-6324 (Invited Contribution).
191. "Imparting Amphiphobicity on Single-Crystalline Porous Materials" Sun, Q.; He, H.; Gao, W.-Y.; Aguila, B.; Wojtas, L.; Dai, Z.; Li, J.; Chen, Y.-S.; Xiao, F.-S.\*; **Ma, S.\*** *Nat. Commun.* **2016**, *7*, 13300.
192. "Superhydrophobicity Matters: Protecting Homogeneous Catalysts from Hydrolytic Degradation by Constructing them into Superhydrophobic Porous Frameworks" Sun, Q.;

- Aguila, B.; Verma, G.; Liu, X.; Dai, Z.; Deng, F.; Meng, X.; Xiao, F.-S.\*; **Ma, S.\*** *Chem*, **2016**, *1*, 628-639.
193. "Investigation of a Microporous Iron (III) Porphyrin Framework Derived Cathode Catalyst in PEM Fuel Cells" Cantillo, N. M.; Goenaga, G. A.; Neal, C. A.; Gao, W.-Y.; Williams, K.; **Ma, S.**; More, K. L.; Zawodzinski, K. J. *Mater. Chem. A*, **2016**, *4*, 15621-15630.
194. "A bifunctional metal-organic framework featuring the combination of open metal sites and Lewis basic sites for selective gas adsorption and heterogeneous cascade catalysis" He, H.; Sun, F.; Aguila, B.; Perman, J. A.; **Ma, S.\***; Zhu, G.\* *J. Mater. Chem. A*, **2016**, *4*, 15240-15246.
195. "Reticular Synthesis of a Series of HKUST-like MOFs with Carbon Dioxide Capture and Separation" He, H.; Sun, F.; **Ma, S.\***; Zhu, G.\* *Inorg. Chem.*, **2016**, *55*, 9071-9076.
196. "Giant Electrorheological Fluids with Ultrahigh Electrorheological Efficiency based on Micro/Nano Hybrid Calcium Titanate Oxalate Composite" Wu, J.; Song, Z.; Liu, F.; Guo, J.; Cheng, Y.\*; **Ma, S.\***; Xu, G. *NPG Asia Materials*, **2016**, *8*, e322.
197. "Fabrication of Highly Sensitive and Stable Hydroxylamine Electrochemical Sensor Based on Gold Nanoparticles and Metal-Metalloporphyrin Framework Modified Electrode" Wang, Y.\*; Wang, L.; Chen, H.; Hu, X.; **Ma, S.\*** *ACS Appl. Mater. Interfaces*, **2016**, *8*, 18173-18181.
198. "An Interpenetrating Metal-Metalloporphyrin Framework for Selective CO<sub>2</sub> Uptake and Chemical Transformation of CO<sub>2</sub>" Gao, W.-Y.; Tsai, C.-Y.; Wojtas, L.; Thiounn, T.; Lin, C.-C.; **Ma, S.\*** *Inorg. Chem.*, **2016**, *55*, 7291-7294. (invited contribution to the *Inorganic Chemistry Forum* on "Metal-Organic Frameworks for Energy Applications")
199. "Dual Functionalized Cages in Metal-Organic Frameworks via Stepwise Post-Synthetic Modification" Li, B.; Ma, D.; Li, Y.; Zhang, Y.; Li, G.; Shi, Z.\*; Feng, S.; Zaworotko, M.\*; **Ma, S.\*** *Chem. Mater.* **2016**, *28*, 4781-4786.
200. "A Lanthanide Metal-Organic Framework based on a Custom-Designed Macrocyclic Ligand" Stackhouse, C.; Gao, W.-Y.; Wojtas, L.; **Ma, S.\*** *J. Coord. Chem.*, **2016**, *69*, 1844-1851. (invited contribution to the Emerging Leaders Issue)
201. "Investigation of Oxygen Reduction Activity of Catalysts Derived from Co and Co/Zn Methyl-Imidazolate Frameworks in Proton Exchange Membrane Fuel Cells" Chong, L.; Goenaga, G. A.; Williams, K.; Barkholtz, H. M.; Grabstanowicz, L. R.; Papandrew, A. B.; Elzein, R.; Schlaf, R.; Zawodzinski, T. A.; Zou, J.; Ma, S.; Liu, D.-J. *ChemElectroChem*, **2016**, *3*, 1541-1545.
202. "Metal-Metalloporphyrin Framework Modified with Flexible tert-Butyl Groups for Selective Gas Adsorption" Zhang, W.; Wojtas, Y.; Jiang, P.\*; **Ma, S.\*** *ChemPlusChem*, **2016**, *81*, 714-717. (invited contribution to the Special Issue "Coordination Polymers/MOFs: Structures, Properties and Applications")

203. "Two Highly Porous Single-Crystalline Zirconium-Based Metal-Organic Frameworks" Gao, W.-Y.; Thiounn, T.; Wojtas, Y.; Chen, Y.-S.; **Ma, S.\*** *Science China Chemistry*, **2016**, 59, 980-983. (invited contribution to the *themed issue of "MOFs"*)
204. "Anionic metal-organic framework for selective dye removal and CO<sub>2</sub> fixation" Kumar, S.; Verma, G.; Gao, W.-Y.; Niu, Z.; Wojtas, L.; **Ma, S.\*** *Eur. J. Inorg. Chem.* **2016**, 4373-4377. (invited contribution to the *thematic issue on "Metal-Organic Frameworks – Heading Towards Application"*)
205. "Selective Removal of Cesium and Strontium using Porous Frameworks from high level Nuclear Waste" Aguila, B.; Banerjee, D.; Nie, Z.; Shin, Y.; **Ma, S.**; Thallapally, P. *Chem. Commun.* **2016**, 52, 5940-5942.
206. "Inserting CO<sub>2</sub> into Aryl C-H Bond of Metal-Organic Framework: CO<sub>2</sub> Utilization for Direct Heterogeneous C-H Activation" Gao, W.-Y.; Wu, H.; Leng, K.; Sun, Y.; **Ma, S.\*** *Angew Chem. Int. Ed.*, **2016**, 55, 5472-5476.
207. "Biomimetic Catalysis of Metal-Organic Frameworks" Chen, Y.; **Ma, S.\*** *Dalton Trans.*, **2016**, 45, 9744-9753. (invited contribution to the *themed issue on New Talent: Americas*)
208. "Nanoporous Carbons Derived from Metal-Organic Frameworks as Novel Matrices for Surface-Assisted Laser Desorption/Ionization Mass Spectrometry" Shih, Y.-H.; Fu, C.-P.; Liu, W.-L.; Lin, C.-H.\*; Huang, H.-Y.\*; **Ma, S.\*** *Small*. **2016**, 12, 2057-2066 (VIP and Front Piece).
209. "A robust metal-metalloporphyrin framework based upon a secondary building unit of infinite nickel oxide chain" Zhang, W.; Gao, W.-Y.; Pham, T.; Jiang, P.\*; **Ma, S.\*** *Cryst. Growth Des.* **2016**, 15, 1005-1009.
210. "Imparting Brønsted Acidity into a Zeolitic Imidazole Framework" Willaims, K.; Meng, L.; Lee, S.; Lux, L.; Gao, W.-Y.; **Ma, S.\*** *Inorg. Chem. Front.* **2016**, 3, 393-396. (invited contribution to the "*Emerging Investigator*" themed collection)
211. "Creation of a New Type of Ion Exchange Materials for Rapid, High-Capacity, Reversible and Selective Ion Exchange without Swelling and Entrainment" Li, B.; Zhang, Y.; Ma, D.; Xing, Z.; Ma, T.; Shi, Z.\*; Ji, X.; **Ma, S.\*** *Chem. Sci.*, **2016**, 7, 2138-2144.
212. "An Effective Strategy to Boost the Robustness of Metal-Organic Frameworks via Introducing Size-Matching Ligand Braces" Wang, X.\*; Gao, W.-Y.; Luan, J.; Wojtas, L.; **Ma, S.\*** *Chem. Commun.* **2016**, 52, 1971-1974.
213. "Applications of Metal-Organic Frameworks Featuring multi-Functional Sites" Li, B.; Chrzanowski, M.; Zhang, Y.; **Ma, S.\*** *Coord. Chem. Rev.* **2016**, 307, 106-129.
214. "Coordination-driven Polymerization of Supramolecular Nanocages" Niu, Z.; Fang, S.; Liu, X.; Ma, J.-G.\*; **Ma, S.\***; Cheng, P. *J. Am. Chem. Soc.*, **2015**, 137, 14873-14876.
215. "Hierarchical Porous Ionic Organic Polymer as a New Platform for Heterogeneous Phase Transfer Catalysis" Sun, Q.; **Ma, S.\***; Dai, Z.; Meng, X.; Xiao, F.-S.\* *J. Mater. Chem. A*, **2015**, 3, 23871-23875.

216. "Theoretical Insights into the Tuning of Metal Binding Sites of Paddlewheels in *rht*-Metal-Organic Frameworks" Pham, T.; Forrest, K.; Gao, W.-Y.; **Ma, S.**; Space, B.\* *ChemPhysChem*, **2015**, *16*, 3170-3179.
217. "Functionalized Metal-Organic Framework as a New Platform for Efficient and Selective Removal of Cadmium (II) from Aqueous Solution" Wang, Y.\*; Ye, G.; Chen, H.; Hu, X.; Niu, Z.; **Ma, S.**\* *J. Mater. Chem. A*, **2015**, *3*, 15292-15298.
218. "Local Electric Field Favours More than Exposed Nitrogen Atoms on CO<sub>2</sub> Capture: a Case Study on the *rht*-type MOF Platform" Gao, W.-Y.; Pham, T.; Forrest, K.; Wojtas, L.; Space, B.; Chen, Y.-S.; **Ma, S.**\* *Chem. Commun.* **2015**, *51*, 9636-9639.
219. "Creating Extra Pores in Microporous Carbon via a Template Strategy for Remarkable Enhancement of Ambient-Pressure CO<sub>2</sub> Uptake" Gao, W.-Y.; Leng, K.; Cash, L.; Chrzanowski, M.; Stackhouse, C. A.; Sun, Y.; **Ma, S.**\* *Chem. Commun.* **2015**, *51*, 8683-8686.
220. "Metal-Organic Framework based upon the Synergy of Brønsted Acid Framework and Lewis Acid Center as Highly Efficient Heterogeneous Catalyst for Fixed Bed Reactions" Li, B.; Leng, K.; Zhang, Y.; Dynes, J.; Wang, J.; Hu, Y.; Ma, D.; Shi, Z.; Zhu, L.; Zhang, D.; Sun, Y.\*; Chrzanowski, M.; **Ma, S.**\* *J. Am. Chem. Soc.*, **2015**, *137*, 4243-4248.
221. "Remote Stabilization of Copper Paddlewheel based Molecular Building Blocks in Metal-Organic Frameworks" Gao, W.; Cai, R.; Pham, T.; Forrest, K.; Hogan, A.; Nugent, P.; Williams, K.; Wojtas, L.; Luebke, R.; Weselinski, L.; Zaworotko, M.; Space, B.; Chen, Y.-S.; Eddaoudi, M.; Shi, X.; **Ma, S.**\* *Chem. Mater.* **2015**, *27*, 2144-2151.
222. "Investigation of Prototypal MOFs Consisting of Polyhedral Cages with Accessible Lewis-Acid Sites for Quinoline Synthesis" Gao, W.-Y.; Leng, K.; Cash, L.; Chrzanowski, M.; Stackhouse, C. A.; Sun, Y.; **Ma, S.**\* *Chem. Commun.* **2015**, *51*, 4827-4829.
223. "Open Metal Sites Dangled on Cobalt Trigonal Prismatic Clusters within Porous MOF for CO<sub>2</sub> Adsorption" Gao, W.-Y.; Palakurty, S.; Wojtas, L.; Chen, Y.-S.; **Ma, S.**\* *Inorg. Chem. Front.* **2015**, *2*, 369-372.
224. "Highly Selective Adsorption of Ethylene over Ethane in a MOF Featuring the Combination of Open Metal Site and  $\pi$ -Complexation" Zhang, Y.; Li, B.; Krishna, R.; Wu, Z.; Ma, D.; Shi, Z.; Pham, T.; Forrest, K.; Space, B.; **Ma, S.**\* *Chem. Commun.* **2015**, *51*, 2714-2717.
225. "A new photoactive Ru(II)tris(2,2'-bipyridine) templated Zn(II) benzene-1,4-dicarboxylate metal organic framework: structure and photophysical properties" Whittington, C. L.; Wojtas, L.; Gao, W.; **Ma, S.**; Larsen, R. W.\* *Dalton Trans.*, **2015**, *44*, 5331-5337.
226. "Sulfono- $\gamma$ -AApeptides as a New Class of Nonnatural Helical Foldamer" Wu, H.; Qiao, Q.; Hu, Y.; Teng, P.; Gao, W.; Zuo, X.; Wojtas, L.; Larsen, R. W.; **Ma, S.**; Cai, J. *Chem. Eur. J.* **2015**, *21*, 2501-2507.
227. Lux, L.; Williams, K.; **Ma, S.**\* "Heat-Treatment of Metal-Organic Frameworks for Green Energy Applications" *CrystEngComm*, **2015**, *17*, 10-22.

228. Wu, H.; She, F.; Gao, W.-Y.; Prince, A.; Li, Y.; Wei, L.; Mercer, A.; Wojtas, L.; **Ma, S.**; Cai, J. "The Synthesis of Head-to-Tail Cyclic Sulfonyl-AApeptides" *Org. Biomol. Chem.* **2015**, *13*, 672-676.
229. Yaghoubi, H.; Li, Z.; Chen, Y.; Ngo, H. T.; Bhethanabotla, V.; Joseph, B.; **Ma, S.**; Schlaf, R.; Takshi, A. "Toward a Visible Light-Driven Photocatalyst: The Effect of Midgap States-Induced Energy Gap of Undoped TiO<sub>2</sub> Nanoparticles" *ACS Catal.* **2015**, *5*, 327-335.
230. Xing, Z.; Wang, B.; Gao, W.; Pan, C.; Halsted, J. K.; Chong, E. S.; Lu, J.; Wang, X.; Luo, W.; Chang, C.-H.; Wen, Y.; **Ma, S.**; Amine, K.; Ji, X. "Reducing CO<sub>2</sub> to Dense Nanoporous Graphene by Mg/Zn for High Power Electrochemical Capacitors" *Nano Energy*, **2015**, *11*, 600-610.
231. Li, B.; Zhang, Y.; Ma, D.; Shi, Z.; **Ma, S.\*** "Mercury "Nano-trap" for Highly Effective and Highly Efficient Removal of Mercury(II) from Aqueous Solution" *Nat. Commun.* **2014**, *5*, 5537. (Highlighted in [C&EN](#))
232. Chen, Y.; Han, S.; Li, X.; Zhang, Z.; **Ma, S.\*** "Why doesn't enzyme leach from MOF? Unveiling the interactions between enzyme molecule and MOF" *Inorg. Chem.* **2014**, *53*, 10006-10008.
233. Gao, W.-Y.; **Ma, S.\*** "Beyond Custom Design of Organic Ligands: An Integrative Strategy for Metal-Organic Frameworks Design" *Comment. Inorg. Chem.* **2014**, *34*, 125-141.
234. Zhang, Y.; Li, B.; **Ma, S.\*** "Dual functionalization of porous aromatic frameworks as a new platform for heterogeneous cascade catalysis" *Chem. Commun.* **2014**, *50*, 8507-8510.
235. Li, B.; Zhang, Y.; Krishna, R.; Yao, K.; Han, Y.; Wu, Z.; Ma, D.; Shi, Z.; Pham, T.; Space, B.; Liu, J.; Thallapally, P.; Liu, J.; Chrzanowski, M.; **Ma, S.\*** "Introduction of pi-Complexation into Porous Aromatic Framework for Highly Selective Adsorption of Ethylene over Ethane" *J. Am. Chem. Soc.*, **2014**, *136*, 8654-8660.
236. Gao, W.-Y.; Chrzanowski, M.; **Ma, S.\*** "Metal-Metalloporphyrin Frameworks: Resurging Class of Functional Materials" *Chem. Soc. Rev.* **2014**, *43*, 5841-5866.
237. Bommier, C.; Luo, W.; Gao, W.-Y.; Greaney, A.; **Ma, S.**; Ji, X. "Predicting capacity of hard carbon anodes in sodium-ion batteries using porosity measurements" *Carbon*, **2014**, *76*, 165-174.
238. Wang, X.-S.; Chrzanowski, M.; Yuan, D.; Sweeting, B.; **Ma, S.\*** "Covalent Haem Framework as Highly Active Heterogeneous Biomimetic Oxidation Catalyst" *Chem. Mater.* **2014**, *26*, 1639-1644.
239. Li, B.; Zhang, Y.; Ma, D.; Ma, T.; Shi, Z.; **Ma, S.\*** "Metal cation directed *de novo* assembly of functionalized guest molecule into the nanospace of metal-organic framework" *J. Am. Chem. Soc.*, **2014**, *136*, 1202-1205.
240. Gao, W.-Y.; Chen, Y.; Niu, Y.; Williams, K.; Cash, L.; Perez, P. J.; Wojtas, L.; Cai, J.; Chen, Y.-S.; **Ma, S.\*** "Crystal engineering of an nbo topology MOF for chemical fixation of CO<sub>2</sub>



- under ambient conditions" *Angew Chem. Int. Ed.*, **2014**, *53*, 2615-2619. (Highlighted by [Synfacts](#))
241. Gao, W.-Y.; Wojtas, L.; **Ma, S.\*** "A Porous Metal-Metalloporphyrin Framework Featuring High-Density Active Sites for Chemical Fixation of CO<sub>2</sub> under Ambient Conditions" *Chem. Commun.* **2014**, *50*, 5316-5318.
242. Gao, W.-Y.; Cai, R.; Meng, L.; Wojtas, L.; Zhou, W.; Yildirim, T.; Shi, X.\*; **Ma, S.\*** "Quest for High-Connected Robust Porous Metal-Organic Framework on the Basis of a Bifunctional Linear Linker and a Rare Heptanuclear Zinc Cluster" *Chem. Commun.* **2013**, *49*, 10516-10518.
243. Zhang, Y.; Li, B.; Williams, K.; Gao, W.-Y.; **Ma, S.\*** "A New Microporous Carbon Material Synthesized via Thermolysis of Porous Aromatic Framework Embedded with Extra Carbon Source for Low-Pressure CO<sub>2</sub> Uptake" *Chem. Commun.* **2013**, *49*, 10269-10271.
244. Zhang, Z.; Ji, Y.; Wojtas, L.; Gao, W.-Y.; **Ma, S.**; Zaworotko, M. J.; Antilla, J. C. "Two Homochiral Organocatalytic Metal Organic Materials with Nanoscopic Channels" *Chem. Commun.* **2013**, *49*, 7693-7695.
245. Yaghoubi, H.; Dayerizadeh, A.; Han, S.; Mulaj, M.; Gao, W.; Li, X.; Muschol, M.; Ma, S.; Taks, A. "The effect of surfactant-free TiO<sub>2</sub> surface hydroxyl groups on physicochemical, optical and self-cleaning properties of developed coatings on polycarbonate" *J. Phys. D: Appl. Phys.* **2013**, *46*, 505316.
246. Gao, W.-Y.; Zhang, Z.; Cash, L.; Wojtas, L.; Chen, Y.-S.; **Ma, S.\*** "Two Rare Indium-based Porous Metal-Metalloporphyrin Frameworks Exhibiting Interesting CO<sub>2</sub> Uptake." *CrystEngComm*, **2013**, *15*, 9320-9323 (invited contribution to the themed issue of *Structural Design of Coordination Polymers*).
247. Nugent, P.; Belmabkhout, Y.; Burd, S. D.; Cairns, A. J.; Forrest, K.; **Ma, S.**; Space, B.; Wojtas, L.; Luebke, R.; Eddaoudi, M.; Zaworotko, M. J. "Porous materials with optimal adsorption thermodynamics and kinetics for effective CO<sub>2</sub> separations." *Nature*, **2013**, *495*, 80-84.
248. Wang, X.-S.; Chrzanowski, M.; Wojtas, L.; Chen, Y.-S.; **Ma, S.\*** "Formation of a Metalloporphyrin-Based Nanoreactor by Post-Synthetic Metal-ion Exchange of a Polyhedral-Cage Containing Metal-Metalloporphyrin Framework." *Chem. Eur. J.* **2013**, *19*, 3297-3301.
249. Wang, X.-S.; Liu, J.; Bonfont, J. M.; Yuan, D.-Q.; Thallapally, P. K. **Ma, S.\*** "A porous covalent porphyrin framework with exceptional uptake capacity of saturated hydrocarbons for oil spill cleanup." *Chem. Commun.* **2013**, *49*, 1533-1535.
250. Risset, O. N.; Knowles, E. S.; **Ma, S.**; Meisel, M. W.; Talham, D. R. "Rb<sub>i</sub>M<sub>k</sub>[Fe(CN)<sub>6</sub>]<sub>l</sub> (M = Co, Ni) Prussian Blue Analogue Hollow Nanocubes: a New Example of a Multilevel Pore System." *Chem. Mater.* **2013**, *25*, 42-47.
251. Chen, Y.; Hoang, T.; **Ma, S.\*** "Biomimetic catalysis of a porous Fe-based metal-metalloporphyrin framework." *Inorg. Chem.*, **2012**, *51*, 12600-12602.

252. Meng, L.; Cheng, Q.; Kim, C.; Gao, W.-Y.; Wojtas, L.; Cheng, Y.-S.; Zaworotko, M. J.; Zhang, X. P.; **Ma, S.\*** "Crystal engineering of a microporous, catalytically active fcu topology MOF using a custom-designed metalloporphyrin linker." *Angew Chem. Int. Ed.* **2012**, *51*, 10082-10085.
253. Niu, Y.; Wu, H.; Huang, R.; Qiao, Q.; Costanza, F.; Wang, X.-S.; Hu, Y.; Amin, M.; Nguyen, A.-M.; Zhang, J.; Haller, E.; **Ma, S.**; Li, X.; Cai, J. "Nanorods formed from a new class of peptidomimetics." *Macromolecules*, **2012**, *45*, 7350-7355.
254. Zhang, Z.; Gao, W.-Y.; Wojtas, L.; **Ma, S.**; Eddaoudi, M.; Zaworotko, M. J. "Post-Synthetic Modification of Porphyrin-Encapsulating Metal–Organic Materials by Cooperative Addition of Inorganic Salts to Enhance CO<sub>2</sub>/CH<sub>4</sub> Selectivity." *Angew Chem. Int. Ed.*, **2012**, *51*, 9330-9334.
255. Chen, Y.; Lykourinou, V.; Hoang, T.; Ming, L.-J.; **Ma, S.\*** "Size-Selective Biocatalysis of Myoglobin@Mesoporous Metal–Organic Framework." *Inorg. Chem.*, **2012**, *51*, 9156-9158.
256. Chen, Y.; Lykourinou, V.; Hoang, T.; Ming, L.-J.; Larsen, R. W.; **Ma, S.\*** "How Can Proteins Enter the Interior of a MOF? Investigation of Cytochrome *c* Translocation into a MOF Consisting of Mesoporous Cages with Microporous Windows." *J. Am. Chem. Soc.*, **2012**, *134*, 13188-13191.
257. Lin, C.-K.; Zhao, D.; Gao, W.-Y.; Yang, Z.; Ye, J.; Xu, T.; Ge, Q.; **Ma, S.\***; Liu, D.-J. "Tunability of Band Gaps in Metal–Organic Frameworks." *Inorg. Chem.*, **2012**, *51*, 9039-9044.
258. Chen, Y.; **Ma, S.\*** "Microporous Lanthanide Metal–Organic Frameworks." *Rev. Inorg. Chem.*, **2012**, *32*, 81-100.
259. Gao, W.-Y.; Niu, Y.; Chen, Y.; Wojtas, L.; Cai, J.; Chen, Y.-S.; **Ma, S.\*** "Porous Metal–Organic Framework Based on a Macrocyclic Tetracarboxylate Ligand Exhibiting Selective CO<sub>2</sub> Uptake." *CrystEngComm*, **2012**, *14*, 6115-6117. (Inside Cover)
260. Gao, W.-Y.; Yan, W.; Cai, R.; Williams, K.; Salas, A.; Wojtas, L.; Shi, X.; **Ma, S.\*** "A Pillared Metal-organic Framework Incorporated with 1,2,3-Triazole Moiety Exhibiting Remarkable Enhancement of CO<sub>2</sub> Uptake." *Chem. Commun.*, **2012**, *48*, 8988-8990.
261. Wang, X.-S.; Chrzanowski, M.; Gao, W.-Y.; Wojtas, L.; Chen, Y.-S.; Zaworotko, M. J.; **Ma, S.\*** "Vertex-Directed Self-Assembly of a High Symmetry Supramolecular Building Block Using a Custom-Designed Porphyrin." *Chem. Sci.*, **2012**, *3*, 2823-2827.
262. Wang, X.-S.; Chrzanowski, M.; Kim, C.; Gao, W.-Y.; Wojtas, L.; Chen, Y.-S.; Zhang, X. P.; **Ma, S.\*** "Quest for Highly Porous Metal-Metalloporphyrin Framework based upon a Custom-Designed Octatopic Porphyrin Ligand." *Chem. Commun.*, **2012**, *48*, 7173-7175.
263. Gao, W.-Y.; Yan, W.; Cai, R.; Meng, L.; Salas, A.; Wang, X.-S.; Wojtas, L.; Shi, X.; **Ma, S.\*** "Porous Double-Walled Metal Triazolene Framework Based upon a Bifunctional Ligand and a Pentanuclear Zinc Cluster Exhibiting Selective CO<sub>2</sub> Uptake." *Inorg. Chem.*, **2012**, *51*, 4423-4425.

264. Burd, S. D.; **Ma, S.**; Perman, J. A.; Sikora, B. J.; Snurr, R. Q.; Thallapally, P. K.; Tian, J.; Wojtas, L.; Zaworotko, M. J. "Highly Selective Carbon Dioxide Uptake by [Cu(bpy-n)<sub>2</sub>(SiF<sub>6</sub>)] (bpy-1 = 4,4'-bipyridine; bpy-2 = 1,2-bis(4-pyridyl)ethene)." *J. Am. Chem. Soc.*, **2012**, *134*, 3363-3366.
265. Wang, X.-S.; Meng, L.; Cheng, Q.; Kim, C.; Wojtas, L.; Chrzanowski, M.; Chen, Y.-S.; Zhang, X. P.; **Ma, S.\*** "A Three-Dimensional Porous Metal-Metalloporphyrin Framework Consisting of Nanoscopic Polyhedral Cages." *J. Am. Chem. Soc.*, **2011**, *133*, 16322-16325.
266. Lykourinou, V.; Chen, Y.; Wang, X.-S.; Meng, L.; Hoang, T.; Ming, L.-J.; Musselman, R. L.; **Ma, S.\*** "Immobilization of MP-11 into a Mesoporous MetalOrganic Framework, MP-11@mesoMOF: A New Platform for Enzymatic Catalysis." *J. Am. Chem. Soc.* **2011**, *133*, 10382-10385.
267. Tian, J.; **Ma, S.**; Thallapally, P. K. Fowler, D.; McGraila, B P. Atwood, J. L. "Cucurbit[7]uril: an amorphous molecular material for highly selective carbon dioxide uptake." *Chem. Commun.*, **2011**, *47*, 7626-7628.
268. **Ma, S.\***; Meng, L. "Energy-Related Applications of Functional Porous Metal-Organic Frameworks." *Pure & Appl. Chem.*, **2011**, *83*, 167-188.

**From Work Prior to USF:**

269. **Ma, S.**; Goenaga, G. A.; Call, A. V.; Liu, D. J. "Cobalt Imidazolate Framework as Precursor for Oxygen Reduction Reaction Electrocatalysts." *Chem. Eur. J.* **2011**, *17*, 2063-2067.
270. Chen, Z.; Ren, Y.; Qin, Y.; Wu, H.; **Ma, S.**; Ren, J.; He, X.; Sune, Y.-K. Amine, K. "Solid state synthesis of LiFePO<sub>4</sub> studied by in situ high energy X-ray diffraction." *J. Mater. Chem.*, **2011**, *21*, 5604-5609.
271. Liu, D.-J.; Goenaga, G.; **Ma, S.**; Yuan, S.; Shui, J. "New approaches to non-PGM catalysts through rational design." *ECS Transactions* **2011**, *30*, 97-104.
272. Goenaga, G.; **Ma, S.**; Yuan, S.; Liu, D. J. "New approaches to non-PGM electrocatalysts using porous framework materials." *ECS Transactions* **2010**, *33*, 579-586.
273. **Ma, S.**; Zhou, H.-C. "Gas Storage in Porous Metal-Organic Frameworks for Clean Energy Applications." *Chem. Commun.* **2010**, *46*, 44-53.
274. Sun, D.; **Ma, S.**; Simmons, J. M.; Li, J.-R.; Zhou, H.-C. "An Unusual Case of Symmetry-Preserving Isomerism." *Chem. Commun.* **2010**, *46*, 1329-1331.
275. Zhuang, W. J.; **Ma, S.**; Wang, X.-S.; Yuan, D.; Li, J.-R.; Zhao, D.; Zhou, H.-C. "Introduction of Cavities up to 4 nm into a Hierarchically-Assembled Metal-Organic Framework Using an Angular Tetratopic Ligand." *Chem. Commun.* **2010**, *46*, 5223-5225.
276. Wu, H.; Simmons, J. M.; Liu, Y.; Brown, C. M.; Wang, X.-S.; **Ma, S.**; Peterson, V. K.; Kepert, C. J.; Zhou, H.-C.; Yildirim, T.; Zhou, W. "Metal-Organic Frameworks with Exceptionally High Methane Uptake: Where and How is Methane Stored?" *Chem. Eur. J.* **2010**, *16*, 5205-5214.

277. Zhang, Z.; Xiang, S.; Chen, Y.-S.; **Ma, S.**; Lee, Y.; Phely-Bobin, T.; Chen, B. "A Robust Highly Interpenetrated Metal-Organic Framework Constructed from Pentanuclear Clusters for Selective Sorption of Gas Molecules." *Inorg. Chem.* **2010**, *49*, 8444-8448.
278. **Ma, S.**; Sun, D.; Yuan, D.; Wang, X.-S.; Zhou, H.-C. "The Preparation and Gas Adsorption Studies of Three Mesh-Adjustable Molecular Sieves with a Common Structure." *J. Am. Chem. Soc.* **2009**, *131*, 6445-6451.
279. Ben, T.; Ren, H.; **Ma, S.**; Cao, D.; Lan, J.; Jing, X.; Wang, W.; Xu, J.; Deng, F.; Simmons, J. M.; Qiu, S.; Zhu, G.; "Targeted Synthesis of a Porous Aromatic Framework with High Stability and Exceptionally High Surface Area." *Angew Chem. Int. Ed.* **2009**, *48*, 9457-9460.
280. **Ma, S.**; Simmons, J. M.; Yuan, D.; Li, J.-R.; Weng, W.; Liu, D.-J.; Zhou, H.-C. "A Nanotubular Metal-Organic Framework with Permanent Porosity: Structure Analysis and Gas Sorption Studies." *Chem. Commun.* **2009**, 4049-4051.
281. **Ma, S.**; Yuan, D.; Chang, J.-S.; Zhou, H.-C. "Investigation of Gas Adsorption Performances and H<sub>2</sub> Affinities of Porous Metal-Organic Frameworks with Different Entatic Metal Centers." *Inorg. Chem.* **2009**, *48*, 5398-5402.
282. **Ma, S.**; Simmons, J. M.; Sun, D.; Yuan, D.; Zhou, H.-C. "Porous Metal-Organic Frameworks Based on an Anthracene Derivative: Syntheses, Structure Analysis and Hydrogen Sorption Studies." *Inorg. Chem.* **2009**, *48*, 5263-5268.
283. **Ma, S.**; Sun, D.; Forster, P. M.; Yuan, D.; Zhuang, W.; Chen, Y.-S.; Parise, J.; Zhou, H.-C. "A Three-Dimensional Porous Metal-Organic Framework Constructed from Two-Dimensional Sheets via Interdigitation Exhibiting Dynamic Features." *Inorg. Chem.* **2009**, *48*, 4616-4618.
284. **Ma, S.**; Wang, X.-S.; Yuan, D.; Zhou, H.-C. "Microporous Lanthanide Metal-Organic Frameworks Containing Coordinatively Linked Interpenetration: Syntheses, Gas Adsorption Studies, Thermal Stability Analysis, and Photoluminescence Investigation." *Inorg. Chem.* **2009**, *48*, 2072-2077.
285. Wang, X.-S.; **Ma, S.**; Yuan, D.; Yoon, J.; Hwang, Y.; Chang, J.-S.; Wang, X.; Jørgensen, M.; Chen, Y.-S.; Zhou, H.-C. "A Large-Surface-Area Boracite-Network-Topology Porous MOF Constructed from Conjugated Ligand Exhibiting High Hydrogen Uptake Capacity." *Inorg. Chem.* **2009**, *48*, 7519-7521.
286. **Ma, S.** "Gas Adsorption Applications of Porous Metal-Organic Frameworks." *Pure & Appl. Chem.* **2009**, *81*, 2235-2251.
287. **Ma, S.**; Eckert, J.; Forster, P.; Yoon, J.; Hwang, Y. K.; Chang, J.-S.; Collier, C. D.; Parise, J. B.; Zhou, H.-C. "Further Investigation of the Effect of Framework Catenation on Hydrogen Uptake in Metal-Organic Frameworks." *J. Am. Chem. Soc.* **2008**, *130*, 15896-15902.
288. **Ma, S.**; Sun, D.; Simmons, J. M.; Collier, C. D.; Yuan, D.; Zhou, H.-C. "Metal-Organic Framework from an Anthracene Derivative Containing Nanoscopic Cages Exhibiting High Methane Uptake." *J. Am. Chem. Soc.* **2008**, *130*, 1012-1016.

289. **Ma, S.**; Wang, X.-S.; Yuan, D. Zhou, H. C. "A Coordinatively Linked, Doubly Interpenetrated, Yb Metal-Organic Framework Demonstrates High Thermal Stability and Uncommon Gas-Adsorption Selectivity." *Angew Chem. Int. Ed.* **2008**, *47*, 4130-4133.
290. Wang, X.-S.; **Ma, S.**; Forster, P. M.; Yuan, D. Eckert, J.; López, J. J.; Murphy, B. J.; Parise, J. B.; Zhou, H.-C. "Enhancing H<sub>2</sub> Uptake by "Close-Packing" Alignment of Open Copper Sites in Metal-Organic Frameworks." *Angew Chem. Int. Ed.* **2008**, *47*, 7263-7266.
291. Luo, J.; Xu, H.; Liu, Y.; Zhao, Y.; Daemen, L. L.; Brown, C.; Timofeeva, T. V.; **Ma, S.**; Zhou, H.-C. "Hydrogen Adsorption in a Highly Stable Porous Rare-Earth Metal-Organic Framework: Sorption Properties and Neutron Diffraction Studies" *J. Am. Chem. Soc.* **2008**, *130*, 9626-9627.
292. Wang, X.-S.; **Ma, S.**; Rauch, K.; Simmons, J. M.; Yuan, D.; Wang, X.; Yildirim, T.; Cole, W. C.; López, J. J.; de Meijere, A.; Zhou, H.-C. "Metal-Organic Frameworks Based on Double-Bond-Coupled Di-Isophthalate Linkers Containing Nanoscopic Cages with High Hydrogen and Methane Uptakes." *Chem. Mater.* **2008**, *20*, 3145-3152.
293. Xue, M.; **Ma, S.**; Jin, Z.; Schaffino, R. M.; Zhu, G.-S.; Lobkovsky, E. B.; Qiu, S.-L.; Chen, B. "Robust Metal-Organic Framework Enforced by Triple-Framework Interpenetration Exhibiting High H<sub>2</sub> Storage Density." *Inorg. Chem.* **2008**, *47*, 6825-6828.
294. Gung, B. W.; Zou, Y.; Xu, Z.; Amicangelo, J. C.; Irwin, D. G.; **Ma, S.**; Zhou, H.-C. "Quantitative Study of Interactions between Oxygen Lone Pair and Aromatic Rings: Substituent Effect and the Importance of Closeness of Contact." *J. Org. Chem.* **2008**, *73*, 689-693.
295. **Ma, S.**; Sun, D.; Ambrogio, M.; Fillinger, J. A.; Parkin, S.; Zhou, H.-C. "Framework-Catenation Isomerism in MOFs and Its Impact on Hydrogen Uptake." *J. Am. Chem. Soc.* **2007**, *129*, 1858-1859.
296. **Ma, S.**; Sun, D.; Wang, X.-S.; Zhou, H.-C. "A Mesh-Adjustable Molecular Sieve for General Use in Gas Separation." *Angew Chem. Int. Ed.* **2007**, *46*, 2458-2462.
297. **Ma, S.**; Wang, X.-S.; Collier, C. D.; Manis, E. S.; Zhou, H.-C. "Ultramicroporous Metal-Organic Framework Based on 9, 10-Anthracenedicarboxylate for Selective Gas Adsorption." *Inorg. Chem.* **2007**, *46*, 8499-8501.
298. **Ma, S.**; Wang, X.-S.; Manis, E. S.; Collier, C. D.; Zhou, H.-C. "A Metal-Organic Framework Based on a Trinickel Secondary Building Unit Exhibiting Gas-Adsorption Hysteresis." *Inorg. Chem.* **2007**, *46*, 3432-3434.
299. Chen, B.; **Ma, S.**; Hurtado, E. J.; Lobkovsky, E. B.; Liang, C.; Zhu, H.; Dai, S. "Selective Gas Sorption within a Dynamic Metal-Organic Framework." *Inorg. Chem.* **2007**, *46*, 8705-8909.
300. Chen, B.; **Ma, S.**; Hurtado, E. J.; Lobkovsky, E. B.; Zhou, H.-C. "A Triply Interpenetrated Microporous Metal-Organic Framework for Selective Sorption of Gas Molecules." *Inorg. Chem.* **2007**, *46*, 8490-8492.

301. Chen, B.; **Ma, S.**; Zapata, F.; Fronczek, F. R.; Lobkovsky, E. B.; Zhou, H.-C. "Rationally Designed Micropores within a Metal-Organic Framework for Selective Sorption of Gas Molecules." *Inorg. Chem.* **2007**, *46*, 1233-1236.
302. **Ma, S.**; Fillinger, J. A.; Ambrogio, M. W.; Zuo, J.-L.; Zhou, H.-C. "Synthesis and Characterizations of a Magnesium Metal-Organic Framework with the (10, 3)-a Net Topology." *Inorg. Chem. Commun.* **2007**, *10*, 220-222.
303. Yu, C.; **Ma, S.**; Pechan, M. J.; Zhou, H.-C. "Magnetic Properties of a Non-Interpenetrating Chiral Porous Cobalt Metal-Organic Framework (MOF)." *J. Appl. Phys.* **2007**, *101*, 09E108. (cited 5 times)
304. **Ma, S.**; Zhou, H.-C. "A Metal-Organic Framework with Entatic Centers Exhibiting High Gas Adsorption Affinity." *J. Am. Chem. Soc.* **2006**, *128*, 11734-11735.
305. Wang, X.-S.; **Ma, S.**; Sun, D.; Parkin, S.; Zhou, H.-C. "A Mesoporous Metal-Organic Framework with Permanent Porosity." *J. Am. Chem. Soc.* **2006**, *128*, 16474-16475.
306. Sun, D.; **Ma, S.**; Ke, Y.; Collins, D. J.; Zhou, H.-C. "An Interweaving MOF with High Hydrogen Uptake." *J. Am. Chem. Soc.* **2006**, *128*, 3896-3897.
307. Chen, B.; **Ma, S.**; Zapata, F.; Lobkovsky, E. B.; Yang, J.; "Hydrogen Adsorption in an Interpenetrated Dynamic Metal-Organic Framework." *Inorg. Chem.* **2006**, *45*, 5718-5720.
308. Sun, D.; **Ma, S.**; Ke, Y.; Petersen, T. M.; Zhou, H.-C. "Synthesis, Characterization, and Photoluminescence of Isostructural Mn, Co, and Zn MOFs Having a Diamondoid Structure with Large Tetrahedral Cages and High Thermal Stability." *Chem. Commun.* **2005**, *21*, 2663-2664.
309. Sun, Y.; **Ma, S.**; Du, Y.; Yuan, L.; Wang, S.; Yang, J.; Deng, F.; Xiao, F.-S. "Solvent-Free Preparation of Nanosized Sulfated Zirconia with Bronsted Acidic Sites from a Simple Calcination." *J. Phys. Chem. B* **2005**, *109*, 2567-2572.
310. Sun, Y.; Yuan, L.; **Ma, S.**; Han, Y.; Zhao, L.; Wang, W.; Chen, C.-L.; Xiao, F.-S. "Improved Catalytic Activity and Stability of Mesoporous Sulfated Zirconia by Al Promoter." *Appl. Catal. A* **2004**, *268*, 17-24.
311. Sun, Y.; Han, Y.; Yuan, L.; **Ma, S.**; Jiang, D.; Xiao, F.-S. "Microporosity in Ordered Mesoporous Aluminosilicates Characterized by Catalytic Probing Reactions." *J. Phys. Chem. B* **2003**, *107*, 1853-1857.

## **BOOK & BOOK CHAPTERS**

1. Magnuson, Z. L.; **Ma, S.\*** "Heterogeneous Catalysis of Porphyrin-based MOFs" *Porphyrin-based Supramolecular Architectures: From Hierarchy to Functions*, Monographs in Supramolecular Chemistry, Volume: 32, *Royal Society of Chemistry*, Edited by: Shengqian Ma and Gaurav Verma, **2021**, Chapter 4.

2. *Porphyrin-based Supramolecular Architectures: From Hierarchy to Functions*, Monographs in Supramolecular Chemistry, Volume: 32, *Royal Society of Chemistry*, Edited by: Shengqian Ma and Gaurav Verma, **2021**.
3. Wang, X.; **Ma, S.\*** "Biomimetic Metal–Organic Frameworks: Construction and Catalytic Performance" *Reactivity in Confined Spaces*, Monographs in Supramolecular Chemistry, Volume: 31, *Royal Society of Chemistry*, Edited by: Gareth O. Lloyd and Ross S. Forgan, **2021**, Chapter 12, 370-395.
4. Verma, V.; **Ma, S.\*** "Metal-Organic Frameworks Derived From Multitopic Ligands: Structural Aspects" *Comprehensive Coordination Chemistry III*, Edited by: Edwin C. Constable, Gerard Parkin and Lawrence Que Jr, **2021**, 1021-1054.
5. Sun, Q.; **Ma, S.\*** "Wettability control of metal-organic frameworks" *Synthetic Inorganic Chemistry New Perspectives/Developments in Inorganic Chemistry*, Edited by: Ewan J.M. Hamilton, Elsevier, **2021**, Chapter 4, 131-166.
6. Ge, X.; **Ma, S.\*** "CO<sub>2</sub> Capture and Separation of Metal–Organic Frameworks" *Materials for Carbon Capture* Edited by: De-en Jiang, Shannon M. Mahurin, Sheng Dai, John Wiley & Sons Ltd, **2019**, Chapter 2, 5-27.
7. Magnuson, Z. L.; **Ma, S.\*** "Sensing and sequestration of inorganic cationic pollutants by metalorganic frameworks" *Metal-Organic Frameworks (MOFs) for Environmental Applications* Edited by: Sujit K. Ghosh, Elsevier, **2019**, 63-92.
8. *Elaboration and Applications of Metal-Organic Frameworks*, Series on Chemistry, Energy and the Environment: Volume 2, World Scientific, Edited by: Shengqian Ma and Jason A. Perman, **2018**.
9. Verma, G.; Perman, J. A.; **Ma, S.\*** "Hydrogen Storage in Metal-Organic Frameworks" *Elaboration and Applications of Metal-Organic Frameworks*, Series on Chemistry, Energy and the Environment: Volume 2, World Scientific, Edited by: Shengqian Ma and Jason A. Perman, **2018**, 183-201.
10. Zhang, W.; **Ma, S.\*** "Porphyrin frameworks: network crystals" *Comprehensive Supramolecular Chemistry II*, Elsevier, **2017**, 291-232.
11. Liu, W.-L., Liriob, S.; Huang, H.-Y.; **Ma, S.\*** "Functional Metal Organic Frameworks for Enzyme/Protein Immobilization" *Functional Supramolecular Materials: From Surfaces to MOFs*, Series: Monographs in Supramolecular Chemistry, Editor(s): Rahul Banerjee, **2017**, 281-295.
12. Hoang, T.; **Ma, S.\*** "Biomedical Applications of Nanoscale Metal-Organic Frameworks" *Hybrid Nanomaterials: Design, Synthesis, and Biomedical Applications*, CRC Press, **2016**, Chapter 13.
13. Chen, Y.; **Ma, S.\*** "Mesoporous Metal-Organic Frameworks" *Metal-Organic Framework Materials*, Encyclopedia of Inorganic and Bioinorganic Chemistry; John Wiley & Sons, Inc., **2014**, 39-66.

14. **Ma, S.**; Collier, C. D.; Zhou, H.-C. "Design and Construction of Metal-Organic Frameworks for Hydrogen Storage and Selective Gas Adsorption" *Design and Construction of Coordination Polymers*; M. Hong, Ed.; Wiley: New York, **2009**, Chapter 12, 353-373.
15. Collins, D. J.; **Ma, S.**; Zhou, H.-C. "Hydrogen and Methane Storage in MOFs" *Metal-Organic Frameworks: Design and Application* L. MacGillivray Ed.; John Wiley & Sons, Inc. **2010**, 249-266.