邓 风 中国科学院精密测量科学与技术创新研究院（原中科院武汉物理与数学所）研究员、博士生导师、国家杰青，曾任波谱研究室副主任/主任（2000-2010）、磁共振应用部主任（2012-2018）、波谱与原子分子物理国家重点实验室副主任（2005-2015）、主任（2016-2023）、国家大型科学仪器中心 - 武汉磁共振中心常务副主任（2008-2018）。

1988 年获成都科技大学（现四川大学）化学系物理化学专业学士学位；1991 年和 1996 年获中科院武汉物理所无线电物理（核磁共振）专业硕士和博士学位，师从叶朝辉院士和杜有如研究员；1997-1998 年美国 Texas A&M 大学化学系博士后，合作导师为 James F. Haw 教授。1999 年被中科院武汉物理与数学所聘为研究员，2000 年被聘为博士生导师。2000 年获“王天眷波谱学奖”和“国务院政府特殊津贴”，2004 年获国家杰出青年基金（物理化学）资助，2009 年入选“新世纪百千万人才工程”国家级人选和中科院“百人计划”。现任国际磁共振学会（ISMAR）委员会理事、中国物理学会波谱专业委员会委员、中国化学会物理化学委员会/催化委员会/分子筛委员会委员，Solid State Nucl Magn Reson、Magn Reson Lett、《物理化学学报》、《高等学校化学学报》和《波谱学杂志》等期刊编委。长期从事固体核磁共振谱学方法及其在多相催化和材料化学中的应用研究工作，在 Science、Nat Catal、Nat Commun、Chem Rev、Chem Roc Rev、Acc Chem Res、Natl Sci Rev、JACS、Angew Chem Int Ed、Chem、Adv Mater、Chem Sci、Chem Commun、JPCL、JPC、JCP、PCCP、ACS Catal、J Catal、J Magn Reson、Solid State NMR、Prog Nucl Magn Reson Spectrosc 等刊物上发表 SCI 论文 400 余篇，被引用 23000 余次 (web of science, H-index=82)；出版英文专著 1 部（*Solid-State NMR in Zeolite Catalysis*, Springer, 2019）；以第一完成人获湖北省自然科学一等奖 1 项；培养毕业博士研究生 47 人（其中 4 人成为国家杰青、3 人成为国家优青、1 人成为青年千人）、硕士研究生 13 人。

Selected Publications:

1. Zheng, M. J.; Zeng, S.Q.; Wang, Q.*; Xi, Y. J.; Chu, Y. Y.; Sang, X. Y.; Bao, J.; Cao, W. C.; Yakimov, A.; Xu, J.*; Coperet, C.; **Deng, F*** Interfacial Brønsted Acid Site Architectures on Amorphous Silica-Alumina Resolved by Heteronuclear-Filtered Two-Dimensional Solid-State NMR Correlation Spectroscopy *J. Am. Chem. Soc.* **2026**, 148:9583-9595.

2. Hu, M.; Chu, Y.Y.; Wang, C.*; Cai, W.J.; Wang, Q.; Xu, J.*; **Deng, F.** Unveiling the Thermodynamic-kinetic Trade-off Effect on Acid Sites in Zeolite-catalyzed Alcohol Dehydration *Nat. Commun.* **2026**,17:3675.

3. Li, G.C.; Foo1, C.; Fan, R.; Zheng, M.J.; Wang, Q.; Chu, Y.Y.; Li, J.; Day, S.; Steadman, P.; Tang, C.; Benedict Lo, T.W.*; **Deng, F.***; Tsang, S.C.E.* Atomic locations and adsorbate interactions of Al single and pair sites in H-ZSM-5 zeolite *Science* **2025**, 387:388-393.

4. Wu, P.P.; Chu, Y.Y.; Wang, M. L.; Feng, N.D.*; Xu, J.; Ma, D.; Ye, J.H.*; **Deng, F.*** Subnanometric MoO_x clusters limit overoxidation during photocatalytic CH_4 conversion to oxygenates over TiO_2 *Nat. Commun.* **2025**, 16:4207.

5. Wang, C.; Xu, J.*; **Deng, F.** Intermolecular Interactions in Zeolite Catalysis: Insights from Solid-State NMR Spectroscopy *Acc. Chem. Res.* **2025**, 58:3328-3340.

6. Cai, W.J.; Wang, C.*; Hu, M.; Kang, J.; Wang, X.X.; Wang, Q.; Xu, J.*; **Deng, F.** O_2-Mediated Reactivity of Confined Carbenium Ions in Zeolites *J. Am. Chem. Soc.* **2025**, 147: 46665-46673.

7. Wang, X.X.; Wang, Q.; Wang, C.; Chu, Y.Y.; Hu, M.; **Deng, F.**; Yu, J.H.*; Xu, J.* Observation of Water-Induced Synergistic Acidic Site from NMR-Invisible Al in Zeolite via Solid-State NMR Spectroscopy *J. Am. Chem. Soc.* **2025**, 147:17829-17838.

8. Zhou, H.; Qi, G.D.; Chu, Y.Y.; Wang, L.*; Hui, Y; Yao, Z.Y.; Wang, F.R.; Chu, S.Q.; Qin, Y.C.; Song, L.J.; Liu, L.; Qin, X.D.; Xu, J.*; **Deng, F.**; Xiao, F.S.* Ultralow Content of Chromium Species in Zeolite for Efficient Catalytic Propane Dehydrogenation *J. Am. Chem. Soc.* **2025**, 147: 32432-32439.

9. Xi, Y.J.; Chu, Y.Y.*; Wang, Q.*; Feng, N.D.; Xu, J.*; **Deng, F.** Mechanistic Understanding of Lanthanum-Promoted Hydrothermal Stability in Zeolite Y *J. Phys. Chem. C* **2025**, 129: 14020-14032.

10. Kang, J.; Wang, C.*; Hu, M.; Wang, X.X.; Cai, W.J.; Chu, Y.Y.; Wang, Q.; Xu, J.*; **Deng, F.** Probing Regional Hydrophobicity of Zeolite-Confined Cyclopentenyl Cations under Humid Conditions by Solid-State NMR spectroscopy *J. Phys. Chem. Lett.* **2025,** DOI:10.1021/acs.jpclett.5c03270.

11. Zhou, X.; Chu, Y.Y.; Wang, C.; Wang, Q.; Hu, M.; Xu. J.*; **Deng, F.** Unveiling Active Al^{3+} Sites for Ethanol Dehydration on γ-Al_2O_3 with Solid-State Nuclear Magnetic Resonance Spectroscopy *J. Phys. Chem. Lett.* **2025**, 16: 53-59.

12. Li, J.Z.; Wang, Y.X.; Bao, H.; Zeng, S.Q.; Gao, X.Z.; He, X.W.*; Zheng, M.J.; Feng, N.D.; Wang, Q.*; Xu, J.*; **Deng, F.** Probing Framework Boron Speciation and Spatial Distribution in MFI Zeolites by Solid-state NMR *Chem. J. Chinese Universities* **2025**, in press.

13. Wang, C.; Hu. M.; Xu, J.*; **Deng, F.*** Mechanistic studies of zeolite catalysis via *in situ* solid-state nuclear magnetic resonance spectroscopy: progress and prospects *Front. Chem. Sci. Eng.* **2025**, 19: 1-29
14. Yang, L.X.; Ni, N.; Xing, E.H.; Chu, Y.Y.; Feng, N.D.; Chen, Y.; Luo, Y.B.; Gao, X. Z.*; Xu, G.T.*; **Deng, F.***; Shu, X.T. Structure of Hydrothermally Stable Acid Sites and their Catalytic Role in P‐Modified ZSM‐5 Zeolite Revealed by Solid-State NMR Spectroscopy *Inorg. Chem.* **2025**, 64, 1352-1364.
15. Li, X.; Qi, G.D.; Lewis, R.J.; Howard, M.J.; Murrer, B.A.; Harrison, B.; Morgan, D.J.; Kiely, C.J.; He, Q.; Davies, T.E.; Willock, D.J.; Bowker, M.; Cao, J.X.; **Deng, F.**; Xu, J.*; Hutchings, G.J.* Partial Oxidation of Methane to Acetic Acid with Oxygen Using AuPd/ZSM-5 *ACS Catal.* **2025**, 15:18663-18674.
16. Shi, D.Z.; Chen, Y.Y.; Chen, X.; Wang, S.*; Wang, Q.; Wang, P.F.; Zhu, H.Q.; Dong, M.; Xu, J.; **Deng, F.**; Wang, J.G.; Fan, W.B.* Single $[Ga(OH)]^{2+}$ species supported on mesoporous hollow-structured H-ZSM-5: A highly efficient light alkanes aromatization catalyst *Chin. J. Catal.* **2025**, 72:359-375.
17. Zheng, M.J.; Wang, Q.*; Chu, Y.Y. ; Tan, X.H.; Huang, W. D.; Xi, Y.J.; Wang,Y.X.; Qi, G.D.; Xu, J.*; Hong, S.B.; **Deng, F.*** Revealing the Brønsted Acidic Nature of Penta-Coordinated Aluminum Species in Dealuminated Zeolite Y with Solid-State NMR Spectroscopy *J. Am. Chem. Soc.* **2024**, 146: 29417-29428.
18. Wang, C.; Zheng, M.J.; Hu, M.; Cai, W.J.; Chu, Y.Y.; Wang, Q.; Xu, J.*; **Deng, F.*** Unraveling Spatially Dependent Hydrophilicity and Reactivity of Confined Carbocation Intermediates during Methanol Conversion over ZSM-5 Zeolite *J. Am. Chem. Soc.* **2024**, 146: 8688-8696.
19. Chen, W.H.; Li, S.H.*; Yi, L.Z.; Chen, Z.Y.; Li, Z.H.; Wu, Y.F.; Yan, W.; **Deng, F.***; Deng, H.X.* Precise Distance Control and Functionality Adjustment of Frustrated Lewis Pairs in Metal-Organic Frameworks *J. Am. Chem. Soc.* **2024**, 146: 12215-12224.
20. Cai, W.J.; Wang, C.*; Chu, Y.Y.; Hu, M.; Wang, Q.; Xu, J.*; **Deng, F.** Unveiling the Brønsted acid mechanism for Meerwein-Ponndorf-Verley reduction in methanol conversion over ZSM-5 *Nat. Commun.* **2024**, 15:8736
21. Wang, C.; Chu, Y.Y.; Xiong, D.F.; Wang, H.F.; Hu, M.; Wang, Qiang; Xu, J.*; **Deng, F.*** Water-induced Micro-hydrophobic Effect Regulates Benzene Methylation in Zeolite *Angew. Chem. Int. Ed.* **2024**, 63: e202313974
22. Wang, C.; Chu, Y.Y.; Lei, Q.F.; Hu, M.; **Deng, F.**; Xu, J.*; Dai, W.L.* In Situ Observation of Solvent-Mediated Cyclic Intermediates during the Alkene Epoxidation/ Hydration over a Ti-Beta/H_2O_2 System *Angew. Chem. Int. Ed.* **2024**, 63: e202404633
23. Yang, L.X.; Huang, M.; Feng, N.D.*; Wang, M.; Xu, J.; Jiang, Y.; Ma, D.*; **Deng, F.*** Unraveling the Atomic Structure and Dissociation of Interfacial Water on Anatase TiO_2 (101) under Ambient Conditions with Solid-State NMR Spectroscopy *Chem. Sci.* **2024**, 15, 11902-11911.
24. Wang, X.X.; Wang, C.; Chu, Y.Y.; Liu, Y.H.; Hu, M.; **Deng, F.**; Xu, J.*; Yu, J.H.* Deciphering the Link between Zeolite Crystal Size, Brønsted Acid Site Distribution, and Dual-Cycle Selectivity in Methanol-to-Olefins over Zeolite *ACS Catal.* **2024**, 14:15609-15621.

25. Gao, W.; Qi, G.D.*; Wang, C.; Wang, Q.; Liang, J.W.; Xu, J.*; **Deng, F.** Molybdenum/ ZSM‑5 Catalyzes Methane Co-Aromatization with Furan: Unveiling the Mechanism with Solid-State NMR *ACS Catal.* **2024**, 14:8220-8231.
26. Wang, W.Y.; Lewis, R.J.; Lu, B.T.; Wang, Q.; Hutchings, G.J.; Xu, J.*; **Deng, F.** The Role of Adsorbed Species in 1-Butene Isomerization: Parahydrogen-Induced Polarization NMR of Pd-Au Catalyzed Butadiene Hydrogenation *ACS Catal.* **2024**, 14: 2522-2531.
27. Cao, J.X.; Qi, G.D.; Yao, B.Q.; He, Q.; Lewis, R.J.; Li, X.; **Deng, F.**; Xu, J.*; Hutchings, G.J.* Partially Bonded Aluminum Site on the External Surface of Post-treated Au/ZSM‑5 Enhances Methane Oxidation to Oxygenates *ACS Catal.* **2024**, 14: 1797-1807.
28. Xiao, Y.Q.; Li, S.H.*; Jiang, B.; Liang, X.M.; Chu, Y.Y.*; **Deng, F.*** Effect of Co-Adsorbed Guest Adsorbates on the Separation of Ethylene/Ethane Mixtures on Metal-Organic Frameworks with Open Metal Sites *Chem. Eur. J.* **2024**, 30: e202401006.
29. Zheng, M.J.; Chu,Y.Y.; Wang, Q.*; Wang, Y.X.; Xu, J.; **Deng, F.*** Advanced solid-state NMR spectroscopy and its applications in zeolite chemistry *Prog. Nucl. Magn. Reson. Spectrosc.* **2024**, 140-141: 1-41.
30. Feng, N.D.; Xu, J.*; **Deng, F.*** Solid-state NMR of active sites in TiO_2 photocatalysis: a critical review *Chem Synth.* **2024**, 4, 43.
31. Gao, W.; Wang, Q.*; Qi, G.D.; Liang, J.W.; Wang, C.; Xu, J.*; **Deng, F.*** Active Ensembles in Methane Dehydroaromatization over Molybdenum/ZSM-5 Zeolite Identified by 2D ^{1}H-^{95}Mo Magic Angle Spinning Nuclear Magnetic Resonance Correlation Spectroscopy *Angew. Chem. Int. Ed.* **2023**, 62: e202306133.
32. Wang, W.Y.; Wang, Q.; Xu, J.*; **Deng, F.** Understanding Heterogeneous Catalytic Hydrogenation by Parahydrogen-Induced Polarization NMR *ACS Catal.* **2023**, 13:3501-3519.
33. Wang, X.; Zeng, S.Q.; Qi, G.D.* ; Wang, Q.; Xu, J.*; **Deng, F.** CO Oxidation over Embedded Pt Nanoparticles on Al_2O_3 with Al Coordination Flexibility *Chem. Commun.* **2023**, 59: 7783-7786.
34. He, C.Y.; Li, S.H.*; Jiang, B.; Chen, F.; Hu, W.; **Deng, F.*** Surface Hydrophobicity and Guest Permeability in Polydimethylsiloxane-Coated MIL-53 as Studied by Solid-State Nuclear Magnetic Resonance Spectroscopy *ACS Appl. Mater. Interfaces* **2023**, 15 :37936-37945.
35. Wang, T.S.; Chu, Y.Y.; Li, X.; Liu, Y.H.; Luo, H.; Zhou, D.L.; **Deng, F.***; Song, X.W.*; Lu, G.Y.; Yu, J. H.* Zeolites as a Class of Semiconductors for High-Performance Electrically Transduced Sensing *J. Am. Chem. Soc.* **2023**, 145: 5342-5352.
36. Cao, J.X.; Lewis, R.J.; Qi, G.D.; Bethell, D.; Howard, M.J.; Harrison, B.; Yao, B.Q.; He,Q.; Morgan, D.J.; Ni, F.L.; Sharma, P.; Kiely, C.; Li, X.; **Deng, F.**; Xu, J.*; Hutchings, G.J.* Methane Conversion to Methanol Using Au/ZSM-5 is Promoted by Carbon *ACS Catal.* **2023**, 13:7199-7209.
37. Xiong, Z.P.; Qi, G.D.; Zhan, E.S.*; Chu, Y.Y.; Xu, J.*; Wei, J.K.; Ta, N.; Hao, A.J.; Zhou, Y.; **Deng, F.**; Shen, W.J.* Experimental identification of the active sites over a plate-like mordenite for the carbonylation of dimethyl ether *Chem* **2023**, 9:76-92.
38. Xu, R.T.; Wang, Q.; Wang,W.Y.; Bao, Q.J.; Zhang, Z.; Liu, Z.Y.; Xu, J.*; **Deng, F.** In Situ NMR Imaging of Solvent Infiltration on γ-Al_2O_3 Particles *Chem. J. Chinese Universities* **2023**, 44 :20220587.

39. Xiong, W.P.; Chu,Y.Y.*; Wang, Q.*; Xu, J.; **Deng, F.*** Theoretical Calculation of Relationship Between Zeolite Confinement Effect and Adsorbed 2-^{13}C-acetone ^{13}C Chemical Shift *Chem. J. Chinese Universities* **2023**, 44, 20230063.
40. Wang, W.Y.; Xu, J.*; **Deng, F.*** Recent advances in solid-state NMR of zeolite catalysts *Natl. Sci. Rev.* **2022**, 9: nwac155
41. Xiao, Y.Q.; Li, S.H.*; Xu, J.; **Deng, F.*** Solid-state NMR studies of host-guest chemistry in metal-organic frameworks *Current Opinion in Colloid & Interface Science* **2022**, 61:101633
42. Zheng, M.J.; Zeng, S.Q.; Wang, X. M.; Gao, X.Z.; Wang, Q.*; Xu, J.;* **Deng, F.*** Heteronuclear-filtered ^{1}H homonuclear multi-quantum correlation experiment at 100 kHz magic-angle spinning *Magn. Reson. Lett.* **2022**, 2: 266-275.
43. Hu, M.; Wang, C.; Chu, Y.Y.; Wang, Q.; Li, S.H.; Xu, J.*; **Deng, F.** Unravelling the reactivity of framework Lewis acid sites towards methanol activation on H-ZSM-5 zeolite with solid-state NMR spectroscopy *Angew. Chem. Int. Ed.* **2022**, 61: e202207400.
44. Wang,W.Y.; Sun,Q.M.; Wang,Q.; Li,S.H.; Xu,J.*; **Deng, F.*** Heterogeneous parahydrogen induced polarization on Rh-containing silicalite-1 zeolites: effect of the catalyst structure on signal enhancement *Catal. Sci. Technol.* **2022**, 12: 4442-4449
45. Wang, C.; Chu, Y.Y.; Hu, M.; Cai, W.J.; Wang, Q.; Li, S.H.; Xu, J.*; **Deng, F.** Influence of zeolite confinement effects on cation-π interactions in methanol-to-hydrocarbon conversion *Chem. Commun.* **2022**, 58:9242-9245.
46. Zhou, X.; Wang, C.; Chu, Y.Y.; Wang, Q.; Xu, J.*; **Deng, F.*** Mechanistic insight into ethanol dehydration over SAPO-34 zeolite by solid-state NMR spectroscopy *Chem. J. Chinese Universities* **2022**, 38:155-160.
47. Tang, J.; Li, S.H.*; Xu, J.; **Deng, F.*** Spectroscopic characterizations of porous mixed metal oxides derived from metal-organic framework MIL-53(Ga, Al) for propane dehydrogenation *J. Phys. Chem. C* **2022,** 126:13485-13495.
48. Ahn, S.H.; Wang, Q.; Wang, Y.X.; Chu, Y.Y.; **Deng, F.**; Hong, S.B.* Identifying crystallographically different Si-OH-Al Bronsted acid sites in LTA zeolites *Angew. Chem. Int. Ed.* **2022**, 61: e202203603.
49. Xiong, Z.P.; Qi, G.D.; Bai, L.Y.; Zhan, E.S.*; Chu, Y.Y.; Xu, J.*; Ta, N.; Hao, A.J.; **Deng, F.**; Shen,W.J. Preferential population of Al atoms at the T4 site of ZSM-35 for the carbonylation of dimethyl ether *Catal. Sci. Technol.* **2022**, 12: 4993-4997.
50. Bin, G.; Bin Q.; Zheng, M.J.; Liu, Z.K.; Lu, W.D.; Wang, Q.; Xu, J.*; **Deng, F.**; Lu, A.H.* Dynamic self-dispersion of aggregated boron clusters into stable oligomeric boron species on MFI zeolite nanosheets under oxidative dehydrogenation of propane *ACS Catal.* **2022**, 12: 7368-7376.
51. He, C.Y.; Li, S.H.*; Xiao, Y.Q.; Xu, J.; **Deng, F.*** Application of solid-state NMR techniques for structural characterization of metal-organic frameworks *Solid State Nucl. Magn. Reson.* **2022**, 117:101772.
52. Xiao, Y.Q.; Chu, Y.Y.; Li, S.H.*; Xu, J.; **Deng, F.*** Preferential adsorption sites for propane propylene separation on ZIF-8 as revealed by solid-state NMR spectroscopy *Phys. Chem. Chem. Phys.* **2022**, 24:6535-6543.

53. Yang, L.X.; Feng, N.D.*; **Deng, F.*** Aluminum-doped TiO_2 with dominant {001} facets: microstructure and property evolution and photocatalytic activity *J. Phys. Chem. C* **2022**, 126: 5555-5563.
54. Qi, G.D.; Davies, T.E.; Nasrallah, A.; Sainna, M.A.; Howe, A.; Lewis, R.J.; Quesne, M.; Catlow, C. R.A.; Willock, D. J.; He, Q.; Bethell, D.; Howard, M. J.; Murrer, B. A.; Harrison, B.; Kiely, C.J. ; Zhao, X.L.; **Deng, F.**; Xu, J.*; Hutchings, G.J.* Au-ZSM-5 catalyses the selective oxidation of CH_4 to CH_3OH and CH_3COOH using O_2 *Nat. Catal.* **2022**, 5:45-54
55. Wang, C.; Chu, Y.Y.; Hu, M.; Cai, W.J.; Wang, Q.; Qi, G.D.; Li, S.H.; Xu, J.*; **Deng, F.** Insight into carbocation induced non-covalent interactions in methanol-to-olefins reaction over ZSM-5 zeolite from solid-state NMR spectroscopy *Angew. Chem. Int. Ed.* **2021**, 60, 26847-26854.
56. Wang, C ; Zhao, X.L.; Hu, M.; Qi, G.D.; Wang, Q.; Li, S.H.; Xu, J.*; **Deng, F.** Unraveling hydrocarbon pool boosted propane aromatization on gallium/ZSM-5 zeolite by solid-state NMR spectroscopy *Angew. Chem. Int. Ed.* **2021**, 60, 23630-23634.
57. Gao, W.; Qi, G.D.; Wang, Q.; Wang, W.Y.; Li, S.H.; Hung, I.; Gan, Z.H.; Xu, J.*; **Deng, F.** Dual active sites on molybdenum/ZSM-5 catalyst for methane dehydroaromatization: insights from solid-state NMR spectroscopy *Angew. Chem. Int. Ed.* **2021**, 60: 10709-10715.
58. Qi, G.D.; Wang, Q.; Xu, J.*; **Deng, F.** Solid-state NMR studies of internuclear correlations for characterizing catalytic materials *Chem. Soc. Rev.* **2021**, 50: 8382-8399.
59. Zheng, M.J.; Xin, S.H.; Wang, Q.*; Trebosc, J.; Xu, J.; Qi, G.D.; Feng, N.D.; Lafon, O.*; **Deng, F.*** Through-space ^{11}B-^{27}Al correlation: influence of the recoupling channel *Magn. Reson. Chem.* **2021**, 59:1062-1076.
60. Xiao, Y.Q.; Chu, Y.Y.; Li, S.H.*; Chen, F.; Gao, W.; Xu, J.; **Deng, F.*** Host-guest interaction in ethylene and ethane separation on zeolitic imidazolate frameworks as revealed by solid-state NMR spectroscopy *Chem. Eur. J.* **2021**, 27: 11303-11308.
61. Tang, J.; Chu, Y.Y.; Li, S.H.*; Xu, J.; Xiong, W.P.; Wang, Q.; **Deng, F.*** Breathing effect via solvent inclusions on the linker rotational dynamics of functionalized MIL-53 *Chem. Eur. J.* **2021**, 27: 14711-14720.
62. Wang, Y.X.; Xin, S.H.; Chu, Y.Y.*; Xu, J.; Qi, G.D.; Wang, Q.*; Xia, Q.H.; **Deng, F.*** Influence of trimethylphosphine oxide loading on the measurement of zeolite acidity by solid-state NMR spectroscopy *J. Phys. Chem. C* **2021**, 125:9497-9506.
63. Wang, W.Y.; Wang, Q.; Chu, Y.Y.; Qi, G.D.; Li, S.H.; Xu, J.*; **Deng, F.** Pairwise stereoselective hydrogenation of propyne on supported Pd-Ag catalysts investigated by parahydrogen-induced polarization *J. Phys. Chem. C* **2021**, 125:17144-17154.
64. Qi, G.D.; Ye, X.D.; Xu, J.*; **Deng, F.*** Progress in NMR studies of carbohydrates conversion on zeolites *Chem. J. Chinese Universities-Chinese* **2021**, 42:148-164.
65. Feng, N.D.*; Lin, H.W.; Song, H.; Yang, L.X.; Tang, D.M.; **Deng, F.**; Ye, J.H.* Efficient and selective photocatalytic CH_4 conversion to CH_3OH with O_2 by controlling overoxidation on TiO_2 *Nat. Commun.* **2021**, 12: 4652.
66. Yang, L.; Wang, C.; Zhang, L.N.; Dai, W.L.*; Chu, Y.Y.; Xu, J.; Wu, G.J.; Gao, M.B.; Liu, W.J.; Xu, Z.C.; Wang, P.F.; Guan, N.J.; Dyballa, M.; Ye, M.; **Deng, F.**; Fan, W.B.; Li, L.D. Stabilizing the framework of SAPO-34 zeolite toward long-term methanol-to-olefins conversion *Nat. Commun.* **2021**, 12: 4661

67. Feng, N.D.; Lin, H.W.; **Deng, F.**; Ye, J.H.* Interfacial-bonding Ti-N-C boosts efficient photocatalytic H_2 evolution in close coupling g-C_3N_4/TiO_2 *J. Phys. Chem. C* **2021**, 125: 12012-12018.
68. Wang, Q.; Li, W.Z.; Hung, I.; Mentink-Vigier, F.; Wang, X.L.; Qi, G.D.; Wang, X.; Gan, Z.H.; Xu, J.*; **Deng, F.** Mapping the oxygen structure of γ-Al_2O_3 by high field solid-state NMR spectroscopy *Nat. Commun.* **2020**, 11:3620.
69. Wang, C.; Hu, M. ; Chu, Y.Y.; Zhou, X. ; Wang, Q.; Qi, G.; Li, S.H.; Xu, J.*; **Deng, F.** π-interaction between cyclic carbocations and aromatics causes zeolite deactivation in methanol-to-hydrocarbons conversion *Angew. Chem. Int. Ed.* **2020**, 59:7198-7202.
70. Qi, G.D.; Chu,Y.Y.; Wang, Q.; Wang, X.X.; Li, Y.; Trebosc, J.; Lafon, O.; Xu, J*; **Deng, F.** Gem-diol-type intermediate in the activation of a ketone on Sn-β zeolite as studied by solid-state NMR spectroscopy *Angew. Chem. Int. Ed.* **2020**, 59:19532-19538.
71. Yan,W.; Li, S.H.*; Yang,T.; Xia, Y.C.; Zhang, X.R.; Wang, C.; Yan, Z.; **Deng, F.***; Zhou, Q.H.; Deng, H.X.* Molecular vises for precisely positioning ligands near catalytic metal centers in metal-organic frameworks *J. Am. Chem. Soc.* **2020**, 142:16182-16187.
72. Li, S. H.; Lafon, O.; Wang, W.Y.; Wang, Q,; Wang, X.X.; Li, Y.; Xu, J.*; **Deng, F.** Recent advances of solid-state NMR spectroscopy for microporous materials *Adv. Mater.* **2020**, 32, 2002879.
73. Hu, M.; Wang, C.; Gao, X.Z.; Chu, Y.Y.; Qi, G.D.; Wang, Q.; Xu, J.*; **Deng F.*** Establishing a link between the dual cycles in methanol-to-olefins conversion on H-ZSM-5: aromatization of cycloalkenes *ACS Catal.* **2020**, 10:4299-4305.
74. Wang, C.; Xu J.*; **Deng, F.*** The mechanism of methanol-to-hydrocarbon reactions over acidic zeolites: a solid-state NMR perspective *ChemCatChem* **2020**, 12:965-980.
75. Zhao, X.L.; Xu, J.*; Qi, G.D.; Wang, Q.; Gao,W.; Li, S.H.; Feng, N.D.; **Deng, F.*** Multiple methane activation pathways on Ga-modified ZSM-5 zeolites revealed by solid-state NMR spectroscopy *ChemCatChem* **2020**, 12: 3880-3889.
76. Zhao, X.L.; Chu,Y.Y.; Qi, G.D.; Wang, Q.; Gao,W.; Wang, X.; Li, S.H.; Xu, J.*; **Deng, F.** Probing the active sites for methane activation on Ga/ZSM-5 zeolites with solid-state NMR spectroscopy *Chem. Commun.* **2020**, 56:12029-12032.
77. Xiao, Y.Q.; Chu, Y.Y.; Li, S.H.*; Su, Y.C.; Tang, Xu, J.; **Deng, F**.* Primary adsorption sites of light alkanes in multivariate UiO-66 at room temperature as revealed by solid-state NMR *J. Phys. Chem. C* **2020**, 124:3738-3746.
78. Tang, J.; Li, S.H.*; Su, Y.C.; Chu,Y.Y.; Xu, J.; **Deng, F.*** Quantitative analysis of linker composition and spatial arrangement of multivariate metal-organic framework UiO-66 through ^{1}H fast MAS NMR *J. Phys. Chem. C* **2020**, 124:17640−17647
79. Zhao, X.L.; Xu J.*; **Deng, F.*** Solid-state NMR for metal-containing zeolites: from active site to reaction mechanism *Front. Chem. Sci. Eng.* **2020**, 14:159-187.
80. Yang, L.X.; Feng, N.D.*; Wang, Q.; Chu,Y.Y.; Xu, J.; **Deng, F.*** Surface water loading on titanium dioxide modulates photocatalytic water-splitting *Cell Rep. Phys. Sci.* **2020**, 1: 100013.
81. Tang, J.; Li, S.H.*; Chu, Y.Y.; Xiao, Y.Q.; Xu, J.; **Deng, F.*** Solid-state NMR studies of the acidity of functionalized metal-organic framework UiO-66 materials *Magn. Reson. Chem.* **2020**, 58:1091-1098.

82. Liu, X.L.; Wang, Q.; Wang, C.; Xu, J.*; **Deng, F.*** Hydrogen-bond induced crystallization of silicalite-1 zeolite as revealed by solid-state NMR spectroscopy *Acta Phys. -Chim. Sin.* **2020**, 36, 1905035.
83. Xiao, Y.Q.; Li, S.H.*; Tang, J.; Xu, J.; **Deng, F.*** Solid-state NMR spectroscopy studies on structure, dynamics and host-guest interaction in metal-organic framework materials *Chem. J. Chinese Universities-Chinese* **2020**, 41: 204-220.
84. Mao, C.L.; Wang, J.X.; Zou,Y.J.; Qi, G.D.; Loh, J.; Zhang,T.; Xia, M.; Xu, J.; **Deng, F**.; Ghoussoub, M.; Kherani, N. P.; Wang, L.; Shang, H.; Li, M.Q.; Li, J.; Liu, X.; Ai, Z.H.; Ozin, G.A.*; Zhao, J.C.; Zhang, L.Z.* Hydrogen spillover to oxygen vacancy of $TiO_{2-x}H_y$/Fe: breaking the scaling relationship of ammonia synthesis *J. Am. Chem. Soc.* **2020**, 142: 17403-174128.
85. Yang, J.Y.; Peng, M.; Ren, G.Q.; Qi, H.F.; Zhou, X.; Xu, J.; **Deng, F**.; Chen, Z.Q.; Zhang, J.C.; Liu, K.P.; Pan, X.L.; Liu, W.; Su, Y.; Li, W.Z.*; Qiao, B.T.*; Ma, D.*; Zhang, T. A hydrothermally stable irreducible oxide-modified $Pd/MgAl_2O_4$ catalyst for methane combustion *Angew. Chem. Int. Ed.* **2020**, 59:18522-18526.
86. Chu, Y. Y.; Luo, A. Y.; Wang, C.; **Deng, F.*** Origin of high selectivity of dimethyl ether carbonylation in the 8-membered ring channel of mordenite zeolite *J. Phys. Chem. C*. **2019**, 123: 15503-15512.
87. Tang, J.; Li, S. H.*; Chu, Y.Y.; Xiao, Y.Q.; Xu, J.; **Deng, F.*** Host-guest interaction between methanol and metal-organic framework $Cu_{3-x}Zn_x(btc)_2$ as revealed by solid-state NMR *J. Phys. Chem. C* **2019**, 123: 24062-24070.
88. Xu, J. *; Wang, Q. ; **Deng, F.*** Metal active sites and their catalytic functions in zeolites: insights from solid-state NMR spectroscopy *Acc. Chem. Res.* **2019**, 52: 2179-2189.
89. Zhou, X.; Wang, C.; Chu, Y.Y.; Xu, J.*; Wang, Q.; Qi, G. D.; Zhao, X. L.; Feng, N. D.; **Deng, F.*** Observation of an oxonium ion intermediate in ethanol dehydration to ethene on zeolite *Nat. Commun.* **2019**, 10:1961.
90. Xin, S.H.; Wang, Q.*; Xu, J.; Chu, Y.Y.; Wang, P. F.; Feng, N.D.; Qi, G.D.; Trebosc, J.; Lafon, O.; Fan, W.B.; **Deng, F.*** The acidic nature of "NMR-invisible" tri-coordinated framework aluminum species in zeolites *Chem. Sci.* **2019**, 10:10159-10169.
91. Xu, X.H.; Li, S. H.; Liu, Q.; Liu, Z.Y.; Yan, W.; Zhao, L.G.; Zhang, W.H.; Zhang, L.; **Deng, F.***; Cong, H. J.; Deng, H. X.* Isolated π-interaction sites in mesoporous MOF backbone for repetitive and reversible dynamics in water *ACS Appl. Mater. Interfaces* **2019**, 11: 973-981.
92. Wu, Q.M.*; Zhu, L.F.; Chu, Y.Y.; Liu, X.L.; Zhang, C.S.; Zhang, J.; Xu, H.; Xu, J.; **Deng, F.***; Feng, Z.C.; Meng, X.J.; Xiao, F.S.* Sustainable synthesis of pure silica zeolites from a combined strategy of zeolite seeding and alcohol filling *Angew. Chem. Int. Ed.* **2019**, 58: 12138-12142.
93. Mao, C.L.; Li, H.; Gu, H.G.; Wang, J.X.; Zou, Y.J.; Qi, G.D.; Xu, J.; **Deng, F.**; Shen, W.J.; Li, J.; Liu, S.Y.; Zhao, J.C.; Zhang, L.Z.* Beyond the thermal equilibrium limit of ammonia synthesis with dual temperature zone catalyst powered by solar light *Chem* **2019**, 5: 2702-2717.
94. Zhai, Y.L.; Zhang, S.L; Shang, Y.S.; Song, Y.; Wang, W.X.; Ma, T.; Zhang, L.M.; Gong, Y.J.*; Xu, J.; **Deng, F.** Boosting the turnover number of core-shell Al-ZSM-5@B-ZSM-5

zeolite for methanol to propylene reaction by modulating its gradient acid site distribution and low consumption diffusion *Catal. Sci. Technol.* **2019**, 9: 659-671.
95. Li, S.; Jin, C.H.; Feng, N.D.; **Deng, F.**; Xiao, L.P.*; Fan, J.* Regulation of acidic properties of WO_3-ZrO_2 for Friedel-Crafts reaction with surfactant *Catal. Commun.* **2019,** 123:54-58.
96. Wang, C.; Chu, Y. Y.; Xu, J.*; Wang, Q.; Qi, G. D.; Gao, P.; Zhou, X.; **Deng, F.*** Extra-framework aluminum-assisted initial C-C bond formation in methanol-to-olefins conversion on zeolite H-ZSM-5 *Angew. Chem. Int. Ed.* **2018**, 57: 10197-10201.
97. Gao, P.; Wang, Q.; Xu, J.*; Qi, G. D.; Wang, C.; Zhou, X.; Zhao, X. L.; Feng, N. D.; Liu, X. L.; **Deng, F.*** Brønsted/Lewis acid synergy in methanol-to-aromatics conversion on Ga-modified ZSM-5 zeolites as studied by solid-state NMR spectroscopy *ACS Catal.* **2018**, 8: 69-74.
98. Gao, P; Xu, J.*; Qi, G. D.; Wang, C.; Wang, Q.; Zhao, Y.X.; Zhang, Y. H.; Feng, N. D.; Zhao, X. L.; Li, J. L.; **Deng, F.*** A mechanistic study of methanol-to-aromatics reaction over Ga-modified ZSM‑5 zeolites: understanding the dehydrogenation process *ACS Catal.* **2018**, 8: 9809-9820.
99. Wang, W. Y.; Hu, H.; Xu, J.*; Wang, Q.; Qi, G. D.; Wang, C.; Zhao, X. L.; Zhou, X.; **Deng, F.*** Tuning Pd-Au bimetallic catalysts for heterogeneous parahydrogen-induced polarization *J. Phys. Chem. C* **2018**,122:1248-1257
100. Liu, F.; Feng, N. D.*; Yang, L. X.; Wang, Q.; Xu, J.; **Deng, F.*** Enhanced photocatalytic performance of carbon-coated TiO_{2-x} with surface-active carbon species *J. Phys. Chem. C*. **2018**,122:10948-10955.
101. Qi, G. D.; Wang, Q.; Xu, J.*; Wu, Q. M.; Wang, C.; Zhao, X. L.; Meng, X. J.; Xiao, F. S. **Deng, F.*** Direct observation of tin sites and their reversible interconversion in zeolites by solid-state NMR spectroscopy *Commun. Chem.* **2018**,1: 22.
102. Li, W. Z,; Wang, Q.; Xu, J.*; Aussenac, F.; Qi, G. D.; Zhao, X. L.; Gao, P.; Wang, C.; **Deng, F.*** Probing the surface of γ-Al_2O_3 by oxygen-17 dynamic nuclear polarization enhanced solid-state NMR spectroscopy *Phys. Chem. Chem. Phys.* **2018**, 20:17218-17225
103. Wang, Q.; Trébosc, J.; Li, Y. X.; Lafon, O.; Xin, S. H.; Xu, J.; Hu, B. W.; Feng, N. D.; Amoureux, J. P.*; **Deng, F.*** Uniform signal enhancement in MAS NMR of half-integer quadrupolar nuclei using quadruple-frequency sweeps *J. Magn. Reson.* **2018**,293:92-103
104. Li, S. H.* ; Li, J.; Tang, J.; **Deng F.*** Host-guest interaction of styrene and ethylbenzene in MIL-53 studied by solid-state NMR *Solid State Nucl. Magn. Reson.* **2018**, 90:1-6.
105. Sheng, N.; Chu, Y.Y.; Xin, S.H.; Wang, Q.; Liu, X.L.; Xu, J.; Xiao, F.S.*; **Deng, F.*** New insights into the di-n-propylamine (DPA) molecule as an organic structural directing agent (OSDA) in the crystallization of AlPO4-11 molecular sieve *Inorg. Chem. Front.* **2018**, 5: 1633-1639.
106. Li, M.P.; Ren, H.; Sun, F.X.; Tian, Y.Y.; Zhu, Y.L.; Li, J.L.; Mu, X.; Xu, J. ; **Deng, F.**; Zhu, G. S.* Construction of porous aromatic frameworks with exceptional porosity via building unit engineering *Adv. Mater.* **2018**, 30:1804169
107. Zhang, W.N.; Chen, J.R. ; Xu, S.T.; Chu, Y.Y.; Wei, Y.X.; Zhi, Y.C.; Huang, J.D.; Zheng, A.M.; Wu, X.Q.; Meng, X.J.; Xiao, F.S.; **Deng, F.**; Liu, Z.M.* Methanol to olefins reaction over cavity-type zeolite: cavity controls the critical intermediates and product selectivity *ACS Catal.* **2018**, 8 : 10950-10963.

108. Zhang, Y.F. ; Liu, Y.S.; Sun, L.Y.; Zhang, L.M.; Xu, J.; **Deng, F.**; Gong, Y.J.* Synthesis of EU-1/ZSM-48 co-crystalline zeolites from high-silica EU-1 seeds: tailoring phase proportions and promoting long crystalline-phase stability *Chem. Eur. J.* **2018**, 24 : 6595-6605.
109. Liu, F.; Feng, N.D.*; Wang, Q.; Xu, J.; Qi, G.D.; Wang, C.; **Deng, F.*** Transfer channel of photoinduced holes on a TiO_2 surface as revealed by solid-state nuclear magnetic resonance and electron spin resonance spectroscopy *J. Am. Chem. Soc.* **2017**, 139, 10020-10028.
110. Zheng, A.M.*; Liu, S.B.*; **Deng, F.*** ^{31}P NMR chemical shifts of phosphorus probes as reliable and practical acidity scales for solid and liquid catalysts *Chem. Rev.* **2017**, 117: 12475-12531.
111. Marchetti, A.; Chen, J.; Pang, Z.F.; Li, S.H.; Ling, D.H.; **Deng, F.***; Kong, X.Q.* Understanding surface and interfacial chemistry in functional nanomaterials via solid-state NMR *Adv. Mater.* **2017**, 29, 1605895
112. Wang, C.; Xu, J.*; Wang, Q.; Zhou, X.; Qi, G. D.; Feng,N.D.; Liu, X.L.; Meng, X.J.; Xiao, F.X.; **Deng, F.*** Host-guest interactions and their catalytic consequences in methanol to olefins conversion on zeolites studied by ^{13}C-^{27}Al double-resonance solid-state NMR spectroscopy *ACS Catal.* **2017**, 7:6094-6103.
113. Wang, C.; Sun, X.Y.; Xu, J.*; Qi, G.D.; Wang, W.Y.; Zhao, X.L.; Li, W.Z.; Wang, Q.; **Deng, F.*** Impact of temporal and spatial distribution of hydrocarbon pool on methanol conversion over H-ZSM-5 *J. Catal.* **2017**, 354, 138-151.
114. Wang, X. M.; Xu, J.*; Qi, G. D.; Wang, C.; Wang, W. Y.; Gao, P.; Wang, Q.; Liu, X. L.; Feng, N. D.; **Deng, F.*** Carbonylation of ethane with carbon monoxide over Zn-modified ZSM-5 zeolites studied by in situ solid-state NMR spectroscopy *J. Catal.* **2017**, 345:228-235.
115. Xin, S.H.; Wang, Q.*; Xu, J.; Feng, N.D.; Li, W.Z.; **Deng, F.*** Heteronuclear correlation experiments of ^{23}Na-^{27}Al in rotating solids *Solid State Nucl. Magn. Reson.* **2017**,84:103-110.
116. Liu, X.L.; Chu,Y.Y.; Wang, Q.; Wang, W.Y.; Wang, C.; Xu, J.*; **Deng, F.*** Identification of double four-ring units in germanosilicate ITQ-13 zeolite by solid-state NMR spectroscopy *Solid State Nucl. Magn. Reson.* **2017**, 87: 1-9.
117. Wang, W.Y.; Xu, J.*; Zhao, Y.X.; Qi, G.D.; Wang, Q.; Wang, C.; Li, J.L.; **Deng, F.*** Facet dependent pairwise addition of hydrogen over Pd nanocrystal catalysts revealed by NMR using para-hydrogen-induced polarization *Phys. Chem. Chem. Phys.* **2017**, 19: 9349-9353.
118. Yi, Y.F.; Li, G.C.; Huang, L.; Chu, Y.Y.; Liu, Z.Q.; Xia, H.Q.; Zheng, A.M.*; **Deng, F.*** An NMR scale for measuring the base strength of solid catalysts with pyrrole probe: a combined solid-state NMR experiment and theoretical calculation study *J. Phys. Chem. C* **2017**, 121, 3887-3895.
119. Li, J.; Li, S.H.*; Zheng, A.M.; Liu, X.L.; Yu, N.Y.; **Deng, F.*** Solid-State NMR studies of host-guest interaction between UiO-67 and light alkane at room temperature *J. Phys. Chem. C.* **2017**, 121: 14261-14268
120. Chu,Y.Y.; Li, G.C.; Huang, L.; Yi, X.F.; Xia, H.Q.; Zheng, A.M.*; **Deng, F.*** External or internal surface of H-ZSM-5 zeolite, which is more effective for the Beckmann rearrangement reaction? *Catal. Sci. Technol.* **2017**, 7:2512-2523.

121. Li, S.H.; Li, J.; Zheng, A.M.; **Deng, F.*** Solid-State NMR characterization of the structure and catalytic reaction mechanism of solid acid Catalysts *Acta Phys.-Chim. Sin.* **2017**, 33: 270-282
122. Zheng, A.M.; Li, S.H.; Liu, S. B.*; **Deng, F.*** Acidic properties and structure-activity correlations of solid acid catalysts revealed by solid-state NMR spectroscopy *Acc. Chem. Res.* **2016**, 49: 655-663.
123. Wang, C.; Wang, Q.; Xu, J.*; Qi, G.D.; Gao, P.; Wang, W.Y.; Zou, Y.Y.; Feng, N.D.; Liu, X.L.; **Deng, F.*** Direct detection of superamolecular reaction centers in the methanol-to-olefins conversion over zeolite H-ZSM-5 by ^{13}C-^{27}Al solid-state NMR spectroscopy *Angew. Chem. Int. Ed.* **2016**, 55:2507-2511.
124. Qi, G.D.; Wang, Q.; Xu, J.*; Trebosc, J.; Lafon, O.; Wang, C.; Amoureux, J.P.; **Deng F.*** Synergic effect of active sites in zinc-modified ZSM-5 zeolites as revealed by high-field solid-state NMR spectroscopy *Angew. Chem. Int. Ed.* **2016**, 55:15826 –15830.
125. Huang, M.D.; Wang, Q.; Yi, X.; Chu, Y.; Dai, W.L.; Li, L.D.; Zheng, A.M.*; **Deng F.*** Insight into the formation of the *tert*-butyl cation confined inside H-ZSM-5 zeolite from NMR spectroscopy and DFT calculations *Chem. Commun.* **2016**, 52, 10606-10608.
126. Song, B.T.; Chu, Y.Y.; Li, G.C.; Wang, J.Q.; Lo, A.Y.; Zheng, A.M.*; **Deng, F.*** Origin of zeolite confinement revisited by energy decomposition analysis *J. Phys. Chem. C* **2016**, 120:27349-27363.
127. Zhou, L.; Li, S.H.*; Qi, G.D.; Su, Y.C.; Li, J.; Zheng, A.M.; Yi, X.;Wang, Q.; **Deng, F.*** Methanol carbonylation over copper-modified mordenite zeolite: a solid-state NMR study *Solid State Nucl. Magn. Reson.* **2016**, 80: 1–6.
128. Zhou, L.; Li, S.H.*; Li, J.; Wang, Q.; **Deng, F.*** Valence state alternation of copper species doped in HY zeolite as revealed by paramagnetic relaxation enhancement NMR spectroscopy *Solid State Nucl. Magn. Reson.* **2016**, 74-75: 10–15.
129. Feng, N.D.; Liu, F.; Huang, M.; Zheng, A.M.; Wang, Q.; Chen, T.H.; Cao, G.Y.; Xu, J.; Fan, J.; **Deng, F.*** Unravelling the efficient photocatalytic activity of Boron-induced Ti^{3+} species in the surface layer of TiO_2 *Sci. Rep.* **2016**, 6:34765.
130. Yi, X.F.; Ding, L.H.; Li, G.C.; Liu, Z.Q.; Xia, H.; Chu, Y.Y.; Zheng, A.M.*; **Deng, F.*** Insights into the reaction mechanism of propene H/D exchange over acidic zeolite catalysts from theoretical calculations *Catal. Sci. Technol.* **2016**, 6:6328-6338.
131. Chu, Y.Y.; Xue, N.H.; Xu, B.L.; Ding, Q.; Feng, Z.C.; Zheng, A.M.*; **Deng, F.*** Mechanism of alkane H/D exchange over zeolite H-ZSM-5 at low temperature: a combined computational and experimental study *Catal. Sci. Technol.* **2016**,6:5350-5363.
132. Sheng, N.; Chu, Y.Y.; Xin, S.H.; Wang, Q.; Yi, X.F.; Feng, Z.C.; Meng, X.J.*; Liu, X.L.*; **Deng, F.**; Xiao, F.S.* Insights of the crystallization process of molecular sieve $AlPO_4$-5 prepared by solvent-free synthesis *J. Am. Chem. Soc.* **2016**, 138:6171−6176.
133. Xu, L.; Ji, X.Y.; Li, S.H.; Zhou, Z.Y.; Du, X.; Sun, J.L.; **Deng, F.**; Che, S.A.; Wu, P.* Self-assembly of cetyltrimethylammonium bromide and lamellar zeolite precursor for the preparation of hierarchical MWW zeolite *Chem. Mater.* **2016**, 28: 4512-4521.
134. Wang, Q.; Li, Y.X. ; Trébosc, J. ; Lafon, O. ; Xu, J. ; Hu, B.W. ; Feng, N.D. ; Chen, Q. ; Amoureux. J.P.*; **Deng, F.*** Population transfer HMQC for half-integer quadrupolar nuclei *J. Chem. Phys.* **2015**, 142: 094201.

135. Li, S. H.; Julien Trébosc J.; Lafon O.*; Zhou L.; Shen M.; Pourpoint F.; Amoureux J.P.*; **Deng, F.*** Observation of ^{1}H-^{13}C and ^{1}H-^{1}H proximities in a paramagnetic solid by NMR at high magnetic field under ultra-fast MAS. *J. Magn. Reson.* **2015**, 251:36-42.
136. Qi, G. D.; Wang, Q.; Chu, Y. Y.; Xu, J.*; Zheng, A. M.; Su, J. H.; Chen, J. F.; Wang, C.; Wang, W. Y.; Gao, P.; **Deng, F.*** Room temperature stable zinc carbonyl complex formed in zeolite ZSM-5 and its hydrogenation reactivity: a solid-state NMR study *Chem. Commun.* **2015**, 51: 9177-9180.
137. Wang, C.; Xu, J.*; Qi, G. D.; Gong, Y.J.; Wang, W. Y.; Gao, P.; Wang, Q.; Feng, N. D.; Liu, X.; **Deng, F.*** Methylbenzene hydrocarbon pool in methanol-to-olefins conversion over zeolite H-ZSM-5 *J. Catal.* **2015**, 332: 127–137.
138. Wang, C.; Yi, X.F.; Xu, J.*; Qi, G.D.; Gao, P.; Wang, W.Y.; Chu, Y.Y.; Wang, Q.; Feng, N.D.; Liu, X.L.; Zheng, A.M.; **Deng, F.*** Experimental evidence on the formation of ethene through carbocations in methanol conversion over H-ZSM-5 Zeolite *Chem. Eur. J.* **2015**, 21: 12061-12068.
139. Chu, Y.Y.; Ji, P.; Yi, X.F.; Li, S.H.; Wu, P.; Zheng, A.M.*; **Deng, F.*** Strong or weak acid, which is more efficient for Beckmann rearrangement reaction over solid acid catalysts? *Catal. Sci. Technol.* **2015**, 5: 3675-3681.
140. Chu, Y.Y.; Sun, X.Y.; Yi, X.F.; Ding, L.H.; Zheng, A.M.*; **Deng, F.*** Slight channel difference influences the reaction pathway of methanol-to-olefins conversion over acidic H-ZSM-22 and H-ZSM-12 zeolites *Catal. Sci. Technol.* **2015**, 5: 3507-3517.
141. Zhou, L.; Li, S.H.*; Su, Y.C.; Li, B.J.; **Deng, F.*** Paramagnetic relaxation enhancement solid-state NMR studies of heterogeneous catalytic reaction over HY zeolite using natural abundance reactant *Solid State Nucl. Magn. Reson.* **2015**, 66-67: 29-32.
142. Wu, Q.M.; Liu, X.L.; Zhu, L.F.; Ding, L.H.; Gao, P.; Wang, X.; Pan, S.X.; Bian, C.Q.; Meng, X.J.*; Xu, J.; **Deng, F.***; Maurer, S.; Muller, U.; Xiao, F.S.* Solvent-free synthesis of zeolites from anhydrous starting raw solids *J. Am. Chem. Soc.* **2015**, 137:1052-1055.
143. Sun, Q.; Dai, Z.F.; Liu, X.L.; Sheng, N.; **Deng, F.**; Meng, X.J.; Xiao, F.S.* Highly efficient heterogeneous hydroformylation over Rh-Metalated porous organic polymers: synergistic effect of high ligand concentration and flexible framework *J. Am. Chem. Soc.* **2015**, 137:5204-5209.
144. Su, X.; Xu, S.T.; Tian, P.; Li, J.Z.; Zheng, A.M.; Wang, Q.; Yang, M.; Wei, Y. X.; **Deng, F.**; Liu, Z.M.* Investigation of the strong Brønsted acidity in a novel SAPO-type molecular sieve, DNL-6 *J. Phys. Chem. C* **2015**, 119:2589-2596.
145. Li, S. H.; Pourpoint, F.; Trebosc, J.; Zhou, L.; Lafon, O.; Shen, M.; Zheng, A. M.; Wang, Q.; Amoureux, J. P.*; **Deng, F.*** Host-guest interactions in dealuminated HY zeolite probed by ^{13}C-^{27}Al solid-state NMR spectroscopy *J. Phys. Chem. Lett.* **2014**, 5: 3068-3072.
146. Wang, X. M.; Xu, J.*; Qi, G.; Wang, C.; **Deng, F.*** Alkylation of benzene with carbon monoxide over Zn/H-ZSM-5 zeolite studied by in situ solid-state NMR spectroscopy. *Chem. Commun.* **2014**, 50 : 11382-11384.
147. Zheng, A. M.*; Chu, Y. Y.; Li, S. H.; Su, D. S.; **Deng, F.*** Insight into the activation of light alkanes over surface-modified carbon nanotubes from theoretical calculations. *Carbon* **2014**, 77 : 122-129.
148. Wang, C.; Chu, Y.; Zheng, A.; Xu, J.*; Wang, Q.; Gao, P.; Qi, G.; Gong, Y.; **Deng, F.*** New insight into the hydrocarbon pool chemistry of methanol to olefins conversion over

zeolite H-ZSM-5 from GC-MS, solid-state NMR spectroscopy and DFT calculations *Chem. Eur. J.* **2014**, 20 :12432-12443.

149. Ye, H. Y.; Li, S. H.; Zhang, Y.; Zhou, L.; **Deng, F.**; Xiong, R. G.* Solid state molecular dynamic investigation of an inclusion ferroelectric: (2,6-Diisopropylanilinium) (18-crown-6)BF_4. *J. Am. Chem. Soc.* **2014**, 136: 10033-10040.

150. Wu, Q.; Wang, X.; Qi, G.; Guo, Q.; Pan, S.; Meng, X.; Xu, J.**; Deng, F**.; Fan, F.; Feng, Z.; Li, C.; Maurer, S.; Mueller, U.; Xiao, F.-S.* Sustainable synthesis of zeolites without addition of both organotemplates and solvents. *J. Am. Chem. Soc.* **2014**, 136:4019-4025.

151. Hung, C. T.; Yu, N. Y.; Chen, C. T.; Wu, P. H.; Han, X. X.; Kao, Y. S.; Liu, T. C.; Chu, Y. Y.; **Deng, F.;** Zheng, A. M.*; Liu, S. B.* Highly nitrogen-doped mesoscopic carbons as efficient metal-free electrocatalysts for oxygen reduction reactions. *J. Mater. Chem. A* **2014**, 2: 20030-20037.

152. Huang, S. J.; Hung, C. T.; Zheng, A. M.; Lin, J. S.; Yang, C. F.; Chang, Y. C.; **Deng, F.**; Liu, S. B.* Capturing the local adsorption structures of carbon dioxide in polyamine-impregnated mesoporous silica adsorbents. *J. Phys. Chem. Lett.* **2014**, 5: 3183-3187.

153. Xi, D.; Sun, Q.; Xu, J.**;** Cho, M.; Cho, H. S.; Asahina, S.; Li, Y.; **Deng, F.**; Terasaki, O.; Yu, J.* In situ growth-etching approach to the preparation of hierarchically macroporous zeolites with high MTO catalytic activity and selectivity. *J. Mater. Chem. A* **2014**, 2: 17994-18004.

154. Liu, B.; Ben, T.*; Xu, J.; **Deng, F.**; Qiu, S.*, Hydrogen bonding controlled catalysis of a porous organic framework containing benzimidazole moieties. *New J. Chem.* **2014,** 38: 2292-2299.

155. Qi, G. D.; Xu, J.*; Su, J. H.; Chen, J. H.; Wang, X. M.; **Deng, F.*** Low-temperature reactivity of Zn^+ ions confined in ZSM-5 zeolite toward carbon monoxide oxidation: insight from in situ DRIFT and ESR spectroscopy *J. Am. Chem. Soc.* **2013,** 135 : 6762-6765.

156. Feng, N. D.; Wang, Q.; Zheng, A. M.; Zhang, Z. F.; Fan, J.; Liu, S. B.; Amoureux, J. P.; **Deng, F.*** Understanding the high photocatalytic activity of (B,Ag)-codoped TiO_2 under solar-light irradiation with XPS, solid-state NMR and DFT calculations *J. Am. Chem. Soc.* **2013,** 135 : 1607-1616.

157. Wang, Q.; Trebosc, J.L.; Li, Y.X.; Xu, J.; Hu, B.W.; Feng, N.D.; Chen, Q.; Lafon, O.; Amoureux, J. P.; **Deng, F.*** Signal enhancement of J-HMQC experiments in solid-state NMR involving half-integer quadrupolar nuclei *Chem. Commun.* **2013**, 49: 6653-6655.

158. Li, S.H.; **Deng, F.** Recent advances of solid-state NMR studies on zeolites *Annu. Rep. NMR Spectro.* **2013**, 78 :1-54.

159. Wang, X.M.; Xu, J.*; Qi, G.D.; Li, B.J.; Wang, C.; **Deng, F.*** Alkylation of benzene with methane over ZnZSM-5 zeolites studied with solid-state NMR spectroscopy *J. Phys. Chem. C* **2013**, 117: 4018-4023

160. Zhou, L.; Li, S.H.*; Su, Y.C.; Yi, X.F.; Zheng, A.M.; **Deng, F.*** Interaction between histidine and Zn(II) metal ions over a wide pH as revealed by solid-state NMR Spectroscopy and DFT calculations *J. Phys. Chem. B* **2013**, 117: 8954−8965.

161. Yi X.F., Byun Y., Chu Y.Y., Zheng A.M.*, Hong S.B.*, **Deng F.*** Stability of the reaction intermediates of ethylbenzene disproportionation over medium-pore zeolites with different framework topologies: a theoretical investigation *J. Phys. Chem. C* **2013**, 117: 23626-23637

162. Li, B.J.; Xu, J.*, Han, B.; Wang, X.M.; Qi, G.D.; Zhang Z.F.; Wang, C.; **Deng, F.*** Insight into dimethyl ether carbonylation reaction over mordenite zeolite from in-situ solid-state NMR spectroscopy *J. Phys. Chem. C* **2013**, 117: 5840-5847.
163. Chu, Y.Y., Han, B., Zheng, A.M.*, Yi, X.F., **Deng, F.*** Pore selectivity for olefin protonation reactions confined inside mordenite zeolite: A Theoretical Calculation Study. *J. Phys. Chem. C* **2013**, 117: 2194-2202.
164. Li S.H.*; Zhou L.; Su Y.C.; Han B.; **Deng F.*** ^{13}C and ^{15}N spectral editing inside histidine imidazole ring through solid-state NMR spectroscopy *Solid State Nucl. Magn. Reson.* **2013**, 54:13–17.
165. Zheng A.M., Liu S.B.*, **Deng F.*** Acidity characterization of heterogeneous catalysts by solid-state NMR spectroscopy using probe molecules *Solid State Nucl. Magn. Reson.* **2013**, 55-56:12–27.
166. Zhou H.L., Lin R.B., He C.T., Zhang Y.B., Feng N.D., Wang Q., **Deng F.**, Zhang J.P.*, Chen X.M. Direct visualization of a guest-triggered crystal deformation based on a flexible ultramicroporous framework *Nat. Commun.* **2013**, 4:2534
167. Jin, Y.Y., Sun, Q., Qi, G.D., Yang, C.G., Xu, J., Chen, F., Meng, X.J.*, **Deng, F.**, Xiao, F.S.* Solvent-free synthesis of silicoaluminophosphate zeolites *Angew. Chem. Int. Ed.* **2013**, 52,: 9172-9175.
168. Sun Z.H., Luo J.H.*, Zhang S.Q., Ji C.M., Zhou L., Li S.H.*, **Deng F.***, Hong M. Solid-state reversible quadratic nonlinear optical molecular switch with an exceptionally large contrast *Adv. Mater.* **2013**, 25: 4159-4163.
169. Fu, D.W., Cai, H.L., Li, S.H., Ye, Q., Zhou, L., Zhang, W., Zhang, Y., **Deng, F.**, Xiong, R.G.* 4-Methoxyanilinium perrhenate 18-Crown-6: a new ferroelectric with order originating in swinglike motion slowing down *Phys. Rev. Lett.* **2013**, 110, 257601.
170. Xu S.T., Zheng A.M., Wei Y.X., Chen J.R., Li J.Z., Chu Y.Y., Zhang M.Z., Wang Q.Y., Zhou Y., Wang J.B., **Deng F.**, Liu Z.M.* Direct observation of cyclic carbenium ions and their role in the catalytic cycle of the methanol-to-olefin reaction over chabazite zeolites *Angew. Chem. Int. Ed.* **2013**, 52 :11564-11568.
171. Wu, M.; Zheng, A.M.; **Deng, F.***; Su, B.L.* Significant photocatalytic activity enhancement of titania inverse opals by anionic impurities removal in dye molecule degradation *Appl. Catal. B* **2013**, 138: 219-228.
172. Xu, R.S.; Zhang, W.P.*; Xu, J.; Tian, Z.J. ; **Deng, F.**; Han, X.W. Bao, X.H.* Multinuclear solid-state NMR studies on the formation mechanism of aluminophosphate molecular sieves in ionic liquids *J. Phys. Chem. C* **2013**, 117: 5848-5854.
173. Wang, X.M.; Qi, G. Dong; Xu J.*; Li B.J.; Wang, C; **Deng, F.*** NMR-spectroscopic evidence of intermediate-dependent pathways for acetic acid formation from methane and carbon monoxide over a ZnZSM-5 zeolite catalyst *Angew. Chem. Int. Ed.* **2012**, 51, 3850-3853.
174. Xu, J.; Zheng, A. M.; Wang, X. M.; Qi, G.D.; Su, J.H.; Du, J.F.; Gan, Z.H.; Wu, J.F.; Wang, W.; **Deng, F.*** Room-temperature activation of methane over Zn modified H-ZSM-5 Zeolites: Insight from solid-state NMR and theoretical calculations. *Chem. Sci.* **2012**, 3:2932-2940.

175. Zheng, A. M.; Han, B.; Li, B. J.; Liu, S. B.*; **Deng, F.*** Enhancement of Bronsted acidity in zeolitic catalysts due to an intermolecular solvent effect in confined micropores *Chem. Commun.* **2012**, 48 : 6936-6938.

176. Zhang, Y.; Zhang, W.* ; Li, S.H.* ; Ye, Q.; Cai, H.L.; **Deng, F.*** ; Xiong, R.G.*; Huang, S.P. Ferroelectricity Induced by Ordering of Twisting Motion in a Molecular Rotor *J. Am. Chem. Soc.* **2012,** 134 : 11044-11049.

177. Chu Y., Han B., Zheng A.*, **Deng F.*** Influence of acid strength and confinement effect on the ethylene dimerization reaction over solid acid catalysts: a theoretical calculation study *J. Phys. Chem. C* **2012**, 116: 12687-12695.

178. Chu Y., Han B., Fang H., Zheng A.*, **Deng F.*** Influence of acid strength on the reactivity of alkane activation on solid acid catalysts: A theoretical calculation study *Micropor. Mesopor. Mater.* **2012**, 151: 241-249.

179. Li, Y.X.; Wang, Q.*; Zhang, Z.F.; Yang, J.; Hu, B. W.*; Chen, Q.; Noda, I.; **Deng, F.*** Covariance spectroscopy with a non-uniform and consecutive acquisition scheme for signal enhancement of the NMR experiments *J. Magn. Reson.* **2012**, 217:106-111.

180. Zhang, Z. F.; Miao, Y. M.; Liu, X. L.; Yang, J.*; Li, C. G.; **Deng, F.**; Fu, R. Q.* Dual-band selective double cross polarization for heteronuclear polarization transfer between dilute spins in solid-state MAS NMR *J. Magn. Reson.* **2012**, 217 : 92-99.

181. Yu Z., Wang Q., Chen L., **Deng F.*** Brønsted/Lewis Acid Sites Synergy in H-MCM-22 Zeolite Studied by ^{1}H and ^{27}Al DQ-MAS NMR Spectroscopy *Chin. J. Catal.* **2012**, 33: 129.

182. Xu, W. J.; Riikonen, J.; Nissinen, T.; Suvanto, M.; Rilla, K.; Li, B. J.; Wang, Q.; **Deng, F.**; Lehto, V. P.* Amine surface modifications and fluorescent labeling of thermally stabilized mesoporous silicon nanoparticles *J. Phys. Chem. C* **2012**, 16:22307-22314.

183. Pourpoint, F.; Trebosc, J.; Gauvin, R. M.; Wang, Q.; Lafon, O.; **Deng, F.**; Amoureux, J. P.* Measurement of aluminum-carbon distances using S-RESPDOR NMR experiments *ChemPhysChem* **2012**, 13, 3605-3615.

184. Fang, H.J.; Zheng, A.M.*; Xu, J.; Li, S.H.; Chu, Y.Y.; Chen, L.; **Deng, F.*** Theoretical investigation of the effects of zeolite framework on the stability of carbenium ions *J. Phys. Chem. C* **2011**, 115, 7429- 7439.

185. Feng, N. D.; Zheng, A.M.; Wang, Q.; Ren, P.P.; Gao, X.Z.; Liu, S.B.; **Deng, F.*** Boron environments in B-doped and (B, N)-codoped TiO_2 photocatalysts: a combined solid-state NMR and theoretical calculation study *J. Phys. Chem. C*, **2011**, 2709–2719.

186. Yu, Z.W.; Li, S.H.; Wang, Q.; Zheng, A.M.; Xu, J.; Chen, L.; **Deng, F.*** Bronsted/Lewis acid synergy in H-ZSM-5 and H-MOR zeolites studied by ^{1}H and ^{27}Al DQ-MAS solid-state NMR spectroscopy *J. Phys. Chem. C* **2011**,115: 22320-22327.

187. Chu,Y.Y.; Yu, Z.W.; Zheng, A.M.*; Fang, H.J.; Zhang, H.L.; Huang, S.J.; Liu, S.B.* **Deng, F.*** Acidic strengths of Brønsted and Lewis acid sites in solid acids scaled by ^{31}P NMR chemical shifts of adsorbed trimethylphosphine *J. Phys. Chem. C* **2011**, 115, 7660-7667.

188. Zheng, A.M.; Huang, S.J.; Liu, S.B.*; **Deng, F.*** Acid properties of solid acid catalysts characterized by solid-state ^{31}P NMR of adsorbed phosphorous probe *Phys. Chem. Chem. Phys.* **2011**, 13, 14889-14901

189. Wang, Q.; Lu, X.Y.; Lafon, O.; Trébosc, J.; **Deng, F.***; Hu, B.W.*; Chen, Q.; Amoureux, J.P.* Measurement of ^{13}C-^{1}H dipolar couplings in solids by using ultra-fast MAS NMR with symmetry-based sequences *Phys. Chem. Chem. Phys.* **2011**, 13, 5967-5973.

190. Huang, S.J.; Yang, C.Y.; Zheng, A.M.; Feng, N.D.; Yu, N.Y.; Wu, P.H.; Chang,Y.C.; Lin,Y.C.; **Deng, F.**[*] ; Liu, S.B.[*] Acid properties of Keggin-type heteropolyacids: new insights from P-31 MAS NMR of adsorbed phosphine oxide and DFT calculation studies, *Chemistry - An Asian Journal*, **2011**, 6:137-148.

191. Zheng, A.M.; Liu, S.B.[*]; **Deng, F.**[*] Regioselectivity of carbonium ion transition states in zeolites, *Catalysis Today*, **2011**, 64, 40-45.

192. Zou, Q.; Zhang, L.M.; Li, S.H.; Gao, X.Z.; **Deng, F.**[*] A solid-state NMR study of structure and segmental dynamics of poly(propylmethacryl-heptaisobutyl-pss)-co-styrene nanocomposites. *Journal of Colloid and Interface Science* **2011**, 355:334-3341.

193. Ben, T.; Pei, C. Y.; Zhang, D. L.; Xu, J.; **Deng, F.**; Jing, X. F.; Qiu, S. L.[*] Gas storage in porous aromatic frameworks (PAFs) *Energy & Environmental Science* **2011**, 4:3991

194. Yu, Z.W.; Zheng, A.M.; Wang, Q.; Chen, L.; Xu, J.; Amoureux, J.P.[*]; **Deng, F.**[*] Insights into the dealumination of zeolite HY revealed by sensitivity-enhanced ^{27}Al DQ-MAS NMR spectroscopy at high field *Angew. Chem. Int. Ed.* **2010**, 49, 8657–8661.

195. Hou, G. J.; Ding, S. W.[*]; Zhang, L. M.; **Deng, F.**[*] Breaking the T-1 constraint for quantitative measurement in magic angle spinning solid-state NMR spectroscopy, *J. Am. Chem. Soc.* **2010**, 132, 5538-5539.

196. Shen, W. L.; Li, S. H.; Xu, J.; Zhang, H. L.; Hu, W.; Zhou, D.; Zhang, J. A.; Yu, J. H.; Xu, W. J.; Xu, Y., **Deng F.**[*] A novel phase transformation phenomenon in mesostructured aluminophosphate *J. Phys. Chem. C*, **2010**, 114, 7076-7084.

197. Feng, N.; Zheng, A.M.[*]; Zhang ,H.; Liu, S.B.[*]; **Deng, F.**[*] Combined solid-state NMR and theoretical calculation studies of Brønsted acid properties in anhydrous 12-molybdo-phosphoric acid *J. Phys. Chem. C* **2010**,114:15464–15472.

198. Fang, H.J; Zheng, A.M.[*]; Xu, J.; Chen, L.; **Deng, F.**[*] New insights into the effects of acid strength on the solid acid-catalyzed reaction: theoretical calculation study of olefinic hydrocarbon protonation reaction *J. Phys. Chem. C* **2010**, 114, 10254-10264.

199. Fang, H.J; Zheng, A.M.[*]; Chu, Y.; **Deng, F.**[*] ^{13}C Chemical shift of Adsorbed Acetone for Measuring the Acid Strength of Solid Acids: A Theoretical Calculation Study *J. Phys. Chem. C* **2010**, 114, 12711-12718.

200. Li, S.H.; Zheng, A.M.; Su, Y.C.; Fang, H.J.; Shen, W. L.; Yu, Z.W.; **Deng, F.**[*] Extra-framework aluminium species in hydrated faujasite zeolite as investigated by two-dimensional solid-state NMR spectroscopy and theoretical calculations *Phys. Chem. Chem. Phys.* **2010**, 12, 3895-3903.

201. Chen, L.; Wang, Q.; Hu, B.; Lafon, O.; **Deng, F.**[*]; Amoureux, J.P.[*] Measurement of hetero-nuclear distances using a symmetry-based pulse sequence in solid-state NMR *Phys. Chem. Chem. Phys.* **2010**,12, 9395-9405.

202. Shen, W.L.; Yang, J.; Li, S.H.; Hu, W.; Xu, J.; Zhang, H.L.; Zou, Q.; Chen, L.; **Deng, F.**[*] Multinuclear solid-state NMR studies on phase transition of mesostructured aluminophosphate *Micropor. Mesopor. Mater.* **2010,** 127, 73-81.

203. Wang, Q.; Hu, B. W.; Lafon, O.; Trebosc, J.; **Deng, F.**[*]; Amoureux, J. P.[*] Homonuclear dipolar recoupling under ultra-fast magic-angle spinning: probing F-19-F-19 proximities by solid-state NMR. *J. Magn. Reson.* **2010**, 203 :113-128.

204. Chen L.; Lu X.Y.; Wang Q.A.; Lafon O.; Trebosc J.; **Deng F.**[*]; Amoureux J.P.[*] Distance measurement between a spin-1/2 and a half-integer quadrupolar nuclei by solid-state NMR using exact analytical expressions *J. Magn. Reson.* **2010**, 206, 269-273.
205. Shen W.L., Xu W.J., Gao Q., **Deng F.**[*] Intactness and spatial proximity of acid-base groups in bifunctional SBA-15 as revealed by solid-state NMR, *Chem. Phys. Lett.* **2010**, 461, 1-3.
206. Wu, J. F.; Wang, W. D.; Xu, J.; **Deng, F.**; Wang, W.[*] Reactivity of C-1 surface species formed in methane activation on Zn-modified H-ZSM-5 zeolite *Chem. Eur. J.* **2010**, 16:14016-14025.
207. Zheng, A.; Liu, S.-B.[*]; **Deng, F.**[*] ^{13}C shielding tensors of crystalline amino acids and peptides: Theoretical predictions based on periodic structure models *J. Comput. Chem.* **2009**, 30 :222-235.
208. Zheng, A.; Liu, S.-B.[*]; **Deng, F.**[*] Chemoselectivity during propene hydrogenation reaction over H-ZSM-5 zeolite: Insights from theoretical calculations *Micropor. Mesopor. Mater.* **2009**,121, 158.
209. Yu, H.G.; Fang, H.J.; Zhang, H.L.; Li, B.J.; **Deng, F.**[*] Acidity of sulfated tin oxide and sulfated zirconia: A view from solid-state NMR spectroscopy *Catal. Commun.* **2009**, 10: :920-924
210. Zheng, A.M.; Liu, S.-B.[*]; **Deng, F.**[*] ^{19}F chemical shift of crystalline metal fluorides: Theoretical predictions based on periodic structure models, *J. Phys. Chem. B*, **2009**, 113: 15018-15023
211. Hu, B.W.; Wang, Q.; Lafon, O.; Trébosc, J.; **Deng, F.**[*]; Amoureux, J.P.[*] Robust and efficient spin-locked symmetry-based double-quantum homonuclear dipolar recoupling for probing ^{1}H-^{1}H proximity in the solid-state *J. Magn. Reson.* **2009**,198: 41-48
212. Wang, Q.; Hu, B.; Lafon, O.; Trébosc, J.; **Deng, F.**[*]; Amoureux, J.P.[*] Double-quantum homonuclear NMR correlation spectroscopy of quadrupolar nuclei subjected to magic-angle spinning and high magnetic field *J. Magn. Reson.* **2009**, 200, 251-260
213. Wang, Q.; Hu, B.W.; Fayon, F.; Trébosc, J.; Legein, C.; Lafon, O.; **Deng, F.**[*]; Amoureux, J.P.[*] Double-quantum ^{19}F-^{19}F dipolar recoupling at ultra-fast magic angle spinning NMR: Application to the assignment of ^{19}F NMR spectra of inorganic fluorides *Phys. Chem. Chem. Phys.* **2009**,11, 10391-10395
214. Ben, T.; Ren, H.; Ma, S.Q.; Cao, D. P.; Lan, J. H.; Jing, X .F.; Wang, W. C.; Xu, J.; **Deng, F.**; Qiu, S.L.[*]; Zhu, G.S.[*] Targeted synthesis of a porous aromatic framework with high stability and exceptionally high surface area *Angew. Chem. Int. Ed.* **2009**, 48, 9457-9460.
215. Zheng, A. M.; Zhang H. L.; Lu, X.; Liu, S. B.[*]; **Deng, F.**[*] Theoretical predictions of ^{31}P NMR chemical shift threshold of trimethylphosphine oxide adsorbed on solid acid catalysts *J. Phys. Chem. B*, **2008**, 112, 4496-4505.
216. Zhang, H. L.; Zheng, A. M.; Yu, H. G.; Li, S. H.; Lu, X.; **Deng, F.**[*] Formation, location and photocatalytic reactivity of methoxy species on Keggin 12-$H_3PW_{12}O_{40}$: a joint solid-state NMR spectroscopy and DFT calculation study *J. Phys. Chem. C*, **2008**, 112: 15765-15770.
217. Zhang, H. L.; Yu, H. G.; Zheng, A. M.; Li, S. H.; Shen, W. L.; **Deng, F.**[*] Reactivity enhancement of 2-propanol photocatalysis on SO_4^{2-}/TiO_2: insights from solid-state NMR spectroscopy *Environ. Sci. Technol.* **2008**, 42:5316-5321

218. Li, S. H.; Huang, S. J.; Shen, W L.; Zhang, H. L.; Fang, H. J.; Zheng, A.M.; Liu, S. B.*; **Deng, F.*** Probing the spatial proximities among acid sites in dealuminated H-Y zeolite by solid-state NMR spectroscopy *J. Phys. Chem. C*, **2008**, 112: 14486-14494.

219. Zheng, A. M.; Huang, S. J.; Chen, W. H.; Wu, P. H.; Zhang, H. L.; Lee, H. K.; Menorval, L.C.; **Deng, F.***; Liu S. B.* ^{31}P chemical shift of adsorbed trialkylphosphine oxide for acidity characterization of solid acids catalysts *J. Phys. Chem. A*, **2008**, 112, 7337-7356.

220. Xu, J.; Zhou, D.; Song, X.W.; Chen, L.; Yu, J.H.; Ye, C.H.; **Deng, F.*** Crystallization of magnesium substituted aluminophosphate of type-36 as studied by solid- state NMR spectroscopy *Micropor. Mesopor. Mater.* **2008**, 115: 576-584.

221. Jia, H. M.; Xiao, W. J.; Zhang, L. Z.*; Zheng, Z.; Zhang, H. L.; **Deng, F.** In situ L-hydroxyproline functionalization and enhanced photocatalytic activity of TiO_2 nanorods *J. Phys. Chem. C* **2008**, 112: 11379-11384.

222. Gao, Q.; Xu, W.J.; Xu Y.*; Wu, D.; Sun, Y.H.; **Deng, F.**; Shen, W.L. Amnio acid adsorption on mesoporous materials: influence of types of amino acids, modification of mesoporous materials, and solution conditions. *J. Phys. Chem. B* **2008**, 112: 2261-2267.

223. Li, S.H.; Zheng, A.M.; Su,Y.C.; Zhang, H.L.; Chen, L.; Yang, J.; Ye, C.H.; **Deng, F.*** Bronsted/Lewis acid synergy in dealuminated HY zeolite: a combined solid-state NMR and theoretical calculation study *J. Am. Chem. Soc.* **2007**, 129: 11161-11171.

224. Xu, J.; Chen, L.; Zeng, D.L.; Yang, J.; Zhang, M.J.; Ye, C.H.; **Deng, F.*** Crystallization of AlPO-5 aluminophosphate molecular sieve prepared in fluoride medium: a multinuclear solid-state NMR study *J. Phys. Chem. B* **2007**,111: 7105-7113.

225. Zheng, A.M.; Zhang, H.L.; Chen, L.; Yue,Y.; Ye, C. H.; **Deng, F.*** Relationship between H-1 chemical shifts of deuterated pyridinium ions and Bronsted acid strength of solid acids *J. Phys. Chem. B* **2007**, 111:3085-3089.

226. Yang, Y.X.; Li, C.L.; Nie, X.; Feng, X.S.; Chen, W.X.; Yue,Y.; Tang, H.R.*; **Deng, F.*** Metabonomic studies of human hepatocellular carcinoma using high-resolution magic-angle spinning H-1 NMR spectroscopy in conjunction with multivariate data analysis *Journal of Proteome Research* **2007**, 6:2605-2614.

227. Zheng, A. M.; Wang, L.; Chen, L.; Yue, Y.; Ye, C. H.; Lu, X.; **Deng, F.*** High activity of amine-doped H-ZSM-5 zeolite in ethene protonation: Revealed by embedding calculations *ChemPhysChem* **2007**, 8, 231-234

228. Zhang, L. M.; Tang, H. R.*; Hou, G. J.; Shen, Y. D.; **Deng, F.*** The domain structure and mobility of semi-crystalline poly(3-hydroxybutyrate) and poly(3-hydroxybutyrateco-3-hydroxyvalerate): A solid-state NMR study *Polymer* **2007**, 48 :2928-2938.

229. Zhang, L. M.; Xu, J.; Hou, G. J.; Tang, H. R.*; **Deng, F.*** Interactions between Nafion resin and protonated dodecylamine modified montmorillonite: A solid state NMR study *Journal of Colloid and Interface Science* **2007**, 311 :38-44.

230. Zeng, D. L.; Fang, H. J.; Zheng, A. M.; Xu, J.; Chen, L.; Yang, J.; Wang, J. Q.; Ye, C. H.; **Deng, F.*** Selective oxidation of methanol over supported vanadium oxide catalysts as studied by solid-state NMR spectroscopy *Journal of Molecular Catalysis A-Chemical* **2007**, 270 : 257-263.

231. Zeng, D. L.; Yang, J.; Wang, J. Q.; Xu, J.; Yang, Y. X.; Ye, C. H.; **Deng, F.*** Solid-state NMR studies of methanol-to-aromatics reaction over silver exchanged HZSM-5 zeolite *Micropor. Mesopor. Mater.* **2007**, 98:214-219.

232. Yu, H. G.; Zhang, H. L.; Wang, X. M.; Gu, Z. W.; Li, X. D.; **Deng, F.**[*] Local structure of hydroxy-peroxy apatite: A combined XRD, FT-IR, Raman, SEM, and solid-state NMR study *Journal of Physics and Chemistry of Solids* **2007**, 68:1863-1871.

233. Yang, D. J.; Xu, Y.*; Wu, D.; Sun, Y. H.; Zhu, H. Y.; **Deng, F.** Super hydrophobic mesoporous silica with anchored methyl groups on the surface by a one-step synthesis without surfactant template *J. Phys. Chem. C* **2007**, 111: 999-1004.

234. Hou, G.J.; **Deng, F.**[*]; Ye, C.H.; Ding, S.W.[*] Towards uniform enhancement in solid-state cross polarization magic angle spinning NMR: a scheme incorporating cross-polarization with rotational resonance *J. Chem. Phys.* **2006**, 124: 234512.

235. Hou, G.J.; **Deng, F.**[*]; Ding, S.W.[*]; Fu, R.Q.; Yang, J.; Ye, C.H. Quantitative Cross Polarization NMR Spectroscopy in Uniformly ^{13}C-Labeled Solids *Chem. Phys. Lett.* **2006**, 421:356-360.

236. Xu, J.; Zheng, A.M.; Yang, J.; Su, Y.C.; Wang, J.Q.; Zeng, D.L.; Zhang, M.J.[*]; Ye, C.H.; **Deng, F.**[*] Acidity of mesoporous MoO_x/ZrO_2 and WO_x/ZrO_2 materials: a combined solid-state NMR and theoretical calculation study *J. Phys. Chem. B* **2006**,110: 10662-10671.

237. Wang, J.Q.; Su, Y.C.; Xu, J.; Ye, C.H.; **Deng, F.**[*] Acid sites and oxidation center in molybdena supported on Tin oxide as studied by solid-state NMR spectroscopy and theoretical calculation *Phys. Chem. Chem. Phys.* **2006**, 8: 2378-2384.

238. Wen, X.Y.; Ai, X.J.; Dong, J.X.; Yang, J.; Ye, C.H.; **Deng, F.**[*] Reaction of layered sodium disilicate SKS-6 with calcium chloride solution as revealed by solid state NMR spectroscopy: exploring the calcium ion extracting mechanism of SKS-6 *Solid State Nucl. Magn. Reson.* **2006**, 30, 89-97.

239. Zhou, D.; Xu, J.; Yu, J.H.[*]; Chen, L.; **Deng, F.**[*]; Xu, R.R. Solid-state NMR spectroscopy of anionic framework aluminophosphates: a new method to determine the Al/P ratio *J. Phys. Chem. B* **2006**,110 : 2131 – 2137

240. Hu,W.; Luo, Q.; Su, Y.C.; Zheng, A.M.; Yue, Y.; Ye, C.H.; **Deng, F.**[*] Acid sites in mesoporous Al-SBA-15 material as revealed by solid-state NMR spectroscopy *Micropor. Mesopor. Mater.* **2006**, 92: 22-30.

241. Wang, J.Q.; Yu, N.Y.; Zheng, A.M.; Yang, J.; Wu, D.; Sun,Y.H.; Ye, C.H.; **Deng, F.**[*] Mesoporous MSU materials functionalized with sulfonic group: a multinuclear NMR and theoretical calculation study *Micropor. Mesopor. Mater.* **2006**, 89: 219-226.

242. Yang, J.[*]; Janik, M. J.; Ma, D.; Zheng, A.M.; Zhang, M.J.; Neurock, M.[*]; Davis, R. J.; Ye, C.H.; **Deng, F.**[*] Location, acid strength and mobility of the acidic protons in Keggin 12-$H_3PW_{12}O_{40}$: a combined solid-state NMR spectroscopy and DFT quantum chemical calculation study *J. Am. Chem. Soc.* **2005**, 127: 18274-18280.

243. Yang, J.; Zheng, A. M.; Zhang, M. J.; Luo, Q.; Yue, Y.; Ye, C. H.; Lu, X.; **Deng, F.**[*] Bronsted and Lewis acidity of the BF_3/gamma-Al_2O_3 alkylation catalyst as revealed by solid-state NMR spectroscopy and DFT quantum chemical calculations. *J. Phys. Chem. B* **2005**, 109 :13124-13131.

244. Zheng, A.M.; Lei, C.; Yang, Y.; Zhang, M.J.; Su, Y.C.; Yue, Y.; Ye, C.H.; **Deng, F.**[*] Combined DFT theoretical calculation and solid state NMR studies of Al substitution and acid sites in zeolite MCM-22 *J. Phys. Chem. B* **2005**,109: 24273.

245. Zheng, A. M.; Chen, L.; Yang, J.; Yue, Y.; Ye, C. H.; Xin, L. B.; **Deng, F.*** Prediction of the C-13 NMR chemical shifts of organic species adsorbed on H-ZSM-5 zeolite by the ONIOM-GIAO method. *Chem. Commun.* **2005**, 2474-2476.

246. Luo, Q.; Yang, J.; Hu, W.; Zhang, M. J.; Yue, Y.; Ye, C. H.; **Deng, F.*** Unambiguously distinguishing Si(3Si,1Al) and Si (3Si,1OH) stuctural units in zeolite by H-1/Si-29/Al-27 triple resonance solid state NMR spectroscopy *Solid State Nucl. Magn. Reson.* **2005**, 28 : 9-12.

247. Zhou, D.; Chen, L.; Yu, J. H.*; Li, Y.; Yan, W. F.; **Deng, F.***; Xu, R. R. Synthesis, crystal structure, and solid-state NMR spectroscopy of a new open-framework aluminophosphate $(NH_4)_2Al_4(PO_4)_4(HPO_4)$center dot H_2O *Inorg. Chem.* **2005**, 44 : 4391-4397.

248. Chen, F.; Zhang, M.J.; Han, Y.; Xiao, F.S.; Yue, Y.*; Ye, C.H.; **Deng, F.*** Characterization of microporosity in ordered mesoporous material MAS-7 by ^{129}Xe NMR spectroscopy *J. Phys. Chem. B* **2004**,108:3728-3734.

249. Liu, Z.H.; **Deng, F.***; Ding, S.W.* Effects of pulse strength and sample spinning speed on spectral spin diffusion of multi-quantum coherences of spin-3/2 quadrupolar nuclei *J. Chem. Phys.* **2004**, 120:740-748.

250. Chen, F.; Chen, C. L.; Ding, S. W.*; Yue, Y.; Ye, C. H.; **Deng, F.*** A new approach to determination of micropore size by Xe-129 NMR spectroscopy. *Chem. Phys. Lett.* **2004**, 383: 309-313.

251. Ai, X. J.; **Deng, F.***; Dong, J. X.; Hu, W.; Xu, H.; Ye, C. H. One- and two-dimensional solid-state magic angle spinning NMR studies on the hydration process of layered sodium disilicate SKS-6. *Solid State Nucl. Magn. Reson.* **2004**, 25:216-226.

252. Zheng, A. M.; Yang, M. H.; Yue, Y.; Ye, C. H.; **Deng, F.*** C-13 NMR shielding tensors of carboxyl carbon in amino acids calculated by ONIOM method *Chem. Phys. Lett.* **2004**, 399 : 172-176

253. Chen, L.; Zhang, M. J.; Yue, Y.; Ye, C. H.; **Deng, F.*** NMR and theoretical studies of boron-modified mordenite *Micropor. Mesopor. Mater.* **2004**, 76:151-156.

254. Zhuang, J. Q.; Ma, D.*; Yan, Z. M.; **Deng, F.**; Liu, X. M.; Han, X. W.; Bao, X. H.*; Liu, X. W.; Guo, X. W.; Wang, X. S. Solid-state MAS NMR detection of the oxidation center in TS-1 zeolite by in situ probe reaction *J. Catal.* **2004**, 221:670-673.

255. Zong, X. H.; Zhou, P.*; Shao, Z. Z.; Chen, S. M.; Chen, X.; Hu, B. W.; **Deng, F.**; Yao, W. H. Effect of pH and copper(II) on the conformation transitions of silk fibroin based on EPR, NMR, and Raman spectroscopy *Biochem.* **2004**, 43:11932-11941

256. Li, W.; Jin, L.; Zhu, N.Y.; Hou, X.M.; **Deng, F.***; Sun, H.Z.* Structure of colloidal bismuth subcitrate in dilute HCl: unique assembly of bismuth citrate dinuclear units $([Bi(cit)_2Bi]^{2-})$ *J. Am. Chem. Soc.* **2003**, 125: 12408-12409.

257. Luo, Q. ; **Deng, F.***; Yuan, Z.Y.; Yang, J.; Zhang, M.J.; Yue, Y.; Ye, C.H. Using trimethylphosphine as a probe molecule to study the acid sites in Al-MCM-41 materials by solid state NMR spectroscopy *J. Phys. Chem. B*, **2003**,107: 2435-2442.

258. Yang, J.; Zhang, M.J.; **Deng, F.***; Luo, Q.; Yi, D.L.; Ye, C.H. Solid state NMR study of acid sites formed by adsorption of SO_3 onto γ-Al_2O_3 *Chem. Commun.* **2003**, 884-885.

259. Ai, X. J.; Chen, L.; Dong, J. X.; Ye, C. H.; **Deng, F.*** Variation of sodium coordination during the hydration processes of layered sodium disilicates as studied by Na-23 MQMAS and H-1-Na-23 CP/MAS NMR spectroscopy. *J. Mater. Chem.* **2003**, 13: 614-621.

260. Yang, J.; **Deng, F.***; Zhang, M. J.; Luo, Q.; Ye, C. H. W/HZSM-5 catalyst for methane dehydroaromatization: a multinuclear MAS NMR study *Journal of Molecular Catalysis A-Chemical* **2003**, 202:239-246.

261. Wang, W. Q.*; Min, W.; Liang, Z.; Wang, L. Y.; Chen, L.; **Deng, F.** NMR and parity violation: low-temperature dependence in H-1.CRAMPS and C-13 CP/MAS ssNMR spectra of alanine enantiomer *Biophysical Chemistry* **2003**, 103: 289-298.

262. Ai, X.J.; **Deng, F.***; Dong, J.X.*; Chen, L.; Ye, C.H. Stability of layered sodium disilicate during hydration process as studied by multinuclear solid-state NMR spectroscopy *J. Phys. Chem. B,* **2002**, 106: 9237-9244.

263. Yang, J.; Ma, D.; **Deng, F.***; Luo, Q.; Zhang, M. J.; Bao, X. H.; Ye, C. H. Solid state ^{13}C NMR studies of methane dehydroaromatization reaction on Mo/HZSM-5 and W/HZSM-5 catalysts *Chem. Commun.* **2002**, 3046-3047.

264. Chen, L.; **Deng, F.***; Ye, C. H. Dealumination of HZSM-5 zeolite by calcination: Al-27 multiple quantum MAS NMR study *Acta Physico-Chimica Sinica* **2002**, 18:786-790.

265. Chen, F.; **Deng, F.***; Cheng, M. J.; Yue, Y.*; Ye, C. H.; Bao, X. H. Preferential occupation of xenon in zeolite MCM-22 as revealed by ^{129}Xe NMR spectroscopy *J. Phys. Chem. B* **2001**, 105:9426-9432.

266. Ma, D.; **Deng, F.**; Fu, R.Q.; Han, X.W.; Bao, X.H.* MAS NMR Studies on the Dealumination of Zeolite MCM-22 *J. Phys. Chem. B* **2001**,105: 1770-1779.

267. Han, Y.; Xiao, F.S.*; Wu, S.; Sun, Y.Y.; Meng, X.J.; Li, D.S.; Lin, S.; **Deng, F.**; Ai, X. J. A novel method for incorperation of heteroatoms into the framework of ordered mesoporous silica materials synthesized in strong acidic media *J. Phys. Chem. B,* **2001**, 105:7963.

268. Haw, J. F.*; Nicholas, J. B.*; Song, W. G.; **Deng, F.**; Wang, Z. K.; Xu, T.; Heneghan, C.S. Organic reaction centers and hydrocarbon synthesis in zeolites *J. Am. Chem. Soc.*, **2000**, 122: 4763-4775.

269. Zhang, Y.; **Deng, F.**; Qiu, J. Q.; Ye, C. H.* Spin-locking mechanism of spin=3/2 quadrupolar nuclei under magic angle spinning *Solid State Nucl. Magn. Reson.* **2000**, 15: 209.

270. Barich, DH; Xu, T; Song, WG; Wang, ZK; **Deng, F**; Haw, JF* N-alkylnitrilium cations in zeolites: A study using theoretical chemistry and in situ NMR with the pulse-quench reactor *J. Phys. Chem. B,* **1998**, 102: 7163-7168.

271. **Deng, F.***; Yue, Y.; Ye, C.H. Observation of non-framework Al species in zeolite Beta by solid-state NMR spectroscopy. *J. Phys. Chem. B,* **1998**, 102: 5252-5256.

272. **Deng F.***; Yue, Y.; Ye, C.H. $^{1}H/^{27}Al$ TRAPDOR NMR studies on Al species in dealuminated zeolites. *Solid State Nucl. Magn. Reson.* **1998,** 10:151-160.

273. **Deng, F.***; Wang, G.X.; Du, Y.R.; Ye, C.H.; Kong, Y.H.; Li, X.D. ^{1}H MAS and $^{1}H\{^{23}Na\}$ double resonance NMR studies on the surface modification of hydroxyls on γ-alumina by sodium *Solid State Nucl. Magn. Reson.* **1997**, 7: 281-290.

274. **Deng, F.**; Dong, J. X.; Du, Y. R.*; Ye, C. H. Solid-state NMR studies on $AlPO_4$-5 molecular sieve with Al/P > 1 *Acta Physico-Chimica Sinica* **1997**, 13: 780-785.

275. Hu, J. Z.; Zhou, J. Y.; **Deng, F.**; Feng, H. Q.; Yang, N. H.; Li, L. Y.; Ye, C. H.* High resolution H-1 spectra of powdered solids observed by Hahn echo pulse sequence with magic-angle spinning. *Solid State Nucl. Magn. Reson.* **1996**, 6:85-94.51.

276. **Deng, F.**[*]; Yue, Y.; Xiao, T.C.; Du, Y. R.[*]; Ye, C. H.; An, L. D.; Wang, H. L. Substitution of aluminum in aluminophosphate molecular sieves by magnesium: a combined NMR and XRD study *J. Phys. Chem.* **1995**, 99: 6029-6035.
277. **Deng, F.**[*]; Du, Y. R.[*]; Ye, C.H.; Wang, J. Z.; Ding, D.T.; Li, H.X. Acid sites and hydration behaviors of dealuminated zeolite H-ZSM-5: a high resolution solid-state NMR study. *J. Phys. Chem.* **1995**, 99: 15208-15214.
278. **Deng, F.**; Yue, Y.; Du, Y.R.[*]; Ye, C.H. Multinuclear solid-state NMR study of Si-VPI-5 molecular sieves *Acta Physico-Chimica Sinica* **1995**, 11: 385-389.
279. Yue, Y.; **Deng, F.**; Hu, H. B.; Ye, C. H.[*] ^{23}Na NMR studies of doped nasicon systems. *Chem. Phys. Lett.* **1995**, 235: 503-507.
280. Xia, Y. L.; **Deng, F.**; Ye, C. H.[*] Off-resonance effects on 2D NMR nutation spectra of I=3/2 quadrupolar nuclei in static samples. *Solid State Nucl. Magn. Reson.* **1995**, 5: 227-232.
281. **Deng, F.**; Du, Y. R.[*]; Ye, C.H.; Wang, K.; Chen, T.H.; Ding, D.T.; Wang, J.Z.; Li, H.X. Characterization of sodium cations in zeolite omega by solid-state ^{23}Na NMR spectroscopy. *Appl. Magn. Reson.* **1994**, 6: 537-547.
282. **Deng. F.**; Du, Y. R.[*]; Ye, C. H.; Wang, K. X.; Wang, J. Z.; Ding, D. T.; Li, H. X. Solid-state NMR studies of dealumination of H-ZSM-5 zeolite by calcination *Progress in Natural Science*, **1994**, 4: 817-822
283. **Deng, F.**; Du, Y.R.[*]; Ye, C.H.; Kong. Y.H. Adsorption of Na^+ onto γ-alumina studied by solid-dtate ^{23}Na and ^{27}Al NMR spectroscopy. *Solid State Nucl. Magn. Reson.* **1993**, 2: 317-324.
284. **Deng, F.**; Hu, J.Z.; Xiong, J.C.; Du, Y.R.[*] Solid-State NMR studies of ^{1}H spin diffusion in adsorbed organic molecules. *Solid State Nucl. Magn. Reson.* **1993**, 2:97-104.
285. Yue, Y.; **Deng, F.**; Hu, H. B.; Ye, C. H[*].; Lin, Z. X.; Tian, S. B., P-31 NMR study of the solid-solution system Li1+XT2-XINXP3O12. *Chem. Phys. Lett.* **1993**, 208: 311-314.
286. **Deng, F.**; Yue, Y.; Du, Y. R. Structure, adsorption behavior and reactivity of catalysts studied by solid-state NMR spectroscopy *In-situ Characterization Techniques for Catalysis*, Edited by Qin Xin, Peking University Press, **1993**, 295-328.
287. **Deng, F.**; Du, Y. R.[*]; Wang, K.X.; Wang, J. Z.; Li, H. X. ^{1}H -^{27}Al CP/MAS NMR studies of dealuminated H-ZSM-5 zeolite. *Chin. Chem. Lett.*, **1993**, 4, 453-456.
288. **Deng, F.**; Li, L. Y.; Sun, H. Z.; Du, Y. R.[*] ^{1}H MAS NMR studies of H_2S and alcohols adsorbed on charcoal. *Acta Physico-Chimica Sinica* **1990**, 6: 648-650.

Invited Review Articles:

1. Wang, C.; Xu, J.[*]; **Deng, F.** Intermolecular Interactions in Zeolite Catalysis: Insights from Solid-State NMR Spectroscopy *Acc. Chem. Res.* **2025**, 58:3328-3340.
2. Wang, C.; Hu. M.; Xu, J.[*]; **Deng, F.**[*] Mechanistic studies of zeolite catalysis via *in situ* solid-state nuclear magnetic resonance spectroscopy: progress and prospects *Front. Chem. Sci. Eng.* **2025**, 19: 1-29
3. Zheng, M.J.; Chu,Y.Y.; Wang, Q.[*]; Wang, Y.X.; Xu, J.; **Deng, F.**[*] Advanced solid-state NMR spectroscopy and its applications in zeolite chemistry *Prog. Nucl. Magn. Reson. Spectrosc.* **2024**, 140-141: 1-41.
4. Wang, W.Y.; Wang, Q.; Xu, J.[*]; **Deng, F.** Understanding heterogeneous catalytic hydrogenation by parahydrogen-induced polarization NMR *ACS Catal.* **2023**, 13:3501-3519.

5. Wang, W.Y.; Xu, J.*; **Deng, F.*** Recent advances in solid-state NMR of zeolite catalysts *Natl. Sci. Rev.* **2022**, 9: nwac155
6. Qi, G.D.; Wang, Q.; Xu, J.*; **Deng, F.** Solid-state NMR studies of internuclear correlations for characterizing catalytic materials *Chem. Soc. Rev.* **2021**, 50: 8382-8399.
7. Xu, J.*; Wang, Q.; **Deng, F.*** Metal active sites and their catalytic functions in zeolites: insights from solid-state NMR spectroscopy *Acc. Chem. Res.* **2019**, 52: 2179-2189
8. Zheng, A.M.*; Liu, S.B.*; **Deng, F.*** ^{31}P NMR chemical shifts of phosphorus probes as reliable and practical acidity scales for solid and liquid catalysts *Chem. Rev.* **2017**, 117: 12475-12531.
9. Zheng, A.M.; Li, S.H.; Liu, S. B.*; **Deng, F.*** Acidic properties and structure-activity correlations of solid acid catalysts revealed by solid-state NMR spectroscopy *Acc. Chem. Res.* **2016**, 49: 655-663.
10. Li, S. H.; Lafon, O.; Wang, W.Y.; Wang, Q.; Wang, X.X.; Li, Y.; Xu, J.*; **Deng, F.** Recent advances of solid-state NMR spectroscopy for microporous materials *Adv. Mater.* **2020**, 32, 2002879.
11. Marchetti, A.; Chen, J.; Pang, Z. F.; Li, S. H.; Ling, D. H.; **Deng, F.***; Kong, X. Q.* Understanding surface and interfacial chemistry in functional nanomaterials via solid-state NMR *Adv. Mater.* **2017**, 29, 1605895
12. Zheng, A.M.; Huang, S.J.; Liu, S.B.*; **Deng, F.*** Acid properties of solid acid catalysts characterized by solid-state ^{31}P NMR of adsorbed phosphorous probe molecules *Phys. Chem. Chem. Phys.* **2011**, 13:14889-14901.
13. Zheng, A.M., Liu, S.B.*, **Deng, F.*** Acidity characterization of heterogeneous catalysts by solid-state NMR spectroscopy using probe molecules. *Solid State Nucl. Magn. Reson.* **2013**, 55-56: 12-27.
14. He, C.Y.; Li, S.H.*; Xiao, Y.Q.; Xu, J.; **Deng, F.*** Application of solid-state NMR techniques for structural characterization of metal-organic frameworks *Solid State Nucl. Magn. Reson.* **2022**, 117: 101772.
15. Wang, C.; Xu, J.*; **Deng, F.*** Mechanism of methanol-to-hydrocarbon reaction over zeolites: a solid-state NMR perspective *ChemCatChem* **2020**, 12, 965-980.
16. Xiao, Y.Q.; Li, S.H.*; Xu, J.; **Deng, F.*** Solid-state NMR studies of host–guest chemistry in metal-organic frameworks *Current Opinion in Colloid & Interface Science* **2022**, 61:101633
17. Zhao, X.L.; Xu, J.*; **Deng, F.*** Solid-state NMR for metal-containing zeolites: from active site to reaction mechanism *Front. Chem. Sci. Eng.* **2020**, 14:159-187.
18. Li, S.H.; **Deng, F.** Recent advances of solid-state NMR studies on zeolites *Annual Reports on NMR Spectroscopy*, **2013**, 78: 1-45.
19. Zheng, A. M.; **Deng, F.**; Liu S. B. Acidity characterization of solid acid catalysts by solid-state ^{31}P NMR of adsorbed phosphorus containing probe molecules *Annual Reports on NMR Spectroscopy*, **2014**, 81: 47-108.
20. Feng, N.D.; Xu, J.*; **Deng, F.*** Solid-state NMR of active sites in TiO2 photocatalysis: a critical review *Chem Synth.* **2024**, 4:43.
21. Zheng, A.M.; Huang, S.J.; Wang, Q.; Zhang, H.L.; **Deng, F.***; Liu, S.B.* Progress in development and application of solid-state NMR for solid acid catalysis. *Chin. J. Catal.* **2013**, 34: 436-491.

22. Li, S. H.; Li, J.; Zheng, A. M.; **Deng, F.*** Solid-state NMR characterization of the structure and catalytic reaction mechanism of solid acid catalysts *Acta Phys.-Chim. Sin.* **2017**, 33: 270-282.
23. Li, S.H. ; Zhou, L.; Zheng, A.M.; **Deng, F.*** Recent advances in solid-state NMR characterization of zeolites *Chin. J. Catal.* **2015**, 36 :789-796.
24. Qi, G.D.; Ye, X.D.; Xu, J.*; **Deng, F.*** Progress in NMR studies of carbohydrates conversion on zeolites *Chem. J. Chinese Universities-Chinese* **2021**, 42:148-164.
25. Xiao, Y.Q.; Li, S.H.*; Tang, J.; Xu, J.; **Deng, F.*** Solid-state NMR spectroscopy studies on structure, dynamics and host-guest interaction in metal-organic framework materials *Chem. J. Chinese Universities-Chinese* **2020**, 41: 204-220
26. Yu, Z. W.; Zheng, A. M.; Wang, Q.; **Deng, F.*** Application of two-dimensional double quantum magic angle spinning NMR to solid functional materials *Chem. J. Chinese Universities-Chinese* **2011**, 32: 471-484.
27. Yu, Z.W.; Zheng, A.M.; Wang, Q.; Huang, S.-J.; **Deng, F.***; Liu, S.B.* Acidity characterization of solid acid catalysts by solid-state NMR spectroscopy: a review on recent progresses. *Chin. J. Magn. Reson.* **2010**, 27: 485-515.

Book

1. Xu, J.; Wang, Q.; Li, S. H.; **Deng, F.** *Solid-State NMR in Zeolite Catalysis*, Lecture Notes in Chemistry 103, Springer Nature Singapore Pte Ltd. **2019**, page 1-260.

Book Chapter

1. Qi, G.D.; Xu, J.; **Deng, F.** Spectroscopic Characterization of Heteroatom-Containing Zeolites *Micro-Mesoporous Metallosilicates (Synthesis, Characterization and Catalytic applications)*, P. Wu and H. Xu (ed.), Wiley-VCH GmbH **2024**, page 217-252.
2. Zheng, A.M.; Li, S.H.; **Deng, F.** Solid-state NMR characterization of acidity of solid catalysts, *Modern Magnetic Resonance*, Springer, Graham A. Webb (ed.) **2017**, 1-23.
3. Li, S.H.; **Deng, F.** Solid-state NMR studies of zeolites, *Zeolites in Sustainable Chemistry, Green Chemistry and Sustainable Technology*, F.S. Xiao, X. Meng (ed), Springer-Verlag Berlin Heidelberg **2015**, page 231-268.
4. **Deng, F.**; Yang, J.; Ye, C.H. Solid-state NMR characterization of solid surface of heterogeneous catalysts *Modern Magnetic Resonance*, Graham A. Webb (ed.) **2005**, 205-211.

Selected Presentations:

1. ^{1}H spin diffusion of organic molecules adsorbed on porous solids, Oral presentation, Proceedings of International 4th Beijing Conference and Exhibition on Instrumental Analysis, October 18-24, **1991**, Beijing, China
2. Adsorption of Na^{+} to γ-alumina studied by ^{23}Na and ^{27}Al solid-state NMR spectroscopy, Oral presentation, Proceedings of International 5th Beijing Conference and Exhibition on Instrumental Analysis, October 9-12, **1993**, Beijing, China

3. Solid-state NMR investigation of acid sites in dealuminated H-ZSM-5 zeolite, Short oral presentation, Proceedings of the Third International Meeting on Recent Advances in MR Applications to Porous Media, September 3-6, **1995**, Louvian-La-Neuve, Belgium

4. ^{1}H MAS and $^{1}H\{^{23}Na\}$ double resonance NMR studies on the modification of surface hydroxyls of γ-alumina by sodium, Plenary lecture, the 9th Chinese National Magnetic Resonance Conferenece, September, 15-19, **1996**, Chengde, China

5. Solid-state NMR studies of molecular sieves and catalytic reactions, Invited lecture, Proceedings of International 8th Beijing Conference and Exhibition on Instrumental Analysis, October 25-28, **1999**, Beijing, China

6. Solid-state NMR studies of zeolite catalysts, Invited lecture for Wang T. C. Award for Magnetic Resonance Spectroscopy, the 11th Chinese National Magnetic Resonance Conferenece, October15-18, **2000**, Nanjing, China

7. Using trimethylphosphine as a probe molecule to study the acid sites in Al-MCM-41materials by solid-state NMR spectroscopy, Oral presentation, International Symposium on Solid State Chemistry in China, August 9-12, **2002**, Changchun, China

8. Solid-state NMR studies of ordered mesoporous materials. Oral presentation, Proceedings of International 10th Beijing Conference and Exhibition on Instrumental Analysis, October 13-16, **2003**, Beijing, China

9. Surface acidity of BF_3/Al_2O_3 catalyst as studied by solid-state NMR and theoretical calculation. Invited lecture, the 1st Asia-Pacific NMR Symposium, November 9-11, **2005**, Yokohama, Japan

10. Solid-state NMR spectroscopy and its application to heterogeneous catalysts, Invited lecture, the 1st Sino-French Workshop on Solid-state NMR Spectroscopy, October 17-21, **2006**, Wuhan, China

11. Solid-state NMR studies on solid acid catalysts, Plenary lecture, the 14th Chinese National Magnetic Resonance Conferenece, October 11-13, **2006**, Xi'an, China.

12. A Combined Solid-State NMR Spectroscopy and Theoretical Calculation Study of Bronsted/Lewis Acid Synergy in Dealuminated Y Zeolite. Invited lecture, the 16th ISMAR (International Society for Magnetic Resonance) Conference, October 14-19, **2007**, Kenting, Taiwan, China

13.Two-dimensional ^{1}H-^{1}H Double-quantum Magic Angle Spinning NMR Studies of Bronsted/Lewis Acid Synergy in zeolites. Invited lecture, the 1st Cross-Strait Magnetic Resonance Symposium, Oct.10 - 12, **2007**, Taibei, China.

14. Solid-state NMR spectroscopy: principle and application. Invited lecture, Advanced Class of Modern Characterization Techniques for Catalysis, October 26-30, **2007**, Dalian, China.

15. Solid-state NMR spectroscopy. Invited lecture, Bruker Workshop on Solid-state NMR spectroscopy, April 4-6, **2008**, Beijing, China.

16. Brønsted/Lewis Acid Synergy in Microporous Zeolites Studied by Solid-State NMR Spectroscopy and Theoretical Calculation. Invited lecture, the 13th Asian Chemical Conference, September 14-16, **2009**, Shanghai, China.

17. Solid-state NMR studies of spatial proximity between different acid sites in zeolites, Keynote lecture, the 15th Chinese National Conference on Zeolites, October 12-15, **2009**, Luoyang, China

18. Spatial Proximity of Acid Sites in Microporous Zeolites as Studied by ^{1}H-^{1}H and ^{27}Al-^{27}Al DQ MAS Solid-state NMR Spectroscopy. Invited lecture, Joint EUROMAR **2010** and 17th ISMAR (International Society for Magnetic Resonance) conference, July 4-9, **2010**, Florence, Italy.

19. Surface acidity of solid acid catalysts studied by solid-state NMR spectroscopy and theoretical DFT calculations. Invited lecture, the 240th ACS National Meeting, August 22-27, **2010**, Boston, USA.

20. Solid-state NMR characterization of heterogeneous catalysts. Invited lecture, the 2nd Sino-French Workshop on Solid-state NMR Spectroscopy, November 1-3, **2010**, Wuhan, China

21. Two-dimensional ^{1}H-^{1}H and ^{27}Al-^{27}Al DQ MAS Solid-state NMR Studies of Spatial Proximity of Acid Sites in Zeolites. Invited lecture, the 4th Asia-Pacific NMR Symposium, October 16-19, **2011**, Beijing, China

22. Solid-state NMR and DFT calculation studies of zeolites. Keynote lecture, the 16th Chinese National Conference on Zeolites, October 14-17, **2011**, Beijing, China

23. Bronsted/Lewis Acid Synergy in Zeolites Studied by Two-dimensional ^{1}H-^{1}H and ^{27}Al-^{27}Al DQ MAS Solid-state NMR Spectroscopy. Invited lecture, Frontiers Seminar Series, Pacific Northwest National Laboratory, April 23, **2011**, Richland, Washington, USA.

24. Solid-state NMR Studies of Heterogeneous Catalysts, Invited lecture, the 6th Pacific Basin Conference on Adsorption Science and Technology, May 20-23, **2012**, Taibai, China.

25. Two-dimensional ^{1}H-^{1}H and ^{27}Al-^{27}Al DQ MAS Solid-state NMR Studies of Zeolites, Invited lecture, the 41th Korean Magnetic Resonance Society Conference, June 28-30, **2012**, Jeju Island, Korea.

26. Methane activation and conversion over Zn modified ZSM-5 Zeolites studied by Solid-state NMR spectroscopy and DFT Calculation. Invited lecture, the 6th Asia-Pacific Congress on Catalysis, October 14-17, **2013**, Taibei, China.

27. Solid-state NMR studies of heterogeneous catalysts and catalytic reactions. Invited lecture, the 3nd Sino-French Workshop on Solid-state NMR Spectroscopy, May 9-11, **2013**, Dalian, China

28. Solid acid catalysts and catalytic reactions studied by solid-state NMR and DFT calculations. Keynote lecture, the 17th Chinese National Conference on Zeolites, Aug 29- Sept 2, **2013**, Yinchuan, China.

29. Solid-state NMR and theoretical DFT calculation studies on solid acid catalysts and related catalytic reactions. Invited lecture, the 55th ENC (Experimental Nuclear Magnetic Resonance Conference), March 23-28, **2014**, Boston, USA.

30. Solid-state NMR and theoretical DFT calculation studies on solid acid catalysts and related catalytic reactions. Invited lecture, the 29th National Conference of Chinese Chemical Society (porous functional materials section), August 4-7, **2014**, Beijing, China

31. Solid acid catalysts and related catalytic reactions studied by solid-state NMR spectroscopy and DFT calculations. Keynote lecture, the 17th National Congress on Catalysis of China, October 13-17, **2014**, Hanzhou, China

32. Solid-state NMR and theoretical DFT calculation studies on solid acid catalysts and catalytic reactions. Plenary lecture, 18th Chinese National Conference on Zeolites, October 25-28, **2015**, Shanghai, China.

33. Solid-state NMR studies on methane activation and conversion over Zn-modified ZSM-5 Zeolites. Invited lecture, the 19th ISMAR (International Society for Magnetic Resonance) Conference, August 16-21, **2015**, Shanghai, China.
34. Methane and CO activation and conversion over Zn-modified ZSM-5 zeolites studied by solid-state NMR and ESR specstroscopy, Invited lecture, the 16th International Congress on Catalysis, July 3-8, **2016**, Beijing, China
35. Solid-state NMR studies of solid acid catalysts and related catalytic reactions. Invited lecture, 2016 Lanzhou International Workshop on Solid-state Nuclear Magnetic Resonance, August 19-21, **2016**, Lanzhou, China

36. Solid-state NMR studies of zeolite catalysis. Invited lecture, the 7th Cross-Strait Magnetic Resonance Symposium, October 30 - Nov. 1, **2018**, Taibei, China.

37. The stuctures and catalytic reaction mechanisms of zeolites studied by solid-state NMR spectroscopy. Keynote lecture, the 19th National Congress on Catalysis of China, October 13-17, **2019**, Chongqing, China

38. Solid-state NMR studies of heterogenous catalysis in zeolites. Keynote lecture, the 21st Chinese National Conference on Zeolites, September 27-30, **2021**, Qingdao, China

39. Zeolite catalysis studied by solid-state NMR spectrocopy, Invited online lecture, Chinese Analytical Forum, Nano Catalysis Section, June 10, **2022**

40. Solid-state NMR studies of zeolite chemistry, Invited lecture, the 2nd Annual Symposium of Pudong NMR Forum, November 11, **2023**, Shanghai, China