学院概况

→历史沿革
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→学院简介

师资队伍

姓名: 周理 性别: 男 职称:

姓名：	周理	民族：	汉
出生年月：	1941-08-00	电话：	
职称：	教授	职务：	

学习与工作简历:

讲授课程:

研究生课程：吸附与吸附剂、高等吸附专题

研究领域（方向）:

清洁能源与环境领域的吸附与化学化工基础超临界温度下的吸附基础研究，新颖吸附剂，气体的吸附存储与吸附分离，变压吸附分离过程，水制氢方法，油品脱硫。

实验室网址：www.hpal-tju.com.

参加学术团体:

课题成果:

研究设施：

1. 容积法大温度范围高压吸附测定装置。测量范围：温度-77 K～室温，压力0～20 MPa。

2. 重量法（微天平）高压吸附测定装置。测量范围：温度-20～+40oC, 压力0～10 MPa。

3. 测BET比表面积、孔容和孔径分布的真空吸附测量装置。

4. 动态法测量多组分吸附平衡实验装置。测量范围：温度-20～+40oC, 压力0～10 MPa。

5. 穿透曲线的在线检测记录实验装置。

6. 2-塔及4-塔变压吸附实验装置。

7. 不同规模的吸附剂制备高温炉，包括一次性投料数十公斤的电转炉。

8. 吸附存储及充放气动力学实验装置。

9. 制氢实验装置。

10. 油品脱硫实验装置。

完成和承担的研究项目：

1. 新型气体吸附材料和吸附过程基础研究，国家自然科学基金重点项目，项目负责人，2004-2007。

2. 燃煤CO2分离与富集，973项目“温室气体提高石油采收率的资源化利用及地下埋存”，2006-2010。

3. 以天然气净化和储存为目标的有序介孔硅基材料的合成、修饰及功能研究，国家自然科学基金委重大研究计划项目，项目负责人，2006-2008。

4. 超级活性炭吸附储放氢的基础研究，973项目“氢能的规模制备、储运及相关燃料电池的基础研究”，子课题负责人，2000-2004。

5. 氢的低温吸附储存，与美国通用汽车公司合作项目，项目负责人，2003-2006。

6. 微型高效制氧与高密度储氧技术的基础研究，国家自然科学面上基金，项目负责人，2003－2005。

7. 非常规条件下吸附工程的基础理论研究，国家自然科学基金重点项目，项目负责人，2000－2003。

8. 超高表面吸附剂及天然气吸附存储机理研究，国家自然科学面上基金，项目负责人，1997-1999。

9. 储氢超级活性炭与储氢机理研究(周亚平)，国家自然科学面上基金，项目负责人：周亚平，1997-1999。

10. 天然气吸附存储及调峰技术研究，天津市科技发展计划项目，项目负责人，1996-1998。

11. 超临界气体吸附理论与天然气吸附存储基础工程研究，国家教委基础研究项目，项目负责人，1997-1998。

12. 氢在活性炭上的吸附特性及超临界吸附理论研究，国家自然科学主任基金，项目负责人，1996-1997。

发明专利：

1. 低温吸附储氢及储氢罐，ZL 99 1 08289.3（授权）

2. 吸附天然气储罐及罐装工艺，ZL 99 1 08291.5（授权）

3. 燃气供应网络吸附法调峰技术及设备，ZL 99 1 06858.0（授权）

4. 高效柔性变压吸附工艺，ZL 99 1 06859.9（授权）

5. 水增强活性炭储存低碳烃(如天然气、煤层气)方法，ZL 01141967.9（授权）

6. 紧凑结构吸附塔小型变压吸附制氧装置，ZL 01141964.4（授权）

7. 载液膜吸附剂的变压吸附脱硫方法，ZL 02117914.X（授权）

8. 高表面活性炭变压吸附分离甲烷/氮气混合物的方法，ZL 02117916.6（授权）

9. 甲烷或含甲烷燃料的储存方法，200510016104.2（审理中）

10. 制备纯氢的方法和系统，200610015115.3（审理中）

代表论文:

主要论文： 1. Xiao-Zhong Chu, Ya-Ping Zhou, Wei Su, Yan Sun, Li Zhou, Adsorption of Hydrogen Isotopes on Micro- and Mesoporous Adsorbents with Orderly Structure, J Phys Chem B, accepted.

2. Li Zhou, Xiuwu Liu, Yan Sun, Jingwen Li,Yaping Zhou, Methane sorption in ordered mesoporous silica SBA-15 in the presence of water, J Phys Chem B, 2005-12, 109, 22710-22714.

3. Li Zhou, Limei Zhong, Wei Su, Yan Sun, Yaping Zhou, Experimental Study of Removing Trace H2S Using Solvent Coated Adsorbent for PSA, 2006,

AIChE Journal, 2006，52(6) 2046-2071.

4. Li Zhou, Jie Li, Yaping Zhou, Wei Su, Yan Sun, Experimental Studies of a New Compact Design 4-Bed PSA Equipment for Producing Oxygen, AIChE Journal, 2005, 51 (10) 2695-2701.

5. Li Zhou, Yan Sun, Yaping Zhou, Enhancement of the Methane Storage on Activated Carbon by Pre-adsorbed Water, AIChE Journal. 2002, 48 (10) 2412-2416.

6. Xiuwu Liu, Li Zhou, Xin Fu, Yan Sun, Wei Su, Yaping Zhou, Adsorption and regeneration study of the mesoporous adsorbent SBA-15 adapted to the capture/separation of CO2 and CH4, Chem. Eng. Sci. accepted.

7. Li Zhou, Jiaquan Wu, Ming Li, Qin Wu, Yaping Zhou, Prediction of multicomponent adsorption equilibrium of gas mixtures including supercritical components, Chem. Eng. Sci. 2005, 60, 2833-2844.

8. Li Zhou, Miao Yu, Yaping Zhou, Limei Zhong, Feasibility Study on Pressure Swing Sorption for Removing H2S from Natural Gas, Chem. Eng. Sci. 2004, 59(12) 2401-2406.

9. Zhou Li and Zhou Yaping, Linearization of Adsorption Isotherms for High Pressure Applications, Chem Eng Sci., 1998, 53(14) 2531-2536.

10. Wei Dai, Yaping Zhou, Wu Li, Wei Su, Yan Sun, Li Zhou, Thiophene Capture with Complex Adsorbent SBA-15/Cu(I), Ind. Eng. Chem. Res. accepted.

11. Li Zhou, Limei Zhong, Miao Yu，Yaping Zhou，Sorption and Desorption of Minor Amount of H2S on Silica Gel Covered with a Film of TEA，Ind. Eng. Chem. Res. 2004, 43 (7) 1765-1767.

12. Li Zhou, Chang-zhong Lü, Shou-jun Bian, Ya-ping Zhou, Pure Hydrogen from the Dry Gas of Refineries via a Novel Pressure Swing Adsorption Process, Ind. Eng. Chem. Res., 2002, 41, 5290-5297.

13. Zhou, L. and Zhou,Y., A Comprehensive Model for the Adsorption of Supercritical Hydrogen on Activated Carbon, Ind. Eng. Chem. Res. 1996, 35 (11) 4166-4168.

14. Li Zhou, Shupei Bai, Wei Su, Jun Yang, Yaping Zhou, Comparative Study of the Excess versus Absolute Adsorption of CO2 on Superactivated Carbon for the Near-Critical Region, Langmuir, 2003, 19(7) 2683-2690.

15. Zhou, L.; Zhang, J-Sh.; Zhou, Y. A Simple Isotherm Equation for Modeling the Adsorption Equilibria on Porous Solids over Wide Range Temperatures, Langmuir, 2001, 17(18) 5503-5507.

16. Li Zhou, Yaping Zhou, Ming Li, Ping Chen and Yu Wang, Experimental and Modeling Study of the Adsorption of Supercritical Methane on a High Surface Carbon, Langmuir, 2000, 16(14) 5955-5959.

17. Xiuwu Liu, Li Zhou, Jingwen Li, Yan Sun, Wei Su, Yaping Zhou, Methane Sorption on Ordered Mesoporous Carbon in the Presence of Water, Carbon, 2006, 44, 1386-1392.

18. Yaping Zhou，Yuxin Wang，Haihua Chen，Li Zhou, Methane storage in wet activated carbon: Studies on the charging/discharging process, Carbon, 2005, 43(9) 2007-2012.

19. Yaping Zhou, Miao Dai, Li Zhou, Storage of Methane on Wet Activated Carbon: Influence of Pore Size Distribution，Carbon, 2004, 42 (8/9) 1855-1858.

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23. Li Zhou, Yaping Zhou, Yan Sun，Studies on the mechanism and capacity of hydrogen uptake by physisorption-based materials，Int. J. Hydrogen Energy, 2006, 31, 259-264.

24. Li Zhou, Yaping Zhou, Yan Sun, A Comparative Study of Hydrogen Adsorption on Superactivated Carbon versus Carbon Nanotubes, Int. J. Hydrogen Energy, 2004, 29 (5) 475-479.

25. Li Zhou, Yaping Zhou, Yan Sun, Enhanced Storage of Hydrogen at the Temperature of Liquid Nitrogen, Int. J. Hydrogen Energy, 2004, 29(3), 319-322.

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28. Li Zhou, Xiuwu Liu, Jingwen Li, Ning Wang, Zhen Wang, Yaping Zhou, Synthesis of Ordered Mesoporous Carbon Molecular Sieve and Its Adsorption Capacity for H2, N2, O2, CH4 and CO2, Chem. Phys. Lett. 2005, 413, 6-9.

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56. 周理，孙艳，苏伟，周亚平，纳米碳管储能的化学原理与储存容量研究，化学进展, 2005，17(4) 660-665。

57. 周亚平，冯奎，孙艳，周理, 述评碳纳米管储氢研究, 化学进展，2003, 15（5）345-350。

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61. 周理, 氢与甲烷作为代油燃料之比较，科技导报, 2005, No.2，39-43。

62. 周理, 气体燃料与天然气储存技术的最新进展, 科技导报，2003，No.3，58-60。

63. 周理，储氢：液氮温度下的强化存储，科技导报, 2003, No.10, 30-32。

64. 周理，氢能利用与高表面活性炭吸附储氢技术，科技导报，1999，No.12, 10-11。

65. 周理，周亚平，孙艳，苏伟，超临界吸附及气体代油燃料技术研究进展，自然科学进展, 2004, 14 (6) 615-623。

国际学术会议Keynote或Plenary报告：

1. Yan Sun, Xiu-wu Liu, Wei Su, Yaping Zhou, Li Zhou, Studies on Ordered Mesoporous Materials for Potential Clean Energy Application, ISSHAC-6 (The 6th International Symposium on Surface Heterogeneity Effects in Adsorption and Catalysis on Solids, Zakopane, Poland, Aug.28-Sept.2, 2006.

2. Li Zhou, Yan Sun, Wei Su, Yaping Zhou, Natural Gas Storage in Wet Active Carbons, International Conference on Carbon, July 3-7, 2005, Gyeongju, Korea.

3. Li Zhou, Yaping Zhou, Yan Sun, Studies on the mechanism and capacity of hydrogen uptake by physisorption-based materials, Invited lecture, 4th International Conference on Hydrogen Treatment of Materials (HTM-2004), Donetsk, Ukraine, May 17-21, 2004.

4. Li Zhou，"Supercritical Adsorption: Paradox, Problems, and Insights," invited report, 3rd Pacific Basin Conference on Adsorption Science and Technology, May 25-29, 2003, Kyungju, Korea.

主要专著：

1. Li Zhou: Adsorption Isotherms for the Supercritical Region, Chapter 4 of “Adsorption: Theory, Modeling & Analysis”, pp.211-250, ed. J. Toth, Marcel Dekker, Inc. New York, May 2002.

2. 孙艳，苏伟，周理，“氢燃料”， 2005年3月，北京，化学工业出版社，第一版第一次印刷，书号：ISBN 7-5025-6511-6。

3. 周理：储氢研究进展，“能源化学进展”第五章，袁权主编，2005年8月，北京，化学工业出版社，第一版第一次印刷，书号：ISBN 7-5025-7359-3。

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5. 周理编著，工程经济学，烃加工出版社，1989，北京。

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