

# 简 历

## 个人信息

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## 工作和教育经历

**2008.8 至今 南京大学化学化工学院介观化学教育部重点实验室**

副教授（2008-2013），研究员（2013 至 2017），教授（2017 至今），其中 2009-2010 任硕士生导师，2010 年至今任博士生导师

研究方向：固体核磁共振和材料化学

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**2006.9-2008.8 美国斯坦福大学地质和环境科学系 (Stanford University)**

Prof. Jonathan F. Stebbins 实验室做博士后研究。研究方向：固体核磁共振对玻璃态材料的研究

**2001.8-2006.8 美国纽约州立大学石溪分校化学系 (State University of New York at Stony Brook)**

2006 年，获博士学位。导师：Prof. Clare P. Grey

专业方向：固体核磁共振和无机材料化学；论文题目：固体核磁共振对酸性催化剂的研究（**Solid-state NMR Studies of Acidic Catalysts**）

**1997.9-2001.7 南京大学化学化工学院化学系**

2001 年获化学学士学位

论文导师：丁维平教授、颜其洁教授

## 研究兴趣和经历

自 2001 年在纽约州立大学石溪分校开始攻读博士学位起至今，本人一直从事固体核磁共振和材料化学方面的研究。

我的博士课题是使用固体核磁共振方法表征沸石和类沸石材料的酸性和结构。通过仔细选择和精心设计核磁共振实验，已经解决了材料化学中一些其它手段无法胜任的难题。具体来说，选择沸石 HY 作为研究在催化中起决定作用的 Brønsted 酸的模型系统，对其局部结构做深入的研究。

不同的酸位之间的距离对于双活性位催化反应 (bifunctional catalysis) 有着重要意义，然而此方面信息却从未通过核磁共振手段得到过。利用精心设计的含有 2 个磷原子的探针分子，结合  $^{31}\text{P}$  单脉冲和双量子魔角旋转核磁共振实验，我们成功地测定了沸石 HY 上不同 Brønsted /Lewis 酸位之间的距离。我们将这一创新性的方法和研究成果发表在国际权威杂志《美国化学会志》和《微孔中孔材料》等杂志上 (Peng *et al.*, *J. Am. Chem. Soc.*, **2004**, 126, 12254; Peng *et al.*, *Micropor. Mesopor. Mater.*, **2008**, 116, 277)。其中发表在《美国化学会志》的“Measuring Brønsted Acid Densities in Zeolite HY with Diphosphine Molecules and Solid State NMR Spectroscopy”一文被美国化学会的刊物《化学与工程新闻》重点报道 (‘Science Concentrates’ on Chemical and Engineering News, **2004**, 82(39), 22.)。报道中写道：纽约州立大学的科研小组，Clare P. Grey, 彭路明和 Peter J. Chupas 通过运用含有 2 个磷原子的探针分子，展示了一种全新的基于核磁共振探测催化剂活性位的方法。这一方法现在已经用于真实催化体系的研究，将会提供信息让我们进一步了解这一类催化反应的机理。

通过  $^{17}\text{O}$  核磁共振研究沸石是近来的又一个热点。虽然说探测到沸石骨架结构中的  $^{17}\text{O}$  共振信号并非难事（上世纪 80 年代初即以实现），然而近 20 年来，虽经众多科学家的努力，还从未能检测到直接连接 Brønsted 酸位的氧原子的信号。通过高场  $^{17}\text{O}$ - $^1\text{H}$  双共振魔角旋转技术，我们终于第一次探测到了这一“神秘”的信号。实验结果表明，Brønsted 酸位的  $^{17}\text{O}$  核磁共振参数和普通骨架结构的  $^{17}\text{O}$  显著不同，而且这些参数对于对于气体吸附十分敏感。所以这一方法将可以用来跟踪催化反应过程中氧位的所可能发生的任何变化。这一重要发现发表在国际最著名《自然》的子杂志《自然材料》上 (Peng *et al.*, *Nature Mater.*, **2005**, 4, 216)。之后，我们进一步的双共振和多量子实验和数值模拟，以及深入的量子化学从头算的结果，把沸石 HY 上 2 种不同的 Brønsted 酸位区分开来，并且得到了比衍射精确许多的 O-H 的距离。测定 O-H 距离，不仅对催化剂的酸性研究极为重要，对于研究生命科学中最重要氢键更是意义重大。这些结果发表在《美国化学会志》和《微孔中孔材料》上 (Peng *et al.*, *J. Am. Chem. Soc.*, **2007**, 129, 335; Peng *et al.*, *Micropor. Mesopor. Mater.*, **2008**, 109, 156)。

在与纽约州立大学石溪分校 Prof. John B. Parise 课题组合作期间，我负责使用固态核磁共振表征他们合成的新型钨磷/铟磷三维结构。所得到的核磁共振结果直接支持了他们通过衍射得到的结构数据，并且帮助解决了一些本不清楚的结构方面的问题。这些工作发表在 2 篇合作文章上 (Bull *et al.*, *Chem. Mater.*, **2003**, 15, 3818; Park *et al.*, *Chem. Mater.*, **2004**, 16, 5350)。在其它的科研合作中，我运用变温核磁共振研究金属卤化物类沸石骨架结构和含氢固体酸燃料电池材料的相变，都获得了一些很有价值的结果。

在美国斯坦福大学地址和环境科学系做博士后期间，我的研究主要是通过核磁共振探索一系列有实际用途的玻璃材料的结构。比如，含有锆的玻璃广泛用于光纤通讯，然而，锆的添加对玻璃结构的改变一直是一个有争议的问题。我通过  $^{17}\text{O}$  和  $^{23}\text{Na}$  核磁共振研究增加碱金属含量对钠锆玻璃的结构的影响，特别是其中非桥式氧和 5 配位或 6 配位的锆的形成与相互转化，对结构的变化做了详细和系统性的研究和论证。研究结果发表在非晶领域权威的《非晶固体杂志》上 (Du *et al.*, *J. Non-Cryst. Solids*, **2007**, 353, 2910; Peng *et al.*, *J. Non-Cryst. Solids*, **2007**, 353, 4732)。又如，在和斯坦福大学材料科学和工程系 Reinhold H. Dauskardt 教授合作中，我使用  $^{13}\text{C}$  和  $^{29}\text{Si}$  核磁共振研究了紫外光和电子束对低介电系数 (low-k) 的纳米孔有机硅玻璃的改性作用，发现核磁共振能很灵敏地探知这些细微的结构变化，成为关联玻璃结构与电学性能的利器。部份研究结果已经发表在《应用物理杂志》上 (Gage *et al.*, *J. Appl. Phys.*, **2008**, 104, 043513)。

加入南京大学化学化工学院介观化学教育部重点实验室任副教授、研究员期间，我的研究兴趣是利用固体核磁共振解决新材料设计和运用的关键问题：功能和结构的关系。例如，以具有重要工业应用(催化、燃料电池等)的氧化铈为例，借助  $^{17}\text{O}$  NMR 检测并区分了氧化物纳米材料不同晶面和表面不同层的氧离子 (Wang *et al.*, *Sci. Adv.*, **2015**, 1, e1400133; Li. *et al.*, *Nat. Commun.*, **2017**, 8, 581.); 借助  $^{17}\text{O}$  NMR，以及氘取代和  $^1\text{H}$  NMR 在中等磁场和较低转速下对具有广泛应用的层状双氢氧化物(LDHs)的阳离子分布以及可能的超晶格结构实现了考察(Zhao *et al.*, *Adv. Funct. Mater.*, **2014**, 24, 1696; Yu *et al.*, *J. Phys. Chem. Lett.*, **2014**, 5, 363); 还针对新能源材料(锂离子电池)开展了研究(Ji *et al.*, *J. Mater. Chem. A*, **2014**, 2, 699; Wu *et al.*, *Electrochim. Acta*, **2016**, 211, 832.; Wu *et al.*, *Sci. Rep.*, **2017**, 7, 44697.)。

主持项目：

1, 南京大学引进人才启动计划项目

2, 国家自然科学基金项目 6 项

- a) 青年科学基金项目 (“新固体核磁共振方法研究纳米氧化物催化材料的表面活性位和性能”，项目号 20903056)
- b) 面上项目 (“ $^{17}\text{O}$  固体核磁共振研究水滑石类层柱材料”，项目号 21073083)

- c) 合作交流项目 (“核磁共振研究纳米材料和催化过程中氧的作用”, 项目号 2111130201, 与英国皇家学会合作, 英方申请人和合作单位: Clare P. Grey, 剑桥大学化学系)
  - d) 优秀青年基金项目 (“固体核磁共振和能源及催化材料”, 项目号 21222302)
  - e) 面上项目 (“<sup>17</sup>O 固体核磁共振区分氧化物纳米材料暴露晶面研究”, 项目号 21573103)
  - f) 合作交流项目 (“<sup>17</sup>O 核磁共振研究纳米氧化物表面和金属-氧化物界面界面结构”, 项目号 21661130149, 与英国皇家学会合作, 英方申请人和合作单位: Clare P. Grey, 剑桥大学化学系; 同时获得英国皇家学会牛顿高级学者项目资助, Royal Society Newton Advanced Fellowship)
- 3, 教育部新世纪优秀人才项目 (项目号 NCET-10-0483)
  - 4, 中国石化上海石油化工研究院和南京大学化学化工学院联合实验室纳米催化项目
  - 5, 中央高校基本科研业务费项目

参加项目:

- 1, 国家科技部 973 项目子课题 (“金属及氧化物组装修饰的多孔催化材料”)
- 2, 国家科技部青年 973 项目 (“高效金属-氧化物复合催化剂的理性设计与性能调控”, 项目号 2013CB934800)
- 3, 国家自然科学基金重大研究计划 (碳基能源转化利用的催化科学) 项目 (“合成气 (CO 和 H<sub>2</sub>) 和甲烷在金属氧化物表面的活化机制和碳链增长反应机理”, 项目号: 91745202)

### **科学合作经历**

- 1. Prof. John B. Parise, Department of Chemistry and Department of Geosciences, State University of New York at Stony Brook (phosphate frameworks)
- 2. Prof. David H. Olson, Department of Chemical Engineering and Department of Biomolecular Engineering, University of Pennsylvania (zeolites)
- 3. Prof. James D. Martin, Department of Chemistry, North Carolina State University (metal-halide frameworks)
- 4. Prof. Yun Liu, Institute of Geochemistry, Chinese Academy of Sciences, China (zeolites)
- 5. Prof. Sossina M. Haile, Department of Materials Science and Department of Chemical Engineering, California Institute of Technology (proton conducting solid acids)

6. Prof. Steven G. Greenbaum, Department of Physics, City University of New York (proton conducting solid acids)
7. 包信和院士、韩秀文研究员，催化基础国家重点实验室，中国科学院大连化学物理研究所（沸石和介孔材料）
8. Dr. Zhehong Gan, National High Magnetic Field Lab (NHMFL), Florida State University (zeolites)
9. Prof. Reinhold H. Dauskardt, Department of Materials Science and Engineering, Stanford University (glasses)
10. Dr. Lin-Shu Du, Air Products and Chemicals (glasses)
11. 丁维平教授、郭学锋教授，介观化学教育部重点实验室，南京大学化学化工学院（先进材料和应用催化）
12. 朱敦如教授，材料化学工程国家重点实验室，南京工业大学（金属有机骨架结构）
13. 陈蓉教授、单斌教授，华中科技大学（汽车尾气催化剂）
14. 陈亮研究员、尹宏峰研究员，中国科学院宁波材料所（汽车尾气催化剂）
15. 胡炳文教授，华东师范大学（层状材料）
16. 龚学庆教授，华东理工大学（纳米氧化物）
17. 黄伟新教授，中国科学技术大学（纳米氧化物、表面催化）
18. Dr. Ming Lin, Institute of Materials Research & Engineering, A\*STAR (Agency for Science, Technology and Research), Singapore

### 论文清单（\* 作为通讯作者发表）

1. “Hydrothermal Synthesis and Structural Characterization of Four Scandium Phosphate Frameworks”, Bull, Ivor; Young, Victor; Teat, Simon J.; **Peng, Luming**; Grey, Clare P.; Parise, John B. *Chemistry of Materials*, **2003**, 15(20), 3818-3825.
2. “Measuring Brønsted Acid Densities in Zeolite HY with Diphosphine Molecules and Solid State NMR Spectroscopy”, **Peng, Luming**; Chupas, Peter J.; Grey, Clare P. *Journal of the American Chemical Society*, **2004**, 126(39), 12254-12255.  
(本文被美国化学会《化学与工程新闻》报道：‘Science Concentrates’ on *Chemical and Engineering News* (2004), 82(39), 22.)
3. “Synthesis and Structure Determination of a New Organically Templated Scandium Fluorophosphate Framework and Its Indium Analogue”, Park, Hyunsoo; Bull, Ivor; **Peng, Luming**;

- Young, Victor G., Jr.; Grey, Clare P.; Parise, John B. *Chemistry of Materials*, **2004**, *16*(25), 5350-5356.
4. "Detection of Brønsted acid sites in zeolite HY with high-field  $^{17}\text{O}$ -MAS-NMR techniques", **Peng, Luming**; Liu, Yun; Kim, Namjun; Readman, Jennifer E.; Grey, Clare P. *Nature Materials*, **2005**, *4*(3), 216-219.
  5. " $^{17}\text{O}$  Magic Angle Spinning NMR Studies of Brønsted Acid Sites in Zeolites HY and HZSM-5", **Peng, Luming**; Huo, Hua; Liu, Yun; Grey, Clare P. *Journal of the American Chemical Society*, **2007**, *129*(2), 335-346.
  6. " $^{17}\text{O}$  NMR studies of local structure and phase evolution for materials in the  $\text{Y}_2\text{Ti}_2\text{O}_7 - \text{ZrTiO}_4$  binary system", Palumbo, John L.; Schaedler, Tobias A.; **Peng, Luming**; Levi, Carlos G.; Grey, Clare P. *Journal of Solid State Chemistry*, **2007**, *180*(7), 2175-2185.
  7. "Germanosilicate and Alkali Germanosilicate Glass Structure: New Insights from High-Resolution Oxygen-17 NMR", Du, Lin-Shu; **Peng, Luming**; Stebbins, Jonathan F. *Journal of Non-Crystalline Solids*, **2007**, *353*(30-31), 2910-2918.
  8. "Probing Brønsted acid sites in zeolite HY with low temperature  $^{17}\text{O}$  MAS NMR spectroscopy", Huo, Hua; **Peng, Luming**; Grey, Clare P. *Studies in Surface Science and Catalysis (Proceedings of the 15th International Zeolite Conference)*, **2007**, *170*(1), 783-789.
  9. "Sodium germanate glasses and crystals: NMR constraints on variation in structure with composition", **Peng, Luming**; Stebbins, Jonathan F. *Journal of Non-Crystalline Solids*, **2007**, *353*(52-54), 4732-4742.
  10. " $^{17}\text{O}$  MQMAS NMR studies of zeolite HY", **Peng, Luming**; Huo, Hua; Gan, Zhehong; Grey, Clare P. *Microporous and Mesoporous Materials*, **2008**, *109*(1-3), 156-162.
  11. "High Resolution  $^{17}\text{O}$  MAS and Triple-Quantum MAS NMR Studies of Gallosilicate Glasses", **Peng, Luming** \*; Stebbins, Jonathan F. *Journal of Non-Crystalline Solids*, **2008**, *354*(27), 3120-3128.
  12. "Variable Temperature  $^{17}\text{O}$  NMR Study of Oxygen Motion in the Anionic Conductor  $\text{Bi}_{26}\text{Mo}_{10}\text{O}_{69}$ ", Holmes, Lesley A.; **Peng, Luming**; Heinmaa, Ivo; Vannier, Rose-Noelle; Grey, Clare P. *Chemistry of Materials*, **2008**, *20*(11), 3638-3648.
  13. "Effects of UV Cure on Glass Structure and Fracture: Properties of Nanoporous Carbon-Doped Oxide Thin Films", Gage, David M.; Stebbins, Jonathan F.; **Peng, Luming**; Cui, Zhenjiang; Al-Bayati, Amir; MacWilliams, Kenneth P.; M'Saad, Hichem; Dauskardt, Reinhold H. *Journal of Applied Physics*, **2008**, *104*, 043513.

14. "Diphosphine Probe Molecules and Solid-State NMR Investigations of Proximity between Acidic Sites in Zeolite HY", **Peng, Luming**; Grey, Clare P. *Microporous and Mesoporous Materials*, **2008**, 116(1-3), 277-283.
15. "Low Temperature <sup>1</sup>H MAS NMR Spectroscopy Studies of Proton Motion in Zeolite HZSM-5", Huo, Hua; **Peng, Luming**; Grey, Clare P. *Journal of Physical Chemistry C*, **2009**, 113(19), 8211-8219.
16. "<sup>17</sup>O Solid-state NMR Studies of Zeolites: A Review", **Peng, Lu-ming** \*; Guo, Xue-feng; Ding, Wei-ping *Chinese Journal of Magnetic Resonance*, **2009**, 26(2), 173-187.
17. "The hydrophilic/hydrophobic effect of porous solid acid catalysts on mixed liquid phase reaction of esterification", Liu, Hong; Xue, Nianhua; **Peng, Luming**; Guo, Xuefeng; Ding, Weiping; Chen, Yi *Catalysis Communications*, **2009**, 10(13), 1734-1737.
18. "Ferric oxide and ZnFe<sub>2</sub>O<sub>4</sub> nanotubes derived from nano ZnO/FeO<sub>x</sub> core/shell structures." Mo, Min; Ma, Tao; Jia, Lei; **Peng, Luming**; Guo, Xuefeng; Ding, Weiping *Materials Letters*, **2009**, 63(26), 2233-2235.
19. "Synthesis of VO<sub>x</sub> nanotubes by cooperation of tetramethylammonium hydroxide and tetradecylamine in short duration", Shen, Ye-qian; **Peng, Luming** \*; Guo, Xuefeng \*; Ding, Weiping *Chemistry Letters*, **2009**, 38(9), 928-929.
20. "Catalytic Ammonia Synthesis over Mo Nitride/ZSM-5", Liu, Na; Nie, Lei; Xue, Nianhua; Dong, Houhuan; **Peng, Luming**; Guo, Xuefeng; Ding, Weiping *ChemCatChem*, **2010**, 2, 167-174
21. "Solvothermal synthesis of lutetium aluminum garnet nanopowders: Determination of the optimum synthesis conditions", Xing, Lin; **Peng, Luming**; Gu, Min; Tang, Guodong *Journal of Alloys and Compounds*, **2010**, 491, 599-604.
22. "Three Novel Metal-Organic Frameworks with Different Topologies Based on 3,3'-Dimethoxy-4,4'-biphenyldicarboxylic Acid: Syntheses, Structures, and Properties", Wang, Xiao-Zhu; Zhu, Dun-Ru; Xu, Yan; Yang, Jie; Shen, Xuan; Zhou, Jun; Fei, Na; Ke, Xiao-Kang; **Peng, Lu-Ming** *Crystal Growth and Design*, **2010**, 10(2), 887-894.
23. "Noncrystalline NiPB nanotubes for hydrogenation of p-chloronitrobenzene", Mo, Min; Han, Ling; Lv, Jiangang; Zhu, Yan; **Peng, Luming**; Guo, Xuefeng; Ding, Weiping *Chemical Communications*, **2010**, 46, 2268-2270.
24. "Effects of e-beam curing on glass structure and mechanical properties of nanoporous organosilicate thin films", Gage, David M.; **Peng, Luming**; Stebbins, Jonathan F.; Yim, Kang Sub; Al-Bayati, Amir; Demos, Alex; Dauskardt, Reinhold H. *International Journal of Materials Research*, **2010**, 101(2), 228-235.

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26. "1-Butene cracking to propene over P/HZSM-5: Effect of lanthanum", Xue, Nianhua; Liu, Na; Nie, Lei; Yu, Yao; Gu, Min; **Peng, Luming**; Guo, Xuefeng; Ding, Weiping *Journal of Molecular Catalysis A: Chemical*, **2010**, *327*(1-2), 12-19.
27. "Exclusively selective oxidation of toluene to benzaldehyde on ceria nanocubes by molecular oxygen", Lv, Jiangang; Shen, Yi; **Peng, Luming**; Guo, Xuefeng; Ding, Weiping *Chemical Communications*, **2010**, *46*(32), 5909-5911.
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29. "Iron oxide and alumina nanocomposites applied to Fischer-Tropsch synthesis", Dong, Houhuan; Xie, Mingjiang; Xu, Jing; Li, Mufan; **Peng, Luming** \*; Guo, Xuefeng; Ding, Weiping\* *Chemical Communications*, **2011**, *47*(13), 4019-4021.
30. "One-pot synthesis of boron-doped mesoporous carbon with boric acid as a multifunction reagent", Ding, Shilei; Zheng, Sujuan; Xie, Mingjiang; **Peng, Luming**; Guo, Xuefeng; Ding, Weiping *Microporous and Mesoporous Materials*, **2011**, *142*(2-3), 609-613.
31. "Nanocrystals of  $\text{CeVO}_4$  Doped by Metallic Heteroions", Shen, Yeqian; Huang, Yucheng; Zheng, Sujuan; Guo, Xuefeng; Chen, Zhao-Xu \*; **Peng, Luming** \*; Ding, Weiping *Inorganic Chemistry*, **2011**, *50*(13), 6189-6194.
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85. "Cooperativity of adjacent Brønsted acid sites in MFI zeolite channel leads to enhanced polarization and cracking of alkanes", Song, Chenhai; Chu, Yueying; Wang, Meng; Shi, Hui; Zhao, Li; Guo, Xuefeng; Yang, Weimin; Shen, Jianyi; Xue, Nianhua \*; **Peng, Luming** \*; Ding, Weiping \* *Journal of Catalysis*, **2017**, *349*, 163-174.

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90. "Distinguishing faceted oxide nanocrystals with <sup>17</sup>O solid-state NMR spectroscopy", Li, Yuhong; Wu, Xin-Ping; Jiang, Ningxin; Lin, Ming; Shen, Li; Sun, Haicheng; Wang, Yongzheng; Wang, Meng; Ke, Xiaokang; Yu, Zhiwu; Gao, Fei; Dong, Lin; Guo, Xuefeng; Hou, Wenhua; Ding, Weiping; Gong, Xue-Qing \*; Grey, Clare P.; **Peng, Luming** \* *Nature Communications*, **2017**, 8, 581.
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92. "Template-Free Synthesis of High-Content Vanadium-Doped ZSM-5 with Enhanced Catalytic Performance", Liu, Xianfeng; Zhong, Shenglai; Yang, Fu; Su, Hang; Lin Wei; Junchao Chen, **Luming Peng**, Zhou, Shijian and Kong Yan \* *ChemistrySelect*, **2017**, 2, 11513-11520.

## 参加会议

1. 225<sup>th</sup> ACS National Meeting

- “ $^{17}\text{O}$  Solid-state NMR Studies of Faujasite-type Zeolites”  
**Peng, Luming**; Readman, Jennifer E.; Kim, Namjun; Grey, Clare P.  
 New Orleans, LA, United States, March 23-27, 2003 (Poster in Division of Petroleum Chemistry: PETR-031)
2. *46<sup>th</sup> Rocky Mountain Conference on Analytical Chemistry*  
 “ $^{31}\text{P}$  and  $^{17}\text{O}$  MAS NMR Studies of Zeolite HY”  
**Peng, Luming**; Chupas, Peter J.; Kim Namjun; Readman, Jennifer E.; Grey, Clare P.  
 Denver, CO, United States, August 1-5, 2004 (Talk in NMR Symposium, August 3, 2004)
3. *5<sup>th</sup> North-East Corridor Zeolite Association (NECZA) Meeting*  
 “ $^{31}\text{P}$  and  $^{17}\text{O}$  MAS NMR Studies of Zeolite HY”  
**Peng, Luming**; Chupas, Peter J.; Kim Namjun; Readman, Jennifer E.; Grey, Clare P.  
 Philadelphia, PA, United States, December 10, 2004 (Poster)
4. *Gordon Research Conference: Zeolitic & Layered Materials*  
 “ $^{31}\text{P}$  and  $^{17}\text{O}$  MAS NMR Studies of Zeolite HY”  
**Peng, Luming**; Chupas, Peter J.; Kim Namjun; Readman, Jennifer E.; Grey, Clare P.  
 Mount Holyoke College, South Hadley, MA, United States, July 3-8, 2005 (Poster)
5. *49<sup>th</sup> Rocky Mountain Conference on Analytical Chemistry*  
 “Sodium Germanate Glasses and Crystals: NMR Constraints on Variation in Structure with Composition”  
**Peng, Luming**; Du, Lin-Shu; Stebbins, Jonathan F.  
 Breckenridge, CO, United States, July 23-26, 2007 (Poster in NMR Symposium)
6. *49<sup>th</sup> Experimental NMR Conference*  
 “High Resolution  $^{17}\text{O}$  MAS and Triple-Quantum MAS NMR Studies of Gallosilicate Glasses”  
**Peng, Luming**; Stebbins, Jonathan F.  
 Pacific Grove, CA, United States, March 9-14, 2008 (Poster)
7. *ACerS 2008 Glass & Optical Materials Division Meeting*  
 “High Resolution  $^{17}\text{O}$  NMR Studies of Gallosilicate Glasses”  
**Peng, Luming**; Stebbins, Jonathan F.  
 Tucson, AZ, United States, May 18-21, 2008 (Poster)
8. *50<sup>th</sup> Rocky Mountain Conference on Analytical Chemistry*  
 “Probing Brønsted acid sites in zeolite HY and HZSM-5 with low temperature  $^{17}\text{O}$  and  $^1\text{H}$  MAS NMR spectroscopy”  
 Huo, Hua; **Peng, Luming**; Grey, Clare P.  
 Breckenridge, CO, United States, July 27-31, 2008 (Poster in NMR Symposium)
9. *The 15<sup>th</sup> National Magnetic Resonance Conference of China (第十五届全国波谱学学术会议)*  
 “From Zeolites to Oxide Glasses: Structure Investigations with  $^{17}\text{O}$  MAS NMR Techniques”  
**Peng, Luming**  
 Ningbo, China, October 28-30, 2008 (Talk in Solid-State NMR Session)

10. *The 16th National Magnetic Resonance Conference of China (第十六届全国波谱学学术会议)*  
 “From Zeolites to Oxide Glasses: Structure Investigations with  $^{17}\text{O}$  MAS NMR Techniques”  
**Peng, Luming**  
 Haikou, China, October 28-30, 2010 (Talk in Solid-State NMR Session)
11. *The 4th Asia-Pacific NMR Symposium (第四届亚太核磁共振研讨会)*  
 “ $^{17}\text{O}$  Solid-State NMR Studies of Layered Double Hydroxides (LDHs)”  
**Peng, Luming**  
 Beijing, China, October 16-19, 2011 (Talk in Solid-State NMR Session)
12. *The 17th National Magnetic Resonance Conference of China (第十七届全国波谱学学术会议)*  
 “ $^{17}\text{O}$  固体核磁共振研究层状双氢氧化物”  
 Zhao, Li; Qi, Zhe; Miao, Junjian; Blanc, Frederic; Yu, Guiyun; Tang, Sheng; Xue, Nianhua; Li, Shuhua; Guo, Xuefeng; Ding, Weiping; Grey, Clare P.; **Peng, Luming**  
 Xiamen, China, October 23-36, 2012 (Talk in Solid-State NMR Session)
13. *56th Rocky Mountain Conference on Magnetic Resonance*  
 “Probing Local Structure and Surface Chemistry of Ceria Nanoparticles with  $^{17}\text{O}$  Solid-State NMR Spectroscopy”  
**Peng, Luming**  
 Copper Mountain, CO, United States, July 13-17, 2014 (Talk in Solid-State NMR Session)
14. *The 18th National Magnetic Resonance Conference of China (第十八届全国波谱学学术会议)*  
 “Identification of different oxygen species in oxide nanostructures with  $^{17}\text{O}$  solid-state NMR spectroscopy”  
**Peng, Luming**  
 Hangzhou, China, October 10-13, 2014 (Talk in Solid-State NMR Session)
15. *The 17th National Conference on Catalysis of China (第十七届全国催化学术会议)*  
 “ $^{17}\text{O}$  Solid-State NMR Studies of Oxygen Species and Surface Chemistry of Ceria Nanoparticles”  
**Peng, Luming**  
 Hangzhou, China, October 13-17, 2014 (Talk)
16. *The 5th Cross-Taiwan-Strait NMR Symposium (第五届海峡两岸磁共振学术会议)*  
 “Identification of different oxygen species in oxide nanostructures with  $^{17}\text{O}$  solid-state NMR spectroscopy”  
**Peng, Luming**  
 Tainan, Taiwan, China, Jan 18-24, 2015 (Invited Talk)
17. *The Catalysis Symposium of Universities in the East China Region (华东地区高校催化研讨会)*  
 “ $^{17}\text{O}$  固体核磁共振表征催化材料”  
**Peng, Luming**  
 Xiamen, China, May 29-31, 2015 (Talk)
18. *The 15th National Youth Conference on Catalysis of China (第十五届全国青年催化学术会议)*



“氧化物纳米催化材料的  $^{17}\text{O}$  固体核磁共振研究”

**Peng, Luming**

Hefei, China, May 29-31, 2015 (Invited Talk)

19. *19th International Society of Magnetic Resonance (ISMAR) Conference*

“Identification of different oxygen species in oxide nanostructures with  $^{17}\text{O}$  solid-state NMR spectroscopy”

**Peng, Luming**

Shanghai, China, August 16-21, 2015 (Talk)

20. *The 11th Nanjing University – Hokkaido University – NIMS/MANA Joint Symposium*

“Identification of different oxygen species in oxide nanostructures with  $^{17}\text{O}$  solid-state NMR spectroscopy”

**Peng, Luming**

Nanjing, China, October 16-18, 2015 (Invited Talk)

21. *The 1st Announcement of the 2015 Inorganic Energy NanoMaterials Workshop (2015年无机纳米能源材料研讨会)*

“氧化物纳米材料的  $^{17}\text{O}$  固体核磁共振研究”

**Peng, Luming**

Shenzhen, China, December 4-6, 2015 (Invited Talk)

22. *The 11th Sino-US Nano Forum (第十一届中美纳米论坛)*

“Distinguishing Faceted Oxide Nanocrystals with  $^{17}\text{O}$  Solid-State NMR Spectroscopy”

**Peng, Luming**

Nanjing, China, June 18-20, 2016 (Invited Talk)

23. *The 30th Chinese Chemical Society (CCS) Congress (第三十届中国化学会年会)*

“暴露不同晶面氧化物纳米结构的固体核磁共振研究”

**Peng, Luming**

Dalian, China, July 1-4, 2016 (Talk)

24. *The 16th International Congress on Catalysis*

“Distinguishing Faceted Oxide Nanocrystals with  $^{17}\text{O}$  Solid-State NMR Spectroscopy”

**Peng, Luming**

Beijing, China, July 3-8, 2016 (Talk)

25. *58th Rocky Mountain Conference on Magnetic Resonance*

“Distinguishing Faceted Oxide Nanocrystals with  $^{17}\text{O}$  Solid-State NMR Spectroscopy”

**Peng, Luming**

Breckenridge, CO, United States, July 17-21, 2016 (Talk in Solid-State NMR Session)

26. *The 19th National Magnetic Resonance Conference of China (第十九届全国波谱学学术会议)*

“暴露不同晶面氧化物纳米结构的固体核磁共振研究”

**Peng, Luming**

- Lanzhou, China, August 17-20, 2016 (Talk in Solid-State NMR Session)
27. *The 16th National Youth Conference on Catalysis of China* (第十六届全国青年催化学术会议)  
“<sup>17</sup>O 固体 NMR 谱学区分不同暴露晶面的氧化物纳米晶”  
**Peng, Luming**  
Changsha, China, October 21-24, 2016 (Talk)
28. *M. R. West Lake* (西湖论坛)  
“<sup>17</sup>O 固体核磁共振谱学研究氧化物纳米材料”  
**Peng, Luming**  
Hangzhou, China, August 25, 2017 (Invited Talk)
29. *The 2nd Joint Symposium for Chemical Science of Artois / Nanjing*  
“<sup>17</sup>O Solid-State NMR Studies of Oxide Nanostructures”  
**Peng, Luming**  
Nanjing, China, September 10-15, 2017 (Invited Talk)
30. *2017 Bruker Chinese NMR User's Meeting* (2017 布鲁克中国核磁共振用户会)  
“<sup>17</sup>O Solid-State NMR Studies of Oxide Nanostructures”  
**Peng, Luming**  
Beijing, China, October 12, 2017 (Invited Talk)
31. *The 3rd Nanjing-Sydney Joint Symposium: Functional Molecules and Materials*  
“<sup>17</sup>O Solid-State NMR Studies of Oxide Nanostructures”  
**Peng, Luming**  
Beijing, China, November 15-16, 2017 (Invited Talk)
32. *4th Sino-French Workshop on Solid-state NMR Spectroscopy*  
“<sup>17</sup>O Solid-State NMR Spectroscopy for Investigations of Oxide Nanostructures”  
**Peng, Luming**  
Wuhan, China, November 21-24, 2017 (Invited Talk)
33. *iConference on Magnetic Resonance (iCMR 2017)* (第一届磁共振网络会议)  
“<sup>17</sup>O 固体核磁共振谱学研究氧化物纳米材料”  
**Peng, Luming**  
Online, December 5-6, 2017 (Invited Talk)
34. *2018 International Symposium on Advancement and Prospect of Catalysis Science & Technology*  
“Investigations of Oxide Nanostructures with <sup>17</sup>O Solid-State NMR Spectroscopy”  
**Peng, Luming**  
Sydney, Australia, July 25-27, 2018 (Invited Talk)
35. *The 20th National Magnetic Resonance Conference of China* (第二十届全国波谱学学术会议)  
“固体核磁共振谱学研究催化、能源材料”

## Peng, Luming

Wenzhou, China, October 11-14, 2018 (Talk)

### **获得奖励**

1. 人民奖学金一等奖两次（1998, 1999），三等奖一次（2000），南京大学
2. 罗门哈斯（Rohm and Haas）奖学金两次（1998, 1999），南京大学
3. Sigma-Xi Travel Award for Research, Sigma-Xi, Stony Brook Chapter, New York, 2005
4. Graduate Student Award of New York Section of the Society for Applied Spectroscopy, New York, 2005（从纽约州近百名候选人胜出，为2005年纽约州应用波谱学会研究生大奖的唯一获得者）
5. Sigma-Xi Award for Excellence in Research, Sigma-Xi, Stony Brook Chapter, New York, 2006
6. Chemistry Award for Excellence in Doctoral Research, State University of Stony Brook, New York, 2006
7. 中国催化新秀奖，中国化学会催化专业委员会（2012）
8. 南京大学中国银行奖教金，南京大学（2013）
9. 南京大学青年五四奖章，南京大学（2013）
10. 中国物理学会波谱专业委员会委员、《波谱学杂志》编委（2016至今）

### **指导学生及获得奖励**

1. 博士研究生 (8): 郁桂云, 纪文旭, 沈丽, 李玉红, 吴迪, 陈俊超, 杨昌菊, 杜佳欢
2. 硕士研究生 (14): 郑素娟, 纪文旭, 赵理, 叶霜, 沈睿, 杨蓉, 王蒙, 陈俊超, 周亚慧, 孙青霞, 钱堃, 陈鹏, 王杨, 温玉洁
3. 本科生 (17): 许所昌, 刘扬, 苏波, 沈逸, 齐哲, 唐盛, 王蒙, 董雯浩, 吕婷, 张翔宇, 瞿冲, 彭陆鑫, 孙海程, 范苏扬, 萧静渊, 郑昀波, 徐孟

2015届硕士毕业生王蒙的硕士学位论文《固体核磁共振在氧化物催化材料中的应用》被评为2016年度江苏省优秀硕士学位论文