

# Ning Liu

## **EDUCATION**

**PhD in Materials Engineering**, August 2005, New Mexico Institute of Mining and Technology, Socorro, NM, USA  
**MS in Chemistry**, July 2000, Peking University, Beijing, P. R. China  
**BS in Chemistry**, July 1997, Peking University, Beijing, P. R. China

## **FUNDED RESEARCH**

1. Safe, sustainable, and resilient development of offshore reservoirs and natural gas upgrading through innovative science and technology: Gulf of Mexico – Mediterranean, \$1,800,000 (08/01/2020-07/31/2025), Tulane University/Israel-US Binational Industrial Research and Development Foundation, **PI** in UL Lafayette
2. Tuscaloosa Marine Shale Laboratory (TMSL), \$ 9,657,000 (05/01/2018-04/30/2021) Department of Energy. **Co-PI/PI**
3. Development of a CO<sub>2</sub> chemical sensor for downhole CO<sub>2</sub> monitoring in carbon sequestration, \$1,371,414 (10/2012-09/2016): Department of Energy. **PI**
4. Nanoparticle-Stabilized CO<sub>2</sub> Foam for CO<sub>2</sub> EOR Application, \$1,158,822 (10/2010-01/2015): Department of Energy. **PI**
5. Monitoring and Recovering of Toxic Metals in the Environment for Healthy Water Creation through Nano-Technologies, \$741.617K, (07/2008–06/2010): Governor’s Water Initiative of New Mexico. **Co-PI**
6. Development of technique for online monitoring of individual gas constituents in coal-derived synthesis gas and flue gas, \$223.4K, (09/2008-08/2010): Center for Advanced Separation Technologies, Department of Energy. **PI**

## **PROFESSIONAL EXPERIENCE**

<b>Assistant Professor</b>	08/01/2016-current	Petroleum Engineering Department University of Louisiana at Lafayette
<b>Research Scientist/Section Head</b>	08/2007-07/2016	Advanced Material in Oil and Gas, New Mexico Petroleum Recovery Research Center
<b>Research Associate</b>	08/2005-08/2007	New Mexico Petroleum Recovery Research Center
<b>Research Assistant</b>	08/2001-08/2005	New Mexico Institute of Mining and Technology

## **PUBLICATIONS**

1. Boyun Guo, Chunkai Fu, **Ning Liu** “A priori assessment of long-term productivity of frac-packed wells for producing natural gas from marine gas hydrate reservoirs”, *Energy Science & Engineering* **2021**:00:1-13.
2. Qin Li, Yuan Lu, Wenling Chen, Xiangyi Yi, Ning Liu “Variation trend of friction coefficient of acid-etching fracture in carbonate reservoirs”, *Journal of Petroleum Science and Engineering* **196**, (2021), 107985.
3. Chunkai Fu, **Ning Liu** “Rheology and stability of nanoparticle-stabilized CO<sub>2</sub> foam under reservoir conditions”, *Journal of Petroleum Science and Engineering* **196**, (2021), 107671  
[doi.org/10.1016/j.petrol.2020.107671](https://doi.org/10.1016/j.petrol.2020.107671)

4. Chunkai Fu, **Ning Liu** "Study the synergistic effect of nanoparticle-surfactant-polymer on CO<sub>2</sub> foam rheology and stability under high pressure and temperature" *Energy & Fuels*, 34 (2020) 13707-13716 [doi.org/10.1021/acs.energyfuels.0c02435](https://doi.org/10.1021/acs.energyfuels.0c02435)
5. Liyuan Lang, Huabin Li, Xiong Wang, **Ning Liu** "Experimental Study and Field Demonstration of Air-Foam Flooding for Heavy Oil EOR" *Journal of Petroleum Science and Engineering* 185 (2020) 106659
6. Chunkai Fu, **Ning Liu** "Waterless fluids in hydraulic fracturing – A review" *Journal of Natural Gas Science and Engineering* 67 (2019) 214-224.
7. Chunkai Fu, Jianjia Yu, **Ning Liu** "The effect of foam quality, particle concentration and flow rate on nanoparticle-stabilized CO<sub>2</sub> mobility control foams" *RSC Advances* 9 (2019) 9313-9322.
8. Chunkai Fu, Jianjia Yu, **Ning Liu** "Nanoparticle-stabilized CO<sub>2</sub> foam for waterflooded residual oil recovery", *Fuel* 234 (2018) 809-813.
9. Munawar Khalil, **Ning Liu**, Robert Lee "Super-Nernstian potentiometric pH sensor based on the electrodeposition of iridium oxide nanoparticles" *International Journal of Technology* 3 (2018) 446-454.
10. Jingshan San, Sai Wang, Jianjia Yu, Robert Lee, **Ning Liu** "Nanoparticle stabilized CO<sub>2</sub> foam: Effect of different ions and temperature" *SPE Journal* 22 (2017) 1416-1423.
11. Shangwen Zha, Jianjia Yu, Guoyin Zhang, **Ning Liu**, Robert Lee "Polyethersulfone/Cellulose Acetate Butyrate Hybrid Hollow-Fiber Membranes for Organic-Matter Removal From Produced Water" *SPE Journal* 22 (2017) 1478-1486.
12. Munawar Khalil, **Ning Liu**, Robert Lee "Catalytic Aquathermolysis of Heavy Crude Oil Using Surface-Modified Hematite Nanoparticles" *Industrial & Engineering Chemistry Research* 56 (2017) 4572-4579.
13. Shangwen Zha, Pri Gusnawan, Jiajing Lin, Guoyin Zhang, **Ning Liu**, Jianjia Yu "Integrating a novel TS-af-HFM NF process for portable treatment of oilfield produced water" *Chemical Engineering Journal* 311 (2017) 203-208.
14. Sai Wang, Jingshan San, Jianjia Yu, Robert Lee, **Ning Liu** "A downhole CO<sub>2</sub> sensor to monitor CO<sub>2</sub> movement in situ for geology carbon sequestration" *International Journal of Greenhouse Gas Control* 55 (2016) 202-208.
15. Shangwen Zha, Pri Gusnawan, Guoyin Zhang, **Ning Liu**, Robert Lee, Jianjia Yu "Experimental study of PES/SiO<sub>2</sub> based TFC hollow fiber membrane modules for oilfield produced water desalination with low-pressure nanofiltration process" *Journal of Industrial and Engineering Chemistry* 44 (2016) 118-125.
16. Munawar Khalil, Sai Wang, Jianjia Yu, Robert Lee, **Ning Liu** "Electrodeposition of iridium oxide nanoparticles for pH sensing electrodes" *Journal of The Electrochemical Society* 163 (2016) B485-B490.
17. Shangwen Zha, Jianjia Yu, Guoyin Zhang, **Ning Liu**, Robert Lee "Study of PVDF/Si-R hybrid hollow fiber membranes for removal of dissolved organics from produced water by membrane adsorption" *Separation and Purification Technology* 163 (2016) 290-299.
18. Shangwen Zha, Jianjia Yu, Guoyin Zhang, **Ning Liu**, Robert Lee "Polyethersulfone (PES)/cellulose acetate butyrate (CAB) composite hollow fiber membranes for BTEX separation from produced water" *RSC Advances* 5 (2015) 105692-105698.
19. Munawar Khalil, **Ning Liu**<sup>\*</sup>, Robert Lee, "Hematite nanoparticles in aquathermolysis: A desulfurization study of Thiophene", *Fuel* 145 (2015) 214-220.
20. Jianjia Yu, Munawar Khalil, Ning Liu, Robert Lee, "Iridium oxide-based chemical sensor for in situ pH measurement of oilfield-produced water under subsurface conditions", *Ionics* 21 (2015) 855-861.
21. Jianjia Yu, Munawar Khalil, **Ning Liu**<sup>\*</sup>, Robert Lee "Effect of particle hydrophobicity on CO<sub>2</sub> foam generation and the foam flow behavior in porous media", *Fuel* 126 (2014) 104-108.
22. Munawar Khalil, Jianjia Yu, **Ning Liu**<sup>\*</sup>, Robert Lee "Non-aqueous hydrophobicity modification of synthesized hematite nanoparticles with Oleic acid", *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 453 (2014) 7-12.
23. Munawar Khalil, Jianjia Yu, **Ning Liu**<sup>\*</sup>, Robert Lee "Hydrothermal Synthesis, Characterization and Growth Mechanism of Hematite Nanoparticles", *Journal of Nanoparticles Research* 16 (2014) 2362-2371.
24. Jiajia Yu, Liangxiong Li, **Ning Liu**<sup>\*</sup>, Robert Lee, "A novel approach to prepare defect-free PES/MFI-type zeolite mixed matrix membranes for CO<sub>2</sub>/N<sub>2</sub> separation", *Journal of Materials Science* 48 (2013) 3782-3788.

25. Anne Oudinot, George Koperna, Zeno Philip, **Ning Liu**, Jason Heath, Arthur Wells, Genevieve Young, Tom Wilson “CO<sub>2</sub> injection performance in the Fruitland coal fairway, San Juan Basin: Results of a field pilot”, *SPE Journal*, 16 (2011) 864-879.
26. **Ning Liu\***, Liangxiong Li, Robert Lee, “Fabrication of an integrated zeolite-fiber optical chemical sensor for detection of mercury (II) ion in water”, *Sensors & Transducers journal*, 131(2011) 43-51.
27. **Ning Liu\***, Maozhen Gong, Peng Zhang, Liangxiong Li, Robert Lee, “Silver-embedded zeolite crystals as substrates for surface-enhanced Raman Scattering spectroscopy”, *Journal of materials science*, 46 (2011) 3162-3168.
28. **Ning Liu\***, Liangxiong Li, Guanghua Cao, Robert Lee, “Silver-embedded zeolite thin film-based fiber optic sensor for in-situ, real-time monitoring Hg<sup>2+</sup> ions in aqueous media with high sensitivity and selectivity”, *Journal of materials chemistry*, 20 (2010) 9029-9031.
29. Jun Lu, **Ning Liu\***, Liangxiong Li, Rober Lee, “Organic fouling and regeneration of ceramic microfiltration membrane in wastewater treatment,” *Separation and Purification Technology*, 72 (2010) 203-207.
30. **Ning Liu\***, Liangxiong Li, Brian McPherson, Rober Lee, “Removal of organics from produced water by reverse osmosis using MFI-type zeolite membrane,” *Journal of Membrane Science*, 325 (2008) 357-361
31. Liangxiong Li, **Ning Liu**, Brian McPherson, Robert Lee, “Influence of Counter Ions on the Reverse Osmosis through MFI Zeolite Membranes: Implications for Produced Water Desalination”, *Desalination*, 228 (2008) 217-225
32. Liangxiong Li, **Ning Liu**, Brian McPherson, Robert Lee, “Enhanced Water Permeation of Reverse Osmosis through MFI-Type Zeolite Membranes with high Aluminum Contents,” *Industrial & Engineering Chemistry Research*, 46 (2007) 1584-1589
33. **Ning Liu**, Juan Hui, Cunqiang Sun, Junhang Dong, Luzheng Zhang, and Hai Xiao, “Nanoporous Zeolite Thin Film-Based Fiber Intrinsic Fabry-Perot Interferometric Sensor for Detection of Dissolved Organics in Water,” *Sensors*, 6 (2006) 835-847
34. **Ning Liu**, Gillian M. Bond, Aaron Abel, Brian J. McPherson, and John Stringer, “Biomimetic Sequestration of CO<sub>2</sub> in Carbonate Form: Role of Produced Waters and Other Brines,” *Fuel Processing Technology*, 86 (2005) 1615-1625
35. **Ning Liu**, Min Yi, Shuangji Chen and Hongfei Ha “Controlled release from PDMAEMA by gamma radiation,” *Chinese Journal of Polymer Science*, 20 (2002) 409-412
36. **Liu Ning**, Yi Min, Zhai Maolin Li Jiuqiang and Ha Hongfei, “Radiation Synthesis and Characterization of PolyDMAEMA Hydrogel,” *Radiation Physics and Chemistry*, 61 (2001) 69-73
37. **Liu Ning**, Zhai Maolin, Li Jun etc. “Preparation of PVA-g-NIPAAm Hydrogel by  $\gamma$ -Radiation and its Controlled Release Research,” *Acta Scientiarum Naturalium Universitatis Pekinensis*, 36 (2000) 172-177
38. Zhai Maolin, **Liu Ning**, Li Jun “Radiation Preparation of PVA-g-NIPAAm in a Homogeneous System and its Application in Controlled Release,” *Radiation Physics and Chemistry*, 57 (2000) 481-484
39. Li Jun, Yi Min, **Liu Ning**, “The UV Induced Grafting of SuMA onto PET Fiber and its Application of Immobilization of Protein,” *Acta Scientiarum Naturalium Universitatis Pekinensis*, 34 (1998) 746-751

### **CONFERENCE PAPERS/PRESENTATIONS**

1. Asiman Saidzade, Ning Liu, Mehdi Mokhtari, Prathmesh Naik Parrikar, Philip Bertrand Wortman “Spontaneous Imbibition in Shales under One-End-Open Boundary Condition: Effect of Wettability, Porosity, and Bedding Orientation”, Paper URTeC-3168 presented at the Unconventional Resources Technology Conference held in Austin, Texas, USA, 20-22 July 2020.
2. M.D. White, R.P. Esser, B.P. McPherson, R.S. Balch, **N. Liu**, P.E. Rose, L. Garcia, W. Ampomah “Interpretation of tracer experiments on inverted five-spot well-patterns within the Western half of the Farnsworth unit oil field”, paper presented at the 13<sup>th</sup> International Conference on Greenhouse Gas Control Technologies (GHGT-13) held in Lausanne, Switzerland, November 14-18, 2016.
3. Jingshan San, Sai Wang, Jianjia Yu, Robert Lee, **Ning Liu** “Nanoparticle stabilized CO<sub>2</sub> foam: Effect of different ions” paper SPE-179628 presented at the SPE Improved Oil Recovery Conference held in Tulsa, Oklahoma, April 11-13, 2016

4. Sai Wang, Jingshan San, **Ning Liu** "A chemical CO<sub>2</sub> sensor monitoring CO<sub>2</sub> movement under reservoir conditions" paper CMTC-439342 presented at the Carbon Management Technology Conference held in Sugarland, Texas, November 17-19, **2015**.
5. Sai Wang, Jingshan San, Ning Liu "A novel CO<sub>2</sub> sensor for downhole CO<sub>2</sub> monitoring" paper presented at the 19<sup>th</sup> Annual Gulf of Mexico Deepwater Technical Symposium held in New Orleans, Louisiana, USA, August 18-20, **2015**.
6. Shangwen Zha, Jianjia Yu, Guoyin Zhang, **Ning Liu**, Robert Lee "Polyethersulfone (PES)/Cellulose Acetate Butyrate (CAB) Hybrid Hollow Fiber Membranes for Organic Matter Removal from Produced Water" paper SPE-173787 presented at the SPE International Symposium on Oilfield Chemistry held in Woodlands, Texas, USA, 13-15 April **2015**.
7. Munawar Khalil, Jianjia Yu, **Ning Liu**, Robert Lee "Fabrication of metal-based pH sensing electrode via electrodeposition of iridium oxide nanoparticles", paper presented at 248th ACS National Meeting & Exposition held in San Francisco, CA, August 10-14, **2014**.
8. Jianjia Yu, Sai Wang, **Ning Liu**, Robert Lee "Effect Of Particle Hydrophobicity On The Flow Behavior Of Nanoparticle-stabilized CO<sub>2</sub> Foam In Porous Media" paper SPE 169047 presented at the SPE Improved Oil Recovery Symposium held in Tulsa, Oklahoma, USA, 12-16 April, **2014**
9. Jianjia Yu, Bao Jia, **Ning Liu**, Robert Lee "Nanoparticle-stabilized CO<sub>2</sub> Foam For Oil Recovery At Different Pressure, Temperature, And Rock Samples" paper SPE 169110 presented at the SPE Improved Oil Recovery Symposium to be held in Tulsa, Oklahoma, USA, 12-16 April, **2014**
10. Jianjia Yu, Munawar Khalil, **Ning Liu**, Robert Lee "Prepare iridium oxide chemical sensor for pH measurement at harsh conditions" paper presented at 247th ACS National Meeting & Exposition held in Dallas, Texas, March 16-20, **2014**.
11. Jiajia Yu, Di Mo, **Ning Liu**, Robert Lee "The application of nanoparticle-stabilized CO<sub>2</sub> foam for oil recovery", paper SPE 164074 presented at the SPE International Symposium on Oilfield Chemistry held in Woodlands, Texas, USA, 8-10 April, **2013**
12. Di Mo, Jianjia Yu, **Ning Liu**, Robert Lee, "Study of the effect of different factors on nanoparticle-stabilized CO<sub>2</sub> foam for mobility control" paper SPE 159282 presented at the SPE Annual Technical Conference and Exhibition held in San Antonio, Texas, USA, 8-10 October, **2012**
13. Jianjia Yu, Cheng An, **Ning Liu**, Robert Lee, "Foam Mobility Control for Nanoparticle-Stabilized Supercritical CO<sub>2</sub> Foam", paper SPE 153336 presented at the SPE Symposium on Improved Oil Recovery to be held in Tulsa, USA, April 14-18, **2012**
14. Jianjia Yu, Cheng An, Di Mo, **Ning Liu**, Robert Lee, "Study of adsorption and transportation behavior of nanoparticles in three different porous media", paper SPE 153337 presented at the SPE Symposium on Improved Oil Recovery to be held in Tulsa, USA, April 14-18, **2012**
15. Jianjia Yu, **Ning Liu**, Liangxiong Li, Robert Lee, "Generation of nanoparticle-stabilized supercritical CO<sub>2</sub> foams," Paper CMTC 150849 presented at the Carbon Management Technology Conference to be held in Orlando, Florida, USA, February 7-9, **2012**
16. **Ning Liu**, Liangxiong Li, Robert Lee, "Long-term performance of zeolite membrane for produced water purification", paper presented at Qingdao International Desalination Conference, Qing-dao, China, 20-23 June **2011**
17. **Ning Liu**, Sachin Ghorpade, Lee Harris, Liangxiong Li, Reid Grigg, Robert Lee, "The Effect of Pressure and Temperature on Brine-CO<sub>2</sub> Relative Permeability and IFT at Reservoir Conditions", SPE 139029 presented at the SPE Eastern Regional Meeting held in Morgantown, West Virginia, USA, 12-14 October **2010**
18. **Ning Liu**, Sachin Ghorpade, Lee Harris, Liangxiong Li, Reid Grigg, Robert Lee, "Effects of pressure and temperature on relative permeability of CO<sub>2</sub>-brine system", paper presented at DOE-NETL Ninth Annual Conference on Carbon Sequestration, (Pittsburgh, PA. May 10-13, **2010**)
19. Anne Oudinot, George Koperna, Zeno Philip, **Ning Liu**, Jason Heath, Arthur Wells, Genevieve Young, Tom Wilson "CO<sub>2</sub> injection performance in the Fruitland coal fairway, San Juan Basin: Results of a field pilot", SPE 127073 presented at the SPE International Conference on CO<sub>2</sub> capture, storage and utilization held in San Diego, California, USA, 2-4 November **2009**
20. George Koperna, Anne Oudinot, Glenn McColpin, **Ning Liu**, Jason Heath, Arthur Wells, Genevieve Young, "CO<sub>2</sub>-ECBM/storage activities at the San Juan Basin's pump canyon test site", SPE 124002

presented at the SPE Annual Technical Conference and Exhibition held in New Orleans, Louisiana, USA, 4-7 October **2009**

21. Emeka Stanley Chukwukere, **Ning Liu**, Jason Heath, Liangxiong Li, Reid Grigg, Robert Lee, "Contribution of Solution-Diffusion and Volume-Migration on CO<sub>2</sub> Transport in Caprock Seal Layer", Paper presented at DOE-NETL Eighth Annual Conference on Carbon Sequestration, (Pittsburgh, PA. May 4-7, **2009**)
22. Yang Li, **Ning Liu**\*, Liangxiong Li, Reid Grigg, Robert Lee, "An Integrated chemical sensor for downhole CO<sub>2</sub> monitoring in carbon sequestration", paper presented at the SPIE Conference, (13-17, April **2009**, Orlando, Florida), Vol. 7312
23. **Ning Liu**\*, Yang Li, Liangxiong Li, Reid Grigg, Brian McPherson, Robert Lee, "Development of a CO<sub>2</sub> chemical sensor and sensor strategy for CO<sub>2</sub> monitoring in carbon sequestration", Paper presented at DOE-NETL Seventh Annual Conference on Carbon Sequestration, (Seventh Annual Carbon Capture and Sequestration Conference, Pittsburgh, PA. May 5-8, **2008**)
24. Liangxiong Li, **Ning Liu**, B. McPherson, R. Lee, Supported Hydrotalcite Membranes for High Temperature CO<sub>2</sub> Separation, AIChE Annual Meeting, Salt Lake City, UT, Nov. 04 - 09, **2007**
25. **Ning Liu**\*, Jun Lu, Liangxiong Li, and Robert Lee, "Factors Determining the Reverse Osmosis Performance of Zeolite Membranes on Produced Water Purification," Paper SPE 106168, presented at the SPE International Symposium on Oilfield Chemistry held in Houston, Texas, 28 Feb.-2 Mar **2007**
26. Jian Zhang, **Ning Liu**, Juan Hui, Hai Xiao, and Junhang Dong, "Zeolite Thin Film-Based Fiber Intrinsic Fabry-Perot Interferometric Sensor for Detection of Dissolved Organics and Ions in Water," Paper presented at AIChE Annual meeting, San Francisco, CA, Nov. 12 - 17, **2006**
27. **Ning Liu**, Juan Hui, Junhang Dong, and Hai Xiao, "Zeolite Fiber Integrated Microsensors for Highly Sensitive Point Detection of Chemical Agents", Paper presented at the SPIE Conference, (19-21 April **2006**, Orlando, Florida), Vol. 6218
28. Graham Walsh, Cunqiang Sun, Hai Xiao, **Ning Liu**, Junhang Dong, Van Romero, "An Optical Fiber Based Microsensor for Explosives Detection", Paper presented at the SPIE Conference, (19-21 April **2006**, Orlando, Florida), Vol. 6217
29. G.M. Bond, S. Date, **N. Liu**, T. Dunn, T. Villanova, C. Hockensmith, J. Stringer, and B.J. McPherson, "Effective use of brines for biomimetic CO<sub>2</sub> sequestration," Paper presented at DOE-NETL Fourth Annual Conference on Carbon Sequestration, (Alexandria, VA, May 2-5, **2005**)
30. S. Date, **N. Liu**, G.M. Bond, T. Villanova, C. Hockensmith, J. Stringer, A. Abel and B.J. McPherson, "Carbon Sequestration through biomimetic catalysis of CaCO<sub>3</sub> formation," Paper presented at Chapman Conference on the Science and Technology of Carbon Sequestration, (San Diego, CA, 16-20 January, **2005**)
31. G.M. Bond, **N. Liu**, A. Abel, B.J. McPherson, and J. Stringer, "Biomimetic sequestration of CO<sub>2</sub> in carbonate form: Role of produced waters and other brines," *ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY*, 227 (**2004**) pt.1, p.U1098-U1098,
32. G.M. Bond, **N. Liu**, A. Abel, B.J. McPherson and J. Stringer, "Early results from a laboratory-scale pilot-plant demonstration of enzyme-catalyzed CO<sub>2</sub> sequestration with produced waters as cation source," Poster presented at Seventh International Conference on Greenhouse Gas Control Technologies (GHGT-7), (Vancouver, Canada, September 5-9, **2004**)
33. G.M. Bond, **N. Liu**, A. Abel, B. McPherson, and J. Stringer, "Laboratory-scale pilot of enzyme-catalyzed CO<sub>2</sub> sequestration with produced waters as cation source," paper presented at DOE-NETL Third Annual Conference on Carbon Sequestration, (Alexandria, VA, May 3-6, **2004**)
34. G.M. Bond, **N. Liu**, A. Abel, B.J. McPherson, and J. Stringer, "Biomimetic sequestration of CO<sub>2</sub> in carbonate form: Role of produced waters and other brines," Presented at 227th ACS National Meeting, March 28 – April 1, **2004**)
35. A. Abel, B. McPherson, P. Lichtner, R. Pawar, N. Warpinski, G. Bond, **N. Liu**, R. Grigg, and J. Stringer, "Analysis of reactive processes in a CO<sub>2</sub> pilot injection test," Paper presented at DOE-NETL Third Annual Conference on Carbon Sequestration, (Alexandria, VA, May 3-6, **2004**)
36. G.M. Bond, S. Date, N. Liu, "CaCO<sub>3</sub> formation through biomimetic catalysis of CO<sub>2</sub> conversion: An alternative option for carbon sequestration," Paper presented at Rio Grande Symposium on Advanced Materials, (Albuquerque, NM, October 25, **2004**)

37. G.M. Bond, B.J. McPherson, A. Abel, P. Lichtner, R. Grigg, **N. Liu** and J. Stringer, "Biomimetic and geologic mineralization approaches to carbon sequestration," Paper presented at DOE Second Annual Conference on Carbon Sequestration, Alexandria VA, May **2003**
38. G.M. Bond, B. McPherson, J. Stringer, A. Abel, and **N. Liu**, "Carbon Management: A possible role for carbonates, bicarbonates, and biomimetic catalysis," Paper presented at the American Chemical Society Conference, (225th ACS National Meeting, San Diego), March **2003**
39. G.M. Bond, M-G. Medina, B. McPherson, J. Stringer, A. Abel, and **N. Liu**, "Capturing and sequestering CO<sub>2</sub> nature's way: Biomimetic approaches," Paper presented at the Future Energy Systems and Technology for CO<sub>2</sub> Abatement Conference, Antwerp, Belgium, November **2002**
40. Wu Songhua, Zhu Hua, **Liu Ning**, Guo Meili, "The Mechanism of Polysulfide Sealant Decomposition in Jet Fuel", Prepr. Pap. P25-1(**2001** Beijing Bonding Technology Symposium)

### **PROFESSIONAL SOCIETIES**

*SPE member*

## **Grad Students**

- 1, Chunkai Fu, PhD PETE, A Laboratory Assessment and Optimization of Nanoparticle-Stabilized CO<sub>2</sub> Foams for Hydraulic Fracturing Applications
- 2, Haithem Trabelsi, PhD PETE, Bridge Plug Drillouts Cleaning Practices
- 3, Olatunji M Olayiwola, PhD PETE, A new sealant for long-term wellbore integrity
- 4, Asiman Saidzade, MS PETE, Spontaneous Imbibition in Shales
- 5, Navid Yousuf, MS PETE, The gelation of colloidal silica
- 6, Tamla Springer, PhD PETE, Gas molecules transport in shale