Xingru Wu

Associate Professor, Mewbourne School of Petroleum & Geological Engineering

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Research Interests

I am a petroleum engineer with a strong research interest in fluid flow dynamics in porous media and pipes, data analytics and numerical modeling, and phase behavior.

Education

Ph.D. **Petroleum Engineering, The University of Texas at Austin, May 2006**

M.S. **Petroleum Engineering, University of Alaska Fairbanks, August 2002**

B.S. **Petroleum Engineering, University of Petroleum, July 1997**

Academic Experience

08/12~Now Associate professor, the University of Oklahoma (OU), Mewbourne School of Petroleum & Geological Engineering (MPGE)

06/16~Now Adjunct professor, Southwest Petroleum University, School of Oil & Natural Gas Engineering

07/17~07/19 Thesis supervisor, African University of Science and Technology, Abuja (AUST)

- **Courses Taught at Universities; * OU Courses**

PE 2113*	Statics and Dynamics
PE 3723*	Numerical Models for Engineering Computation
PE 4553/5553*	Integrated Reservoir Management
PE 5970/5523*	Advanced Production Engineering
PE 3413*	Production Engineering I
PE 4583/5583*	Improved Recovery Techniques
PE 4563/5573*	Well Test Analysis
PE 5563*	Mathematical Simulation Models
PE 5990*	Recent Advances in Production Engineering
Southwest U. of Petroleum China U. of Petroleum(East China)	Flow Assurance in Deepwater Development
Universidad de los Andes	Thermal Recovery Processes
China U. of Petroleum (Beijing)	Enhanced Oil Recovery
Southwest U. of Petroleum	Unconventional Reservoir Development and Production

African U. of Sci. and Tech.	Advanced Well Test Analysis
Chengdu Univ. of Sci. and Tech	Geothermal Reservoir Engineering
China U. of Petroleum(East China)	Formation Damage and Remediation Technologies

- **University of Oklahoma Services**
  - MPGE Undergraduate Committee, 2019-Present
  - MPGE ABET Committee, 2014 – present
  - Graduate Committee, 2018-present
  - Committee A at OU-MPGE, 2018 – present
  - MPGE Director Search Committee, 2017-present
  - MPGE Natural Gas Engineering Faculty Search Committee, 2018-present
  - Undergraduate advisor, 2013 - 2018
  - Ed Cline Faculty Development Awards Committee, 2014-2016
- **Professional Activities and Invited Panels**
  - Committee member and session chair, SPE Annual Technical Conference and Exhibition, 2016,2017, 2018.
  - Committee member and session chair, Unconventional Resource Technology Conference, 2019, 2020.
  - Member of Academic Committee, CNPC Key Lab of Natural Gas Quality Control and Energy Metering, 2017-present
  - Associate Editor, *International Journal of Petrochemical Science & Engineering*, 2015 - present
  - Chairperson, 2017 SPE Annual Technical Conference and Exhibition: Recovery Mechanisms and Flow in Porous Media.
  - Panelist, International Petroleum and Petrochemical Technology Conference, 2017.
  - Proposal Review Panelist: U.S. Environmental Protection Agency's (EPA): U.S. EPA National Priorities Oil and Gas Development in the Appalachian Basin Peer Review Information. 2016
  - Committee member, AUST International Conference in Technologies, Abuja, Nigeria, 10/2015.
  - Oral presentation judge, 2015 Mid-continent Section Meeting, American Association of Petroleum Geologists, Tulsa, OK. 10/2015
  - Advisor, Oklahoma Chinese Petroleum Association, 2013 - present
  - Member, Society of Petroleum Engineering, 2000-present

Other Professional Experience

- **05/05~08/12, Reservoir Engineer, BP, Houston, TX**.
  - Developed the mechanism of Bright Water polymer in Enhanced Oil Recovery and implemented it in VIP simulator; then modeled the technology performance of Milne Point & Prudhoe Bay of Bright Water injection pilots.
  - Managed the project "Interpretation of Interwell Tracer using Method of Moment" funded by

BP Innovation Board.
  - Managed the reserve progression in Overthrust assets, WY.
  - Built a skin monitoring tool using pressure superposition and connected energy model for the Gulf of Mexico (GoM) Deepwater asset and widely used in other assets.
  - Managed fluid sampling, analysis, and fluid characterization using Equation of State.
  - Created well rate allocation algorithm to enhance its accuracy and efficiency for Atlantis and championed Deepwater Rate Allocation for BP Gulf of Mexico Production Assets.
  - Conducted tidal analysis for reservoir compaction study for GoM fields using Fourier Transform Algorithm.
- **5/03~8/03, Summer Intern, Idaho National Laboratory, Idaho**
- **05/01~08/01, Summer Intern, Alaska Oil and Gas Conservation Commission, Alaska**
- **07/97~09/00, Petroleum engineer, China National Offshore Oil Company, Shanghai**

Honors and Awards

- Regional SPE Production and Operations Award, Mid-Continent, 2020.
- SPE Distinguished Lecturer, 2020-2021
- Distinguished services for Undergraduate Advising, University of Oklahoma, 2013
- College of Engineering Scholarship from ConocoPhillips, The U. of Texas at Austin
- Graduate School Fellowship, U. of Alaska Fairbanks
- Outstanding Academic Achievement, U. of Alaska Fairbanks
- Leadership Award as Treasurer of SPE Student Chapter, U. of Alaska Fairbanks

Short Courses Taught

1) Design and Surveillance of Wastewater Disposal Wells for Unconventional Resource Development. 18 Jul-19 Jul, 2020.Unconventional Resources Technology Conference, Austin, TX.
2) One-day course on Petroleum Fluids and PVT Analysis, 7/26/2019. Energy Institute of the Americas. University of Oklahoma
3) Phase behavior and development of gas condensate. 5/16/2019. Taiyuan, Shanxi, China National Offshore Oil Company.
4) Reservoir Simulation in Reservoir Management. 3/12-3/13, 2019. Exploration & Development Research Institute of Xinjiang Oil Fields.
5) Unconventional Resource Development in N. America and New Technology Introduction. 12/19-12/21, 2018. Exploration & Development Research Institute of Xinjiang Oil Fields.
6) Integrity Reservoir Management for Mature Fields. 11/18-11/22, 2018. Sonatrach, Algiers, Algeria.
7) Advanced PVT Analysis and Fluid Management. 11/11-11/16. 2018. Sonatrach, Algiers, Algeria.
8) Engineered Offshore Water Injection through Case Studies. China National Offshore Oil Company, Tianjin, June 21, 2018.
9) Advances in Unconventional Reservoir Development and Production, Research and Engineering Institute of Xinjiang Oil fields Company, CNPC. June 14, 2018.
10) Recent Advances in Unconventional Reservoir Development and Production, Natural Gas Research Institute, CNPC, June 4, 2018. Chengdu, China.
11) Integrated Reservoir Management, 2/18/2018-2/22/2018, Sonatrach, Algiers, Algeria.
12) Stochastic Reserve Estimation And Reservoir Quality Driven Development Planning, CNOOC, 6/8/2017-6/9/2017, Shanghai.
13) Recent Advances in Tight Oil Reservoir Development in North America. SINOPEC, 6/12/2017, Hefei, Anhui Province
14) Trace Element in Natural Gas and Multiple Phase Metering. CNPC-Natural Gas Research Institute, 5/25/2017.
15) New Technologies in Enhancing Offshore Oil Recovery, China National Offshore Oil Company, 6/14-6/17, 2016, Guangzhou & Beijing

16) Technologies of Production and Injection Engineering for Oil & Gas Reservoir with Low Permeability, University of Oklahoma College of Continuing Education, Delivered to China National Petroleum Corporation (CNPC), 7/24~7/26, 2013.
17) The frontier technologies of Oil & Gas Production Engineering, University of Oklahoma College of Continuing Education, Delivered to CNPC group, 7/8~7/9, 2013
18) Surveillance Fundamentals, BP, 2009, 2010, and 2011.

Invited Presentations and Posters

1) Maximize Financial Returns from Real-time Downhole Data, SPE Distisguished Lecture, Queensland, Australia (Nov. 30,2020),New York and New England Region (Dec. 16, 2020), N'Djamena, Nigeria (Dec., 18,2020); Eastern Venezuela (Jan. 11,2021), Colombian Section (Jan. 14, 2021), Northwest Russia Section (Feb. 8,2021), Surgut Section (Feb. 11, 2021), Tyumen Section (Feb. 12, 2021), Uralsk Section (Feb. 18, 2021), National Capital Section-Washington DC (Jun. 16, 2021), San Joaquin Valley Section (Jun. 17, 2021), Sabah Section (Jun. 21, 2021), Myanmar Yangon Section (Jun. 23, 2021).
2) Utilizing Real-time Pressure and Temperature for Production Surveillance, Graduate seminar at Louisiana State University. Jan. 31, 2020
3) Downhole Thermoelectric Power Generation in Oil Wells. Graduate Seminar at China University of Petroleum, Dec. 19, 2019
4) Technical Communication in English Writing, Graduate Seminar at the China University of Petroleum. Dec. 17, 2019
5) Casing Deformation during Hydraulic Fracturing Shale Formation, the International Conference on Petroleum Tubular Goods, Equipment & Materials, Xi'an. 13-14 June 2019.
6) Shale Gas Production and Process, Natural Gas Research Institute, China National Oil Company. May 23, 2019
7) Retrofitting Oil Wells in Mature Oil Field for Synergistic Energy Development, China University of Geosciences. Beijing, Dec. 14, 2018.
8) Materialize Real-time Surveillance Values for Intelligent Wells, PetroChina Exploration & Development Research Institute. Beijing, Dec. 13, 2018.
9) Apply Data Analytics in Petroleum Engineering, African University of Science and Technology, Abuja, Nigeria. July 19, 2018.
10) Real-time Surveillance Techniques for Deepwater Hydrocarbon Development, China University of Geosciences, Beijing, China. June 11, 2018.
11) Apply Data Analytics on Hydrocarbon Recovery Based on Similarities. SINOPEC Petroleum Exploration and Production Research Institute, Jun. 10, 2018.
12) Technical English Writing for Petroleum Engineering, China University of Petroleum (East China), Qingdao, China. May 30, 2018
13) Real-time Surveillance Techniques for Deepwater Development, University of Tulsa, Tulsa, OK. Mar. 2, 2018
14) Real-time Surveillance Techniques for Deepwater Development, Northeast Petroleum University, Dec. 18, 2017.
15) Paradigm Shifts in Petroleum Engineering. Heilongjiang Bayi Agricultural University. Dec. 19, 2017.
16) Characterize Dew Point of Natural Gas, China National Petroleum Corporation, Chengdu, Sichuan Province. Dec. 14, 2017
17) Apply Data Analytics on Hydrocarbon Recovery Based on Similarities. Math Department, University of Oklahoma, Nov. 15, 2017.
18) Apply Data Analytics on Hydrocarbon Recovery Based on Similarities. China University of Petroleum (Beijing), Beijing. July 26, 2017.
19) Paradigm shifts in Petroleum Engineering, Southwest Petroleum University, the 4th SPE Cultural Festival, Chengdu, May 25, 2017.
20) Apply Data Analytics on Hydrocarbon Recovery Based on Similarities. Southwest Petroleum

University, Chengdu, May 25, 2017.

21) Characterize Shale Reservoir for Engineers. Southwest Petroleum University, Chengdu, May 24, 2017.
22) Getting a Fruitful Experience at SWPU. Southwest Petroleum University, Chengdu, Sichuan Province. April 6, 2017.
23) Characterize Shale Reservoir for Engineers. CNPC Chuanqing Drilling Engineering Company Limited, Chengdu, Sichuan Province. April 10, 2017.
24) Apply Data Analytics on Hydrocarbon Recovery Based on Similarities. The China University of Geology, Wu Han, Hubei Province. April 1, 2017.
25) Framework for Data-Driven Decision Making in Hydrocarbon Recovery. 2017 International Petroleum and Petrochemical Technology Conference. Beijing, China. March 22, 2017.
26) Lessons Learnt On Production Casing Design For Deepwater Wells From Deepwater Horizon. The China University of Petroleum. Beijing, China. March 21, 2017
27) Getting a Fruitful Experience at the University. Universidad de Los Andres, Bogota, Columbia. Oct. 28, 2016
28) Landing The Desired Graduate School. The Southwest University of Petroleum, Chengdu, Sichuan Province. Sep. 17, 2015
29) Deepwater Horizon-Technical Review and Worst-Case Discharge Calculation. China University of Petroleum, Qingdao, Shandong Province. Sep. 12, 2015
30) Characterize Shale Reservoir for Engineers. AAPG Reality-Based Reservoir Development: New Teams, Techniques, Technologies. Oklahoma City, Oklahoma. Sep. 23, 2015
31) Shale/Tight gas reservoir characterization, production behavior, and rate forecast. Dongying, Shandong Provence, VictorySoft Technology Company, June 16, 2015; Wu Han, Yangze University, June 23, 2015; GuangHua, Wuhan, Jianghan Oil Field, June 24, 2015; Beijing, China National Petroleum Corporation, June 25, 2015; Beijing, China, Geo-Jade Petroleum Corporation, June 26, 2015.
32) Get the flow assurance and sampling right for deepwater production. China National Petroleum Corporation. Tian Jin. June 11, 2015; Southwest University of Petroleum. Chengdu, Sichuan Province. June 15, 2015.
33) Surveillances in Deepwater Production. Society of Petroleum Engineers Lima Section, Lima, Peru, May 19, 2015.
34) Pore Size Distribution Impact on Gas in Place and Production Forecast for Shale Formations. The China University of Petroleum. Qingdao, Shandong Province. March 25, 2015.
35) Pore Size Distribution Impact on Gas in Place for Shale Formations. China National Offshore Oil Company. Beijing. March 17, 2015.
36) Well Efficiency and Completion Strategy in Deepwater Development. The China University of Petroleum. Qingdao, Shandong Province. March 23-24, 2015.
37) Real-time Surveillance Technologies in Deepwater Development. China University of Petroleum, Qingdao, Shandong Province. July 10, 2014.
38) Real-Time Surveillance Technologies in Deepwater Development. China National Offshore Oil Company, Beijing. July 4, 2014.
39) Landing the desirable job. Chinese Oklahoma Petroleum Association, University of Oklahoma. Norman, OK. Sep. 20, 2013.
40) Sand Control and Intelligent Well Surveillance in Deepwater Development. The University of Petroleum. Beijing. July 7, 2012.
41) Real-time Surveillance in Deepwater Development. Peking University, Beijing. July 6, 2012.
42) Enhancing Production Allocation for Intelligent Wells via Application Models and Real-Time Surveillance Data. University of Oklahoma, Norman, OK. Feb. 2012.
43) Atlantis Cased Hole Dynamic Testing and Asphaltene Onset Analysis. BP Global Complex Fluids Community of Practice. Houston, TX. Feb. 2011.
44) Atlantis Rate Allocation Using Hydraulic and Choke Models. BP Regional Production Engineer Meeting, Poser, Oct. 2010.
45) Bright Water Modeling and Simulation using VIP. BP Internal Technofest. Houston, TX. Aug.

2008.

46) An Investigation of Partitioning Tracers for Characterizing Geothermal Reservoir and Predicting Enthalpy Production. Chevron, Houston, TX, Oct. 2005.
47) Using Partitioning Tracer to Estimate the Reservoir Properties in Naturally Fractured Geothermal Field. Bellaire Technology Center, Shell International Exploration and Production, Houston, Texas. Nov. 2004.

Books

Formation Damage during Improved Oil Recovery: Fundamentals and Application, Elsevier

Chapter 3: Formation Damage by Inorganic Deposition

Chapter 13: A Special Focus on Formation Damage in Offshore and Deepwater Reservoirs

Handbook of Petroleum Technology, Springer

Chapter X: Hydraulic fracturing

Peer-Reviewed Journal Papers

1) Yang, S., Han, L., Wang, J., Wang, H., Wu, X. (2021) Mechanisms of Casing Deformation during Multistage Horizontal Well Fracturing in Shale Gas Development and Laboratory Tests for Strain based Casing Design. J. of Natural Gas Science and Engineering. (Accepted)
2) Restrepo, M.M., Teodoriu, C., Salehi, S., Wu, X. 2020. A Novel Way to look at the cement sheath integrity by introducing the existence of empty spaces inside of the cement(voids). Vol. 77, Journal of Natural Gas Science and Engineering. https://doi.org/10.1016/j.jngse.2020.103274
3) Jin, L. Zhou, G. Huang, L., Liu, D., Wu, X. 2020. Natural Gas Density under Extremely High Pressure and High Temperature: An Insight from Molecular Dynamics Simulations. Chinese Journal of Chemical Engineering. DOI: https://doi.org/10.1016/j.cjche.2020.07.043
4) Childers, D., Wu, X. 2020. Forecasting Shale Gas Performance Using the Connected Reservoir Storage Model. Journal of Natural Science and Technology. DOI: https://doi.org/10.1016/j.jngse.2020.103499
5) Childers, D., Wu, X. 2020. Forecasting Oil Well Performance in Tight Formation Using the Connected Reservoir Storage Model. Journal of Petroleum Science and Technology. DOI: https://doi.org/10.1016/j.petrol.2020.107593
6) Liu, C., Zhu, L., Wu, X., Liang, J., Li, Z. 2020. Numerical Characterization of the Annulus Flow Dynamics and Pressure Loss in Deepwater Drilling Riser. Computer Modeling in Engineering & Science. DOI: doi:10.32604/cmes.2020.010699
7) Liu, J., Wu, X. 2020. Experimental Study on Thermally Enhanced Permeability of Rock with Chemical Agents. J. of Petroleum Science and Engineering, Vol. 195. Dec. https://doi.org/10.1016/j.petrol.2020.107895
8) Liu, J., Wang, Z., Shi, K., Li, Y., Liu, L., Wu, X. 2020. An analysis and Modeling of Thermoelectric Power Generation in Oil Wells: A Potential Power Supply for Downhole Instruments Using In-situ Geothermal Energy. Renewable Energy. Vol 150, May, p.561-569. https://doi.org/10.1016/j.renene.2019.12.120
9) Kaita, A., Ogolo, O., Wu, X., Mohammed I., Akpan, E. 2019. Study of the Impact of Injection Parameters on the Performance of Miscible Sour Gas Injection for Enhanced Oil Recovery. Petroleum. Journal of Petroleum Exploration and Production Technology. DOI: https://doi.org/10.1007/s13202-019-00793-4
10) Mask, G., Lin, K., Wu, X. 2019. An Improved Model for Gas-Liquid Flow Pattern Prediction Based on Machine Learning. Journal of Petroleum Science and Engineering. Vol. 183. https://doi.org/10.1016/j.petrol.2019.106370.
11) Liu, J., Sun, L., Li, Z., Wu, X. 2019. Experimental Study on Reducing CO2 oil Miscibility Pressure with Hydrocarbon Agents. Energies 2019, 12(10), 1975; https://doi.org/10.3390/en12101975

12) Wang, K. Wu, X. 2019. Downhole Thermoelectric Generation in Unconventional Horizontal Wells. Fuel. Vol. 254. https://doi.org/10.1016/j.fuel.2019.05.113.
13) Liu, J. Cao, S., Wu, X., Yao, J. 2019. Detecting the Propped Fracture by Injection of Magnetic Proppant during Fracturing. Geophysics. https://doi.org/10.1190/geo2018-0221.1.
14) Tian, W., Wu, X., Liu, D., Cheng, C., Knaup, A., Sondergeld, C. 2019. Investigating Effects of Pore Size Distribution and Pore Shape on Radon Production in Marcellus Shale Gas Formation. Fuel & Energy. Energy Fuels2019332700-707. https://doi.org/10.1021/acs.energyfuels.8b03311
15) Hajirezaie, S., Wu, X., Soltanian M.R., Sakha, S. 2019. Numerical Simulation of Mineral Precipitation in Hydrocarbon Reservoir and Wellbores. Fuel. Vol. 238, Feb. 15. Pages 462-472. DOI: https://doi.org/10.1016/j.fuel.2018.10.101
16) Yin, F., Xiao, Y., Han, L., Wu, X., W. 2018. Quantifying the Induced Fracture Slip and Casing Deformation in Hydraulically Fracturing Shale Gas Wells. J. of Natural Gas Science and Engineering. Vol. 60. Pages 103-111. https://doi.org/10.1016/j.jngse.2018.10.005
17) Wang, K., Liu, J., Wu, X. 2018. Downhole Geothermal Power Generation in Oil and Gas Wells. Geothermics. Vol. 76, pages 141-148. DOI: https://doi.org/10.1016/j.geothermics.2018.07.005.
18) Wang, K., Yuan, B., Ji, G., Wu, X. 2018. A Comprehensive Review of Geothermal Energy Extraction and Utilization in Oilfields. Journal of Petroleum Science and Engineering. Vol. 168, pages 465-477. DOI: https://doi.org/10.1016/j.petrol.2018.05.012
19) Yang, S., Feng, Y., Feng, C., Wang, H., Han, L., Wu, X. 2018. Mechanical Performance of Casing in in-situ Combustion Thermal Recovery. Journal of Petroleum Science and Engineering. Vol. 168, pages 32-38. https://doi.org/10.1016/j.petrol.2018.04.068
20) Yin, F., Wu, X., Deng, Y., Yang, S. 2018. Casing Deformation from Fracture Slip in Hydraulic Fracturing. Journal of Petroleum Science and Engineering. Vol. 166, pages 235-241. DOI: https://doi.org/10.1016/j.petrol.2018.03.010
21) Liu, J., Tian, W., and Wu, X. 2018. Investigating and Predicting Permeability Variation in Thermally Cracked Dry Rocks. International Journal of Rock Mechanics and Mining Sciences, Vol. 103, pages 77-88, https://doi.org/10.1016/j.ijrmms.2018.01.023.
22) Tian, W., Wu, X., Shen, T. 2018. Improved Method of Moment to Determine Mobile-Phase Saturations Using a Single-Well Chemical-Tracer Test. SPE Reservoir Evaluations & Engineering. DOI: https://doi.org/10.2118/189300-PA
23) Kalra, S., Tian, W., Wu, X. 2018. Numerical Simulation Study of CO2 Injection for Enhancing Hydrocarbon Recovery and Sequestration in Liquid Rich Shales. Petroleum Science. 15(1). Pp 103-115. DOI: https://doi.org/10.1007/s1218
24) Han, L., Wang, H., Wang, J., Zhu, L., Xie, B., Tian, Z., and Wu, X. 2017. Strain Based Casing Design for Cyclic Steam Stimulation Wells. SPE Prod & Oper. DOI: https://doi.org/10.2118/180703-PA
25) Hajirezaie, S., Wu, X. and Peters, C.A. 2017. Scale Formation in Porous Media and Its Impact on Reservoir Performance During Water Flooding. Journal of Natural Gas Science and Engineering 39: 188-202. http://doi.org/10.1016/j.jngse.2017.01.019.
26) Yang, S., Wu, X., Han, L., Wang, J., and Feng, Y. 2016. Migration of Variable Density Proppant Particles in Hydraulic Fracture in Coal-Bed Methane Reservoir. Journal of Natural Gas Science and Engineering 36: 662-668. http://dx.doi.org/10.1016/j.jngse.2016.11.009.
27) Tian, W., Wu, X., Shen, T., Zhang, Z., and Kalra, S. 2016. Quantitative Prediction of Radon Concentration at Wellhead in Shale Gas Development. SPE J. 22 (1): 235-243. SPE-180358-PA. http://dx.doi.org/10.2118/180358-PA.
28) Gao, Y., Wu, X., Sun, B., Chen, L., Zhao, X., Chen, Y. and Xu, B. 2016. A Wellbore-Formation-Coupled Heat-Transfer Model in Deep Water Drilling and Its Application in the Prediction of Hydrate-Reservoir Dissociation. SPE J. SPE-184398-PA. https://doi.org/10.2118/184398-PA.
29) Ling, K., Wu, X. and Shen, Z. 2016. A New Method to Detect Partial Blockage in Gas Pipelines. Oil and Gas Fac 5 (5): 1-7. SPE-174751-PA. http://dx.doi.org/10.2118/174751-PA.
30) Tian, W., Wu, X., Shen, T., and Kalra, S. 2016. Estimation of Hydraulic Fracture Volume Utilizing Partitioning Chemical Tracer in Shale Gas Formation. Journal of Natural Gas Science and Engineering 33: 1069-1077. http://doi.org/10.1016/j.jngse.2016.06.018.

31) Wu, X., Babatola, F., Jiang, L., Tolbert, B.T., and Liu, J. 2016. Applying Subsea Fluid Processing Technologies for Deepwater Operations. Oil and Gas Facilities 5 (4): 1-10. SPE-181749-PA. http://dx.doi.org/10.2118/181749-PA.
32) Liu, J., Sun, L., Wu, X. and Yao, J. 2016. Feasibility of Combination of CO2 Geological Storage with Geothermal-Type Water-Soluble Gas Recovery in Yinggehai Basin, China. International Journal of Greenhouse Gas Control 45: 139-149. http://doi.org/10.1016/j.ijggc.2015.11.032.
33) Wu, X., Xu, B., and Ling, K. 2015. A Semi-Analytical Solution to the Transient Temperature Behavior along the Vertical Wellbore after Well Shut-in. Journal of Petroleum Science & Engineering 131: 122-130. http://doi.org/10.1016/j.petrol.2015.04.034.
34) Escobar, F.H., Srivastav, P., and Wu, X. 2015. A Practical Method to Determine Aquifer Leakage Factor from Well Test Data in CBM Reservoir. ARPN Journal of Engineering and Applied Sciences 10 (11): 4763-4772.
35) Wu, X., Sui, W., and Jiang, Y. 2014. Semi-quantitative Applications of Downhole-Temperature Data in Subsurface Surveillance. SPE Production & Operations 29 (4): 323-328. SPE-167477-PA. https://doi.org/10.2118/167477-PA.
36) Liu, D., Wu, X. and Ahmed, R. 2014. New Silicate Hydrogel with More Elasticity as In-situ Water Diversion System: Preparation and Investigation of Rheological and Pugging Behaviors. International Journal of Oil, Gas, and Coal Technology 7 (3): 263-274. http://dx.doi.org/10.1504/IJOGCT.2014.060091.
37) Ling, K., Wu, X., Zhang, H., and He, J. 2014. Improved Gas Resource Calculation Using Modified Material Balance for Overpressure Gas Reservoir. Journal of Natural Gas Science and Engineering 17: 71-81. http://doi.org/10.1016/j.jngse.2014.01.001.
38) Wu, X., Ling, K. and Liu, D. 2013. Deepwater Reservoir Characterization Using Tidal Signal from Permanent Downhole Pressure Gauge. SPE Res Evaluation & Engineering 16 (4): 1-11. SPE-167656-PA. https://doi.org/10.2118/167656-PA.
39) Ling, K., Wu, X., Guo, B. and He, J. 2013. New Method to Estimate the Surface Separators Optimum Operating Pressures. SPE Oil and Gas Facilities 2 (3): 65-76. SPE-163111-PA. https://doi.org/10.2118/163111-PA.
40) Wu, X., Pope, G.A., Shook, G.M. and Srinivasan, S. 2008. Prediction of Enthalpy Production from Fractured Geothermal Reservoirs Using Partitioning Tracers. International Journal of Heat and Mass Transfer 51 (5-6): 1453-1466. http://doi.org/10.1016/j.ijheatmasstransfer.2007.06.023.

Conference Proceedings

41) Wu, X., Yang, S., Han, L. 2021. Casing deformation during hydraulic fracturing shale gas reservoir in China: What we know and what we tried. Presented at the ARMA 55th US Rock Mechanics/Geomechanics Symposium. Houston, TX, USA. Jun. 20-23.
42) Wu, X., Yang, S., Han, L. 2021. Stochastic and imperial methods to determine the critical conditions for casing deformations in Sichuan shale gas development. Presented at the ARMA 55th US Rock Mechanics/Geomechanics Symposium. Houston, TX, USA. Jun. 20-23.
43) Childers, D., Wu, X. 2021. Mitigating fault activation from injection activity through the application of the connected reservoir storage mdoel. Presented at the ARMA 55th US Rock Mechanics/Geomechanics Symposium. Houston, TX, USA. Jun. 20-23.
44) Adeyemi, E. A., Ogbe, O.O., Wu, X., 2020. Quantifying the Risk of Wellbore Failure during Drilling Operations Using Bayesian Algorithm. Presented at the SPE Nigeria Annual International Conference & Exhibition, 11-13 August, Lagos, Nigeria.
45) Childers, D.R., Wu, X. 2020. Characterize Hydraulic Fracturing Treatment Directly from Production Data Using Connected Reservoir Storage Model. Presented at the 54th US Rock Mechanics/Geomechanics Symposium. Golden, Colorado, 28 June-1 July 2020.
46) Liu, J., Wang, Z., Gao, S., Wu, X., Luo, M. 2020. Numerical Simulation of Mineral Composition Effect on Thermal Cracking of Rock. Proceedings World Geothermal Congress 2020. Reykjavik, Iceland, April 26-May 2.
47) Chang, Q., Huang, L., Wu, X. 2019. Combination of Simplified Local Density Theory and Molecular Dynamics Simulation to Study the Local Density Distribution of Hydrocarbon Gas in

Shale Gas Reservoir. Presented at the SPE Eastern Regional Meeting. 15-17 Oct. Charleston, West Virginia. DOI: https://doi.org/10.2118/196588-MS

48) Wu, X., Jing, Z. 2019. Stochastic Determination of Formation Parting Pressure and Dynamic Injectivity for Water Injection. Presented at the 53rd US Rock Mechanics/Geomechanics Symposium. New York City, 23-26 June.
49) Wu, X. Han, L., Yang, S., Wu, X. 2019. Numerical Study on Casing Integrity during Hydraulic Fracturing Shale Formation. Presented at the 2019 SPE Oklahoma City Oil and Gas Symposium, 8-12 April 2019. SPE-195203-MS. https://doi.org/10.2118/195203-MS
50) Wang, K., Wu, X. 2019. Extension of Oil Well Economic Life by Simultaneous Production of Oil and Electricity. Presented at the 2019 SPE Oklahoma City Oil and Gas Symposium, 8-12 April 2019. SPE-195211-MS. https://doi.org/10.2118/195211-MS
51) He, J., Ling, K., Wu, X. Pei, P., Pu, H. 2019. Static and Dynamic Elastic Moduli of Bakken Formation. Presented at the International Petroleum Technology Conference. IPTC-19416. 26-28 March 2019. Beijing, China. https://doi.org/10.2523/IPTC-19416-MS
52) Gene, M., Wu, X. Ling, K.2019. An Improved Model for Gas-Liquid Flow Pattern Prediction Based on Machine Learning. Presented at the International Petroleum Technology Conference. 26-28 March 2019. Beijing, China. https://doi.org/10.2523/IPTC-19174-MS
53) Liu, K., Wu, X., Ling, K. 2019. Integrated Detection of Water Production in a Highly Heterogeneous and Tight Formation Using CRM Method: A Case Study on Water Flooding Gaither Draw Unit, Wyoming, USA. Presented at the International Petroleum Technology Conference. IPTC-19333. 26-28 March 2019. Beijing, China. https://doi.org/10.2523/IPTC-19333-MS.
54) Mendez, R.M., Teodoriu, C., Han, L., Yang, S., Wu, X. 2019. In-depth Investigation of Casing-Cement System Failure Models in Geothermal Wells Considering Cement Voids and Improper Centralization. Presented at 44th Stanford Geothermal Workshop, Feb. 11-13. Stanford, CA.
55) Wang, K., Wu, X. 2019. Economic Feasibility of Geothermal Production from Oil Wells Using Thermoelectric Technology. Presented at 44th Stanford Geothermal Workshop, Feb. 11-13. Stanford, CA.
56) Wang, K., Wu, X.2018. A Design of Downhole Thermoelectric Generation for Horizontal Oil Wells. Geothermal Resource Council Transactions, Vol. 42. Oct. 14-17, Reno, Nevada.
57) Xu, Z., Yin, F., Wu, X. 2018. Mechanism Study of Casing Deformation in Multistage Hydraulic Fracturing Shale Reservoir. Presented at Unconventional Resources Technology Conference, July 23-25, Houston, TX. https://doi.org/10.15530/URTEC-2018-2896020
58) Yin, F., Deng, Y., Xiao, Y., Wu, X. 2018. Mechanical Behaviors of Reservoir and Wellbore Under Hydraulic Fracturing. The 52nd US Rock Mechanics/Geomechanics Symposium, Seattle, Washington, USA. 17-20 June.
59) Xu, Z., Yin, F., Wu, X. 2018. Mechanical Responses of Formation and Well after Injection for Geothermal Development. 43rd Stanford Geothermal Workshop, Feb. 12-14. Stanford, CA.
60) Wang, K., Wu, X., and Liu, J. 2017. Downhole geothermal power generation in oil and gas wells. Geothermal Resources Council Transaction, Vol. 41.
61) Talluru, G. and Wu, X. 2017. Using Data Analytics on Dimensionless Numbers to Predict the Ultimate Recovery Factors for Different Drive Mechanisms for GoM fields. Presented at the SPE Annual Technical Conference and Exhibition. San Antonio, Texas. https://doi.org/10.2118/180464-MS.
62) Childers, D. and Wu, X. 2017. Analyzing Gas Well Production Data through Application of the Connect Reservoir Storage Model. Presented at the SPE Annual Technical Conference and Exhibition. San Antonio, Texas. https://doi.org/10.2118/187334-MS.
63) Yang, T. and Wu, X. 2017. Water Flowback Analysis and Hydraulic Fracture Characterization in Marcellus Unconventional Reservoir. Presented at SPE Oklahoma City Oil and Gas Symposium. Oklahoma City, Oklahoma, 27-31 March. SPE-185090-MS. https://doi.org/10.2118/185090-MS.
64) Wu, X. 2017. Systematic Casing Integrity Study in Unconventional Reservoir Development. Presented at the International Conference on Petroleum Tubular Goods, Equipment & Materials, Xi'An, China. 13-14 April.

65) Jiang, Y. and Wu, X. 2017. Transient Thermal Behavior Surrounding a Vertical Wellbore and Its Impact on Production Management. Presented at the 2nd Thermal and Fluids Engineering Conference and 4th International Workshop on Heat Transfer. Las Vegas, Nevada, USA, 2-5 April.
66) Li, Z., Cheng, X., Zhang, M., Wu, X., Wu, S., Wu, D., and Xiao, Y. 2016. The Research and Application about Aluminate Cement Slurry in Heavy Oil Thermal Well. Presented at the SPE Thermal Well Integrity and Design Symposium, Banff, Alberta, Canada. 28 November-1 December. SPE-182514-MS. https://doi.org/10.2118/182514-MS.
67) Jeon, J., Bashir, M.O., Liu, J., and Wu, X. 2016. Fracturing Carbonate Reservoirs: Acidizing Fracturing or Fracturing with Proppants. Presented at the SPE Asia Pacific Hydraulic Fracturing Conference. Beijing, China, 24-26 August. SPE-181821-MS. https://doi.org/10.2118/181821-MS.
68) Ling, K., Wu, X., Han, G., and Wang, S. 2016. Optimizing the Multistage Fracturing Interval for Horizontal Wells in Bakken and Three Forks Formations. Presented at the SPE Asia Pacific Hydraulic Fracturing Conference. Beijing, China. 24-26 August. SPE-181788-MS. https://doi.org/10.2118/181788-MS.
69) Tian, W., Shen, T., Liu, J., and Wu, X. 2016. Hydraulic Fracture Diagnosis Using Partitioning Tracer in Shale Gas Reservoir. Presented at the SPE Asia Pacific Hydraulic Fracturing Conference. Beijing, China. 24-26 August. SPE-181857-MS. https://doi.org/10.2118/181857-MS.
70) Zafra, W., Erazo, A., Soriano Arambulo, V.H., and Wu, X. 2016. Integrated Methods for Identifying Opportunities to Efficiently Develop Heavy Oil in the Block 192-Peru. Presented at the SPE Latin America and Caribbean Heavy and Extra Heavy Oil Conference. Lima, Peru. 19-20 October. SPE-181185-MS. https://doi.org/10.2118/181185-MS.
71) Srivastava, P., Wu, X., Amirlatifi, A., and Devegowda, D. 2016. Recovery Factor Prediction for Deepwater Gulf of Mexico Oilfields by Integration of Dimensionless Numbers with Data Mining Techniques. Presented at the SPE Intelligent Energy International Conference and Exhibition. Aberdeen, Scotland, UK, 6-8 September. SPE-181024-MS. https://doi.org/10.2118/181024-MS.
72) Shen, T., Moghanloo, R., Tian, W., and Wu, X. 2016. Characterization of Permeability Variation Using Inter-Well Tracer Test (Part 1). Presented at the 35th International Conference on Ocean, Offshore and Arctic Engineering. Busan, Korea, 19-24 June.
73) Tian, W., Wu, X., Zhang, Z., and Kalra, S. 2016. Quantitative Prediction of Radon Concentration at Wellhead in Shale Gas Development. Presented at the SPE Western Regional Meeting. Anchorage, Alaska, USA, 23-26 May. SPE-180358-MS. https://doi.org/10.2118/180358-MS.
74) Hajirezaie, S., and Wu, X. 2016. Formation Damage Resulting from Scale Deposition During Water Flooding. Presented at the 8th International Conference on Porous Media & Annual Meeting. Cincinnati, Ohio, USA, 9-12 May.
75) Wu, X., Zhou, G., Najobaei, B., Pu, H., and Li, Y. 2016. Integrated Reservoir Modeling Workflow That Couples PVT and Adsorption in Confined Nano-pores, An Eagle Ford Application. Presented at the SPE Low Perm Symposium. Denver, Colorado, USA, 5-6 May. SPE-180216-MS. https://doi.org/10.2118/180216-MS.
76) Tolbert, B.T., and Wu, X. 2015. Quantifying Pore Size Distribution Effect on Gas in Place and Recovery Using SLD-PR EOS for Multiple-Components Shale Gas Reservoir. Presented at the SPE Asia Pacific Unconventional Resource Conference and Exhibition. Brisbane, Australia, 9-11 November. SPE-176992-MS. https://doi.org/10.2118/176992-MS.
77) Tian, W., Wu, X., Zhang, Z., and Ling, K. 2015. Estimate the Effective Fracture Properties from Tight Formation Production Data. Presented at the SPE Asia Pacific Unconventional Resources Conference and Exhibition. Brisbane, Australia, 9-11 November. SPE-176983-MS. https://doi.org/10.2118/176983-MS.
78) Wu, X., Srivastava, P., and Escobar, F. 2015. A New Model to Determine Leakage Factor for a Finite Aquifer Using Pressure Fall off Test in CBM Reservoir. Presented at the SPE Asia Pacific Unconventional Resources Conference and Exhibition. Brisbane, Australia, 9-11 November. SPE-176998-MS. https://doi.org/10.2118/176998-MS.
79) Wu, X., Babatola, F., Jiang, L. and Tolbert, B.T. 2015. Applying Subsea Boosting and Separation Technologies for Deepwater Production. Presented at the Offshore Technology Conference

Brazil. Rio de Janeiro, Brazil, 27-29 October. OTC-26065-MS.
80) Wu, X. and Li, Y. 2015. Pore Size Distribution on OGIP, a Woodford Shale Case Study. Presented at the 2015 AAPG Mid-Continent Section Meeting. Tulsa, Oklahoma, 4-6 October.
81) Wu, X., Cao, Y. and Zhang, Z. 2015. A Simple Economic Model in Managing Artificial Lifts in Mississippian Lime Production. Presented at the 2015 AAPG Mid-Continent Section Meeting. Tulsa, Oklahoma, 4-6 October.
82) Ling, K., Wu, X. and Shen, Z. 2015. A New Method to Detect Blockage in Gas Pipelines. Presented at the 2015 SPE Annual Technical Conference and Exhibition. Houston, Texas, USA, 28-30 September. SPE-174751-MS. https://doi.org/10.2118/174751-MS.
83) Kazi, T., Li, Y., Jin, L., and Wu, X. 2015. How Typical Langmuir Isotherm Curves Underestimate OGIP and Production by 20%, a Barnet Case Study. Presented at the AAPG Southwest Section 2015 Annual Convention, Wichita Falls, Texas, 11-14 April.
84) Kalra, S., and Wu, X. 2015. Numerical Simulation Study on Injection for Enhancing Hydrocarbon Recovery and CO2 Sequestration in Tight Oil Formations. Presented at the 49th US Rock Mechanics / Geomechanics Symposium, San Francisco, CA, USA, 28 June. ARMA-2015-520.
85) Babayemi, B., Wu, X. and Sharma, S. 2014. Improved Artificial Lift Design for Solvent Assisted SAGD Process. Presented at the SPE Artificial Lift Conference & Exhibition-North America, Houston, Texas, USA, 6-8 October. SPE-171371-MS. https://doi.org/10.2118/171371-MS.
86) Xu, B., Wu, X., Gao, Y. and Ling, K. 2014. A Semi-Analytical Solution to Transient Temperature Behavior Along the Wellbore and Its Applications in Production Management. Presented at the SPE Annual Technical Conference and Exhibition. Amsterdam, The Netherlands, 27-29 October. SPE-170631-MS. https://doi.org/10.2118/170631-MS.
87) Gao, Y., Sun, B., Wu, X., Xiang, C., Guo, Y. and Zhao, X. 2014. The Influence of Dissolution of Hydrate in Blocked BOP on Gas Volume Fraction in Deepwater Drilling. Presented at the Twenty-Fourth International Ocean and Polar Engineering Conference. Busan, Korea, 15-20 June. ISOPE-I-14-131.
88) Ekweanua, U.E., Sharma, S., Wu, X., Zhu, Z. and Callard, J.G. 2014. Correlating Natural Gas Production, Price, Import, and Export in a Neural Network Framework. Presented at the SPE Hydrocarbon, Economics, and Evaluation Symposium. Houston, Texas, USA, 19-20 May. SPE-169867-MS. https://doi.org/10.2118/169867-MS.
89) Kalra, S., and Wu, X. 2014. CO2 Injection for Enhanced Gas Recovery. Presented at the SPE Western North America and Rocky Mountain Joint Regional Meeting. Denver, Colorado, USA, 16-18 April. SPE-169578-MS. https://doi.org/10.2118/169578-MS.
90) Wu, X., Sui, W. and Jiang, Y. 2013. Innovative Application of Downhole Temperature Data. Presented at the SPE Middle East Intelligent Energy Conference and Exhibition. Dubai, UAE, 28-31 October. SPE-167477-MS. https://doi.org/10.2118/167477-MS.
91) Wu, X., Ling, K. and Liu, D. 2013. Deepwater Reservoir Characterization Using Tidal Signal Extracted from Permanent Downhole Pressure Gauge. Presented at the International Petroleum Technology Conference. Beijing, China, 26-28 March. IPTC-16711-MS. https://doi.org/10.2523/IPTC-16711-MS.
92) Wu, X., Ling, K. and Liu, D. 2013. Nitrogen Injection Experience to Development Gas and Gas Condensate Fields in the Rocky Mountains. Presented at the International Petroleum Technology Conference. Beijing, China, 26-28 March. IPTC-16830-MS. https://doi.org/10.2523/16830-MS.
93) Ling, K., He, J., Wu, X. and Shen, Z. 2013. Determining Coefficient of Quadratic Term in Forchheimer Equation. Presented at the International Petroleum Technology Conference. Beijing, China, 26-28 March. IPTC-16582-MS. https://doi.org/10.2523/16582-MS.
94) Ling, K., Wu, X., Zhang, H. and He, J. 2013. More Accurate Method to Estimate the Original Gas in Place and Recoverable Gas in Overpressure Gas Reservoir. Presented at the SPE Production and Operation Symposium. Oklahoma City, Oklahoma, USA, 23-26 March. SPE-164502-MS. https://doi.org/10.2118/164502-MS.
95) Ling, K., Wu, X., Zhang, H. and He, J. 2013. Tactics and Pitfalls in Production Decline Curve Analysis. Presented at the SPE Production and Operation Symposium. Oklahoma City, Oklahoma, USA, 23-26 March. SPE-164503-MS. https://doi.org/10.2118/164503-MS.

96) Wu, X., Humphrey, K. and Liao, T.T. 2012. Enhancing Production Allocation in Intelligent Wells via Application of Model and Real-Time Surveillance Data. Presented at the SPE International Production and Operations Conference and Exhibition. Doha, Qatar, 14-16 May. SPE-155031-MS. https://doi.org/10.2118/155031-MS.
97) Wu, X., Pope, G.A., Shook, G.M. and Srinivasan, S. 2005. A Semi-Analytical Model to Calculate Energy Production in Single Fracture Geothermal Reservoirs. Geothermal Resources Council Transactions 29: 665-670.
98) Wu, X., Pope, G.A., Shook, G.M. and Srinivasan, S. 2005. A Method of Analyzing Tracer Data to Calculate the Pore Volume of Fractures in Geothermal Reservoirs under Two-Phase Flow Conditions. Presented at the Thirtieth Work Shop on Geothermal Reservoir Engineering Stanford University. Stanford, California, 31 January-2 February.
99) Wu, X., Ogbe, D.O., Zhu, T. and Khataniar, S. 2004. Critical Design Factors and Evaluation of Recovery Performance of Miscible Displacement and WAG Process. Presented at the Petroleum Society's 5th Canadian International Petroleum Conference (55th Annual Technical Meeting). Calgary, Alberta, Canada, 8-11 June. PETSOC-2004-192. https://doi.org/10.2118/2004-192.