

# Curriculum Vita

## Weijun Shen

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### **EDUCATION**

- 2014-present, Joint Ph.D. in Petroleum Engineering, Earth Sciences Division, Lawrence Berkeley National Laboratory (LBNL), University of California, Berkeley, USA (Expected Mar. 2016)  
Supervisor: Jiamin Wan (Scientist), Tetsu K. Tokunaga (Senior Scientist)
- 2013-2016, Ph.D. Fluid Mechanics in Petroleum Engineering, Institute of Porous Flow and Fluid Mechanics, Chinese Academy of Sciences, China (Expected Jun. 2016)  
Supervisor: Xizhe Li (Professor, Vice President)
- 2011-2013, M.S. Fluid Mechanics in Petroleum Engineering, Institute of Porous Flow and Fluid Mechanics, Chinese Academy of Sciences, China (past the PhD candidacy and then switched to doctoral study)  
Thesis: Numerical Simulation Study of Water Invasion Mechanism in Fractured Gas Reservoirs with Aquifer  
Supervisor: Xizhe Li (Professor, Vice President), Jiali Lu (Senior Engineer)
- 2006-2010, B.S. Southwest Petroleum University, China

### **PROFESSIONAL EXPERIENCES**

- Sep.2014-present, Research Assistant, Earth Sciences Division, LBNL, University of California, Berkeley, USA
- Sep.2011-Sep.2014, Research Assistant, Gas Development Research Department, Langfang Branch, PetroChina Research Institute of Petroleum Exploration & Development, China

### **RESEARCH INTERESTS**

Flow and Transport Phenomena in Porous Media; Flow Mechanism and Numerical Calculation and Simulation in Oil/Gas Reservoirs

### **RESEARCH PROJECTS**

Doing research on oil/gas seepage theory and engineering application, such as flow and transport phenomena in porous media, reservoir simulation, the calculating method of reservoir engineering, production dynamic analysis etc. The current research / participating projects are as follow:

- Understanding Water Controls on Shale Gas Mobilization into Fractures, sponsored by National Energy Technology Laboratory, DOE, USA 2014-2016.
- Physical Simulation Study of Water Invasion Performance in Fractured Gas Reservoirs with Bottom Water, sponsored by Petro-China Research Institute of Petroleum Exploration and Development, 2011-2013.  
(Three kinds of full diameter long-core combination models were designed and an experimental system of the water invasion performance in fractured gas reservoirs was established. Three different models were employed in the physical simulation of the different bottom water, production and pressure in gas reservoirs, and we analyzed their water invasion in different conditions. Based on the experiment, a numerical model is constructed to further investigate the water flow mechanism and the effects, so it can help to provide some good

significance for the scientific development of the gas fields.)

- Study on the Development Method and Technology in Large Gas Fields, sponsored by Key Project of the National Science Research Program of China, 2011-2014.

(The determination of deviation factor for abnormally pressured gas reservoirs is of great importance, which affects the accuracy of calculating gas reserves and dynamic analysis. In this work, my main objective is the optimization of calculating deviation factor method for abnormally pressured gas reservoirs, such as Dina, Dabei and Keshen gas fields. Moreover, the effects of the parameter such as different content of carbon dioxide, hydrogen sulfide, nitrogen, pressures and temperatures were analysed. Based on the results, the report of determining deviation factor for abnormally pressured gas reservoirs was compiled.)

- GPA software testing of performance analysis in gas reservoirs---PVT parameters analysis, sponsored by PetroChina Research Institute of Petroleum Exploration and Development, 2013-2014.

(GPA software is an effective tool to analyze the performance of oil and gas reservoirs developed by CNPC. In this project, my main work is to compare the PVT function with other commercial softwares (Topase, RTA) in calculate the PVT parameters of abnormally pressured gas reservoirs. The solution is put forward based on the problems so as to further revise and perfect the software.)

- Research on Key Technology in Tarim Oilfield Exploration and Development, sponsored by Tarim Oilfield Company, PetroChina, 2010- 2013.

(This work addresses water coning issues in a naturally fractured sandstone gas reservoir via a numerical simulation approach on a single-well radial cross-section using the ECLIPSE 100 reservoir simulator. A parametric study is conducted to investigate and analyze the effect of the most relevant parameters on water coning phenomenon in a naturally sandstone fractured reservoir.)

## **MODELING AND PROGRAMMING**

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|----------|------------|---------|----------|
| • CMG    | • Eclipse  | • Tough | • COMSOL |
| • Saphir | • Topase   | • RTA   | • CAD    |
| • Matlab | • VB et al |         |          |

## **HONOURS AND AWARDS**

- Presidential Award of Chinese Academy of Sciences, 2015
- The Pacemaker to Merit Student in University of Chinese Academy of Sciences, 2015
- The Merit Student in University of Chinese Academy of Sciences, 2015
- The Certificate Awarded Chinese Government Scholarship to Sponsor to the Up-Coming Study Abroad, 2014
- The 2010th Excellent Graduate of Southwest Petroleum University, 2010
- The National Inspirational Scholarship for Undergraduate Students of the People's Republic of China, 2009
- The Scholarship for Undergraduate Students of Southwest Petroleum University, 2007, 2008, 2009

## **PATENTS AND INVENTION DISCLOSURES**

1. An Experimental Equipment for Gas-Water Separation, China Utility Moder, ZL201320372226.5, 2013.
2. A Method for Diagnosis and Analysis of Well Abnormal Performance Data in an Over- Pressured Gas Field, China Invention Patent, approval, 2014.
3. The Threshold Pressure Characterization, Measuring Method and Equipment for the Low Permeability Gas Reservoirs with Water, China Invention Patent, approval, 2014.

## **MEMBERSHIP**

Society of Petroleum Engineers (SPE), American Geophysical Union (AGU)

## Book Chapters

1. Sun H.D. 2015. Applied Well Test Interpretation (Translation), Chapter 2 Fluid Flow in Porous Media (**Shen W.J.**), Petroleum Industry Press, China. (in press).

## PUBLICATIONS

1. **Shen W.J.**, et al. 2015. Numerical Simulation of Gas and Water Flow Mechanism in Hydraulically Fractured Shale Gas Reservoirs, 2015. (Preparing)
2. **Shen W.J.**, et al. 2015. Numerical Study of the effects of hydraulic fractures on Gas and Water Flow in Shale Gas Reservoirs, 2015. (Preparing)
3. **Shen W.J.**, et al. 2015. Numerical Simulation of Micro-and Nanoscale Gas Flow Transport in Shale Gas Reservoirs, 2015. (Preparing)
4. **Shen W.J.**, Tokunaga T.K., Wan J.M. 2015. Experiment and Isotherm Models for Water Vapor Adsorption on Shale Rocks, Journal of Colloid and Interface Science. (Revision)
5. **Shen W.J.**, Wan J.M., Kim Y., et al. 2015. Porosity Calculation, Pore Size Distribution and Mineral Analysis within Shale Rocks: Application of Scanning Electron Microscopy, Electronic Journal of Geotechnical Engineering, Vol 20 (2015), 11477-11490.
6. **Shen W.J.**, Liu X.H., Li X.Z., et al. 2015. Investigation of Water Coning Mechanism in Tarim Fractured Sandstone Gas Reservoirs [J].Journal of Central South University (English Edition), 22(1), 344-349.
7. **Shen W.J.**, Li X.Z., Liu X.H., et al. 2014. Physical Simulation of the Water Influx Mechanism in Fractured Gas Reservoirs [J]. Journal of Central South University (Science and Technology), 45(9), 3283-3287.
8. **Shen W.J.**, Li X.Z., Liu X.H., et al. 2014. Investigation of Water Coning Phenomenon in Naturally Fractured Gas Reservoirs [J]. Electronic Journal of Geotechnical Engineering, Vol 18 (2014), 1411-1420.
9. **Shen W.J.**, Lu J.L., Li X.Z., et al. 2014. The Calculating Method Optimization and Influencing Factor Analysis of Deviation Factor for Abnormally Pressured Gas Reservoirs [J]. Electronic Journal of Geotechnical Engineering, Vol 19 (2014), 1711-1719.
10. **Shen W.J.**, Li X.Z., Liu X.H., et al. 2014. Numerical Simulation of Water Coning in a Naturally Fractured Sandstone Gas Reservoir [J]. Physical and Numerical Simulation of Geotechnical Engineering, 14, 69-73.
11. **Shen W.J.**, Liu X.H., Li X.Z., et al. 2014. Scaling Laws for Laboratory Models of Abnormally Pressured Gas reservoirs [J]. Electronic Journal of Geotechnical Engineering, Vol 19 (2014), 4631-4640.
12. **Shen W.J.**, Li X.Z., Liu X.H., et al. 2014. Analytical Comparisons of Water Coning in Oil and Gas Reservoirs before and after Water Breakthrough [J]. Electronic Journal of Geotechnical Engineering, Vol 19(2014), 6747-6756.
13. **Shen W.J.**, Li X.Z., Lu J.L., et al. 2013. Similarity Theory of Physical Simulation in the Development of Abnormal Pressure Gas Reservoirs [J]. Science Technology and Engineering Vol.13, No.35, pp. 28-33.
14. **Shen W.J.**, Li X.Z., Liu X.H., et al. 2014. The Selections and Recommendations of Calculating Deviation Factor Methods for Abnormally Pressured Gas Reservoirs [J]. Science Technology and Engineering, 14(31), 204-208.
15. Shen W.J., Sun H.X., Cheng E., **Shen W.J.**, et al. 2012. Effective Driver Fatigue Monitoring through Pupil Detection and Yawing Analysis in Low Light Level Environments [J]. International Journal of Digital Content Technology and its Applications, Vol.6, No.17, pp. 372-383.

## CONFERENCE PROCEEDINGS

1. **Shen W.J.**, Tokunaga T.K., Cihan A., et al. 2015. Experimental and Numerical Simulation of Water Vapor Adsorption and Diffusion in Shale Grains [C]. American Geophysical Union Fall Meeting, San Francisco, CA, USA, 14-18 Dec., 2015.

2. **Shen W.J.**, Zheng L.G., Oldenberg C.M., et al. Methane Adsorption and Diffusion in Shale Rocks-A Numerical Study Using the Dusty Gas Model in Tough2/EOS7C-ECBM [C]. TOUGH Symposium 2015, Earth Sciences Division, LBNL, Berkeley, CA, USA, 28 -30 Sep, 2015.
3. **Shen W.J.**, Li X.Z., Lu J.L., et al. Numerical Simulation of Fractured Gas Reservoirs - An Overview [C]. Proceedings of the 5th Postdoctor Conference on Chinese Academy of Sciences, Beijing, China, 5-6 Sep, 2013.
4. **Shen W.J.**, Li X.Z., Lu J.L., et al. The Fluid-Solid Coupling Seepage Mathematical Model of Shale Gas [C]. Journal of Applied Mechanics and Materials, Vols.275-277, pp. 598-602, 2013.
5. **Shen W.J.**, Li X.Z., Liu X.H., et al. The Calculating Method of Reasonable Producing Pressure Drop in Gas Reservoirs with Bottom Water[C]. Proceedings of the 13th National Conference on Seepage Mechanics, Qingdao, China, 8-9 Aug, 2013.
6. **Shen W.J.**, Liu J.J. Research on Seepage Characteristics of Asphalt Pavement Structure [C]. Proceedings of 2010 International Symposium on Multi-field Coupling Theory, 2010.