

Junwen Peng

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ACADEMIC BACKGROUND

Jackson School of Geosciences, The University of Texas at Austin, Austin Sep.2016–Present

- Ph.D. candidate in *Geology* (GPA: 3.77/4.0)

College of Geosciences, China University of Petroleum (CUP), Beijing Sep.2013–Jun.2016

- M.Eng in *Geological Resources and Geological Engineering (Petroleum Geology)* (GPA: 91/100, Rank: 1/30)

Faculty of Earth Resources, China University of Geosciences (CUG), Wuhan Sep.2009–Jun.2013

- B.Eng in *Resource Exploration Engineering (Petroleum Geology)* (GPA: 90+, Rank: 1/100)

RESEARCH INTERESTS

1. Shale sedimentology: transportation and deposition processes and mechanisms of the mudrock system.
2. Shale petrography: textural variation, mineral composition, grain assemblages composition, pore types, and diagenetic features.
3. Sedimentary geochemistry: trace metals used as proxies for paleoenvironmental and paleomarine system reconstructions (e.g., hydrographic circulation, seawater chemistry, productivity, and redox conditions).
4. Unconventional hydrocarbon resources: mechanisms of organic matter accumulation and prediction of favorable shale gas and shale oil reservoirs.

REPRESENTATIVE PUBLICATIONS (*h*-index: 6; total citations: 82)

[1] Peng, J.W.* in press. Sedimentology of the Upper Pennsylvanian organic-rich Cline Shale, Midland Basin: From gravity flows to pelagic suspension fallout. *Sedimentology*. Doi:10.1111/sed.12811.

[2] Peng, J.W.*, Fu, Q., Larson, T., and Janson X. in press. Trace-elemental and petrographic constraints on the severity of hydrographic restriction in the silled Midland Basin during the Late Paleozoic Ice Age. *GSA Bulletin*. Doi: 10.1130/B35336.1.

[3] Peng, J.W.*, Milliken, K., and Fu, Q. 2020. Quartz types in the Upper Pennsylvanian organic-rich Cline Shale (Wolfcamp D), Midland Basin, Texas: Implications for silica diagenesis, porosity evolution, and rock mechanical properties. *Sedimentology*, 67: 2040–2064. Doi: 10.1111/sed.12694. (Times Cited: 3)

[4] Peng, J.W.*, Milliken, K., Fu, Q., and Janson, X. 2020. Grain assemblages and diagenesis in organic-rich mudrocks, Upper Pennsylvanian Cline Shale (Wolfcamp D), Midland Basin, Texas. *AAPG Bulletin*, 104: 1593–1624. Doi: 10.1306/03022018240. (Times Cited: 1)

[5] Pang, X.Q.*, Peng, J.W.*, Jiang, Z.X., Yang, H.J., Wang, P.W., Jiang, F.J., and Wang, K. 2019. Hydrocarbon accumulation processes and mechanisms in Lower Jurassic tight sandstone reservoirs in the Kuqa subbasin, Tarim Basin, northwest China: A case study of the Dibei tight gas field. *AAPG Bulletin*, 103, 769–796. Doi: 10.1306/09181816529.

- [6] **Peng, J.W.**, Pang, X.Q.*, Shi, H.S., Peng, H.J., and Xiao S. 2018. Hydrocarbon generation potential of Upper Eocene Enping Formation mudstones in the Huilu area, northern Pearl River Mouth Basin, South China Sea. *AAPG Bulletin*, 102: 1323–1342. Doi: 10.1306/0926171602417005. (Times Cited: 7)
- [7] **Peng, J.W.**, Pang, X.Q.*, Peng, H.J., Ma, X.X., Shi, H.S., Zhao, Z.F., Xiao, S., and Zhu J.Z. 2017. Geochemistry, origin, and accumulation of petroleum in the Eocene Wenchang Formation reservoirs in Pearl River Mouth Basin, South China Sea: A case study of HZ25-7 oil field. *Marine and Petroleum Geology*, 80: 154–170. Doi: 10.1016/j.marpetgeo.2016.08.007. (Times Cited: 11)
- [8] **Peng, J.W.**, Pang, X.Q.*, Shi, H.S., Peng, H.J., Xiao, S., Yu Q.H., and Wu, L.Y. 2016. Hydrocarbon generation and expulsion characteristics of Eocene source rocks in the Huilu area, northern Pearl River Mouth Basin, South China Sea: Implications for tight oil potential. *Marine and Petroleum Geology*, 72: 463–487. Doi: 10.1016/j.marpetgeo.2016.02.006. (Times Cited: 33)
- [9] **Peng, J.W.**, Pang, X.Q.*, Peng, H.J., Song S., Xiao, S., Li, Q.W., Wu, L.Y., Chen, D., and Hu T., 2016. Secondary Migration of Hydrocarbons in the Zhujiang Formation in the Huixi Half-graben, Pearl River Mouth Basin, South China Sea. *Canadian Journal of Earth Sciences*, 53: 189–201. Doi: 10.1139/cjes-2015-0076. (Times Cited: 8)
- [10] **Peng, J.W.**, Pang, X.Q.*, Shi, H.S., Li, H., Xiao, S., Wang, Z., and Pang, X., 2015. A new method based on hydrocarbon migration threshold and combined reservoir controlling function for quantitatively predicting favorable hydrocarbon exploration zone: a case study of the lower Member of Zhujiang Formation in Zhu I depression. *Acta Petrolei Sinica*, S2: 156–168. Doi: 10.7623/syxb2015S2014.

Note: “*” suggests the corresponding author. Citation report comes from Clarivate Analytics (Oct. 2020).

CONFERENCE ABSTRACT

[1] **Peng, J.W.**, Pang, X.Q., Yang, X., Liu, M., Jiang, H. and Xiao, S. Genetic Relation Between Volcanic Activity and High-Quality Source Rocks of the Wenchang Formation in the Zhu 1 Depression: New Ideas on Source-Rock Evaluation in the Pearl River Mouth Basin of the South China Sea. In *2015 AAPG Annual Convention & Exhibition*, Denver, USA.

RESEARCH PROJECTS

Heterogeneity characterization and genetic mechanism of deepwater fine-grained sedimentary rocks during icehouse period: a case study from Cline Shale in the Midland Basin, West Texas Sep.2016–present
Team Member, STARR (State of Texas Advanced Oil and Gas Resource Recovery) program, Advisor: Drs. Qilong Fu and Xavier Janson, Committee members: Drs. William Fisher, Kitty Milliken, Ronald Steel, and Timothy Shanahan.

Funded by STARR program and GSA (Geological Society of America) Research Grants

- To document the heterogeneities of mineral composition, lithofacies variation, primary grain assemblages, textural variation, bulk reservoir properties, and diagenesis of the Cline Shale, Midland Basin, U.S.;
- To quantitatively characterize the quartz types in the Cline Shale and its implications in sediment provenance, primary depositional environment, potential diagenetic pathways, and rock mechanical-property evolution;
- To document a variety of redox-sensitive trace elements enrichment patterns in different lithofacies of the Cline Shale and understand the influence of glacioeustatic sea-level variation on hydrographic circulation, seawater chemistry, organic matter (OM) enrichment pattern, and lithofacies variation;
- Unravel the accumulation process of OM and delineate the favorable OM accumulation unit and high-quality reservoir interval;
- To elucidate a comprehensive stratigraphic, sedimentologic, and geochemical responses in the rock record caused by high-frequency and high-amplitude glacio-eustatic sea-level oscillations and establish a synthesis depositional model of Upper Pennsylvanian successions across the Eastern Shelf to the silled Midland Basin

during different glacioeustatic sea-levels.

The Forming Rule and Prospecting Direction of Large Oil and Gas Fields in the Pearl River Mouth Basin, South China Sea Sep. 2013–Jun.2016

Team Member, State Key Lab. of Petroleum Resources and Prospecting, Advisor: Prof. Xiongqi Pang

Funded by the National Science and Technology Major Project during the 12th Five-year Plan Period (NO.2011ZX05023), Cooperated with China National Offshore Oil Corporation (CNOOC)

- Investigated the hydrocarbon generation and expulsion characteristics of Eocene source rocks in the Zhu 1 Depression, Pearl River Mouth Basin, as well as the hydrocarbon resource potentials based on the mass balance principle by using geological and geochemical data sets;
- Investigated the process and mechanisms of secondary hydrocarbon migration in the Zhu 1 Depression, Pearl River Mouth Basin, on the basis of the structural analysis, petrophysical analysis of the reservoir rocks, fluid potential calculation, distribution characteristics of oil properties, and geochemistry of oil-source correlation;
- Four key factors, including source rocks, excellent reservoir, cap rocks, and low potential area, were believed to controlling hydrocarbon accumulation in the Neogene reservoirs of the Zhu 1 Depression, Pearl River Mouth Basin, South China Sea.

The Mechanism and Characteristics of Hydrocarbon Accumulation in the Tight Sandstone Reservoir in the HZ25-7 Area, South China Sea Sep.2013-Nov.2014

Team Member, State Key Lab. of Petroleum Resources and Prospecting, Advisor: Prof. Xiongqi Pang

Funded by China National Offshore Oil Corporation (CNOOC)

- Investigated the relationship between the porosity and the burial depth of reservoirs and how the effective reservoirs affected by porosity changes;
- Simulated the migration and accumulation of hydrocarbon in tight sand reservoir;
- Established the reservoir index (RI), potential index (PI), and their coupling index (RPI) to quantitatively evaluate the effectiveness of a reservoir and concluded that the coupling index (RPI) appears to control the hydrocarbon accumulation and distribution in the Eocene tight sand reservoirs: when $RPI < 0.5$, hydrocarbons could not accumulate; when $RPI > 0.5$, hydrocarbons may accumulate.

RESEARCH FUNDING

- STARR (State of Texas Advanced Oil and Gas Resource Recovery) program (Sep. 2016–Jun. 2021)
- GSA (Geological Society of America) Graduate Student Research Grants (Nov. 2017–Jun. 2020; \$1560)

AWARDS & HONORS

Outstanding Contribution in Reviewing of Marine and Petroleum Geology	Jun.2017
Li, Siguang Outstanding Student Award , Ministry of Science and Technology Division of PR China	Oct.2016
Excellent Graduate of China University of Petroleum (Top 1%)	Jun.2016
PetroChina Excellent Student Scholarship (Top 1%), CNPC	Nov.2015
Excellent Graduate of China University of Geosciences (Top 1%)	Jun.2013
National Scholarship of China (Top 1%), Ministry of Education of PR China	Nov.2012
SINOPEC Excellent Student Scholarship (Top 1%), SINOPEC	Nov.2011
Excellent Intern in Field Geological Skills Practice (Top 10%), China University of Geosciences	Aug. 2011