# Junwen Peng

| Business address: | Sarkey Energy Center   | GEOLOGICAL |
|-------------------|--|------------|
|                   | 100 E. Boyd St., Suite T209                                  |            |
|                   | Norman, OK 73019   |            |
| E-mail address:   | junwen.peng@ou.edu   | UGS        |
|                   | (junwen@utexas.edu; junwen.peng@cup.edu)                     |            |
| Homepage:         | https://www.ou.edu/ogs/staff/junwen_peng                     | 1908       |
| Academic profile: | https://scholar.google.com/citations?user=rdeoN9oAAAAJ&hl=en |            |

# WORK EXPERIENCE

| <ul><li>Oklahoma Geological Survey, The University of Oklahoma, Norman, U.S.</li><li>Geologist II</li></ul>                           | 2023–Current |
|---|--------------|
| <ul> <li>College of Geosciences, China University of Petroleum (CUP), Beijing, China</li> <li>Lecturer (Top Young Talents)</li> </ul> | 2021–2022    |
| <ul> <li>Bureau of Economic Geology, The University of Texas at Austin, Austin, U.S.</li> <li>Graduate research assistant</li> </ul>  | 2020–2021    |
| ACADEMIC BACKGROUND   |              |
| Jackson School of Geosciences, The University of Texas at Austin, Austin, U.S.  | 2016-2021    |
| • Ph.D. in Geological Sciences  |              |
| College of Geosciences, China University of Petroleum (CUP), Beijing, China   | 2013-2016    |
| • M.Eng in Geological Resources and Geological Engineering  |              |
| Faculty of Earth Resources, China University of Geosciences (CUG), Wuhan, China   | 2009-2013    |
| • <b>B.Eng</b> in <i>Resource Prospecting Engineering</i>   |              |

# **KEYWORDS OF EXPERTISE**

Sedimentary systems and processes; Sedimentary petrology; Sedimentary geochemistry; Petroleum geology

# EDITORIAL & REVIEW SERVICE

- Serve as Associate Editor for the *Journal of Sedimentary Research* (the official publication of SEPM)
- Serve as Guest Editor for the special issue "<u>Petrography, Sedimentology, and Geochemical Signatures</u> of Fine-Grained Sedimentary Rocks in Deep-Water" in <u>MINERALS</u>
- Serve as co-convenor for <u>Session T9-6 (Fine-grained sedimentology and shale reservoir) at the 21st</u> <u>International Sedimentological Congress</u> (organized by IAS every four years)
- <u>A total of 85 verified peer reviews were recorded on the Web of Science</u>

Including Basin Research; Sedimentology; Sedimentary Geology; Marine and Petroleum Geology; Geological Journal; AAPG Bulletin; Journal of Petroleum Science and Engineering; Geofluids; Petroleum Science; Journal of Asian Earth Sciences; Energy & Fuel; Scientific Report

#### **RESEARCH INTERESTS**

My current research is focused on sedimentology, sedimentary geochemistry, and petrography of deep-water fine-grained succession with the aim to elucidate general principles that can inform comprehensive deposition models of shale systems and reveal genetic mechanisms between paleoclimate and paleoenvironment variation and stratigraphic records. The results of my research can be utilized for paleoclimate and paleoceanography reconstruction, hydrocarbon resource assessment, and CO<sub>2</sub> sequestration. My research areas comprise sedimentary basins characterized by different tectonic backgrounds and geological ages, such as Cenozoic lacustrine rifted Pearl River Mouth Basin, South China Sea, Mesozoic lacustrine depression of Sichuan Basin, Western China, Mesozoic marine foreland Kuqa Subbasin, Western China, and Paleozoic marine Permian Basin, United States. My research interests are listed in detail as follows:

- 1. Sedimentary systems and processes of the deep-water fine-grained succession: emphasis on sediment transportation processes, deposition mechanisms, and sequence stratigraphic framework.
- 2. Sedimentary petrology of the deep-water successions: reservoir characterization and organic petrography.
- 3. Climate dynamics of the Late Paleozoic Ice Age: using multidisciplinary approaches including sedimentary geochemistry and petrography to reveal genetic mechanisms between paleoclimate and paleoenvironment variation and stratigraphic records.
- 4. Petroleum system: both conventional and unconventional resources.

#### **REPRESENTATIVE PUBLICATIONS**

#### Selected Peer-Reviewed Journal Articles (h-index: 15; total citations: 555)

Google Scholar profile: https://scholar.google.com/citations?user=rdeoN9oAAAAJ&hl=en

#### Sedimentary systems and processes

[1] Peng, J.W.\*, Hu, Z., Feng, D., and Wang, Q. 2022. Sedimentology and sequence stratigraphy of lacustrine<br/>deep-water fine-grained sedimentary rocks: the Lower Jurassic Dongyuemiao Formation in the Sichuan Basin,<br/>Western China. Marine and Petroleum Geology, 146, 105933.<br/>https://doi.org/10.1016/j.marpetgeo.2022.105933

[2] **Peng, J.W.\*** 2021. Sedimentology of the Upper Pennsylvanian organic-rich Cline Shale, Midland Basin: From gravity flows to pelagic suspension fallout. **Sedimentology**, 68, 805–833. http://dx.doi.org/10.1111/sed.12811

#### Sedimentary petrology and reservoir characterization

[1] **Peng, J.W.\***, Hu, Z., and Feng, D. 2024. Influence of quartz types on rock fabrics and bulk physical properties in organic-rich mudstone: a review. **Earth-Science Reviews**, 104670. https://doi.org/10.1016/j.earscirev.2023.104670

 [2] Peng, J.W.\*, Hu, Z., Feng, D., and Wang, Q. 2023. Variations of organic matter content and type within the sequence stratigraphic framework of the lacustrine deep-water Dongyuemiao formation, Sichuan Basin, Western China. Marine and Petroleum Geology, 149, 106104. https://doi.org/10.1016/j.marpetgeo.2023.106104

[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. <u>http://dx.doi.org/10.1111/sed.12694</u> (**WILEY Top Cited Article 2020–2021**)

[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. <u>http://dx.doi.org/10.1306/03022018240</u>

#### Sedimentary geochemistry and paleoclimate reconstruction

[1] **Peng, J.W.\*** 2022. What besides redox conditions? Impact of sea-level fluctuations on redox-sensitive trace-element enrichment patterns in marine sediments. **SCIENCE CHINA Earth Sciences**, <u>https://doi.org/10.1007/s11430-021-9959-8</u>. This article was reported by <u>EurekAlert!</u>, which is a nonprofit news-release distribution platform operated by the American Association for the Advancement of Science (AAAS).

[2] **Peng, J.W.\***, and Larson, T. 2022. A novel integrated approach for chemofacies characterization of organic-rich mudrocks. **AAPG Bulletin**, 106: 437–460. <u>http://dx.doi.org/10.1306/05112120210</u>

[3] **Peng, J.W.\***, Fu, Q., Larson, T., and Janson X. 2021. Trace-elemental and petrographic constraints on the severity of hydrographic restriction in the silled Midland Basin during the Late Paleozoic Ice Age. **GSA Bulletin**, 133, 57–73. <u>http://dx.doi.org/10.1130/B35336.1</u>

[4] **Peng, J.W.\***, Fu, Q., and Janson X. 2022. Dynamic climatic changes during the Late Pennsylvanian icehouse: New insight from high-resolution geochemical records in the Cline Shale, North America. **Gondwana Research**, 106: 247–258. <u>http://dx.doi.org/10.1016/j.gr.2022.01.012</u>

#### **Petroleum system**

[1] 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. <u>http://dx.doi.org/10.1306/09181816529</u>

[2] **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. <u>http://dx.doi.org/10.1306/0926171602417005</u>

[3] **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. <u>http://dx.doi.org/10.1016/j.marpetgeo.2016.08.007</u>

[4] **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. http://dx.doi.org/10.1016/j.marpetgeo.2016.02.006

[5] 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. <u>http://dx.doi.org/10.1139/cjes-2015-0076</u>

[6] **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. (in Chinese with English abstract) http://dx.doi.org/10.7623/syxb2015S2014

# **CONFERENCE PRESENTATIONS**

[1] **Peng, J.W.**, Milliken, K., Fu, Q., and Janson, X. Grain assemblages and diagenesis in organic-rich mudrocks, Upper Pennsylvanian Cline Shale (Wolfcamp D), Midland Basin, Texas. In 2019 AAPG Annual Convention & Exhibition, San Antonio, USA.

[2] **Peng, J.W.**, Pang, X.Q., Peng, H.J., Ma, X.X., Shi, H.S., Zhao, Z.F., Xiao, S., and Zhu J.Z. 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. In 2017 AAPG Annual *Convention & Exhibition*, Houston, USA.

[3] **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.

# **REPRESENTATIVE FUNDED RESEARCH PROJECTS**

1. Organic matter accumulation mechanism and deposition model of lacustrine shale: a case studyfromLowerJurassicsuccessionintheFuxingarea,SichuanBasinOct.2021–Apr. 2023

Principal Investigator; Project Manager; Funded by SINOPEC; Budget: 15,000 CNY

- Sedimentology and sequence stratigraphic analysis
- Organic matter accumulation pattern
- Deposition model establishment and favorable target prediction

2. 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–May 2020 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. <u>https://repositories.lib.utexas.edu/handle/2152/94562</u>

#### 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 their 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, 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 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.

# AWARDS & HONORS

| WILEY Top Cited Article 2020-2021  | Mar.2022            |
|--|---------------------|
| Top Young Talents of China University of Petroleum                                 | Oct. 2021           |
| GSA (Geological Society of America) Graduate Student Research Grants               | May. 2018           |
| Top reviewers for The University of Texas at Austin (Earth and Planetary S         | ciences) Sep.2017   |
| Outstanding Contribution in Reviewing of Marine and Petroleum Geology              | Jun.2017            |
| Li, Siguang Outstanding Student Award, Ministry of Science and Technology Division | n of 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 |
|   |           |

# **REPRESENTATIVE CERTIFICATE & MEDIA ANNOUNCEMENT**



Li, Siguang Outstanding Student Award from Ministry of Science and Technology Division of China



# Outstanding Contribution in Reviewing of Marine and Petroleum Geology



One of my publications in Elsevier was recognized to drive societal progress and advance the United Nations (UN) Sustainable Development Goals.

| OF AMERICA®   |  |
|---|--|
| CIENCE • STEWARDSHIP • SERVICE  | 10 May 2018  |
| Junwen Peng<br>University of Texas at Austin Bureau of Economic Geology 10100 Burnet Rd<br>Austin, TX 78713-8924 USA  | , Bidg 130, 3r   |
| Grant Number: 12106-18  |  |
| Grant Amount: \$1560  |  |
| Grant Title: GSA Graduate Student Research Grant  |  |
| Dear Junwen Peng,   |  |
| he Committee on Research Grants of The Geological Society of America has<br>leased to inform you that the Council has named you as a(n) GSA Graduate S<br>rant in the total amount shown above. | reviewed your application for a research grant and 1 am<br>itudent Research Grant recipient for 2018 and awarded you a |
| Sincerely yours,  |  |
| Vue 3 Mon   |  |
| /icki McConnell<br>Executive Director   |  |
|   |  |
|   |  |

# GSA (Geological Society of America) Graduate Student Research Grants



# WILEY Top Cited Article 2020-2021



Research output was reported by <u>EurekAlert!</u>, which is a nonprofit news-release distribution platform operated by the American Association for the Advancement of Science (AAAS)