

## DAVID JIAWEI TU

Petroleum Recovery Research Center | New Mexico Tech  
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### WORK EXPERIENCE

**Jan. 2021 – Present**  
**Postdoctoral Fellow**

**Petroleum Recovery Research Center (PRRC)**  
**New Mexico Tech, Socorro, New Mexico**

**Jan. 2017 – Dec. 2020**  
**Teaching Assistant**

**Texas Tech University, Lubbock, Texas**

- Oversaw curriculum renovation for Drilling Rheology Lab, drafted Lab Manual for Frac Fluid and Water Analysis
- Courses taught/assisted:
  - Drilling Fluid Rheology Lab
  - Drilling Engineering I
  - Drilling Engineering II
  - Reservoir Engineering II
  - Enhanced Oil Recovery Process
  - Statistical Analysis of Data

**Jan. 2017 – Dec. 2020**  
**Research Fellow**

**Texas Tech University, Lubbock, Texas**

- Developed core and reservoir scale numerical models to optimize EOR application for shale oil reservoirs with CMG-STAR3
- Designed Cyclic Injection (CI), Forced Imbibition (FI), Spontaneous Imbibition (SI) Experimental Set-up for surfactant EOR in shale cores.
- Experimentally demonstrated that surfactant with wettability alteration and High IFT should be the best candidate for Unconventional Oil EOR operation as the enhanced recovery by 45% with the incorporation of CI technique
- Proficiently operated computed tomography (CT) scanner, mercury porosimetry tester, spinning drop IFT tester, KRÜSS drop shape analyzer and AutoLab-1000 hydrostatic measurement system
- Published conference papers at URTeC and SPE-ATCE and peer-reviewed journal papers on dissertation topic

**May 2019 – Aug. 2019**  
**Frac Engineer Intern**

**ProPetro Services Inc, Midland, Texas**

- Operated hydration, blender, C-10, sand equipment, and pumping workflow at hydraulic fracturing sites
- Summarized and analyzed operational procedures for clients such as XTO, Crown Quest, Diamondback, Pioneer Natural Resources, Parsley Energy
- Troubleshot failures in fracturing systems such as pump failure, water supply failure, and chemical errors

- Practiced chemical inventory, chemical ordering, and sand calculation processes with a calculation spreadsheet designed
- Analyzed over 50 stages of treatment schedules and primary plots from fracturing jobs and a peer-reviewed published
- Delivered job presentations weekly

**Mar. 2015 – Aug. 2015**

**Production Engineer Intern**

**China Petroleum & Chemical Corporation (SINOPEC), China**

- Assisted in the technical department to recommend workover procedures for producing and injecting wells
- Monitored, recorded, and corrected daily oil/water productions and injections in the production department
- Managed three phases separators, chemical preparations and operations for the midstream stations, the satellite batteries, the CTBs and the SWD for Honghe Field
- Complied company's HSE standards through regular safety and environmental field inspections; communicated operations with the surface landowners in safety and communication department
- Completed assessment report and developed MIS software for the department using Java language

**EDUCATION**

**Jan. 2018 – Dec. 2020**

***Ph. D.***

**Sept. 2016 – Dec. 2017**

***M. Sc.***

***Petroleum Engineering***

**Texas Tech University, Lubbock, Texas**

Dissertation Topic: Investigation of Enhanced Oil Recovery through Fracturing Fluid Imbibition in Unconventional Oil Reservoirs

Supervisor: Dr. James Sheng

**Sept. 2012 – May. 2016**

***B. Sc.***

***Petroleum Engineering***

**Xi'an Petroleum (Shiyou) University, China**

Dissertation Topic: A Novel Method to Improve the Injecting Pressure and Efficiency of Polymer Flooding through Conformance Control

Ranking 1/366 of the Petroleum Engineering Program

Valedictorian of Class 2016

**AWARDS & HONORS**

- 1st Place, SPE Southwestern Regional Student Paper Contest, Ph.D. Division, SPE, 2019(<https://www.spe.org/en/students/contest/winners/>)
- SPE Permian Basin Section Scholarship, SPE, 2019, 2020
- SPE Texas Tech Chapter Presidential Scholarship, 2019
- Graduate Student Research Support Award, TTU, 2020
- Leadership and Mentorship Program Scholarship, TTU, 2017, 2018, 2019, 2020
- Graduate Recruitment Fellowship, TTU, 2016
- Top Ranked (Equivalent to President's List), XPU, 2016
- China National Scholarship, XPU, 2013
- China National Petroleum Corp. (CNPC) Scholarship, XPU, 2014
- HongShi Student Cadre Scholarship, XPU, 2015
- University Scholarship of Academic, XPU, 2015

## SERVICES

**Sept. 2018 – May. 2020**

**Graduate Liaison**

**SPE Texas Tech University Chapter, Lubbock, Texas**

- Coordinated graduate students with SPE chapter for social and professional events and opportunities
- Volunteered in the Permian Basin community by educating middle school students on basics of the oil and gas industry with #Energy4Me program
- Assisted with the departmental paper contest

**May. 2019 – May. 2020**

**Captain of PetroBowl Team**

**SPE Texas Tech University Chapter, Lubbock, Texas**

- Recruited and coordinate with prospective student members
- Collected training materials and organized weekly meetings

## TRAINING & SKILLS

- CMG Reservoir Simulation Model Creation and Analysis – with IMEX, STARS, CMOST
- StimPlan Hydraulic Fracturing Simulator
- IBM Data Science Series by COURSERA
  - Data Science Methodology
  - Python for Data Science and AI
  - Databases and SQL for Data Science
  - Data Visualization with Python
  - Machine Learning with Python
- Coding: Java, Python & SQL/Database development skills
- Professional Software: CMG, Eclipse, Tech Log, Spotfire, StimPlan Hydraulic Fracturing Design
- Language: Fluent in English and Mandarin

## PUBLICATIONS

**Google Scholar:** <https://scholar.google.com/citations?hl=en&user=ZZw8tdkAAAAJ>

- **Tu, J.**, and Sheng, J. (2019). Experimental and Numerical Study of Shale Oil EOR by Surfactant Additives in Fracturing Fluid. In *Unconventional Resources Technology Conference*. Society of Exploration Geophysicists, American Association of Petroleum Geologists, Society of Petroleum Engineers (SPE).
- **Tu, J.** (2019). Study of Surfactant-based Shale Oil EOR Under High Confining Pressure Conditions. In *SPE Annual Technical Conference and Exhibition*. Society of Petroleum Engineers (SPE).
- Tangirala, S. Sheng, J.J. and **Tu, J.** (2019) Chip Flood (vs) Core Flood—Assessment of Flowback and Oil Productivity in Oil-Wet Hydraulic Fractured Rocks. *Journal of Yangtze Gas and Oil*, 4, 59-78.
- Li, L., Su, Y., Lv, Y., & **Tu, J.** (2019). Asphaltene deposition and permeability impairment in shale reservoirs during CO<sub>2</sub> huff-n-puff EOR process. *Petroleum Science and Technology*, 1-7.
- **Tu, J.**, and Sheng, J. (2020) Experimental and Numerical Study of Surfactant Solution Spontaneous Imbibition in Shale Oil Reservoirs. *Journal of the Taiwan Institute of Chemical Engineers*, 106, 169-182.
- **Tu, J.**, and Sheng, J. (2020) Effect of pressure on imbibition in shale oil reservoir with different wettability considered. *Energy & Fuels*, 34(4), 4260-4272

- Liu, J., Sheng, J., and **Tu, J.** (2020) Effect of spontaneous emulsification on oil recovery in tight oil-wet reservoirs. ***Fuels***, 279, 118456.
- **Tu, J.**, and Sheng, J. (2020) Further Investigation of Forced Imbibition on Enhanced Oil Recovery in Unconventional Oil Reservoirs. ***Energy & Fuels*** 2020, 34(4), 10676–10687
- Li L, Su Y, Chen Z, Fan L, Tang M, **Tu J.** Experimental Investigation on EOR and Flowback Rate of Using Supercritical CO<sub>2</sub> as Pre-Fracturing Fluid in Tight Oil Reservoir. **SPE Asia Pacific Oil & Gas Conference and Exhibition** 2020 Nov 12. Society of Petroleum Engineers.