Robert Czarnota

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WORK EXPERIENCE

Petroleum Recovery Research Center, New Mexico Tech, Socorro, NM
Position: Postdoctoral Research Engineer
January 2021 – present
Duties: Performing research related to Carbon Capture Storage and Utilization, especially, investigation of multiphase flow in porous media under HPHT conditions, PVT phase behavior experiments, proposal writing activities, submitting journal manuscripts, acting as a student mentor.

AGH University of Science and Technology in Krakow, Poland
Position: Research and teaching assistant
October 2014 – December 2020
Duties: conducting research in the topic of CO_2-Enahnced Oil Recovery, teaching activities included subjects of: Enhanced Oil Recovery, Oil Well Stimulation, Rock and Reservoir Fluids Properties, Oil Production, Offshore Oil Recovery, writing grant proposals, submitting journal manuscripts, supervising students, university service activities.

RESEARCH PROJECTS

San Juan CarbonSAFE phase III

- Participation period: January 2021 – present
- Position: Postdoctoral Research Engineer
- Duties: investigation of the multiphase flow and reactive transport properties of CO_2 and brine in reservoir rock materials using macro-scale core-flooding experiments at high temperature and pressure, reservoir and caprock integrity analysis based on chemical reactions that takes place within the pore space, mentoring students, preparing, and writing journal manuscripts

Southwest regional partnership for CO_2 sequestration

- Participation period: January 2021 – present
- Position: Postdoctoral Research Engineer
- Duties: performing essential laboratory experiments for CCS process to understand subsurface interactions and how they impact the subsequent flow of fluids, results analysis, writing journal manuscripts

Multifield CO_2 Storage for Environment and Energy

- Participation period: November 2014 – April 2017
- Position: Research assistant/PhD student

- Duties: engaged in laboratory PVT experiments to determine reservoir fluid behavior and properties of oil and gas, performing SCAL research, and rock heterogeneity characterization with application to CO_2 sequestration and utilization

EDUCATION

PhD in Petroleum Engineering
AGH University of Science and Technology, Krakow, Poland
Graduation Date: October 2014 – June 2019
Dissertation: Capillary and surface phenomena in reservoir rocks in the light of laboratory tests on core samples

M.S. in Petroleum Engineering
AGH University of Science and Technology, Krakow, Poland
Graduation Date: March 2013 – September 2014
Thesis: Application of waterflooding to increase oil recovery

B.Sc. in Petroleum Engineering
AGH University of Science and Technology, Krakow, Poland
Graduation Date: October 2009 – February 2013

KEY JOURNAL PAPERS

Janiga, D., **Czarnota, R.**, Kuk, E., Stopa, J., & Wojnarowski, P. (2020). Measurement of Oil-CO_2 diffusion coefficient using pulse-echo method for pressure-volume decay approach under reservoir conditions. *Journal of Petroleum Science and Engineering*, *185*, 106636.

Janiga, D., **Czarnota, R.**, Stopa, J., Wojnarowski, P., & Kosowski, P. (2019). Utilization of nature-inspired algorithms for gas condensate reservoir optimization. *Soft Computing*, *23*(14), 5619-5631.

Janiga, D., **Czarnota, R.**, Stopa, J., & Wojnarowski, P. (2019). Self-adapt reservoir clusterization method to enhance robustness of well placement optimization. *Journal of Petroleum Science and Engineering*, *173*, 37-52.

Czarnota, R., Knapik, E., Wojnarowski, P., Janiga, D., & Stopa, J. (2019). Carbon dioxide separation technologies. *Archives of Mining Sciences*, 487-498.

Wojnarowski, P., **Czarnota, R.**, Janiga, D., & Stopa, J. (2018). Novel liquid-gas corrected permeability correlation for dolomite formation. *International Journal of Rock Mechanics and Mining Sciences*, *112*, 11-15.

Czarnota, R., Janiga, D., Stopa, J., & Wojnarowski, P. (2018). Acoustic investigation of CO_2 mass transfer into oil phase for vapor extraction process under reservoir conditions. *International Journal of Heat and Mass Transfer*, *127*, 430-437.

Janiga, D., **Czarnota, R.**, Stopa, J., & Wojnarowski, P. (2018). Huff and puff process optimization in micro scale by coupling laboratory experiment and numerical simulation. *Fuel*, *224*, 289-301.

Czarnota, R., Janiga, D., Stopa, J., Wojnarowski, P., & Kosowski, P. (2017). Minimum miscibility pressure measurement for CO_2 and oil using rapid pressure increase method. *Journal of CO_2 utilization*, *21*, 156-161.

Czarnota, R., Janiga, D., Stopa, J., & Wojnarowski, P. (2017). Determination of minimum miscibility pressure for CO_2 and oil system using acoustically monitored separator. *Journal of CO_2 Utilization*, *17*, 32-36.

Janiga, D., **Czarnota, R.**, Stopa, J., Wojnarowski, P., & Kosowski, P. (2017). Performance of nature inspired optimization algorithms for polymer enhanced oil recovery process. *Journal of Petroleum Science and Engineering*, *154*, 354-366.

CONFERENCE PUBLICATIONS

Czarnota, R., Stopa, J., Janiga, D., Kosowski, P., & Wojnarowski, P. (2018, August). Semianalytical horizontal well length optimization under pseudosteady-state conditions. IEEE *2nd International Conference on Smart Grid and Smart Cities (ICSGSC)*, 12-14 August, Kuala Lumpur, Malaysia.

Wojnarowski, P., **Czarnota, R.**, Wlodek, T., Janiga, D., Stopa, J., & Kosowski, P. (2019). The Possibility of CO_2 Pipeline Transport for Enhanced Oil Recovery Project in Poland. *MATEC Web of Conferences*, 6th International Conference on Traffic and Logistic Engineering (ICTLE), 3-5 August 2018.

Czarnota, R., Janiga, D., Stopa, J., & Wojnarowski, P. (2017). Investigation of relative permeability and capillary pressure on sandstone rock samples. *International Multidisciplinary Scientific GeoConference: SGEM*, *17*(1.5), 265-272, November 2017, Vienna, Austria.

Czarnota, R., Janiga, D., Stopa, J., & Wojnarowski, P. (2017). Wettability investigation as a prerequisite during selecting enhanced oil recovery methods for sandstone and dolomite formations. *International Multidisciplinary Scientific GeoConference: SGEM*, *17*(1.4), 1013-1020, Albena, Bulgaria.

Czarnota, R., Janiga, D., Stopa, J., & Wojnarowski, P. (2016). Laboratory measurement of wettability for Ciezkowice sandstone. *27th Scientific and technical conference Drilling, Oil and Gas AGH, 8-10 June 2016, Krakow, Poland*.

PEER REVIEW ASSIGNMENTS

Journal of Petroleum Science and Engineering (Elsevier) - 14
Energies (MDPI) - 9
Energy and Fuels (ACS) - 5
Geosciences (MDPI) - 2 conducted

Journal of Marine Science and Engineering (MDPI) - 1
Materials (MDPI) - 1
International Journal of Heat and Mass Transfer (Elsevier) - 1
Natural Resources Research (Springer) - 1
Fuel (Elsevier) - 1
Applied Energy (Elsevier) - 1
Energy Sources, Part A (Taylor & Francis) - 1

RESEARCH INTERESTS

- Enhanced Oil Recovery (EOR)
- PVT laboratory experiments
- Rock Properties
- Multiphase flow in porous media
- Carbon Capture, Utilization, and Storage (CCUS)

QUALIFICATIONS

- Excellent verbal and written communication skills and expertise to interact with people at all levels of the university
- Effectively manage the processes or project to meet a deadline
- A high degree of computer literacy
- The ability to function as a team player within a multi-cultural work environment
- Research paper reviewer for Elsevier, Springer, MDPI and American Chemical Society journals
- Perfect organizational skills, creativity, and independent thinking
- The competency to teach and develop courses in petroleum engineering or related subject
- Spoken languages: English - fluent, Polish - native