

# Seyyed Abolfazl. Hosseini

## Professional Summary

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## Professional Preparation

### Academic Background

Ph.D. Petroleum Engineering, University of Tulsa, Oklahoma, 2008

M.S. Chemical Engineering, Biotechnology, Sharif University of Technology, Tehran, Iran, 2005

B.S. Chemical Engineering, University of Isfahan, Isfahan, Iran, 2002

### Professional Appointments

Research Scientist, Bureau of Economic Geology, The University of Texas at Austin (October 2016-Present)

Fluid flow modeling in porous media, with focus on EOR and unconventional reservoirs.

Research Associate, Bureau of Economic Geology, The University of Texas at Austin (2010-September 2016)

Fluid flow modeling in porous media, with focus on EOR and unconventional reservoirs.

Postdoctoral Research Associate, Harold Vance Department of Petroleum Engineering, Texas A&M University (November 2009 - 2010). Investigating theory and application of diffusive time of flight for drainage volume calculations in tight gas reservoirs. Drainage volumes calculated by this approach is used to optimize the well placement in tight gas reservoirs to minimize the interference of the production wells. Developing a new Petrel plug-in (SWIFT) for upgridding of geological models into the simulation models.

Research Assistant, Department of Petroleum Engineering, University of Tulsa (December 2008 - November 2009). Developing a new technique for upgridding to preserve dynamic flow behavior of fine scale geomodels. Developing reservoir simulation and automatic history matching codes based on adjoint and Ensemble Kalman Filter (EnKF) methods for uncertainty analysis.

Reservoir Simulation Engineer, Kelkar and Associates Inc., Tulsa, Oklahoma (December 2008 - November 2009). Reservoir simulation and history matching for multiple reservoirs, clastic and carbonate reservoirs including black oil and compositional simulation. Structural and property modeling of 3D static geomodels followed by upscaling to simulation models. Developing a new method for upgridding of reservoir models and implementing the new method into a commercial Petrel plug-in (CONNECT).

## Areas of Expertise

### Areas of Expertise

Black oil and Compositional reservoir simulation

Black oil and compositional reservoir simulation, uncertainty analysis and history matching using commercial software packages

CO<sub>2</sub>-EOR and sequestration analytical and numerical modeling

Computer skills: Simulation software--Geoquest (Eclipse, PVTi), CMG (IMEX GEM), PipeSim, HYSYS; Modeling software--Petrel, RMS; Programming software--MATLAB, FORTRAN, Visual-Basic, C#, Delphi

History matching and inverse problem

Lost gas estimation and gas fractionation in unconventional formations

Multiphase fluid flow modeling in conventional and unconventional settings

Pressure transient analysis applications in CO<sub>2</sub>-EOR fields for characterization and monitoring

Shale gas fluid flow modeling

Upscaling and upgridding of geological models to simulation models

## Awards

### Awards and Honorary Societies

Best paper award at 2013 COMSOL Conference, Boston, MA, October 2013-October 2013

Career-Development Publications Award, awarded by the GAAC, BEG, 2011

Exceptional Talented Students Ph.D. scholarship, 2006-2008

Best Paper Award, 9th Iranian National Chemical Engineering Congress, Tehran, Iran, 2005

Ranked 4th in Nationwide Chemical Engineering-Biotechnology M.S. Exam among more than 4000 participants, 2003

Top chemical engineering undergraduate student award, University of Isfahan, Iran, 2002

## Service

### External Committees Participation

Member, Editorial Board Committee, Bureau of Economic Geology, April 1, 2019-Present

Director, Carbon Capture and Storage Section, Society of Petroleum Engineers, October 1, 2018-Present

Committee Member, SWNA Region Award Selection Committee, Society of Petroleum Engineers, March 1, 2018-Present

Member, Society of Petroleum Engineers Opinion Panel, Society of Petroleum Engineers, June 1, 2013-Present

Member, PhD dissertation committee, Sayantan Bhowmik, Petroleum Engineering (expected 2014), January, 2013 - present

Member, Grants, Appointments. & Awards Committee, BEG, February 2013-February 2016

Chair, Risk Assessment and Monitoring Techniques for Geological CO<sub>2</sub> Sequestration (sessions I, II, and III), American Geophysical Union Fall Meeting, San Francisco, December 14-18, 2015

Co-Chair, Geological CO<sub>2</sub> Storage Monitoring From Injection Zone to Vadose Zone: Characterization, Detection Methods, and Field Applications, American Geophysical Union Fall Meeting, , San Francisco, California, December, 2012

Co-Chair, Geological CO<sub>2</sub> Storage Monitoring From Injection Zone to Vadose Zone: Characterization, Detection Methods, and Field Applications, GSA Annual Meeting and Exposition, , Charlotte, North Carolina, November, 2012

### Proposal Review Panels Participation

Computational Geosciences (Article), 2013  
Greenhouse Gases: Science and Technology (Article), 2013  
Journal of Fuel (Article), 2013  
Journal of Petroleum Science and Engineering (Article), 2013  
SPE Journal (Article), 2013  
AIChE Journal (Article), 2012  
Computational Geosciences (Article), 2012  
Journal of Petroleum Science and Engineering (Article), 2012  
Journal of Porous Media (Article), 2012  
SPE Reservoir Evaluation & Engineering-Formation Evaluation (Article), 2012

## Teaching and Advising

### University Courses Taught

Applied Subsurface Geology: University of Texas at Austin, May 1-15, 2015.

### Continuing Education Courses Taught

Class VI Reservoir Modeling Considerations: presented to Louisiana Department of Natural Resources, online workshop, November 10, 2020.

Geologic Storage of CO<sub>2</sub> in Saline Aquifers: presented to The Clean Energies Department in Mexico's Energy Ministry (SENER), presented at Specialized CCUS capacity development workshop, National Autonomous University of Mexico (UNAM), April 24-28, 2017.

CO<sub>2</sub> storage and enhanced oil recovery: presented at AAPG Southwest Section, Fort Worth, Texas, May 23, 2012.

### Student Committee Participation

Member, Ph.D., Dissertation Committee, Reza Ershadnia, Understanding of Methane Fate and Transport in Groundwater, Department of Geology, University of Cincinnati, Cincinnati, Ohio, 2022

Member, Ph.D., Dissertation Committee, Pooneh Hosseininoosheri, CO<sub>2</sub> Trapping Mechanisms Assessment Using Numerical and Analytical Methods, Department of Civil, Architectural, and Environmental Engineering, Cockrell School of Engineering, The University of Texas at Austin, Austin, Tex., 2020

Member, Ph.D. dissertation committee, Hojung Jung, Analyses of Coupled Thermo-Chemo-Mechanical Processes for Safe Carbon Geological Storage, The University of Texas at Austin, Petroleum Engineering, 2017

Member, Ph.D. Dissertation Committee, Sayantan Bhowmik, Particle Tracking Proxies for Prediction of CO<sub>2</sub> Plume Migration Within a Model Selection Framework, University of Texas at Austin, Petroleum Engineering, 2013

## Presentations

### Invited Presentations

Low Carbon Strategies and Future IOR Opportunities (plenary): presented to Society of Petroleum Engineers, presented at Improved Oil Recovery Symposium, Tulsa, Okla., August 31, 2020.

EASiTool for storage capacity estimation: presented at 2nd International Workshop on Offshore CO<sub>2</sub> Geologic Storage, Beaumont, Tex., June 19-20, 2017.

Application of pressure transient analysis for leakage detection: presented to United States Geological Survey, Reston, VA, July 20-21, 2016.

Diffusivity tomography with harmonically modulated pressure signals to detect CO<sub>2</sub> leakage in above zone monitoring interval: presented at Combined Meeting of the IEAGHG Modelling and Monitoring Networks, Edinburgh, Scotland, July 6-8, 2016.

## Presentations

Pressure Crosscutting Working Group Update in Machine Learning Applications for SMART Initiative: presented to U.S. Department of Energy, presented at SMART Annual Review, online workshop, November 2-3, 2020.

Hydrogeological Modeling and Pore Pressure Characterization of Delaware Mountain Group in the Delaware Basin, Texas and New Mexico, abstract no. H51L-1640: presented to American Geophysical Union, December 9-13, 2019.

Modeling of convective carbon dioxide dissolution in porous media: from pore to Darcy scale: presented at American Geophysical Union Fall Meeting 2019, San Francisco, Calif., December 9-13, 2019.

Pore-scale study of spontaneous imbibition in fractured rocks using the lattice Boltzmann method: presented at American Geophysical Union Fall Meeting 2019, San Francisco, Calif., December 11, 2019.

A parallel pore-scale multiphase flow tool using the lattice Boltzmann method: presented at 72nd Annual Meeting of the American Physical Society Division of Fluid Dynamics, Seattle, Wash., November 23-26, 2019.

Modeling solutal convection in porous media: from pore to Darcy scale: presented at 72nd Annual Meeting of the American Physical Society Division of Fluid Dynamics, Seattle, Wash., November 23-26, 2019.

A high performance lattice Boltzmann solver with applications to multiphase flow in porous media: presented at TACCSTER 2019: Texas Advanced Computing Center Symposium for Texas Researchers, Austin, Tex., September 26-27, 2019.

Pore-scale simulation of wettability effects on CO<sub>2</sub> storage efficiency in deep saline aquifers: presented at InterPore2019: 11th Annual Meeting of the International Society for Porous Media, Valencia, Spain, May 6-10, 2019.

A parallel pore-scale simulator for multiphase flow in 3D digital rock images: presented at Rice Oil & Gas High Performance Computing Conference, Houston, Tex., March 4-6, 2019.

The impact of wettability heterogeneity on multiphase flow in realistic rock models: presented at American Geophysical Union Fall Meeting 2018, Washington, D.C., December 12, 2018.

Development of a parallel pore-scale fluid flow simulator with application to geological storage of CO<sub>2</sub>: presented at TACCSTER 2018: Texas Advanced Computing Center Symposium for Texas Researchers, Austin, Tex., September 20-21, 2018.

The U.S. Gas Flooding Experience: CO<sub>2</sub> Injection Strategies and Impact on Ultimate Recovery: presented at 38th annual workshop and symposium on EOR, Riviera Maya, Mexico, September 26-30, 2017.

Enhanced Analytical Simulation Tool for CO<sub>2</sub> Storage Capacity Estimation: presented at Carbon Storage and Oil and Natural Gas Technologies Review Meeting, Pittsburgh, Pa., August 16-18, 2016.

Cranfield Project, Southeast Regional Carbon Sequestration Partnership: presented to U.S. Department of Energy, presented at Carbon Storage R&D Project Review Meeting, Pittsburgh, PA, August 18-20, 2015.

Enhanced Analytical Simulation Tool for CO<sub>2</sub> Storage Capacity Estimation and Uncertainty Quantification: presented to U.S. Department of Energy, presented at Carbon Storage R&D Project Review Meeting, Pittsburgh, PA, August 18-20, 2015.

Pressure Monitoring, Field Observations and Interpretation Challenges: presented at IEAGHG 10th Monitoring Network Meeting, Lawrence Berkeley National Laboratory, Berkeley, CA, June 10-12, 2015.

Enhanced Analytical Simulation Tool (EASiTool) for CO<sub>2</sub> Storage Capacity Estimation and Uncertainty Quantification: presented to U.S. Department of Energy, presented at 2014 Carbon Storage Per Review Meeting, Pittsburgh, PA, August 12-14, 2014.

Pressure Transient Analysis for Monitoring of CO<sub>2</sub> Leakage in Brine Aquifers: presented to the International Society for Porous Media, presented at 6th International Conference on Porous Media, Milwaukee, WI, May 27-30, 2014.

Site characterization and reservoir history matching for geological CO<sub>2</sub> sequestration at the S3 site: presented at 11th Annual Carbon Capture, Utilization, and Sequestration Conference, Pittsburgh, Pennsylvania, May 2, 2012.

Temperature monitoring at SECARB Cranfield Phase 3 site using distributed temperature sensing (DTS) technology: poster presented at 11th Annual Carbon Capture, Utilization, and Sequestration Conference, Pittsburgh, Pennsylvania, May 1, 2012.

Site characterization and history matching for S3 site: presented at Conference on Carbon Capture and Sequestration, Pittsburgh, Pennsylvania, April 1-3, 2012.

Analytical studies of brine reinjection during CO<sub>2</sub> sequestration in deep aquifers: poster presented at Conference on Carbon Capture and Sequestration, CCS Impact on Water Resources, Pittsburgh, Pennsylvania, May 2-5, 2011.

Analytical studies of brine reinjection during CO<sub>2</sub> sequestration in deep aquifers: poster presented at Conference on Carbon Capture and Sequestration, CCS Impact on Water Resources, Pittsburgh, Pennsylvania, May 2-5, 2011.

Carbon dioxide sequestration at Cranfield--analysis of injection and observation well fluid pressure, temperature and density measurements: poster presented at Conference on Carbon Capture and Sequestration, CCS Impact on Water Resources, Pittsburgh, Pennsylvania, May 2-5, 2011.

Carbon dioxide sequestration at Cranfield--analysis of injection and observation well fluid pressure, temperature and density measurements: presented at Conference on Carbon Capture and Sequestration, CCS Impact on Water Resources, Pittsburgh, Pennsylvania, May 2-5, 2011.

Modeling EOR oil production without an oil phase in the context of CCS: step-by-step conversion from a 3-phase system to a 2-Phase CO<sub>2</sub>-brine system: poster presented at Conference on Carbon Capture and Sequestration, CCS Impact on Water Resources, Pittsburgh, Pennsylvania, May 2-5, 2011.

Modeling EOR oil production without an oil phase in the context of CCS: step-by-step conversion from a 3-phase system to a 2-phase CO<sub>2</sub>-brine system: poster presented at Conference on Carbon Capture and Sequestration, CCS Impact on Water Resources, Pittsburgh, Pennsylvania, May 2-5, 2011.

Cranfield phase III modeling: presented at the 6th Annual Southeast Regional Carbon Sequestration Partnership Stakeholders Briefing, Atlanta, Georgia, March 2011.

Cranfield phase III modeling: presented at the 6th Annual Southeast Regional Carbon Sequestration Partnership Stakeholders Briefing, Atlanta, Georgia, March 2011.

Gas cap impact on CO<sub>2</sub> plume migration for long-term storage in saline aquifers: presented at the 60th Gulf Coast Association of Geological Societies Annual Meeting, San Antonio, Texas,

October 2010.

Gas cap impact on CO<sub>2</sub> plume migration for long-term storage in saline aquifers: presented at the 60th Gulf Coast Association of Geological Societies Annual Meeting, San Antonio, Texas, October 2010.

## Activities of a Professional Nature

### Professional Societies

American Geophysical Union

International Society for Environmental Information Sciences

International Society for Porous Media

Phi Kappa Phi

Society of Petroleum Engineers

Young Professional in Energy

## Funding

### Research Support

Co-Principal Investigator: SECARB USA regional CO<sub>2</sub> storage project (October 1, 2019-September 30, 2024; \$949,958).

Co-Principal Investigator: Demonstration of proof of concept of a multi-physics approach for near-real-time remote monitoring of dynamic changes in pressure and salinity in hydraulically fractured networks, Department of Energy (October 1, 2019-September 31, 2021; \$1,470,566).

Principal Investigator: Developing Machine Learning Workflows for Rapid Forecasting in Subsurface Science, U.S. Department of Energy (January 7, 2020-August 31, 2021; \$350,000).

Principal Investigator: State of Induced Seismicity in CCS Projects, IEAGHG: IEA Greenhouse Gas R&D Programme (April 1-October 31, 2020; \$89,000).

Co-Principal Investigator: USGS-GCCC co-op research project, USGS (April 27, 2017-April 27, 2019; \$150,000).

Co-Principal Investigator: Headspace Gas Monitoring to Infer Dissolved Gas Concentrations, Australian National Low Emission Coal Research and Development (February 20, 2018-February 19, 2019; \$314,937).

Co-Principal Investigator: Pressure-Based Inversion and Data Assimilation System (PIDAS) for CO<sub>2</sub> Leakage Detection, Department of Energy (January 2014-December 2017; \$971,914).

Co-Principal Investigator: USGS-GCCC co-op research project, USGS (April 27, 2016-April 28, 2017; \$50,000).

Principal Investigator: Enhanced Analytical Simulation Tool for CO<sub>2</sub> Storage Capacity Estimation and Uncertainty Quantification, Department of Energy (April 2013-April 2017; \$999,340).

Co-Principal Investigator: Demonstration of de-facto CO<sub>2</sub> storage at a CO<sub>2</sub>-EOR site, SECARB Early Test site, MS, JIP CCP4 (November 1, 2015-October 31, 2016; \$120,374).

Principal Investigator: Pressure management and plume control strategies through a brine extraction storage test at the Devine Test Site in Texas, Department of Energy (September 1, 2015-August 31, 2016; \$1,865,038).

## Publications

### Peer Reviewed Journal Articles

- Bakhshian, S., Hosseini, S. A., and Lake, L. W., 2020, CO<sub>2</sub>-brine relative permeability and capillary pressure of Tuscaloosa sandstone: effect of anisotropy: *Advances in Water Resources*, v. 135, no. 103464, 13 p., <http://doi.org/10.1016/j.advwatres.2019.103464>.
- Bakhshian, S., Murakami, M., Hosseini, S. A., and Kang, Q., 2020, Scaling of imbibition front dynamics in heterogeneous porous media: *Geophysical Research Letters*, v. 47, no. e2020GL087914, 10 p., <http://doi.org/10.1029/2020GL087914>.
- Bakhshian, S., Rabbani, H. S., Hosseini, S. A., and Shokri, N., 2020, New insights into complex interactions between heterogeneity and wettability influencing two-phase flow in porous media: *Geophysical Research Letters*, v. 47, no. e2020GL088187, 10 p., <http://doi.org/10.1029/2020GL088187>.
- Feng, D., Wu, K., Bakhshian, S., Hosseini, S. A., Li, J., and Li, X., 2020, Nanoconfinement effect on surface tension: perspectives from molecular potential theory: *Langmuir*, v. 36, no. 30, p. 8764-8776, <http://doi.org/10.1021/acs.langmuir.0c01050>.
- Jung, H., Espinoza, D. N., and Hosseini, S. A., 2020, Wellbore injectivity response to step-rate CO<sub>2</sub> injection: coupled thermo-poro-elastic analysis in a vertically heterogeneous formation: *International Journal of Greenhouse Gas Control*, v. 102, no. 103156, 10 p., <http://doi.org/10.1016/j.ijggc.2020.103156>.
- Mehana, M., Hosseini, S. A., Meckel, T. A., and Viswanathan, H., 2020, Modeling CO<sub>2</sub> plume migration using an invasion-percolation approach that includes dissolution: *Greenhouse Gases: Science and Technology*, v. 10, no. 2, p. 283-295, <http://doi.org/10.1002/ghg.1976>.
- Zhou, Q., Yang, X., Zhang, R., Hosseini, S. A., Ajo-Franklin, J. B., Freifeld, B. M., Daley, T. M., and Hovorka, S. D., 2020, Dynamic processes of CO<sub>2</sub> storage in the field: 1. multiscale and multipath channeling of CO<sub>2</sub> flow in the hierarchical fluvial reservoir at Cranfield, Mississippi: *Water Resources Research*, v. 56, no. e2019EF001360, 30 p., <http://doi.org/10.1029/2019WR025688>.
- Alfi, M., Hosseini, S. A., Enriquez, D., and Zhang, T., 2019, A new technique for permeability calculation of core samples from unconventional gas reservoirs: *Fuel*, v. 235, p. 301-305, <http://doi.org/10.1016/j.fuel.2018.07.114>.
- Alfi, M., Vasco, D. W., Hosseini, S. A., Meckel, T., and Hovorka, S. D., 2019, Validating compositional fluid flow simulations using 4D seismic interpretation and vice versa in the SECARB Early Test--a critical review: *International Journal of Greenhouse Gas Control*, v. 82, p. 162-174, <http://doi.org/10.1016/j.ijggc.2019.01.003>.
- Bakhshian, S., and Hosseini, S. A., 2019, Pore-scale analysis of supercritical CO<sub>2</sub>-brine immiscible displacement under fractional-wettability conditions: *Advances in Water Resources*, v. 126, p. 96-107, <http://doi.org/10.1016/j.advwatres.2019.02.008>.
- Bakhshian, S., and Hosseini, S. A., 2019, Prediction of CO<sub>2</sub> adsorption-induced deformation in shale nanopores: *Fuel*, v. 241, p. 767-776, <http://doi.org/10.1016/j.fuel.2018.12.095>.
- Bakhshian, S., Hosseini, S. A., and Shokri, N., 2019, Pore-scale characteristics of multiphase flow in heterogeneous porous media using the lattice Boltzmann method: *Scientific Reports*, v. 9, no. 3377, 13 p., <http://doi.org/10.1038/s41598-019-39741-x>.
- Dashtian, H., Bakhshian, S., Hajirezaie, S., Nicot, J.-P., and Hosseini, S. A., 2019, Convection-diffusion-reaction of CO<sub>2</sub>-enriched brine in porous media: a pore-scale study: *Computers and Geosciences*, v. 125, p. 19-29, <http://doi.org/10.1016/j.cageo.2019.01.009>.
- Goudarzi, A., Meckel, T., Hosseini, S. A., and Treviño, R. H., 2019, Statistical analysis of historic hydrocarbon production data from Gulf of Mexico oil and gas fields and application to dynamic capacity assessment in CO<sub>2</sub> storage: *International Journal of Greenhouse Gas Control*, v. 80, p. 96-102, <http://doi.org/10.1016/j.ijggc.2018.11.014>.
- Hosseini, S. A., 2019, Fault leakage detection and characterization using pressure transient

analysis: *Journal of Petroleum Science and Engineering*, v. 176, p. 880-886, <http://doi.org/10.1016/j.petrol.2019.01.099>.

Nuñez-López, V., Gil-Egui, R., and Hosseini, S. A., 2019, Environmental and operational performance of CO<sub>2</sub>-EOR as a CCUS technology: a Cranfield example with dynamic LCA considerations: *Energies*, v. 12, no. 3, 15 p., <http://doi.org/10.3390/en12030448>, Article 448.

Soltanian, M. R., Hajirezaei, S., Hosseini, S. A., Dashtian, H., Amooie, M. A., Meyal, A., Ershadnia, R., Ampomah, W., Islam, A., and Zhang, X., 2019, Multicomponent reactive transport of carbon dioxide in fluvial heterogeneous aquifers: *Journal of Natural Gas Science and Engineering*, v. 65, p. 212-223, <http://doi.org/10.1016/j.jngse.2019.03.011>.

Vasco, D. W., Alfi, M., Hosseini, S. A., Zhang, R., Daley, T., Ajo-Franklin, J. B., and Hovorka, S. D., 2019, The seismic response to injected carbon dioxide: comparing observations to estimates based upon fluid flow modeling: *Journal of Geophysical Research: SolidEarth*, v. 124, no. 7, p. 6880-6907, <http://doi.org/10.1029/2018JB016429>.

Ganjanesh, R., and Hosseini, S. A., 2018, Development of an analytical simulation tool for storage capacity estimation of saline aquifers: *International Journal of Greenhouse Gas Control*, v. 74, p. 142-154, <http://doi.org/10.1016/j.ijggc.2018.04.017>.

Goudarzi, A., Hosseini, S. A., Sava, D., and Nicot, J.-P., 2018, Simulation and 4D seismic studies of pressure management and CO<sub>2</sub> plume control by means of brine extraction and monitoring at the Devine Test Site, South Texas, USA: *Greenhouse Gases: Science and Technology*, v. 8, p. 185-204, <http://doi.org/10.1002/ghg>.

Hosseini, S. A., Alfi, M., Nicot, J.-P., and Nuñez-López, V., 2018, Analysis of CO<sub>2</sub> storage mechanisms at a CO<sub>2</sub>-EOR site, Cranfield, Mississippi: *Greenhouse Gases: Science and Technology*, v. 8, p. 469-482, <http://doi.org/10.1002/ghg.1754>.

Hosseininoosheri, P., Hosseini, S. A., Nuñez-López, V., and Lake, L. W., 2018, Impact of field development strategies on CO<sub>2</sub> trapping mechanisms in a CO<sub>2</sub>-EOR field: a case study in the Permian Basin (SACROC unit): *International Journal of Greenhouse Gas Control*, v. 72, p. 92-104, <http://doi.org/10.1016/j.ijggc.2018.03.002>.

Goudarzi, A., Almohsin, A., Varavei, A., Taksaudom, P., Hosseini, S. A., Delshad, M., Bai, B., and Sepehrnoori, K., 2017, New laboratory study and transport model implementation of microgels for conformance and mobility control purposes: *Fuel*, v. 192, p. 158-168, <http://doi.org/10.1016/j.fuel.2016.11.111>.

Kim, S., and Hosseini, S. A., 2017, Study on the ratio of pore-pressure/stress changes during fluid injection and its implications for CO<sub>2</sub> geologic storage: *Journal of Petroleum Science and Engineering*, v. 149, p. 138-150, <http://doi.org/10.1016/j.petrol.2016.10.037>.

Lu, J., Darvari, R., Nicot, J.-P., Mickler, P., and Hosseini, S. A., 2017, Geochemical impact of injection of Eagle Ford brine on Hosston sandstone formation--observations of autoclave water-rock interaction experiments: *Applied Geochemistry*, v. 84, p. 26-40, <http://doi.org/10.1016/j.apgeochem.2017.06.002>.

Alfi, M., and Hosseini, S. A., 2016, Integration of reservoir simulation, history matching, and 4D seismic for CO<sub>2</sub>-EOR and storage at Cranfield, Mississippi, USA: *Fuel*, v. 175, p. 116-128, <http://doi.org/10.1016/j.fuel.2016.02.032>.

Ganjanesh, R., and Hosseini, S. A., 2016, Potential assessment of methane and heat production from geopressured-geothermal aquifers: *Geothermal Energy*, v. 4, no. 1, 25 p., <http://doi.org/10.1186/s40517-016-0058-4>.

Hosseini, S. A., and Alfi, M., 2016, Time-lapse application of pressure transient analysis for monitoring compressible fluid leakage: *Greenhouse Gases: Science and Technology*, v. 6, no. 3, p. 352-369, <http://doi.org/10.1002/ghg>.

Shakiba, M., and Hosseini, S. A., 2016, Detection and characterization of CO<sub>2</sub> leakage by



multi-well pulse testing and diffusivity tomography maps: *International Journal of Greenhouse Gas Control*, v. 54, p. 15-28, <http://doi.org/10.1016/j.ijggc.2016.08.015>.

Soltanian, M., Amooie, M. A., Cole, D. R., Graham, D. E., Hosseini, S. A., Hovorka, S. D., Pfiffner, S. M., Phelps, T. J., and Moortgat, J., 2016, Simulating the Cranfield geological carbon sequestration project with high-resolution static models and an accurate equation of state: *International Journal of Greenhouse Gas Control*, v. 54, p. 282-296, <http://doi.org/10.1016/j.ijggc.2016.10.002>.

Hosseini, S. A., Javadpour, F., and Michael, G. E., 2015, Novel analytical core-sample analysis indicates higher gas content in shale-gas reservoirs: *SPE Journal*, v. 20, no. 6, p. 1397-1408, <http://doi.org/10.2118/174549-PA>.

Karegar, M. A., Dixon, T. H., Malservisi, R., Yang, Q., Hosseini, S. A., and Hovorka, S. D., 2015, GPS-based monitoring of surface deformation associated with CO<sub>2</sub> injection at an enhanced oil recovery site: *International Journal of Greenhouse Gas Control*, v. 41, p. 116-126, <http://doi.org/10.1016/j.ijggc.2015.07.006>.

Kim, S., and Hosseini, S. A., 2015, Hydro-thermo-mechanical analysis during injection of cold fluid into a geologic formation: *International Journal of Rock Mechanics & Mining Sciences*, v. 77, p. 220-236, <http://doi.org/10.1016/j.ijrmms.2015.04.010>.

Mukhopadhyay, S., Doughty, C., Bacon, D., Li, J., Wei, L., Yamamoto, H., Gasda, S., Hosseini, S. A., Nicot, J.-P., and Birkholzer, J. T., 2015, The Sim-SEQ Project: comparison of selected flow models for the S-3 site: *Transport in Porous Media*, v. 108, p. 207-231, <http://doi.org/10.1007/s11242-014-0361-0>.

Kim, S., and Hosseini, S. A., 2014, Above-zone pressure monitoring and geomechanical analyses for a field-scale CO<sub>2</sub> injection project in Cranfield, MS: *Greenhouse Gases: Science and Technology*, v. 4, no. 1, p. 81-98, <http://doi.org/10.1002/ghg.1388>.

Choi, Jong-Won, Nicot, J. -P., Hosseini, S. A., Clift, S. J., and Hovorka, S. D., 2013, CO<sub>2</sub> recycling accounting and EOR operation scheduling to assist in storage capacity assessment at a U.S. gulf coast depleted reservoir: *International Journal of Greenhouse Gas Control*, v. 18, p. 474-484.

Delshad, Mojdeh, Kong, X., Tavakoli, R., Hosseini, S. A., and Wheeler, M. F., 2013, Modeling and simulation of carbon sequestration at Cranfield incorporating new physical models: *International Journal of Greenhouse Gas Control*, v. 18, p. 463-473.

Hosseini, S. A., Lashgari, H., Choi, Jong-Won, Nicot, J. -P., Lu, Jiemin, and Hovorka, S. D., 2013, Static and dynamic reservoir modeling for geological CO<sub>2</sub> sequestration at Cranfield, Mississippi, U.S.A.: *International Journal of Greenhouse Gas Control*, v. 18, p. 449-462.

Meckel, Timothy, Zeidouni, M., Hovorka, S. D., and Hosseini, S. A., 2013, Assessing sensitivity to well leakage from three years of continuous reservoir pressure monitoring during CO<sub>2</sub> injection at Cranfield, MS, USA: *International Journal of Greenhouse Gas Control*, v. 18, p. 439-448.

Hosseini, S. A., and Nicot, J. -P., 2012, Numerical modeling of a multiphase water-oil-CO<sub>2</sub> system using a water-CO<sub>2</sub> system: application to the far field of a U.S. Gulf Coast reservoir: *International Journal of Greenhouse Gas Control*, v. 10, p. 88-99.

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