Arash Dahi Taleghani

Contact Information

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Education

- Ph.D. in Engineering, *The University of Texas at Austin*, Austin, TX, USA, 2009
- M.S. in Structural Mechanics and Material, *Sharif University of Technology*, Tehran, Iran, 2003
- B.S. in Civil Engineering, *Sharif University of Technology*, Tehran, Iran, 2001

License and Certificate

- Registered Professional Engineer in the state of Texas (PE) since 2013.
- Certified GARP Energy Risk Professional (ERP) since 2016.

Professional Experience

- Professor, Department of Energy and Mineral Engineering, *Pennsylvania State University*, 2022– Present
- Associate Professor, Department of Energy and Mineral Engineering, *Pennsylvania State University*, 2017–2022
- Associate Professor, Department of Petroleum Engineering, *Louisiana State University*, 2015–2017
- Assistant Professor, Department of Petroleum Engineering, *Louisiana State University*, 2009–2015
- Summer Intern, *Schlumberger Data and Consulting Services*, 2007
- Summer Intern, *Schlumberger Data and Consulting Services*, 2006
- Research/Teaching Assistant, Petroleum Engineering, *The University of Texas at Austin*, 2004-2009
- Research/Teaching Assistant, Dept. of Civil Engineering, *Sharif University of Technology*, 2003-2004
- Engineer, *Ghana-Beton Construction Company* 2001-2003

Awards, Honors, and Appointments

- Elected member of the college P&T committee, 2024-2027.
- Elected representative of the college on the university graduate council, 2024-2027.
- SPE ATCE Program Committee for Energy Transition, 2023-2026.
- The Quentin E. and Louise L. Wood University Endowed Fellowship 2022-2027.
- Committee Member of SPE R&D Technical Section, 2022-2024.
- SPE Distinguished Lecturer on the topic of repurposing oil and gas wells into geothermal wells, 2022-23.
- Chair of SPE Education and Accreditation Committee, 2022-2023.
- Member of SPE Education and Accreditation Committee, 2021-2022.
- Dr. Charles H. Bowman and Lynn A. Holleran Early Career Professorship, 2019-2022.
- Member of Completions Technical Committee for SPE ATCE 2020-2022.
- Editorial Board Member of the Journal of Multiscale Science and Engineering published by Springer, 2019-2024.
- SPE Eastern North America Regional Completion Optimization and Technology Award, 2017.
- NCEES PE Exam Committee member 2016-2018.
- Wellbore Stimulation and Production Enhancement Committee SPE ATCE 2017-2019.
- Co-director of Unconventional Oil and Gas Summer School, Dubrovnik, Summer 2016.
- Recognized as a "Future Leader" by American Rock Mechanics Association, 2016.
- SPE Scholarship and Fellowship Committee (2015-2016).
- LSU Foundation Tigers Undergraduate Teaching Award, 2015.
- Co-director of Petroleum Engineering Summer School, Dubrovnik, Summer 2015.
- SPE Distinguished Achievement Award for Petroleum Engineering Faculty, 2014.
- Associate Editor for ASME Journal of Energy Resources and Technology, since 2013.
- Associate Editor for the Journal of Frontiers in Mechanical Engineering, since 2020.
- SPE Petroleum Engineering Junior Faculty Research Initiation Award, 2012.

Research Interest

- Enhanced geothermal systems
- Closed-loop geothermal systems
- Transforming fossil energy assets for energy transition purposes
- Wellbore integrity
- Reservoir geomechanics
- Injectivity changes and sand production in injector wells
- Cementing materials
- Hydraulic refracturing mechanics and materials (proppants and diverters)
- Generalized finite element methods

Patents

- Fabrication of Elastomer-based nanocomposites, International Publication No. WO 2023/081045.
- Coal-Based Surface Modified Additives For High Thermal Conductivity Grout, US104283.0009PRO.
- Geothermal Cementing System with Aluminum Fibers and Carbon Fillers US104283.0011PRO.
- Geothermal Cementing System with High Thermal Conductivity, United States Appl. No. 63/323,682.
- Shape memory polymer proppants, methods of making shape memory polymer proppants for application in hydraulic fracturing treatments, US Patent US10538694B2.
- Methods of treating oil and gas well fractures, US Patent US20180037803A1.
- Methods for temporary fracture isolation, US Patent US20190024490A1.
- Cement materials including shape memory polymer and methods of making cement materials, WO2017184813A1, US10876030B2.
- Using graphite nano-platelets to improve the integrity of oil and gas wells, US Patent US20200308469A1.
- Proppant Function Enhancement - US Provisional Pat. App. No. 63/141,196.
- Shape memory polymer proppants and methods of making shape memory polymer proppants for application in hydraulic fracturing treatments, CA2911139A1.

Teaching

- Undergraduate level: Production Engineering, Numerical Methods; Well Logging, Mechanical Earth Modelling, Unconventional Reservoirs.
- Graduate level: Advanced Wellbore Stimulation; Petroleum Rock Mechanics; Advanced Production and Completion Systems.
- Industry Short Courses: Overview of the Hydraulic Fracturing Design, Rock Mechanics for Drillers, Sand production; Prediction and Mitigation.

Consulting Service to the Industry

- JOGMEG, Japan, 2018.
- Sonatrach, Algeria. 2018.
- INA, Croatia, 2016-2018.
- Shell, Houston, TX. 2015-2016, 2018.
- Battelle, West Palm Beach, FL 2014
- Merlyn Energy, 2013
- PEMEX 2010-2013
- Domain expert in several cases of IP litigation 2017-2019
- Expert witness in multiple cases of legal litigation since 2013

Invited Talks

- Scaling Up Geothermal Power Generation to Rebalance the Energy Trilemma, KAUST, Saudi Arabia, January, 2024.
- Drilling Geothermal Wells and Associated Challenges, Dubrovnik, Croatia, June 2023.
- On Repurposing Oil and Gas Wells to Geothermal Wells, Peking University (Remote), China, September 2023.
- Panelist in a Special Session of Discussing the repurposing of Oil and Gas wells to provide geothermal energy in SPE ATCE 2023.
- Protecting Wellbore Components for Safe and Effective Underground Storage of Hydrogen, North American Hydrogen Demand and Infrastructure Development, Houston, TX, December 2022.
- Overview of Potential Lithium Resources in Produced Fluids in the Marcellus Shale, Shale Water Management Marcellus and Utica Congress in Pittsburgh, PA, October 2022.
- On modeling Hydraulic Fracturing in Naturally Fractured Reservoirs, Peking University, March 2022.
- Surface Modified Graphite Nanoplatelets to Enhance Cement Sheath Integrity, Graduate Seminar University of Southern California, March 2022.
- Smart Expandable Loss Circulation Material to Seal Large Fractures, The University of Texas at Austin, Austin TX, February 2022.
- Smart Expandable Fiber Additive to Improved Zonal Isolation in Geothermal Wells, GR-SPE High-Temperature Well Cementing, San Diego, Ca, October 2021.
- Flowback Analysis; A New Window for Post Fracturing Analysis presented at PSSP-21 Workshop at the National University "Yuri Kondratyuk Poltava Polytechnic" in Poltava, Ukraine, on September 29th, 2021.
- On Repurposing Oil and Gas Wells to Geothermal Wells, University of Zagreb, Croatia, June 2021.

- Surface Modified Graphite Nanoplatelets to Enhance Cement Sheath Integrity, Graduate Seminar University of Wyoming, March 2021.
- New Cement Systems for Well Cementing, Pennsylvania Department of Environmental Protection, March 2021.
- Revisiting Casing Failure Problems by Simulating Well Construction Processes, SPE Summit on Casing Deformation, February 2021.
- Nano-Engineered Cement Solutions for Permanent Plugging of Oil and Gas Wells, Pennsylvania Department of Environmental Protection, February 2021.
- Simulating Sealing Mechanisms by Granular LCM at Elevated Temperatures, Lawrence Berkeley National Lab, May 2020.
- Cement Sheath Mechanical Integrity from Different Angles at National Energy Technology Laboratory, February 2020.
- On Injectivity Changes During Waterflooding in Unconsolidated Formations, China Southwest Petroleum University, Chengdu, China, January 2020.
- Cement Nano-Reinforcement to Improve Sealing Performance, Morgan Applied Materials, State College, PA, USA, Dec. 2019
- Graphite Cement Nanocomposites for Applications in Oil and Gas Wells, DOE NETL, Pittsburgh, PA, Oct. 2019.
- Modeling Production Flowback after Hydraulic Fracturing, Chevron Co., Houston, TX, Sept. 2019.
- Is the Complexity of Hydraulic Fractures tunable? A Question from Design Perspective, Xinghua University, China, June, 2019.
- Is the Complexity of Hydraulic Fractures tunable? A Question from Design Perspective, China University of Petroleum, Beijing, China, June 2019.
- Is the Complexity of Hydraulic Fractures tunable? A Question from Design Perspective, China University of Geosciences, Beijing, China, June 2019.
- On Injectivity Changes During Waterflooding in Unconsolidated Formations, Texas A&M University, College State, TX, February 2019.
- Hydraulic Fracturing Design and Analysis, JOGMEG, Japan, Dec. 2018.
- Workshop of Development of Unconventional Resources, Sonatrach, Algeria, May 2018.
- SMP Sealing Additives for Cementing Oil and Gas Wells, Halliburton Cement Leaders Forum, Houston, TX, October 5th, 2016.
- Smart Expandable Loss Circulation Materials, American Association of Drilling Engineering Technical Forum, New Orleans, September 9th, 2016.
- Hydraulic Fracturing Design, Petroleum Engineering Summer School (PESS), Workshop 37, June 15th to June 19th 2015 in Dubrovnik by University of Zagreb.
- Failure Problems in Petroleum Geomechanics, Civil Engineering Department at Sharif University of Technology, April 12th, 2015.

- Hydraulic Fracturing With Special Focus on Treatments in Naturally Fractured Reservoirs, Petroleum Engineering Summer School (PESS), Workshop 37, June 2nd to June 6th 2014 in Dubrovnik by University of Zagreb.
- Geomechanics as a Tool for Better Understanding of Drilling Challenges, AADE New Orleans Chapter Technical Symposium, June 5th, 2014, New Orleans, LA.
- Failure Problems in Petroleum Geomechanics, University of Texas at Austin, April 2014, Austin, TX.
- Geomechanics: A New Look for Better Understanding of Drilling Challenges, AADE Deepwater and Emerging Technology Study Group Forum, March 20th, 2014, Houston, TX.
- Natural fractures interaction with hydraulic fractures: A Multi-scale problem, University of Southern California, March 13th, 2014, Los Angeles, CA.
- Interactions between natural fractures and growing hydraulic fracture network, presented at SPE Evangeline chapter, February 14th, 2014, Lafayette, Louisiana
- Opening of Cemented Natural Fractures in Hydraulic Fracturing: A length scale problem, Graduate seminar, University of Kansas, November 11th, 2013.
- Hydraulic fractures interaction with Natural fractures, 11-13 September 2013 at the Terranea Resort in Palos Verdes, California, Hydraulic Fracturing Mechanics Considerations for Unconventional Reservoirs Workshop
- EPA technical workshop on Well Construction/Operation and Subsurface Modeling, April 16-17, 2013, DOE research triangle complex (RTP), NC
- Houston Geomechanics Group, Growth of Multi-Stranded Hydraulic Fractures and Its Implications on Frac Jobs Design and Implementation, April 2012.

Publications

Books

1. Dahi-Taleghani, A., L. Santos, 2022, Wellbore Integrity From Theory to Practice, ISBN 3031190238, Springer.

Peer-Reviewed Papers

2. Q. Zhang, A. Dahi Taleghani, 2024, Intelligent Fluid Flow Management for Enhanced Geothermal System in Fractured Horizontal Wells, Applied Thermal Engineering, Volume 239, 122191.
3. S. Liu. A. Dahi Taleghani, 2024, Graphite Reinforced Polymers for Sealing Geothermal Wells, Composites Part B: Engineering 270, 111121.
4. Henriques, C., A. Dahi Taleghani, 2023, Fiber Stiffness: An Essential Parameter of the Effectiveness of Fiber-Based Lost Circulation Materials – A CFD-DEM Numerical Investigation, SPE Journal, 1-18.
5. Al Balushi, F., S. Liu. A. Dahi Taleghani, 2023, Heat Extraction Through Conductive Proppants, Sustainable Energy Technologies and Assessments 60, 103514.

6. Q. Zhang, A. Dahi Taleghani, 2023, Fracture Conductivity Management to Improve Heat Extraction in Enhanced Geothermal Systems, International Journal of Heat and Mass Transfer 218, 124725.
7. Liu, S., A. Dahi Taleghani, 2023, Analysis of an enhanced closed-loop geothermal system, Geoenergy Science and Engineering (2023): 212296.
8. Al Balushi, F., Q. Zhang, A. Dahi Taleghani, 2023, Improving Enhanced Geothermal Systems Performance Using Adaptive Fracture Conductivity, Applied Thermal Engineering 233 (2023): 121206.
9. Henriques, C., A. Dahi Taleghani, 2023, An Evaluation of Fiber-Based Lost Circulation Material for Fracture Plugging using Simulations, Geoenergy Science and Engineering 229 (2023): 212144.
10. Zhang Q., A. Dahi Taleghani, 2023, Autonomous Fracture Flow Tunning to Enhance Efficiency of Fractured Geothermal Systems, Energy, Volume 281, 128163, ISSN 0360-5442.
11. Al Balushi, F., Q. Zhang, A. Dahi Taleghani, 2023, Autonomous Fracture Conductivity using Expandable Proppants in Enhanced Geothermal Systems, SPE Journal: 1-15 doi: https://doi.org/10.2118/215823-PA.
12. Santos, L., A. Dahi Taleghani, 2023, Impact of Microannulus on the Efficiency of Heat Transfer in the Bottomhole, Front. Energy Res., Sec. Advanced Clean Fuel Technologies, Volume 11, https://doi.org/10.3389/fenrg.2023.1142662
13. Tabatabaei, M., A. Dahi Taleghani, 2023, Surface-Modified Graphite Nanoplatelets to Limit Deteriorative Impacts of Oil-Based Mud Residuals on Cement Bonding, SPE Drilling & Completions 38 (02): 235–242
14. Liu, S., A. Dahi Taleghani, 2023, Factors affecting the efficiency of closed-loop geothermal wells, Applied Thermal Engineering, 222, p.119947.
15. Zhang Q., W. Liu, J. Wei, A. Dahi Taleghani, H. Sun, D. Wang, 2022, Numerical Simulation Study on Temporary Well Shut-in Method in Development of Shale Oil Reservoir, Energies, 15(23), p.9161.
16. Cai Y., A. Dahi Taleghani, 2022, Using Pressure Changes in Offset Wells for Interpreting Fracture Driven Interactions (FDI), Journal of Petroleum Science and Engineering, 219, p.111111.
17. Al Balushi, F., A. Dahi Taleghani, 2022, Digital Rock Analysis to Estimate Stress-Sensitive Rock Permeabilities, Computers and Geotechnics, 151, p.104960.
18. Yu, H, A. Dahi Taleghani, F. Al Balushi, H. Wang, 2022, Machine Learning for Rock Mechanics Problems; An Insight, Frontiers in Mechanical Engineering, DOI: 10.3389/fmech.2022.1003170.
19. Wang, D., Dahi Taleghani, A., Yu, B., Wang, M.; He, C., 2022, Numerical Simulation of Fracture Propagation during Refracturing. Sustainability 14, 9422. https://doi.org/10.3390/su14159422.
20. Wang, D., Dahi Taleghani, A., Yu, B., 2022, Height Effect on Interactions between the Hydraulic Fracture and Natural Fractures, Geofluids, vol. 2022, Article ID 4642326, https://doi.org/10.1155/2022/4642326
21. Zhang, Q., A. Dahi Taleghani, 2022, On the Role of Proppants and Geomechanics on Flowback Behavior in Complex Fracture Networks, Journal of Petroleum Science and Engineering, 216, p.110835.

22. Santos, L., A. Dahi Taleghani, D. Elsworth, 2022, Repurposing Abandoned Wells for Geothermal Energy: Current Status and Future Prospects Renewable Energy, Renewable Energy, Volume 194, July 2022, Pages 1288-1302.

23. Kleit, A., A. Dahi Taleghani, 2022, COVID Shut-In Choices Across Unconventional Reservoirs: Evidence From the Bakken and the Marcellus. Journal of Energy Resources Technology, 144(7), p. 073009.

24. Li, L., A. Dahi Taleghani, 2022, Modelling of Cohesive Expandable LCMs for Fractures with Large Apertures, Geothermics, Volume 104, September 2022, p. 102466.

25. Wang X, Wang R, Guo R, Dahi Taleghani A, Su S, Ding W, Gong Y, Lai F, Wu Z, Su Y and Cao Z, 2022, Fracture Characterization of Lower Cambrian Niutitang Shale in Cen'gong Block, Southern China. Front. Earth Sci. 10:880366. doi: 10.3389/feart.2022.880366

26. Cai Y., A. Dahi Taleghani, 2022, Incorporating injection stage into DFIT analysis for permeability estimation, and its significance, Journal of Petroleum Science and Engineering, Volume 215, Part A, August 2022, p 110519.

27. Lin, C. A. Dahi Taleghani, Y. Kang; C. Xu, 2022, A coupled CFD-DEM numerical simulation of fracture sealing by lost circulation materials: Effect of lost circulation material, drilling fluid and fracture, Fuel, Volume 322, 15 August 2022, 124212.

28. Yu, H, A. Dahi Taleghani, Z. Lian, T. Lin, 2022, Severe Casing Failure In Multistage Hydraulic Fracturing Using Dual-scale Modelling Approach, SPE Drilling & Completion, 37(03), pp.252-266.

29. Tabatabaei, M., A. Dahi Taleghani, G. Li, 2021, Combination of Shape-Memory Capability and Self-assembly to Plug Wide Remote Fractures, MRS Communications, volume 11, pages 770–776.

30. Liu, W., Duan, Y., Zhang, Q., Chen, Z., Yan, X., Sun, H. and Taleghani, D., 2022. Analytical study on a one-dimensional model coupling both darcy flow and low-velocity non-darcy flow with threshold pressure gradient in heterogeneous composite reservoirs. Journal of Porous Media, 25(7).

31. Lin, C. A. Dahi Taleghani, 2021, A Coupled CFD-DEM Numerical Simulation of Formation and Evolution of Sealing Zones, Journal of Petroleum Science and Engineering, Volume 208, Part D, Pp. 109765.

32. Li, L., A. Dahi Taleghani, 2021, Assessment of LCM Particle Size Distribution on Fracture Sealing; A Numerical Study, SPE Drilling & Completions, SPE-209201-PA, https://doi.org/10.2118/209201-PA.

33. Zhang, Q., W. Liu, A. Dahi Taleghani, 2021, Numerical Study on Non-Newtonian Bingham Fluid Flow in Development of Heavy Oil Reservoirs Using Radiofrequency Heating Method, Energy, Volume 239, Part E, 15 January 2022, 122385.

34. Cai, Y., A. Dahi Taleghani, 2021, Axial Fracture Initiation During Diagnostic Fracture Injection Tests and Its Impact on Interpretations, Rock Mechanics and Rock Engineering, 54 (11), Pp. 5845-5865.

35. Magzoub, M., Anyaezu, T., Salehi, S., Li, G., Fan, J., Teodoriu, C., Saleh, F.K. and Dahi Taleghani, A., 2021, Evaluating sealability of blended smart polymer and fiber additive for geothermal drilling

with the effect of fracture opening size, Journal of Petroleum Science and Engineering, Volume 206, November 2021, 108998.

36. Tabatabaei, M., A. Dahi Taleghani, 2021, Shape Memory Polymers as Lost Circulation Materials for Sealing Wide-Opened Natural Fractures, SPE Drilling & Completions, Vol. 36 (04): 931–942.
37. Santos, L., A. Dahi Taleghani, 2021, On Quantitative Assessment of Effective Cement Bonding to Guarantee Wellbore Integrity, ASME Journal of Energy Resources and Technology, 144(1), p.013001.
38. Yu, H, A. Dahi Taleghani, Z. Lian, T. Lin, 2021, A New Look at Rock Mechanical Behavior from the Granular-Scale, Journal of Petroleum Science and Engineering, 200, p.108373.
39. Tabatabaei, M., A. Dahi Taleghani, J. Hooker, 2021, Debonding of Cemented Natural Fractures during Core Recovery To be published in: Journal of Structural Geology, Journal of Structural Geology, Volume 144, March 2021, 104272.
40. Song, Y., A. Dahi Taleghani, 2021, Numerical Simulation of Proppant Displacement in Scaled Fracture Networks, ASME Journal of Energy Resources and Technology, 143(4): 043004.
41. Tabatabaei, M., A. Dahi Taleghani, 2020, Nanoengineered Solution for Repairing Cement Leakage in Deep Wells, International Journal of Greenhouse Gas Control, Volume 103, 103187
42. Lee, L., A. Dahi Taleghani, 2020, Simulating Fracture Sealing by Granular LCM Particles in Geothermal Drilling, Energies, Vol. 13, p. 4878; doi:10.3390/en13184878
43. Koc, S., A. Dahi Taleghani, 2020, A Fast Method to Determine the Critical Depth of Cut for Various Rock Types, Energies, 13, p.4496; doi:10.3390/en13174496.
44. Tabatabaei, M., A. Dahi Taleghani, Y. Cai, L. Santos, N. Alem, 2020, Surface Modification of Proppant using Hydrophobic Coating to Enhance Long-Term Production, SPE Production & Operations, pp. 1-12, SPE-196067-PA.
45. Santos, L., A. Dahi Taleghani, G. Li,2020, Nanosilica-Treated Shape Memory Polymer Fibers to Strengthen Wellbore Cement, Journal of Petroleum Science and Engineering, 196, p.107646.
46. Tabatabaei, M., A. Dahi Taleghani, N. Alem, 2020, Nanoengineering of Cement Using Graphite Platelets to Refine Inherent Microstructural Defects, Composites Part B, 202, p.108277.
47. Fan, J., L.Y. Santos, A.D. Taleghani, and G. Li., 2020, Stimuli-responsive petroleum cement composite with giant expansion and enhanced mechanical properties, Construction and Building Materials, Vol. 259, p.119783.
48. Dahi Taleghani, A., Y. Cai, A. Pouya, 2020, Fracture Closure Modes during Flowback from Hydraulic Fractures, International Journal for Numerical and Analytical Methods in Geomechanics, 44(12), pp.1695-1704.
49. Santos, L., A. Dahi Taleghani, G. Li,2020, Smart Expandable Fiber Additive to Prevent Formation of Microannuli, SPE Drilling & Completions, 35 (03): pp. 490–502

50. Dahi Taleghani, A., M. Ahmadi, Thermoporoelastic Analysis of Artificially Fractured Geothermal Reservoirs; a Multiphysics Problem, ASME Journal of Energy Resources and Technology, 142 (8) p.081302..

51. Yu, H, A. Dahi Taleghani, Z. Lian, 2019, On How Asymmetric Stimulated Rock Volume in Shales May Impact Casing Integrity, Energy Science & Engineering 8 (5), 1524-1540

52. Tabatabaei, M., A. Dahi Taleghani, N. Alem, 2020, Measurement of Mixed Mode Interfacial Strengths with Cementitious Materials, Engineering Fracture Mechanics, Volume 223, 106739, ISSN 0013-7944.

53. Cai Y., A. Dahi Taleghani, 2019, Semi−Analytical Model for Two−Phase Flowback in Complex Fracture Networks in Shale Oil Reservoirs, Energies, 12, 4746; doi:10.3390/en12244746

54. Tabatabaei, M., A. Dahi Taleghani, N. Alem, 2019Surface Modified Graphite Nanoplatelets to Enhance Cement Sheath Durability, SPE-199897-PA, SPE Drilling & Completions, 35 (03) pp. 452–464.

55. Lui, K., D. Gao, A. Dahi Taleghani, Semi-Analytical Model for Fault Slippage Due to Partial Pressurization, SPE Journal, 25 (03) pp. 1489–1502.

56. Xiao, Z., Ding, W., Dahi Taleghani,A., Wang, X. , Gu, Y., 2019, Quantitative analysis of tight sandstone reservoir heterogeneity based on rescaled range analysis and empirical mode decomposition: A case study, Journal of Petroleum Science and Engineering, Volume 182, 106326.

57. Yu, H, A. Dahi Taleghani, Z. Lian, 2019, On How Pumping Hesitations May Improve Complexity of Hydraulic Fractures, A Simulation Study, Fuel, Volume 249, Pages 294-308.

58. Lui, K., A. Dahi Taleghani, D. Gao, 2019, Calculation of Hydraulic Fracture Induced Stress and Corresponding Fault Slippage in Shale Formation, Fuel, Volume 254, Article 11525.

59. Asala, H.I.,J. Chebeir, M. Vidhyadhar, I. Gupta, A. Dahi-Taleghani, J. Romagnoli, 2019, An Integrated Machine Learning Approach to Shale Gas Supply Chain Optimization and Re-frac Well Candidate Identification, SPE Reservoir Evaluation and Engineering Journal, Volume 22, Issue 04, pp. 1201-1224.

60. Tabatabaei, M., A. Dahi Taleghani, and N. Alem, Additives to Enhance Cement Sheath Durability, Proceedings of the ASME 2019 38th International Conference on Ocean, Offshore and Arctic Engineering. Volume 8: Polar and Arctic Sciences and Technology; Petroleum Technology. Glasgow, Scotland, UK. June 9–14, 2019. V008T11A002. ASME.

61. Yu, H, A. Dahi Taleghani, Z. Lian, 2018, Impact of the Dogleg Geometry on Displacement Efficiency during Cementing; An Integrated Modeling Approach, Journal of Petroleum Science and Engineering, Volume 173, pp. 588-600.

62. Puyang, P., A. Dahi Taleghani, B. Sarker, 2018, Optimal natural fracture realizations by minimizing least squared errors of distances from microseismic events, Journal of Applied Geophysics, Vol. 159, pp. 294-303.

63. Lui, K., D. Gao, A. Dahi Taleghani, 2018, Analysis on Integrity of Cement Sheath in the Vertical Section of Wells during Hydraulic Fracturing, Journal of Petroleum Science and Engineering, Volume

168, pp. 370-379.

64. Lui, K., D. Gao, A. Dahi Taleghani, 2018, Impact of Casing Eccentricity on Cement Sheath, Energies, 11 (10), Page 2557.
65. Yu, H, A. Dahi Taleghani, Z. Lian, 2018, Modelling Casing Wear at Doglegs by Incorporating Alternate Accumulative Wear, Journal of Petroleum Science and Engineering, Volume 168, Pages 273-282.
66. Santos, L., A. Dahi Taleghani, G. Li, 2018, Expandable Proppants to Moderate Production Drop in Hydraulically Fractured Wells, Journal of Natural Gas Science and Engineering, Volume 55, Pages 182-190.
67. Klimenko,D., A. Dahi Taleghani, 2018, A modified extended finite element method for fluid-driven fractures; Incorporating variable primary energy loss mechanism, International Journal of Rock Mechanics and Mining Sciences, Volume 106, June 2018, Pages 329-341.
68. Mansour, A., A. Dahi Taleghani, S. Salehi, 2018, Smart Lost Circulation Materials for Productive Zones, Journal of Petroleum Exploration and Production Technology, Pages 1-16 https://doi.org/10.1007/s13202-018-0458-z.
69. Dahi Taleghani, A., M. Gonzalez, H. Yu, H. Asala, 2018, Numerical Simulation of Hydraulic Fracture Propagation in Naturally Fractured Formations Using The Cohesive Zone Model, Journal of Petroleum Science and Engineering 165, 42-57.
70. Jiang, Y., A. Dahi Taleghani, 2018, Modified Extended Finite Element Methods for Gas Flow in Fractured Reservoirs; a Pseudo-Pressure Approach, ASME Journal of Energy Resources Technology, 140(7), p.073101.
71. Bautista, J.F., A. Dahi Taleghani, 2017, Prediction of Damage at Water Injectors Wells in Unconsolidated Formations, Journal of Petroleum Science and Engineering, 164, pp.1-10.
72. Ahmadi, M., Dahi-Taleghani, A., 2017, Thermoporoelastic Analysis of a Single-well Closed-Loop Geothermal System, American Society of Civil Engineering, Poromechanics VI, pp. 602-609.
73. Sheikhrezaei, K., Dahi-Taleghani, A., 2017, Comparative Experimental Study of Rock Cutting Under High Confining Pressure and Atmospheric Conditions Using PDC Cutter, American Society of Civil Engineering, Poromechanics VI, pp 1900-1908.
74. Moayedi, M., A. Dahi Taleghani, G. Li, 2017, Smart Expandable Cement Additive to Achieve Better Wellbore Integrity, ASME. J. Energy Resour. Technol. 2017;139(6):062903-062903-8. doi:10.1115/1.4036963.
75. Wang W., A. Dahi Taleghani, 2017, Impact of Hydraulic Fracturing on Cement Sheath Integrity; A Modelling Approach, Journal of Natural Gas Science and Engineering 44, 265-277.
76. Bautista, J.F., A. Dahi Taleghani, 2017, Dynamic Modeling of Injectivity Evolution in Unconsolidated Sands, Journal of Petroleum Science and Engineering 149, 256-269
77. Wang, W., Dahi-Taleghani, A., 2017, Emergence of Delamination Fractures around the Casing and Its Stability, Journal of Energy Resources Technology, Volume 39, Issue 1, Pages 012904-11. doi:10.1115/1.4033718.

78. Tabatabei, M., Dahi-Taleghani, A., 2017, Randomly distributed interfacial arc cracks within the inclusion-inhomogeneity-matrix system, Meccanica 52(4), 1123-1142, DOI 10.1007/s11012-016-0442-y

79. Bautista, J.F., A. Dahi Taleghani, 2016, The state of the art and challenges in geomechanical modeling of injector wells; a review paper, Journal of Energy Resources Technology, 139(1) p.012910.

80. Ahmadi, M., Dahi-Taleghani, A., 2016, Impact of Thermally Reactivated Micro-Natural Fractures on Well Productivity in Shale Reservoirs, a Numerical Study, Journal of Natural Gas Science and Engineering, Volume 35, Part A, September 2016, Pages 583-592.

81. Puyang, P., A. Dahi Taleghani, B. Sarker, 2016, An Integrated Modeling Approach for Natural Fractures and Post Treatment Fracturing Analysis: A Case Study, Journal of Interpretation November-January, Vol. 4, No. 4: pp. T493-T504.

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199. Olson, J., A. Dahi Taleghani, 2010, The Influence of Natural Fractures on Hydraulic Fracture Propagation, April 2010, AAPG Annual Meeting, New Orleans, LA.
200. Colin M. Sayers, J. Adachi, A. Dahi Taleghani, 2008, The seismic response of partially mineralized fractures, presented in SEG Rock Physics Research Workshop, Galway, Ireland, 2008.

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201. Dahi-Taleghani, A. and H. Yu, 2022, Advances in Geomechanical Modelling, Unconv Shale Gas Development Lessons, In production by Elsevier.
202. Dahi-Taleghani, A. and L. Santos,2021, Application of shape memory polymers in the oil & gas industry, Encyclopedia of Materials: Plastics and Polymers, Reference Module in Materials Science and Materials Engineering, Elsevier, ISBN 9780128035818, https://doi.org/10.1016/B978-0-12-820352-1.00189-9.
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Funded Projects

- Center of Repurposing Energy Assets for Energy Transition (ReCET) at Penn State (2024) $ 230,0000.
- A Comprehensive Study of Barriers for Underground Natural Gas Storage Wells, US Department of Transportation, $299,585, 2023-2025.
- Efficient, Low-cost, and Environmentally Benign Production of Lithium Battery Precursors From Geothermal Resources, $500,000, 2023-2025.
- Hydraulic fracturing and its impacts (Gift), $50,000.
- Temperature-Sensitive Hydraulic Conductivity Controller Proppants for Enhanced Geothermal Systems, $1,136,000, 2022-2025
- Economic Elastomeric Sealing to Withstand Elevated Temperatures, $140,000, 2022-2023.
- Studying the roots of the negative impact of acidization on Frack-Pack operations in the Gulf of Mexico, $ 100,000, 2022-2023.

- New Grout Design for Geothermal Systems, $291,650, 2021-2023.
- Significant Improvement in Assessing Wellbore Integrity, Leveraged By Machine Learning, $119,968, 2021-2022.
- Novel Smart LCM Design to Seal Large Fractures, $261,000, 2019-2021.
- Relative Permeability Under Stress, $ 110,000, 2020-2022.
- Toward repurposing existing oil and gas wells to geothermal resources, $14,800, 2021.
- Experimental and Numerical Assessment of SMP LCMs for Geothermal Drilling Applications, $300,000, 2018-2021.
- Cement Nanocomposite using graphite nanoplatelets, $150,000, 2018-2020.
- Modelling sand production during injection into unconsolidated formations, $180,000, 2016-2017.
- Undeground blowout a mechanistic study, $200,000, 2015-2016.
- Out of zone injections in unconsolidated systems, $100,000, 2014-2016.
- Microseismic monitoring of hydraulic fracturing: A laboratory experiment, $189,548.00, 2013-2015.
- Investigating the likelihood of reactivation of cemented natural fractures and its contribution to the efficiency of hydraulic fracturing treatments, $16,500, 2015.
- A Robust Approach for Evaluating Rock Cutters Performance $30,250, 2014.
- Geothermal Resource Development with Zero Mass Withdrawal, Engineered Convection, and Wellbore Energy Conversion, $100,000, 2011-2013.
- Alternative Techniques for Hydraulic Fracturing Monitoring to Maximize Safe Recovery of Shale Gas Resources, $160,000, 2010-2012.
- SPE Junior faculty fellowship, $40,000, 2012.

Departmental and University Service

- Penn State EME Department, Chair of Qualifying Exams Committee, 2023-2024.
- Elected to Penn State EMS College Promotion and Tenure Committee 2023-2026.
- Elected to Penn State EME Department Promotion and Tenure Committee 2018-2020.
- Elected to Penn State EME Department Faculty Annual Evaluation Committee, 2018, 2019.
- EMS College Academic Integrity Committee, 2018-2021.
- Penn State EME Department Graduate Studies Committee, 2017-2019.
- Penn State EME Department Lab Space and Allocation Committee, 2017-2019.
- Penn State EME department Undergraduate Studies Committee, 2017-2019.
- Elected to the LSU faculty Senate from the College of Engineering, 2016.
- Elected to College Policy Committee at LSU College of Engineering, 2016.
- Search Committee, Department of Petroleum Engineering, LSU, 2010-2012.
- Faculty advisor for American Rock Mechanics (ARMA) chapter at LSU, 2012.
- Graduate Studies Examination Policy Committee, 2010.

Students Supervised (Graduated)

Main Advisor (Co-Advisor *)

- Faras Albalushi (PhD) PennState
- Sai Liu (PhD student)
- Maryam Tabatabaei (Postdoc)
- Lu Lee (PhD) PennState,
- Yuzhe Cai (PhD, Chevron) PennState,
- Salih Koc (MS, Turkish Petro. Co.) PennState,
- Houman Bedayat (PhD, Convergent Tech.) LSU,
- Milad Ahmadi (PhD, Chevron) LSU,
- Miguel Gonzalez (PhD, PEMEX) LSU,
- Amir Shoajei (Postdoc, Halliburton) LSU
- Volkan Kanat (M.E., Turkish Oil Co.) LSU
- Ting Tan*(PhD, Halliburton) LSU
- Wei Wang (PhD, Shell) LSU
- Ahmed Mansour (MS, CSM PhD) LSU,
- Tristin Findlay (MS student)
- Cassian Henriques (MS) PennState
- Guanzhou Chen (MS) PennState
- Livio Santos (PhD) PennState
- Yibo Song (MS, Northwestern U.) PennState
- Mehdi Moayedi (MS, Halliburton) LSU
- Ping Puyang (MS, Concho Resources) LSU
- Trudy Watkins* (MS, Occidental) LSU
- Livio Santos (MS, Penn State) LSU
- Juan Bautista (MS, EXA Co.) LSU
- S. Rostami-Ameen (MS, Weatherford) LSU
- Chennu Fan (MS, U. of Min.) LSU
- Kian Sheikhrezaei* (PhD, NOV) LSU

Students Supervising (Current)

- Rui Wang (PhD student)
- Zhouchen Xhan (PhD student)
- Faras Albalushi (Postdoc)
- Qitao Zhang (PhD student)
- Gorkem Kaya (MS student)
- Sai Liu (Postdoc)

Other Professional Activities

Referee	AAPG Bulletin, Journal of Energy Resources and Technology, SPE Journal, Journal of Petroleum Science and Technology, Journal of Transport in Porous media, Journal of Numerical and Analytical Methods in Geomechanics, Int. Journal of Fracture, Engineering Fracture Mechanics, Water Resources, Journal of Geophysical Research, Geophysics, Int. Journal of Rock Mechanics and Mining Sciences, Energies, Geophysics Review Letters, European Journal of Environmental and Civil Engineering, Geophysical Research Letters
Conference Topic Organizer	ASME OMAE 2014-2019, ARMA 2017, Wellbore Stimulation SPE ATCE 2017-2019
Reviewer	National Science Foundation, American Chemistry Society, Department of Energy, Society of Petroleum Engineers
Membership	Society of Petroleum Engineers, American Rock Mechanics Association, American Association of Petroleum Geologists, Society of Exploration Geophysics, American Association of Mechanics Engineers

References

Available upon request.

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