Stanford

Roland Horne

Director, Precourt Institute for Energy, Thomas Davies Barrow Professor and Senior Fellow at the Precourt Institute for Energy

Energy Science & Engineering

Bio

BIO

Roland N. Horne is the Thomas Davies Barrow Professor of Earth Sciences at Stanford University, and Senior Fellow in the Precourt Institute for Energy. He holds BE, PhD and DSc degrees from the University of Auckland, New Zealand, all in Engineering Science.

He is best known for his work in well test interpretation, production optimization, and analysis of fractured reservoirs. So far in his academic career he has supervised the graduate research of 60 PhD and 135 MS students. He is an Honorary Member of the Society of Petroleum Engineers (SPE), and a member of the US National Academy of Engineering. He served on the International Geothermal Association (IGA) Board 1998-2001, 2001-2004, and 2007-2010, and was the 2010-2013 President of IGA.He was the Technical Program chair of the World Geothermal Congress in 2005, 2010, 2015 and 2020.

Horne has been an SPE Distinguished Lecturer (1998, 2009 and 2020), and has been awarded the SPE Distinguished Achievement Award for Petroleum Engineering Faculty, the Lester C. Uren Award, and the John Franklin Carl Award. From Society of Exploration Geophysicists (SEG), he received the Best Paper in “Geophysics” in 2011, and from SPE he received Best Paper in Journal of Petroleum Technology (1992) and Best Paper in SPE Formation Evaluation (1993). He has also received five Best Paper awards from Geothermal Resources Council (GRC). He is a Fellow of the School of Engineering, University of Tokyo (2016) and also an Honorary Professor of China University of Petroleum – East China (2016).

ACADEMIC APPOINTMENTS

- Professor, Energy Science & Engineering
- Senior Fellow, Precourt Institute for Energy
- Affiliate, Stanford Woods Institute for the Environment

ADMINISTRATIVE APPOINTMENTS

- Professor of Energy Science and Engineering, Stanford University, (2022- present)
- Visiting Researcher(while on sabbatical), University of Tokyo, (2015-2016)
- Senior Fellow, Precourt Institute for Energy, Stanford University, (2010- present)
- Thomas Davies Barrow Professor of Earth Sciences, Stanford University, (2008- present)
- Senior Fellow by Courtesy, Woods Institute for the Environment, (2008-2010)
- Professor of Energy Resources Engineering, Stanford University, (2006-2022)
- Visiting Scientist, RITE, Kyoto, Japan (while on sabbatical), Research Institute for Innovative Technology for the Earth (RITE), (2005-2005)
- Professor of Petroleum Engineering, Stanford University, (1991-2006)

- Visiting Scientist, (while on sabbatical), Mobil Exploration and Production Services Inc., (1990-1990)
- Visiting Professor of Petroleum Engineering (while on sabbatical), Heriot-Watt University, (1989-1989)
- Associate Professor of Petroleum Engineering, Stanford University, (1984-1991)
- Assistant Professor of Petroleum Engineering, Stanford University, (1981-1984)
- Acting Assistant Professor of Petroleum Engineering, Stanford University, (1980-1980)
- Lecturer, Geothermal Institute, University of Auckland, (1978-1979)
- Acting Assistant Professor of Petroleum Engineering, Stanford University, (1977-1978)
- Acting Assistant Professor of Chemical Engineering, Stanford University, (1976-1977)
- Energy Research Fellow, University of Auckland, (1974-1976)

HONORS AND AWARDS

- Core Values Award, Women in Geothermal (2023)
- SPE Distinguished Lecturer, Society of Petroleum Engineers (2020-2021)
- Fellow, School of Engineering, University of Tokyo (2017)
- Honorary Professor, China University of Petroleum (2016)
- Geothermal Special Achievement Award, Geothermal Resources Council (2015)
- Best Paper in 'Geophysics', Society of Exploration Geophysicists (2012)
- Patricius Medal, German Geothermal Society (2011)
- SPE Distinguished Lecturer, Society of Petroleum Engineers (2009-2010)
- Guest Professor, China University of Petroleum (2007-2012)
- SPE Honorary Member, Society of Petroleum Engineers (2007)
- School of Earth Sciences Teaching Award, Stanford University (2007)
- Henry J. Ramey, Jr., Geothermal Reservoir Engineering Award, Geothermal Resources Council (2006)
- Geothermal Resources Council Best Paper Award, Geothermal Resources Council (2005)
- John Franklin Carll Award, Society of Petroleum Engineers (2005)
- Elected Member, National Academy of Engineering (2002)
- Geothermal Resources Council Best Paper Award (2), Geothermal Resources Council (2002)
- Geothermal Resources Council Best Paper Award, Geothermal Resources Council (2000)
- Lester C. Uren Award, Society of Petroleum Engineers (2000)
- SPE Distinguished Member, Society of Petroleum Engineers (2000)
- SPE Distinguished Lecturer, Society of Petroleum Engineers (1997-1998)
- Best Paper of 1993 Award, SPE Formation Evaluation, Society of Petroleum Engineers (1993)
- Best Paper of 1992 Award, Journal of Petroleum Technology, Society of Petroleum Engineers (1992)
- School of Earth Sciences Teaching Award, Stanford University (1989)
- SPE Distinguished Achievement Award for Petroleum Engineering Faculty, Society of Petroleum Engineers (1982)
- Fellow, Fulbright-Hays Traveling Fellowship (1977)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Department Review, Petroleum Engineering, University of Texas at Austin (2018 - 2018)
- Technical Program Chairman, World Geotherrmal Congress 2020, Iceland (2016 - 2021)

- Advisory Board, Energy Institute, Cornell University (2015 - 2017)
- Cochair, ATW on "Reservoir Testing to Add Production Value", Society of Petroleum Engineers (2015 - 2015)
- Chairman, Connecting the Dots Forum, Stanford University (2013 - 2013)
- Deputy Acting Director, Precourt Institute for Energy, Stanford Univesity (2012 - 2013)
- Chair, Section 11, National Academy of Engineering (2012 - 2012)
- Department Review, Geothermal Institute, University of Neuchâtel, Switzerland (2012 - 2012)
- Department Review, Engineering Science, University of Auckland, New Zealand (2012 - 2012)
- Program Cochair, SPE Advanced Technology Workshop on Well Testing, Society of Petroleum Engineers (2012 - 2012)
- Technical Program Chairman, World Geothermal Congress 2015, Australia (2011 - 2015)
- Vice Chair, Section 11, National Academy of Engineering (2011 - 2012)
- President, International Geothermal Association (2010 - 2013)
- Secretary, Section 11, National Academy of Engineering (2010 - 2013)
- Cochairman, SPE Forum, Petrophysics Meets WellTesting, Society of Petroleum Engineers (2009 - 2010)
- Faculty Panelist, Judicial Affairs, Stanford University (2008 - present)
- Editorial Board, Geothermics (2007 - present)
- Board of Directors, International Geothermal Association (Relected) (2007 - 2016)
- Cochairman, SPE Advanced Technology Workshop on Reservoir Testing, Indonesia, Society of Petroleum Engineers (2006 - 2007)
- Panel Member, PhD Review, Texas A&M University (2006 - 2006)
- Visiting Professor, Universiti Teknologi Malaysia (2006 - 2006)
- Technical Program Chairman, World Geothermal Congress 2010, Indonesia (2005 - 2010)
- Chairman, Woods Energy Committee, Stanford University (2005 - 2009)
- Visiting Professor, Stanford Japan Center (2005 - 2005)
- Visiting Scientist, Research Institute for Innovative Technology for the Earth, Kyoto, Japan (2005 - 2005)
- Program Committee, SPE Advanced Technology Workshop, Kota Kinabalu, Malaysia, Society of Petroleum Engineers (2004 - 2004)
- Cochairman, SPE Asia-Pacific Forum, Phuket, Thailand, Society of Petroleum Engineers (2002 - 2003)
- Committee of Authors, SPE Monograph on Well Testing, Society of Petroleum Engineers (2001 - 2006)
- Technical Program Chairman, World Geothermal Congress 2005, Turkey (2001 - 2005)
- Board of Directors, International Geothermal Association (2001 - 2004)
- Chairman, Membership, International Geothermal Association (2001 - 2004)
- Program Committee, SPE Advanced Technology Workshop, Chiba, Japan, Society of Petroleum Engineers (2001 - 2001)
- Program Committee, SPE Annual Meeting 2002, Society of Petroleum Engineers (2001 - 2001)
- Program Committee, SPE Asia-Pacific Forum, Nusa Dua, Indonesia, Society of Petroleum Engineers (2001 - 2001)
- Chairman, Association of Petroleum Engineering Department Heads (2000 - 2001)
- Advisory Board, University of Auckland School of Engineering, New Zealand (2000 - 2000)
- Program Committee, SPE Annual Meeting 2001, Society of Petroleum Engineers (2000 - 2000)
- Secretary, Association of Petroleum Engineering Department Heads (1999 - 2000)
- Program Committee, SPE Annual Meeting 2000, Society of Petroleum Engineers (1999 - 1999)
- Board of Directors, International Geothermal Association (1998 - 2001)
- Chairman, Programing and Planning, International Geothermal Association (1998 - 2001)

- Chairman, Department of Petroleum Engineering, Stanford University (1995 - 2006)

PROFESSIONAL EDUCATION

- D.Sc., University of Auckland , Engineering (1986)
- Ph.D., University of Auckland , Theoretical and Applied Mechanics (1975)
- B.E., University of Auckland , Theoretical and Applied Mechanics (1972)

PATENTS

- Grzegorz Cieslewski, Xuhua Gao, Ryan Falcone Hess, Avery T. Cashion, IV, William C. Corbin, Sasha Egan and Roland N. Horne. "United States Patent 11,156,583 Systems, Methods and Tools for Subterranean Electrochemical Characterization and Enthalpy Measurement in Geothermal Reservo", Sandia National Laboratories, Oct 26, 2021

LINKS

- Geothermal: http://pangea.stanford.edu/researchgroups/geothermal/
- SUPRI-D: Well Testing: http://pangea.stanford.edu/researchgroups/suprid/
- Google Scholar: https://scholar.google.com/citations?user=f1brNwEAAAAJ&hl=en&oi=ao

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Research

Presently my research focuses on the matching of models to various classes of reservoir responses. These "inverse problems" seek the values of unknown reservoir parameters by inference rather than direct measurement. Typical problems are: tracer analysis of fractures, computer-aided well test analysis, production schedule optimization, and automated history matching/decline analysis. In addition to this general class of problem, I have specific interest in geothermal reservoir engineering, and the multiphase flow of boiling fluids through porous materials and fractures.

Teaching

I teach the undergraduate class, Fundamentals of Petroleum Engineering, as well as the graduate classes, Geothermal Reservoir Engineering, Well Test Analysis, and Optimization.

Professional Activities

School of Earth Sciences Teaching Award (2007); SPE Honorary Member (2007); Technical program chairman, World Geothermal Congress 2010 (2005-Present); chairman, Woods Institute Energy Committee (2005-2009); guest professor, China University of Petroleum (2007); visiting professor, Universiti Teknologi Malaysia (2006); invited speaker, Xerox PARC Forum (2006); invited speaker, SPE Golden Gate Section (2006); invited speaker, Petronas R&D Forum, Malaysia (2006); panel member, PhD Review, Texas A&M University (2006); Committee of Authors, SPE Monograph on Well Testing (2001-06); visiting professor, Stanford Japan Center (2005); visiting scientist, Research Institute for Innovative Technology for the Earth, Kyoto, Japan (2005); invited speaker, Osaka University (2005); invited speaker, Kyoto University, (2005); technical program chairman, World Geothermal Congress 2005, Turkey (2001-05); technical program chairman, World Geothermal Congress 2010, Indonesia (2006-10); program committee, SPE Advanced Technology Workshop, Kota Kinabalu, Malaysia (2004); Board of Directors, International Geothermal Association (2001-04, 2007-10 and 2010-13) [President, 2010-2013]

Teaching

COURSES

2023-24

- ESE Master's Graduate Seminar: ENERGY 351 (Win)

- ESE PhD Graduate Seminar: ENERGY 352 (Win)
- Fundamentals of Energy Processes: EE 293B, ENERGY 201B (Win)
- Geothermal Reservoir Engineering: ENERGY 269 (Spr)
- Mass and Energy Transport in Porous Media: ENERGY 120, ENGR 120 (Win)

2022-23

- Fundamentals of Energy Processes: EE 293B, ENERGY 293B (Win)
- Fundamentals of Petroleum Engineering: ENERGY 120, ENGR 120 (Aut)
- Geothermal Reservoir Engineering: ENERGY 269 (Spr)
- Well Test Analysis: ENERGY 175 (Aut)

2021-22

- ERE Master's Graduate Seminar: ENERGY 351 (Spr)
- ERE PhD Graduate Seminar: ENERGY 352 (Spr)
- Fundamentals of Energy Processes: EE 293B, ENERGY 293B (Win)
- Fundamentals of Petroleum Engineering: ENERGY 120, ENGR 120 (Aut)
- Geothermal Reservoir Engineering: ENERGY 269 (Spr)

2020-21

- Fundamentals of Energy Processes: EE 293B, ENERGY 293B (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Yulman Perez Claro

Doctoral Dissertation Advisor (AC)

Mohammad Aljubran, Jingru Cheng, Halldora Gudmundsdottir, Dang Ton

Master's Program Advisor

Fatimah AlNasser, Marshall Hartung

Doctoral (Program)

Ciro Guimaraes, Xunfeng Lu, Sarah Sausan, Yuan Tian, Xiaoyu Yang

Publications

PUBLICATIONS

- **FGEM: Flexible Geothermal Economics Modeling tool** *APPLIED ENERGY*
  Aljubran, M. J., Horne, R. N.
  2024; 353

- **Fracture aperture anisotropic effects on field scale enhanced geothermal system thermal performance** *GEOTHERMICS*
  Okoroafor, E., Horne, R. N.
  2024; 118

- **Numerical investigation of closed-loop geothermal systems in deep geothermal reservoirs** *GEOTHERMICS*
  White, M., Vasyliv, Y., Beckers, K., Martinez, M., Balestra, P., Parisi, C., Augustine, C., Bran-Anleu, G., Horne, R., Pauley, L., Bettin, G., Marshall, T., Bernat, et al
  2024; 116

- **Recent advances on fluid flow in porous media using digital core analysis technology** *ADVANCES IN GEO-ENERGY RESEARCH*
  Yang, Y., Horne, R. N., Cai, J., Yao, J.
  2023; 9 (2): 71-75

- **Long-Term Microbial DNA-Based Monitoring of the Mature Sarukawa Oil Field in Japan** *SPE RESERVOIR EVALUATION & ENGINEERING*
  Kobayashi, H., Goto, A., Feng, X., Uruma, K., Momoi, Y., Watanabe, S., Sato, K., Zhang, Y., Horne, R. N., Shibuya, T., Okano, Y.
  2023; 26 (3): 1110-1119

- **Investigating fracture network creation and stimulation mechanism of EGS reservoirs** *GEOTHERMICS*
  Abe, A., Horne, R. N.
  2023; 107

- **Fracture roughness considerations in comparing CO2 and water as enhanced geothermal system working fluids** *GEOTHERMICS*
  Okoroafor, E., Williams, M. J., Gossuin, J., Keshinro, O., Horne, R. N.
  2022; 106

- **Scale Buildup Detection and Characterization in Production Wells by Deep Learning Methods** *SPE PRODUCTION & OPERATIONS*
  Cheng, J., Mao, D., Salamah, M., Horne, R.
  2022; 37 (4): 616-631

- **Simulating Oil and Water Production in Reservoirs with Generative Deep Learning** *SPE RESERVOIR EVALUATION & ENGINEERING*
  Alakeely, A., Horne, R.
  2022; 25 (4): 751-773

- **Temperature-dependent viscosity: Relevance to the numerical simulation of enhanced geothermal systems** *THERMAL SCIENCE AND ENGINEERING PROGRESS*
  Okoroafor, E., Horne, R. N.
  2022; 34

- **Comparison of Microbial Profiling and Tracer Testing for the Characterization of Injector-Producer Interwell Connectivities** *WATER*
  Zhang, Y., Dekas, A. E., Hawkins, A. J., Primo, J., Gorbatenko, O., Horne, R. N.
  2022; 14 (18)

- **Geological activity shapes the microbiome in deep-subsurface aquifers by advection.** *Proceedings of the National Academy of Sciences of the United States of America*
  Zhang, Y., Horne, R. N., Hawkins, A. J., Primo, J. C., Gorbatenko, O., Dekas, A. E.
  2022; 119 (25): e2113985119

- **Assessing poroelastic properties of a geothermal reservoir by tidal signal analysis** *GEOTHERMICS*
  Sato, K., Tamura, Y., Osato, K., Horne, R. N.
  2022; 100

- **Numerical investigation of the impact of fracture aperture anisotropy on EGS thermal performance** *GEOTHERMICS*
  Okoroafor, E., Co, C., Horne, R. N.
  2022; 100

- **Application of deep learning methods to estimate multiphase flow rate in producing wells using surface measurements** *JOURNAL OF PETROLEUM SCIENCE AND ENGINEERING*
  Alakeely, A. A., Horne, R. N.
  2021; 205

- **Stochastic inversion of gravity, magnetic, tracer, lithology, and fault data for geologically realistic structural models: Patua Geothermal Field case study** *GEOTHERMICS*
  Pollack, A., Cladouhos, T. T., Swyer, M. W., Siler, D., Mukerji, T., Horne, R. N.
  2021; 95

- **Close Observation of Hydraulic Fracturing at EGS Collab Experiment 1: Fracture Trajectory, Microseismic Interpretations, and the Role of Natural Fractures** *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*
  Fu, P., Schoenball, M., Ajo-Franklin, J. B., Chai, C., Maceira, M., Morris, J. P., Wu, H., Knox, H., Schwering, P. C., White, M. D., Burghardt, J. A., Strickland, C. E., Johnson, et al

2021

- **Investigating stress shadowing effects and fracture propagation patterns: Implications for enhanced geothermal reservoirs** *INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES*
  Abe, A., Horne, R. N.
  2021; 142
- **Laboratory hydraulic stimulation experiments to investigate the interaction between newly formed and preexisting fractures** *INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES*
  Abe, A., Kim, T., Horne, R. N.
  2021; 141
- **Constraining maximum event magnitude during injection-triggered seismicity** *NATURE COMMUNICATIONS*
  Li, Z., Elsworth, D., Wang, C., Boyd, L., Frone, Z., Metcalfe, E., Nieto, A., Porse, S., Vandermeer, W., Podgorney, R., Huang, H., McLing, T., Neupane, et al
  2021; 12 (1): 1528
- **Thermoelectric power generator: Field test at Bottle Rock geothermal power plant** *JOURNAL OF POWER SOURCES*
  Li, K., Garrison, G., Zhu, Y., Moore, M., Liu, C., Hepper, J., Bandt, L., Horne, R., Petty, S.
  2021; 485
- **DNA Tracer Transport Through Porous Media-The Effect of DNA Length and Adsorption** *WATER RESOURCES RESEARCH*
  Zhang, Y., Hartung, M. B., Hawkins, A. J., Dekas, A. E., Li, K., Horne, R. N.
  2021; 57 (2)
- **Surrogate-Based Prediction and Optimization of Multilateral Inflow Control Valve Flow Performance with Production Data** *SPE PRODUCTION & OPERATIONS*
  Aljubran, M., Horne, R.
  2021; 36 (1): 224–33
- **Downhole measurement of enthalpy in geothermal wells - An analytical, experimental and numerical study** *GEOTHERMICS*
  Gao, X., Wang, J., Horne, R. N.
  2020; 88
- **An expandable thermoelectric power generator and the experimental studies on power output** *INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER*
  Li, K., Garrison, G., Moore, M., Zhu, Y., Liu, C., Horne, R., Petty, S.
  2020; 160
- **Simulating the Behavior of Reservoirs with Convolutional and Recurrent Neural Networks**
  Alakeely, A., Horne, R. N.
  SOC PETROLEUM ENG.2020: 992–1005
- **General Solution for Tidal Behavior in Confined and Semiconfined Aquifers Considering Skin and Wellbore Storage Effects** *WATER RESOURCES RESEARCH*
  Gao, X., Sato, K., Horne, R. N.
  2020; 56 (6)
- **Experimental Study on Nano-/Microparticles Transport to Characterize Structures in Fractured Porous Media** *Rock Mechanics and Rock Engineering*
  Suzuki, A., Cui, J., Zhang, Y., Uehara, S., Li, K., Horne, R., Ito, T.
  2020
- **Contributions of 3D Printed Fracture Networks to Development of Flow and Transport Models** *TRANSPORT IN POROUS MEDIA*
  Suzuki, A., Minto, J. M., Watanabe, N., Li, K., Horne, R. N.
  2019; 129 (2): 485–500
- **Sequential-implicit Newton method for multiphysics simulation** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Wong, Z., Kwok, F., Horne, R. N., Tchelepi, H. A.
  2019; 391: 155–78
- **Applying Machine-Learning Techniques To Interpret Flow-Rate, Pressure, and Temperature Data From Permanent Downhole Gauges**
  Tian, C., Horne, R. N.

SOC PETROLEUM ENG.2019: 386–401

- **Microbial Community Composition in Deep#Subsurface Reservoir Fluids Reveals Natural Interwell Connectivity** *Water Resources Research*
  Zhang, Y., Dekas, A., Hawkins, A., Parada, A., Gorbatenko, O., Li, K., Horne, R.
  2019
- **Time-lapse analysis of pressure transients due to ocean tides for estimating CO2 saturation changes** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
  Sato, K., Horne, R. N.
  2018; 78: 160–67
- **Sequential implicit nonlinear solver for geothermal simulation** *JOURNAL OF COMPUTATIONAL PHYSICS*
  Wong, Z., Horne, R. N., Tchelepi, H. A.
  2018; 368: 236–53
- **Field observations at the Fenton Hill enhanced geothermal system test site support mixed-mechanism stimulation** *GEOTHERMICS*
  Norbeck, J. H., McClure, M. W., Horne, R. N.
  2018; 74: 135–49
- **Maximum magnitude of injection-induced earthquakes: A criterion to assess the influence of pressure migration along faults** *TECTONOPHYSICS*
  Norbeck, J. H., Horne, R. N.
  2018; 733: 108–18
- **Fracture network created by 3-D printer and its validation using CT images** *WATER RESOURCES RESEARCH*
  Suzuki, A., Watanabe, N., Li, K., Horne, R. N.
  2017; 53 (7): 6330–39
- **Evidence for a transient hydromechanical and frictional faulting response during the 2011 M-w 5.6 Prague, Oklahoma earthquake sequence** *JOURNAL OF GEOPHYSICAL RESEARCH-SOLID EARTH*
  Norbeck, J. H., Horne, R. N.
  2016; 121 (12): 8688-8705
- **Experimental tests of truncated diffusion in fault damage zones** *WATER RESOURCES RESEARCH*
  Suzuki, A., Hashida, T., Li, K., Horne, R. N.
  2016; 52 (11): 8578-8589
- **Detecting Fracture Growth Out of Zone by Use of Temperature Analysis** *SPE JOURNAL*
  Ribeiro, P. M., Horne, R. N.
  2016; 21 (4): 1263-1278
- **Physical Mechanisms Related to Microseismic-Depletion-Delineation Field Tests With Application to Reservoir Surveillance** *SPE JOURNAL*
  Norbeck, J. H., Horne, R. N.
  2016; 21 (4): 1279-1288
- **An embedded fracture modeling framework for simulation of hydraulic fracturing and shear stimulation** *COMPUTATIONAL GEOSCIENCES*
  Norbeck, J. H., McClure, M. W., Lo, J. W., Horne, R. N.
  2016; 20 (1): 1-18
- **Evaluating fractures in rocks from geothermal reservoirs using resistivity at different frequencies** *ENERGY*
  Li, K., Pan, B., Horne, R.
  2015; 93: 1230-1238
- **Silica Particles Mobility Through Fractured Rock** *ARABIAN JOURNAL FOR SCIENCE AND ENGINEERING*
  Alaskar, M., Li, K., Horne, R.
  2015; 40 (4): 1205-1222
- **Temperature nanotracers for fractured reservoirs characterization** *JOURNAL OF PETROLEUM SCIENCE AND ENGINEERING*
  Alaskar, M., Ames, M., Liu, C., Li, K., Horne, R.
  2015; 127: 212-228
- **The Utility of Threshold Reactive Tracers for Characterizing Temperature Distributions in Geothermal Reservoirs** *MATHEMATICAL GEOSCIENCES*

Ames, M., Li, K., Horne, R.
2015; 47 (1): 51-62

- **Inversion of Time-Lapse Electric Potential Data to Estimate Fracture Connectivity in Geothermal Reservoirs** *MATHEMATICAL GEOSCIENCES*
  Magnusdottir, L., Horne, R. N.
  2015; 47 (1): 85-104
- **An investigation of stimulation mechanisms in Enhanced Geothermal Systems** *INTERNATIONAL JOURNAL OF ROCK MECHANICS AND MINING SCIENCES*
  McClure, M. W., Horne, R. N.
  2014; 72: 242-260
- **Correlations between formation properties and induced seismicity during high pressure injection into granitic rock** *ENGINEERING GEOLOGY*
  McClure, M. W., Horne, R. N.
  2014; 175: 74-80
- **Characterizing Hydraulic Fracturing With a Tendency-for-Shear-Stimulation Test** *SPE Annual Technical Conference and Exhibition*
  McClure, M., Horne, R.
  SOC PETROLEUM ENG.2014: 233–43
- **In situ estimation of relative permeability from resistivity measurements** *PETROLEUM GEOSCIENCE*
  Li, K., Shapiro, M., Horne, R. N., Ma, S., Hajari, A., Mudhhi, M.
  2014; 20 (1): 143-151
- **Characterization of fractured reservoirs using tracer and flow- rate data** *WATER RESOURCES RESEARCH*
  Juliusson, E., Horne, R. N.
  2013; 49 (5): 2327-2342
- **Reservoir Description with Integrated Multiwell Data Using Two-Dimensional Wavelets** *MATHEMATICAL GEOSCIENCES*
  Awotunde, A. A., Horne, R. N.
  2013; 45 (2): 225-252
- **Characterization of Fractured Reservoirs Using Tracer and Flow-Rate Data, Water Resour** *Water Resources Research*
  Juliusson, E., Horne, R. N.
  2013; 49
- **Nanoparticle and Microparticle Flow in Porous and Fractured Media-An Experimental Study** *SPE Annual Technical Conference and Exhibition*
  Alaskar, M., Ames, M., Connor, S., Liu, C., Cui, Y., Li, K., Horne, R.
  SOC PETROLEUM ENG.2012: 1160–71
- **An Improved Adjoint-Sensitivity Computation for Multiphase Flow Using Wavelets** *SPE Annual Technical Conference and Exhibition*
  Awotunde, A. A., Horne, R. N.
  SOC PETROLEUM ENG.2012: 402–17
- **Interpreting Pressure and Flow-Rate Data From Permanent Downhole Gauges by Use of Data-Mining Approaches** *SPE Journal*
  Liu, Y., Horne, R. N.
  2012; 18 (1): 69-82
- **Investigation of injection-induced seismicity using a coupled fluid flow and rate/state friction model** *GEOPHYSICS*
  McClure, M. W., Horne, R. N.
  2011; 76 (6): WC181-WC198
- **Robust Well-Test Interpretation by Using Nonlinear Regression With Parameter and Data Transformations** *SPE JOURNAL*
  Dastan, A., Horne, R. N.
  2011; 16 (3): 698-712
- **A Multiresolution Analysis of the Relationship Between Spatial Distribution of Reservoir Parameters and Time Distribution of Well-Test Data** *SPE RESERVOIR EVALUATION & ENGINEERING*
  Awotunde, A. A., Horne, R. N.
  2011; 14 (3): 345-356

- **Simultaneous Interpretation of Pressure, Temperature, and Flow-Rate Data Using Bayesian Inversion Methods** *SPE RESERVOIR EVALUATION & ENGINEERING*
  Duru, O. O., Horne, R. N.
  2011; 14 (2): 225-238
- **A wavelet approach to adjoint state sensitivity computation for steady state differential equations** *WATER RESOURCES RESEARCH*
  Awotunde, A. A., Horne, R. N.
  2011; 47
- **Paul Kruger (1925-2010) Obituary** *GEOTHERMICS*
  Horne, R.
  2011; 40 (1): 87-87
- **Modeling Reservoir Temperature Transients and Reservoir-Parameter Estimation Constrained to the Model** *2008 SPE Annual Technical Conference and Exhibition*
  Duru, O. O., Horne, R. N.
  SOC PETROLEUM ENG.2010: 873–83
- **Experimental Study of Water Injection into Geothermal Systems** *TRANSPORT IN POROUS MEDIA*
  Li, K., Nassori, H., Horne, R. N.
  2010; 85 (2): 593-604
- **Significant Improvement in the Accuracy of Pressure-Transient Analysis Using Total Least Squares** *SPE RESERVOIR EVALUATION & ENGINEERING*
  Dastan, A., Horne, R. N.
  2010; 13 (4): 614-625
- **Method to Evaluate the Potential of Water Injection in Naturally Fractured Reservoirs** *TRANSPORT IN POROUS MEDIA*
  Li, K., Horne, R. N.
  2010; 83 (3): 699-709
- **Modeling Study of Single-Well EGS Configurations** *World Geothermal Congress*
  Wang, , Z., McClure and , M. W., Horne, R. N.
  2010
- **Characterization of Fractures in Geothermal Reservoirs** *World Geothermal Congress*
  Juliusson, E., Horne, . N.
  2010
- **Application of Nonparametric Regression on Well Histories of Geothermal Production Fields in the Philippines** *World Geothermal Congress*
  Villacorte, J. D., Malate, R. M., Horne, R. N.
  2010
- **Experimental Study and Fractal Analysis of Heterogeneity in Naturally Fractured Rocks** *TRANSPORT IN POROUS MEDIA*
  Li, K., Horne, R. N.
  2009; 78 (2): 217-231
- **Applicability of the ACE algorithm for multiple regression in hydrogeology** *COMPUTATIONAL GEOSCIENCES*
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PRESENTATIONS

- Keynote Speaker, Iceland Geothermal Conference, 2013 - Iceland Geothermal Conference (2013)
- Keynote Speaker, World Future Energy Summit, 2013 (2013)

- Keynote Speaker, GeoEnergi Norway, 2013 (2013)
- Keynote Speaker, Der Geothermiekongress, 2013 (2013)
- Invited Speaker, Lockheed, 2012 (2012)
- Distinguished Lecture, TAMU Qatar, 2012
- Keynote Speaker, Australian Geothermal Energy Conference, 2011
- Keynote Speaker, GeoTherm Conference, Offenburg, Germany, 2011
- Keynote Speaker, New Zealand Geothermal Workshop, 2011
- Keynote Speaker, Middle East Oil Conference, Bahrain, 2011
- Invited Speaker, Idaho Society of Professional Engineers, 2011
- Invited Speaker, Fermilab, 2011
- Invited Speaker, Hewlett-Packard, 2011
- Invited Speaker, UC Davis, 2011
- Keynote Speaker, New Zealand Geothermal Conference, 2008
- Invited Speaker, China University of Petroleum, Qingdao, 2008
- Invited Speaker, Daqing Petroleum Co., China, 2008
- Invited Speaker, National Geothermal Association of the Phillippines, Manila, 2007
- Invited Speaker, Chulalongkorn University, Bangkok, Thailand, 2007
- Invited Speaker, China University of Petroleum, Qingdao, 2007
- Invited Speaker, Peking University, 2007
- Invited Speaker, China University of Petroleum, Dongying, 2007
- Invited Speaker, Petroleum Society of CIM, Canada, 2007
- Invited Speaker, International R&D Forum on Oil, Gas and Petrochemicals, Malaysia, 2006
- Invited Speaker, Xerox PARC Forum, 2006
- Invited Speaker, SPE Golden Gate Section, Society of Petroleum Engineers, 2006
- Invited Speaker, Kyoto University, 2005
- Invited Speaker, Osaka University, 2005
- Invited Speaker, Chulalongkorn University, Bangkok, Thailand, 2003
- Invited Speaker, Petroleum Business Institute, Moscow, Russia, 2003
- Invited Speaker, Kyushu University, Fukuoka, Japan, 2003
- Invited Speaker, BP Institute, Cambridge, England, 2001
- Invited Speaker, University of Tokyo, Japan, 2001
- Invited Speaker, Memorial University of Newfoundland, Canada, 2001
- Invited Speaker, University of Texas, Austin, 2001
- Invited Speaker, Texas A&M University, February 2015 (2015 - 2015)
- Keynote Speaker, 2015 International Conference on Alternative Energy in Developing Countries and Emerging Economies (May 2015 - May 2015)
- Invited Speaker, Canadian Institute of Mining, Petroleum Division, Calgary, 1998
- Keynote Speaker, Society of Petroleum Engineers Asia-Pacific Forum, Nusa Dua, Indonesia, 1998
- Invited Speaker, Schlumberger Conference on Permanent Downhole Gauges, Paris, 1997
- Keynote Speaker: International Petroleum Technology Conference, Kuala Lumpur, 2014 (12/10/2014 - 12/12/2014)

- Keynote Speaker, 2014 Innovation for Cool Earth Forum (ICEF) (2014 - 2014)
- Keynote Speaker, Grand Renewable Energy Conference, Tokyo, 2014 (2014)
- Keynote Speaker, International Conference on Integrated Petroleum Engineering and Geosciences 2016 (ICIPEG2016) - UTP Malaysia (August 16, 2016 - August 16, 2016)
- Distinguished Lecture, University of Houston, 2018 - University of Houston (2018)