CV (external, with journal publications)

Ruben Juanes

Date: February 05, 2024

Education Records

Institution	Degree	Date	Specialization	Thesis Title
University of California, Berkeley	PhD (CEE)	May 2003	Civil & Environmental Engineering	Displacement theory and multiscale numerical modeling of three-phase flow in porous media
University of California, Berkeley	MS (CEE)	May 1999	Environmental Engineering	
University of La Coruna, Spain	BS (civil engineering)	June 1997		

Fields of Interest

Field of Interest
Multiphase Flow through Porous Media
Groundwater Hydrology
Energy Resources
Computational Geomechanics
Induced Seismicity
Carbon Sequestration

MIT Appointments

Title	Type	Department	Begin Date	End Date
Professor	Primary Appointment	Department of Civil and Environmental Engineering	7/1/2018	-
Associate Professor/Joint (wt)	Additional Appointment	Dept of Earth, Atmospheric, & Planetary Sciences	3/1/2016	2/28/2024
Director, Henry L. Pierce Laboratory for Infrastructure Science and Engineering	Additional Appointment	Department of Civil and Environmental Engineering	7/1/2015	6/30/2022
Associate Professor with tenure	Primary Appointment	Department of Civil and Environmental Engineering	7/1/2013	6/30/2018
Associate Professor without tenure	Primary Appointment	Department of Civil and Environmental Engineering	7/1/2010	6/30/2013
Assistant Professor	Primary Appointment	Department of Civil and Environmental Engineering	7/1/2006	6/30/2010

Non-MIT Experience

Employer	Title	Begin Date	End Date
University of Texas at Austin	Assistant Professor	January 2006	July 2006
Stanford University	Acting Assistant Professor	March 2003	December 2005

MIT Affiliations

Affiliation Type	Organizational Unit (Description of Activity)	Start Date	End Date
Research	Earth Resources Laboratory (ERL) (Principal Investigator)	9/1/2010	-
Research	Center for Computational Science and Engineering (Research advisor)	9/1/2010	-

Publications

Papers in refereed journals

Publication Name and Url	Publication Date
J. Molinero, J. Samper and R. Juanes, “Filtration of water towards tunnels: dynamic simulation of the excavation process” (in Spanish with abstract in English), Revista de Obras Publicas 3397:33-49 (2000).	January 2000
R. Juanes and J. Samper, “A general and efficient formulation of fractures and boundary conditions in the F.E.M.: I. Theoretical aspects” (in Spanish with abstract in English), Revista Internacional de Metodos Numericos para Calculo y Diseno en Ingenieria 16(4):471-491 (2000).	January 2000
R. Juanes and J. Samper, “A general and efficient formulation of fractures and boundary conditions in the F.E.M.: II. Synthetic cases” (in Spanish with abstract in English), Revista Internacional de Metodos Numericos para Calculo y Diseno en Ingenieria 17(1):61-82 (2001).	January 2001
J. Molinero, J. Samper and R. Juanes, “Numerical modeling of the transient hydrogeological response produced by tunnel construction in fractured bedrocks,” Engineering Geology 64(4):369-386 (2002).	January 2002
R. Juanes, J. Samper and J. Molinero, “A general and efficient formulation of fractures and boundary conditions in the finite element method,” International Journal for Numerical Methods in Engineering 54(12):1751-1774 (2002).	January 2002
R. Juanes and T. W. Patzek, “Analytical solution to the Riemann problem of three-phase flow in porous media,” Transport in Porous Media 55(1):47-70 (2004).	January 2004
R. Juanes and T. W. Patzek, “Multiscale-stabilized finite element methods for miscible and immiscible flow in porous media,” Journal of Hydraulic Research, Special issue: Bridging the gap between measurement and modeling in heterogeneous media 42(Sp.Iss.):131-140 (2004).	January 2004
R. Juanes and T. W. Patzek, “Relative permeabilities for strictly hyperbolic models of three-phase flow in porous media,” Transport in Porous Media 57(2):125-152 (2004).	January 2004
R. Juanes and T. W. Patzek, “Three-phase displacement theory: An improved description of relative permeabilities,” Society of Petroleum Engineers Journal 9(3):302-313 (2004).	January 2004
R. Juanes and T. W. Patzek, “Multiscale-stabilized solutions to one-dimensional systems of conservations laws,” Computer Methods in Applied Mechanics and Engineering 194(25-26):2781-2805 (2005).	January 2005
K.-A. Lie and R. Juanes, “A front-tracking method for the simulation of three-phase flow in porous media,” Computational Geosciences 9(1):29-59 (2005).	January 2005
R. Juanes, “A variational multiscale finite element method for multiphase flow in porous media,” Finite Elements in Analysis and Design 41(7-8):763-777 (2005).	January 2005
R. Juanes, “Determination of the wave structure of the three-phase flow Riemann problem,” Transport in Porous Media 60(2):135-139 (2005).	January 2005
E. J. Spiteri and R. Juanes, “Impact of relative permeability hysteresis on the numerical simulation of WAG injection,” Journal of Petroleum Science and Engineering 50(2):115-139 (2006). **	January 2006
R. Juanes, E. J. Spiteri, F. M. Orr, Jr., and M. J. Blunt, “Impact of relative permeability hysteresis on geological CO2 storage,” Water Resources Research 42, W12418 (2006).**	January 2006
S. F. Matringe, R. Juanes, and H. A. Tchelepi, “Robust streamline tracing for the simulation of porous media flow on general triangular and quadrilateral grids,” Journal of Computational Physics 219(2):992-1012 (2006). **	January 2006
Y. Cinar, R. Berenblyum, K. Jessen, R. Juanes, and F. M. Orr, Jr, “An experimental and numerical investigation of crossflow effects in two-phase displacements,” Society of Petroleum Engineers Journal 11(2):216-226 (2006).	January 2006
R. Juanes and M. J. Blunt, “Analytical solutions to multiphase first-contact miscible models with viscous fingering,” Transport in Porous Media 64(3):339-373 (2006).	January 2006
R. Juanes and K.-A. Lie, “Numerical modeling of multiphase first-contact miscible flows. Part 1. Analytical Riemann solver,” Transport in Porous Media 67(3):375-393 (2007).	January 2007
B. Jha and R. Juanes, “A locally conservative finite element framework for the simulation of coupled flow and reservoir geomechanics,” Acta Geotechnica 2(3):139-153 (2007). **	January 2007
R. Juanes and M. J. Blunt, “Impact of viscous fingering on the prediction of optimum WAG ratio,” Society of Petroleum Engineers Journal 12(4):486-495 (2007).	January 2007
S. F. Matringe, R. Juanes, and H. A. Tchelepi, “Streamline tracing on general triangular or quadrilateral grids,” Society of Petroleum Engineers Journal 12(2):217-223 (2007). **	January 2007
R. Juanes and K.-A. Lie, “Numerical modeling of multiphase first-contact miscible flows. Part 2. Front-tracking/streamline simulation,” Transport in Porous Media 72(1):97-120(2008).	January 2008
L. Cueto-Felgueroso and R. Juanes, “Nonlocal interface dynamics and pattern formation in gravity-driven unsaturated flow through porous media,” Physical Review Letters 101(24), 244504 (2008). **	January 2008
S. F. Matringe, R. Juanes and H. A. Tchelepi, “Tracing streamlines on unstructured grids from finite volume discretizations,” Society of Petroleum Engineers Journal 13(4): 423-431 (2008). **	January 2008
E. J. Spiteri, R. Juanes, M. J. Blunt and F. M. Orr, Jr, “A new model of trapping and relative permeability hysteresis for all wettability characteristics,” Society of Petroleum Engineers Journal 13(3):277-288 (2008). **	January 2008
R. Juanes and H. A. Tchelepi, “Special Issue on Multiscale Methods for Flow and Transport in Heterogeneous Porous Media,” Computational Geosciences 12(3):255-256 (2008).	January 2008
R. Juanes and F.-X. Dub, “A locally-conservative variational multiscale method for the simulation of flow in porous media with multiscale source terms,” Computational Geosciences 12(3):273-295 (2008). **	January 2008

R. Juanes, “A robust negative flash based on a parameterization of the tie-line field,” Fluid Phase Equilibria 267:6-17 (2008).	January 2008
R. Juanes, “Nonequilibrium effects in models of three-phase flow in porous media,” Advances in Water Resources 31:661-673 (2008).	January 2008
D. A. DiCarlo, R. Juanes, T. LaForce, and T. P. Witelski, “Nonmonotonic traveling wave solutions of infiltration in porous media,” Water Resources Research 44, W02406 (2008).	January 2008
R. Juanes and S. F. Matringe, “Unified formulation for high-order streamline tracing on two-dimensional unstructured grids,” Journal of Scientific Computing 38(1):50-73 (2009). **	January 2009
L. Cueto-Felgueroso and R. Juanes, “A phase-field model of unsaturated flow,” Water Resources Research 45, W10409 (2009). **	January 2009
A. K. Jain and R. Juanes, “Preferential mode of gas invasion in sediments: grain-scale mechanistic model of coupled multiphase fluid flow and sediment mechanics,” Journal of Geophysical Research - Solid Earth 114, B08101 (2009). **	January 2009
L. Cueto-Felgueroso and R. Juanes, “Adaptive rational spectral methods for the linear stability analysis of nonlinear fourth-order problems,” Journal of Computational Physics 228:6536-6552 (2009). **	January 2009
L. Cueto-Felgueroso and R. Juanes, “Stability analysis of a phase-field model of gravitydriven unsaturated flow through porous media,” Physical Review E 79(3), 036301 (2009). **	January 2009
C. W. MacMinn and R. Juanes, “Post-injection spreading and trapping of CO2 in saline aquifers: Impact of the plume shape at the end of injection,” Computational Geosciences 13:483-491 (2009). **	July 2009
R. Juanes, C. W. MacMinn, and M. L. Szulczewski, “The footprint of the CO2 plume during carbon dioxide storage in saline aquifers: storage efficiency for capillary trapping at the basin scale,” Transport in Porous Media 82(1):19-30 (2010). **	January 2010
C. Nicolaides, L. Cueto-Felgueroso and R. Juanes, “Anomalous physical transport in complex networks,” Physical Review E 82(5):055101(R) (2010). **	January 2010
C. W. MacMinn and M. L. Szulczewski and R. Juanes, “CO2 migration in saline aquifers. Part 1: Capillary trapping under slope and groundwater flow,” Journal of Fluid Mechanics 662:329-351 (2010). **	January 2010
R. Holtzman and R. Juanes, “Crossover from fingering to fracturing in deformable disordered media,” Physical Review E 82(4):046305 (2010). **	January 2010
P. K. Kang, M. Dentz and R. Juanes, “Predictability of anomalous transport on lattice networks with quenched disorder,” Physical Review E 83(3), 030101(R) (2011). **	January 2011
B. Jha, L. Cueto-Felgueroso and R. Juanes, “Quantifying mixing in viscously unstable porous media flows,” Physical Review E 84, 066312 (2011). **	January 2011
C. W. MacMinn and M. L. Szulczewski and R. Juanes, “CO2 migration in saline aquifers. Part 2: Capillary and solubility trapping,” Journal of Fluid Mechanics 668:321-351 (2011). **	January 2011
P. K. Kang, M. Dentz, T. Le Borgne and R. Juanes, “Spatial Markov model of anomalous transport through random lattice networks,” Physical Review Letters 107, 180602 (2011).**	January 2011
J.-H. Choi, Y. Seol, R. Boswell and R. Juanes, “X-ray computed tomography imaging of gas migration in water-saturated sediments: from capillary invasion to conduit opening,” Geophysical Research Letters 38, L17310 (2011).	January 2011
R. Holtzman and R. Juanes, “Thermodynamic and hydrodynamic constraints on overpressure caused by hydrate dissociation: a pore-scale model,” Geophysical Research Letters 38, L14308 (2011). **	January 2011
B. Jha, L. Cueto-Felgueroso and R. Juanes, “Fluid mixing from viscous fingering,” Physical Review Letters 106, 194502 (2011). **	January 2011
B. P. Scandella, C. Varadharajan, H. F. Hemond, C. Ruppel and R. Juanes, “A conduit dilation model of methane venting from lake sediments,” Geophysical Research Letters 38, L06408 (2011). **	January 2011
J. Kim, H. A. Tchelepi and R. Juanes, “Stability, accuracy and efficiency of sequential methods for coupled flow and geomechanics,” SPE Journal 16(2):249-262 (2011). **	January 2011
J. Kim, H. A. Tchelepi and R. Juanes, “Stability and convergence of sequential methods for coupled flow and geomechanics: Drained and undrained splits,” Computer Methods in Applied Mechanics and Engineering 200:2094-2116 (2011). **	January 2011
J. Kim, H. A. Tchelepi and R. Juanes, “Stability and convergence of sequential methods for coupled flow and geomechanics: Fixed-stress and fixed-strain splits,” Computer Methods in Applied Mechanics and Engineering 200:1591-1606 (2011). **	January 2011
L. Cueto-Felgueroso and R. Juanes, “Macroscopic phase-field modeling of partial wetting: bubbles in a capillary tube,” Physical Review Letters 108, 144502 (2012). **	January 2012
M. L. Szulczewski, C. W. MacMinn, H. J. Herzog and R. Juanes, “Lifetime of carbon capture and storage as a climate-change mitigation technology,” Proceedings of the National Academy of Sciences of the U.S.A. 109(14):5185-5189 (2012) (cover story). **	January 2012
R. Holtzman, M. L. Szulczewski and R. Juanes, “Capillary fracturing in granular media,” Physical Review Letters 108, 264504 (2012). **	January 2012
C. Nicolaides, L. Cueto-Felgueroso, M. C. Gonzalez and R. Juanes, “A metric of influential spreading during contagion dynamics through the air transportation network,” PLoS ONE 7(7), e40961 (2012). **	January 2012
R. Juanes, B. H. Hager, and H. J. Herzog, “No geologic evidence that seismicity causes fault leakage that would render large-scale carbon capture and storage unsuccessful,” Proceedings of the National Academy of Sciences of the U.S.A., 109(52), E3623 (2012).	December 2012
J. J. Hidalgo, J. Fe, L. Cueto-Felgueroso, and R. Juanes, “Scaling of convective mixing in porous media,” Physical Review Letters, 109, 264503 (2012). **	December 2012

H. Gomez, L. Cueto-Felgueroso, and R. Juanes, “Three-dimensional simulation of unstable gravity-driven infiltration of water into a porous medium,” Journal of Computational Physics, 238, 217–239 (2013). **	January 2013
M. L. Szulczewski, and R. Juanes, “The evolution of miscible gravity currents in horizontal porous layers,” Journal of Fluid Mechanics, 719, 82–96 (2013). **	February 2013
B. Zhao, C. W. MacMinn, M. L. Szulczewski, J. A. Neufeld, H. E. Huppert, and R. Juanes, “Interface pinning of immiscible gravity-exchange flows in porous media,” Physical Review E, 87, 023015 (2013). **	February 2013
C. W. MacMinn, and R. Juanes, “Buoyant currents arrested by convective dissolution,” Geophysical Research Letters, 40(10), 2017–2022 (2013). **	May 2013
C. Nicolaides, L. Cueto-Felgueroso, and R. Juanes, “The price of anarchy in mobility-driven contagion dynamics,” Journal of the Royal Society Interface, 10(87), 20130495 (2013). **	July 2013
J. J. Hidalgo, C. W. MacMinn, and R. Juanes, “Dynamics of convective dissolution from a migrating current of carbon dioxide,” Advances in Water Resources, 62, 511-519 (2013). **	July 2013
B. Jha, L. Cueto-Felgueroso, and R. Juanes, “Synergetic fluid mixing from viscous fingering and alter-nating injection,” Physical Review Letters, 111, 144501 (2013). **	October 2013
X. Fu, L. Cueto-Felgueroso, and R. Juanes, “Pattern formation and coarsening dynamics in three- dimensional convective mixing in porous media,” Philosophical Transactions of the Royal Society A, 371, 20120355 (2013). **	November 2013
R. Juanes, and H. Class, “Editorial: Special issue on computational methods in geologic CO2 sequestration,” Advances in Water Resources, 62, 353-355 (2013).	November 2013
J. Kim, H. A. Tchelepi, and R. Juanes, “Rigorous coupling of geomechanics and multiphase flow with strong capillarity,” SPE Journal, 18(6), 1123-1139 (2013). **	December 2013
M. L. Szulczewski, M. A. Hesse, and R. Juanes, “Carbon dioxide dissolution in structural and strati- graphic traps,” Journal of Fluid Mechanics, 736, 287-315 (2013). **	December 2013
L. Cueto-Felgueroso, and R. Juanes, “Forecasting long-term gas production from shale,” Proc. Natl. Acad. Sci. U.S.A., 110(49), 1966019661 (2013). **	December 2013
A. Islam, S. Chevalier, I. Ben Salem, Y. Bernabe, R. Juanes, and M. Sassi, “Characterization of the crossover from capillary invasion to viscous fingering to fracturing during drainage in a vertical 2D porous medium,” International Journal of Multiphase Flow, 58, 279-291 (2014).	January 2014
M. L. Szulczewski, C. W. MacMinn, and R. Juanes, “Theoretical analysis of how pressure buildup and CO2 migration can both constrain storage capacity in deep saline aquifers,” International Journal of Greenhouse Gas Control, 23, 113-118 (2014). **	February 2014
B. Jha, and R. Juanes, “Coupled multiphase flow and poromechanics: a computational model of pore-pressure effects on fault slip and earthquake triggering,” Water Resources Research, 50(5), 3776-3808 (2014). **	May 2014
B. Zhao, C. W. MacMinn, H. E. Huppert, and R. Juane, “Capillary pinning and blunting of immiscible gravity currents in porous media,” Water Resources Research, 50(9), 7067–7081 (2014). **	September 2014
P. K. Kang, P. de Anna, J. P. Nunes, B. Bijeljic, M. J. Blunt, and R. Juanes, “Pore-scale intermittent velocity structure underpinning anomalous transport through 3D porous media,” Geophysical Research Letters, 41(17), 6184-6190 (2014). **	September 2014
L. Cueto-Felgueroso, and R. Juanes, “A phase-field model of two-phase Hele-Shaw flow,” Journal of Fluid Mechanics, 758, 522-552 (2014). **	October 2014
B. Zhao, C. W. MacMinn, and R. Juanes, “Residual trapping, solubility trapping and capillary pinning complement each other to limit CO2 migration in deep saline aquifers,” Energy Procedia, 63, 3833-3839 (2014). **	November 2014
B. Jha, and R. Juanes, “Coupled modeling of multiphase flow and fault poromechanics during geologic CO2 storage,” Energy Procedia, 63, 3313-3329 (2014). **	November 2014
S. Chevalier, T. F. Faisal, Y. Bernabe, R. Juanes, and M. Sassi, “Numerical sensitivity analysis of density driven CO2 convection with respect to different modeling and boundary conditions,” Heat and Mass Transfer, 51(7), 941-952 (2015).	December 2014
M. Strait, M. Shearer, R. Levy, L. Cueto-Felgueroso, and R. Juanes, “Two fluid flow in a capillary tube,” Springer Proceedings in Mathematics & Statistics, 109, 149-161 (2015). **	January 2015
X. Fu, L. Cueto-Felgueroso, D. Bolster, and R. Juanes, “Rock dissolution patterns and geochemical shutdown of CO2-brine-carbonate reactions during convective mixing in porous media,” Journal of Fluid Mechanics, 726, 296-315 (2015). **	January 2015
T. F. Faisal, S. Chevalier, Y. Bernabe, R. Juanes, and M. Sassi, “Quantitative and qualitative study of density driven CO2 mass transfer in a vertical Hele-Shaw cell,” International Journal of Heat and Mass Transfer, 81, 901-914 (2015).	February 2015
P. K. Kang, T. Le Borgne, M. Dentz, O. Bour, and R. Juanes, “Impact of velocity correlation and distribution on transport in fractured media: field evidence and theoretical model,” Water Resources Research, 51(2), 940-959 (2015). **	February 2015
C. Nicolaides, B. Jha, L. Cueto-Felgueroso, and R. Juanes, “Impact of viscous fingering and permeability heterogeneity on fluid mixing in porous media,” Water Resources Research, 51(4), 2634-2647 (2015). **	April 2015
L. Cueto-Felgueroso, M. Dentz, and R. Juanes, “Regime shifts in bistable water-stressed ecosystems due to amplification of stochastic rainfall patterns,” Physical Review E, 91, 052148 (2015). **	May 2015
M. Trojer, M. L. Szulczewski, and R. Juanes, “Stabilizing fluid-fluid displacements in porous media through wettability alteration,” Physical Review Applied, 3, 054008 (2015). **	May 2015
A. Alizadeh Pahlavan, L. Cueto-Felgueroso, G. H. McKinley, and R. Juanes, “Thin films in partial wetting: internal selection of contact-line dynamics,” Physical Review Letters, 115, 034502 (2015). **	July 2015
P. K. Kang, M. Dentz, T. Le Borgne, and R. Juanes, “Anomalous transport on regular fracture networks: impact of conductivity heterogeneity and mixing at fracture intersections,” Physical Review E, 92, 022148 (2015). **	August 2015

B. Jha, F. Bottazzi, R. Wojcik, M. Coccia, N. Bechor, D. McLaughlin, T. A. Herring, B. H. Hager, S. Mantica, and R. Juanes, “Reservoir characterization in an underground gas storage field using joint inversion of flow and geodetic data,” International Journal for Numerical and Analytical Methods in Geomechanics, 39(4), 1619-1638 (2015). **	August 2015
J. Y. Y. Chui, P. de Anna, and R. Juanes, “Interface evolution during radial miscible viscous fingering,” Physical Review E, 92, 041003(R) (2015). **	October 2015
L. Cueto-Felgueroso, and R. Juanes, “A discrete-domain description of multiphase flow in porous media: Rugged energy landscapes and the origin of hysteresis,” Geophysical Research Letters, 43, (2016). **	February 2016
P. K. Kang, Y. Zheng, X. Fang, R. Wojcik, D. McLaughlin, S. Brown, M. C. Fehler, D. R. Burns, and R. Juanes, “Sequential approach to joint flow–seismic inversion for improved characterization of fractured media,” Water Resources Research, 52(2), 903–919 (2016). **	February 2016
C. Nicolaides, L. Cueto-Felgueroso, and R. Juanes, “Self-organization of network dynamics into local quantized states,” Scientific Reports, 6, 21360 (2016). **	February 2016
B. P. Scandella, L. Pillsbury, T. Weber, C. Ruppel, H. F. Hemond, and R. Juanes, “Ephemerality of discrete methane vents in lake sediments,” Geophysical Research Letters, 43, (2016). **	May 2016
R. Juanes, B. Jha, B. H. Hager, J. H. Shaw, A. Plesch, L. Astiz, J. H. Dieterich, and C. Frohlich, “Were the May 2012 Emilia-Romagna earthquakes induced? A coupled flow-geomechanics modeling assessment,” Geophysical Research Letters, 43(13), 6891-6897 (2016). **	July 2016
B. Zhao, C. W. MacMinn and R. Juanes, “Wettability control on multiphase flow in patterned microfluidics,” Proc. Natl. Acad. Sci. U.S.A., 111(37), 10251-10256 (2016). (Cover story) **	August 2016
X. Fu, L. Cueto-Felgueroso, and R. Juanes, “Thermodynamic coarsening arrested by viscous fingering in partially-miscible binary mixtures,” Physical Review E, 94, 033111 (2016). **	September 2016
P. K. Kang, S. Brown, and R. Juanes, “Emergence of anomalous transport in stressed rough fractures,” Earth and Planetary Science Letters, 454, 46-54 (2016). **	November 2016
J. Bueno, Y. Bazilevs, R. Juanes, and H. Gomez, “Droplet motion driven by tensotaxis,” Extreme Mechanics Letters, 13, 10-16 (2017).	January 2017
P. K. Kang, M. Dentz, T. Le Borgne, S. Lee, and R. Juanes, “Anomalous transport in disordered fracture networks: Spatial Markov model for dispersion with variable injection modes,” Advances in Water Resources, 106, 80-94, doi:10.1016/j.advwatres.2017.03.024 (2017). **	May 2017
P. K. Kang, J. Lee, X. Fu, S. Lee, P. K. Kitanidis, and R. Juanes, “Improved characterization of heterogeneous permeability in saline aquifers from transient pressure data during freshwater injection,” Water Resources Research, 53(5), 4444–4458, doi:10.1002/2016WR020089 (2017). **	May 2017
D. Santillan, R. Juanes, and L. Cueto-Felgueroso, “Phase-field model of fluid-driven fracture in elastic media: immersed-fracture formulation and validation with analytical solutions,” Journal of Geophysical Research - Solid Earth, 122(4), 2565-2589, doi:10.1002/2016JB013572 (2017). **	May 2017
B. Scandella, K. Delwiche, H. Hemond, and R. Juanes, “Persistence of bubble outlets in soft, methane-generating sediments,” Journal of Geophysical Research - Biogeosciences, 122, 1298-1320, doi:10.1002/2016JG003717 (2017). **	May 2017
S. Yoon, J. R. Williams, R. Juanes, and P. K. Kang, "Maximizing the value of pressure data in saline aquifer characterization," 109, 14-28, doi:10.1016/j.advwatres.2017.08.019 (2017). **	September 2017
X. Fu, L. Cueto-Felgueroso, and R. Juanes, “Viscous fingering with partially miscible fluids,” Physical Review Fluids, 2, 104001, doi:10.1103/PhysRevFluids.2.104001 (2017). **	October 2017
P. de Anna, B. Quaife, G. Biros, and R. Juanes, “Prediction of low velocity distribution from pore structure in simple porous media,” Physical Review Fluids, 2, 124103, doi:10.1103/PhysRevFluids.2.12410 (2017). **	December 2017
J. Bueno, Y. Bazilevs, R. Juanes, and H. Gomez, “Wettability control of droplet durotaxis,” Soft Matter, 14, 1417-1426, doi:10.1039/C7SM01917C (2018).	January 2018
D. Santillan, R. Juanes, and L. Cueto-Felgueroso, “Phase-field model of hydraulic fracturing in poroelastic media: fracture propagation, arrest and branching under fluid injection and extraction,” Journal of Geophysical Research - Solid Earth, 123, doi:10.1002/2017JB014740 (2018).**	January 2018
J. Jagalur-Mohan, B. Jha, Z. Wang, R. Juanes, and Y. Marzouk, “Inferring fault frictional and reservoir hydraulic properties from injection-induced seismicity,” Geophysical Research Letters, 45(3), 1313–1320, doi:10.1002/2017GL075925 (2018). **	January 2018
B. Zhao, A. Alizadeh Pahlavan, L. Cueto-Felgueroso, and R. Juanes, “Forced wetting transition and bubble pinch-off in a capillary tube,” Physical Review Letters, 120, 084501, doi:10.1103/PhysRevLett.120.084501 (2018). **	February 2018
M.-J. Dalbe, and R. Juanes, “Morphodynamics of fluid-fluid displacement in 3D deformable granular media,” Physical Review Applied, 9, 024028, doi:10.1103/PhysRevApplied.9.024028 (2018). **	February 2018
Z. Yang and R. Juanes, “Two sides of a fault: grain-scale analysis of pore pressure control on fault slip,” Physical Review E, 97, 022906, doi:10.1103/PhysRevE.97.022906 (2018). **	February 2018
A. Alizadeh Pahlavan, L. Cueto-Felgueroso, A. E. Hosoi, G. H. McKinley, and R. Juanes, “Thin films in partial wetting: stability, dewetting and coarsening,” Journal of Fluid Mechanics, 845, 642-681, doi:10.1017/jfm.2018.255 (2018). **	March 2018
X. Fu, L. Cueto-Felgueroso, and R. Juanes, “Nonequilibrium thermodynamics of hydrate growth on a gas–liquid interface,” Physical Review Letters, 120, doi:10.1103/PhysRevLett.120.144501 (2018). **	April 2018
L. Cueto-Felgueroso, X. Fu, and R. Juanes, “Pore-scale modeling of phase change in porous media,” Physical Review Fluids, 3, 084302, doi:10.1103/PhysRevFluids.3.084302 (2018). **	August 2018
B. K. Primkulov, S. Talman, K. Khaleghi, A. Shokri, R. Chalaturnyk, B. Zhao, C. W. MacMinn, and R. Juanes, “Quasi-static fluid-fluid displacement in porous media: invasion-percolation through a wetting transition,” Physical Review Fluids, 3, 104001, doi:10.1103/PhysRevFluids.3.104001 (2018). **	October 2018
H. S. Rabbani, B. Zhao, R. Juanes, and N. Shokri, “Pore geometry control of apparent wetting in porous media,” Scientific Reports, 8, 15729, doi:10.1038/s41598-018-34146-8 (2018). **	October 2018
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Founded Companies

Company Name	Description	Date Founded
Seismix Reservoir Management		2019

Consulting

Organization Name and Description	Role	Start Date	End Date
ConocoPhillips	principal technical advisor	July 2004	August 2004
Saudi Aramco	principal technical advisor	January 2007	January 2007
American Electric Power	principal technical advisor	August 2009	October 2011
Environ / Assomineraria, induced seismicity	principal technical advisor	January 2014	July 2019
Enagas / Spanish Ministry of Energy, Induced seismicity at the Castor underground gas storage field	principal technical advisor	October 2015	May 2017
Southern California Gas	principal technical advisor	April 2017	-
Ramboll / Eni	Principal technical advisor	January 2018	-
Ramboll. / Sasol	principal technical advisor	February 2022	-