

## CV OF DR. MARCELO SÁNCHEZ

### PERSONAL DETAILS

- **Complete name:** Marcelo Javier Sánchez Castilla
- **Nationality:** Argentinean and Spanish  
USA resident.
- **Address:** Texas A&M University.  
Zachry Department of Civil Engineering,  
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- **Google Scholar Profile:** <https://scholar.google.com/citations?user=rtU14jIAAAAJ&hl=&hl=en>

### RESEARCH INTEREST

- Coupled Thermo-Hydro-Mechanical and Geochemical Analysis in Soils and Rocks.
  - Main Applications: Nuclear Waste Disposal, Geothermal Energy, Gas Hydrates Bearing Sediments, Hydraulic-fracturing, Compressed Air Energy Storage, Enhanced Oil Production, CO<sub>2</sub> Sequestration.
- Unsaturated Soils Mechanics, Expansive Soils and Desiccation Cracks in Soils
  - Main Applications: Clay Barriers, Road and Railroads settlements/heave, Earth Dams, Liners, Levees, Foundations, Pavement Sub-grades.
- Behavior of Frozen Soils and effects of freeze/thaw cycles on soil behavior.
- Evolving Discontinuities in Porous Media.
- Constitutive Modeling of Soils and Rocks.
- Double Porosity Media.
- Integration of Fundamental Studies, Experimental Information and Numerical Methods

### QUALIFICATIONS

- **2004. Ph.D. Doctor Ingeniero de Caminos, Canales y Puertos.** (Equivalent to a PhD in Civil Engineering). Universidad Politecnica de Catalunya (UPC). Barcelona, Spain. Thesis: “Coupled Thermo-Hydro-Mechanical analysis in low permeability media”. Grade: excellent cum laude
- **1996. Master in Numerical Methods in Engineering.** (Equivalent to a MSc in Numerical Methods). Universidad Politecnica de Catalunya (UPC), CIMNE, Spain. Grade: excellent.
- **1991. Specialization in Highway Engineering.** Universidad Nacional de San Juan (UNSJ). San Juan, Argentina (one-year course).
- **1990. Undergraduate degree in Civil Engineering.** Universidad Nacional de San Juan (UNSJ). San Juan, Argentina.

## EMPLOYMENT SUMMARY

- **Set. 2017 to present:** Texas A&M University (TAMU). Position: Full Professor.
- **Set. 2009 to Aug. 2017:** Texas A&M University (TAMU). Department of Civil Engineering, College Station, Texas, US. Position: Associate Professor (tenured position since 2015).
- **Apr. 2008 to Aug. 2009:** University of Strathclyde (USTRAT). Department of Civil Engineering, Glasgow, UK. Position: Senior Lecturer (equivalent to Associate Professor) in Civil Engineering.
- **May 2005 to Mar. 2008:** University of Strathclyde (USTRAT). Department of Civil Engineering, Glasgow, UK. Position: Lecturer (equivalent to Assistant Professor) in Civil Engineering.
- **Jan. 1998 to Apr. 2005:** Universidad Politecnica de Catalunya (UPC). Department of Geotechnical Engineering. Barcelona, Spain. Position: Researcher.
- **Jan. 1991 to Dec. 1998:** Universidad Nacional de San Juan (UNSJ). Department of Geotechnical Engineering. San Juan, Argentina. Position: Assistant Professor.

## MAIN PROJECTS AND GRANTS

- **Oct. 2018 to Oct. 2021.** ‘Impact of coupled gas migration and thermo-hydro-mechanical processes on the performance of repositories for high level nuclear waste’. Total around \$ 610K. Pro-rated amount: \$610K. Competitive. Principal Investigator (PI): M. Sanchez. Sponsor: NEUP-DOE (Department of Energy, US).
- **Sep. 2018 to Aug. 2020.** “Facing Expansive Soils in Engineering Projects”. Total \$20K. Pro-rated amount: \$ 10K. Competitive. PI: M. Sanchez. CoPI: F. Marinho (Univ. Sao Paulo, Brazil). Sponsor: FAPESP (Brazil) - TAMU (USA).
- **May 2018 to Abr. 2021.** “Geomechanical and Geochemical Study on Couplings Processes in Carbonates Reservoirs”. Total ~\$225K. PI: L. Guimarães (Federal University of Pernambuco, UFPE, Brazil). Invited expert from UFPE. Sponsor: Petrobras, Brazilian Oil Company.
- **Apr. 2018 to Mar. 2021.** “Numerical HydroMechanical Modeling of Naturally Fractured and Karstic Reservoirs via the Mesh Fragmentation Technique”. Total ~\$260K. PI: O. Manzoli (Universidade Estadual Paulista, UNESP Brazil). Invited expert from UNESP. Sponsor: Petrobras, Brazilian Oil Company.
- **Feb. 2018 to Mar. 2021.** “Modeling, Numerical Simulation & Optimization for Petroleum Engineering – MCOPE”. Project CAPES-PRINT. Competitive. The project funds exchange research stays to the CoPIs of the following academic network: University of Swansea (UK), Texas A&M University, University of Toronto (Canada), University of Arizona (USA), Universidad Autonoma de Madrid (Spain) and Universität Bochum (Germany). TAMU CoPI: M. Sanchez. Sponsor: CAPES (Brazilian Higher-Education Agency).
- **Jul. 2016 to Jul. 2019.** “A multi-scale approach to investigate desiccation cracking in clayey soils”. Total ~\$250K. Competitive. PI: Dr. H. Bui (Monash Univ.); CoPIs: M. Sanchez (TAMU) and J. Kodikara (Monash Univ.). Sponsor ARC Discovery Project (DP160100775); Australia.
- **Oct. 2013 to Oct. 2017.** ‘THCM Coupled Model for Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings)’. Total around \$ 486K. Pro-rated amount: \$332K. Competitive. PI: M. Sanchez. CoPI: J.C. Santamarina. Sponsor: DOE (Department of Energy, US).
- **May 2015 to Dec. 2016.** ‘Geothermal Foundations to Reduce Utility Cost for New Buildings’. Total around \$25K. Pro-rated amount 8K. PI: J-L. Briaud; CoPIs: M. Sanchez. Sponsor. Area 41 Challenge Grant program - TAMU.

- **Jan. 2016 to Jan 2017.** ‘Collaborative PUC-TAMU research to advance current understanding on geomaterials behavior subjected to environmental actions’. Total around \$33K. Pro-rated amount 16.7K. Competitive. PI: M. Sanchez. CoPI: E. Saez (Pontifical Univ. of Chile, PUC). Sponsor. SEED FUND 2016 – TAMU & PUC.
- **Jan. 2015 to Jan 2017.** ‘FEBEX-DP Full-Scale Engineered Barrier Experiment – Dismantling Project’. PI: A. Gens (UPC, Spain). Invited expert from UPC. Sponsor NAGRA Switzerland.
- **Jun. 2016 to Dec. 2016.** ‘Geothermal Foundations to Reduce Utility Cost for New Buildings II’. Total around \$30K. Pro-rated amount 10K. Competitive. Sponsor Energy Institute - TAMU
- **Jun. 2016.** Travel Grant to attend the “Invited to participate as a speaker (sponsored) at the NSF Workshop on ‘Geotechnical Fundamentals in the Face of New World Challenges’. NSF Headquarters, Arlington, Virginia. 17<sup>th</sup> to 19<sup>th</sup> Jul; 2016. Sponsor NSF. Total \$ 1.2K. Pro-rated amount: \$1.2K
- **Jan. 2013 to Dec. 2015.** “Rails on Shrink Swell Soils: Problems and Possible Solutions”. Total around \$ 69K. Pro-rated amount: \$62K. Competitive. PI: M. Sanchez. Sponsor: Association of American Railroads (AAR).
- **Aug. 2012 to Jul. 2015.** ‘Creep Behavior of Soil Nail Walls in High Plasticity Index (PI) Soils’. Total around \$ 350K. Pro-rated amount: \$253K. Competitive. PI: M. Sanchez. CoPI: J-L Briaud. Sponsor: Texas Department of Transportation.
- **Sep. 2011 to Jul. 2015.** ‘Interaction Between Drilled Shafts and Mechanically Stabilized Earth (MSE) Walls’. Total around \$ 410K. Pro-rated amount: \$205K. Competitive. PI: J-L Briaud. CoPI: M. Sanchez. Sponsor: Texas Department of Transportation.
- **Apr. 2013 to Dec. 2014.** ‘Study of Large and Continuous Settlements Observed at Giddings Subdivision’. Total \$ 100K. Pro-rated amount: \$95K. PI: M. Sanchez. Sponsor: Union Pacific (UP).
- **Jul. 2011 to Jun. 2014.** “RISMAC Project”. Total around \$275K; Pro-rated amount: \$125K. Competitive. PI from US. Funded by the European Commission C/Marie Curie IOF. Marie Curie Fellow: Dr. Marcin Zielinski.
- **Jun. 2012 to Sep. 2013.** ‘Modeling clay materials behavior incorporating coupled chemo-mechanical phenomena’. Total around \$ 131K. Pro-rated amount: \$131K. PI: M. Sanchez. Sponsor: Sandia National Laboratories, DOE. USA.
- **Mar. 2013.** Travel Grant to attend the “International Workshop on Thermoactive Geotechnical Systems for Near-Surface Geothermal Energy: from Research to Practice”, hold at the École Polytechnique Fédérale de Lausanne, Switzerland. 25<sup>th</sup> to 27<sup>th</sup> Marc. 2013. Sponsor NSF. Total \$ 2K. Pro-rated amount: \$2K
- **Sep. 2011 to Jul. 2013.** ‘Rapid Field Detection of Moisture Content for Base and Subgrades’. Total around \$ 315K. Pro-rated amount: \$10K. Competitive. Researcher. Sponsor: Texas Department of Transportation.
- **Jan. 2009 to Dec. 2013.** “Biogeochemical Applications in Nuclear Decommissioning and Waste Disposal”. Consortium of UK Universities, PI Dr. Lunn (USTRAT). Assessor Work-Package 2.3. Total \$ 3M. Four years project, funded by EPSRC UK, reference EP/F055617/1.
- **May 2009 to May 2013.** Project “GEO-EXCEL” (GEO-engineering EXChanges between Europe and Latin-America). Funded by EC/FP7 Marie Curie IRSES. PI while at Strathclyde, invited academic afterwards. Total around \$ 600 K Sponsor: European Commission. The project involves 4 Universities from Europe (Strathclyde Univ.; Politecnico de Milan; UPC, Spain and Ecole Nationale du Ponts et Chausées, Paris) and four Latin-American Universities (Univ. of Pernambuco, Recife, Brazil; UNAM, Mexico; Univ. of San Juan, Argentina; and Univ. of Brasilia, Brazil).
- **Oct. 2006 to Dec. 2010.** “Numerical Modeling of Coupled Behavior in Unsaturated Soils”. Project leader. PhD student Mr. Marti Lloret. Funded by Synergy scholarship funding (UK).

- **Nov. 2007 to Nov. 2009.** Project “MADUS”. (Modeling Anisotropy and Destructuration in Unsaturated Soils). PI. Project funded one postdoctoral research fellow for 3 years, Dr Cordao Neto Total \$ 375K from the EC. Contract: EC/FP6 MIF1-CT-2006-040375.
- **Dec. 2004 to Nov. 2008.** Project “MUSE” (Mechanics of Unsaturated Soils for Engineering). Member of the academic staff. Marie Curie Research Training Network, EC. Total \$ 1.45M from the EC. Contact: MRTN-CT-2004-506861.
- **Feb. 2005 to Jan. 2009.** Project “AMGISS” (Advanced Modeling of Ground Improvement on Soft Soils). Member of the academic staff. Marie Curie Research Training Network, EC. Total \$ 1.55M from the EC. Contact: MRTN-CT-2004-512120.
- **Feb. 2004 to Dec. 2007.** Project “NF\_PRO” (Understanding and physical and numerical modeling of the process in the near-field, and their coupling, for different host rocks and repository strategies). Researcher. WP3. Integrated Project under the 6<sup>th</sup> Framework Program of the EC. Main partners: ENRESA (Spain); CIEMAT (Spain); UPC-CIMNE (Spain), BGR (Germany); SKB (Sweden); NIRAS/ONDRAF (Belgium); University of Wales (UK); POSIVA (Finland); SCK•CEN (Belgium); VTT (Finland); NAGRA (Switzerland), NERC-BGS (UK). Contact: FI6W-CT-2003-02389.
- **Jan. 2000 to Dec. 2004.** Project “FEBEX II” (Full-scale Engineered Barriers EXperiment for a deep geological repository for high level radioactive waste in crystalline host rock). Continuation of FEBEX I. Researcher. Multi-disciplinary project funded by the EC and ENRESA (Spanish national company for radioactive waste management). Main partners: ENRESA (Spain); CIMNE (Spain); SKB (Sweden); POSIVA (Finland); Czech Technical University in Prague (Czech); AITEMIN (Spain); Institute of geologic and mining research, BRGM (France); ANDRA (France); BGR (Germany), NAGRA (Switzerland); Clay Technology (Sweden); VBB VIAK (Sweden); NIRAS/ONDRAF (Belgium). Contract: FIKW-CT-2000-00016.
- **Jan. 1998 to Jan. 2000** Project “FEBEX I” (Full-scale Engineered Barriers EXperiment for a deep geological repository for high level radioactive waste in crystalline host rock). Researcher. Funded by the EC and ENRESA. Contract: FI4WCT950006
- **Jan. 1998 to Dec. 1999.** Project “GEOCODE” (Development of friendly interfaces for numerical codes oriented to the simulation of geotechnical and environmental problems). Researcher. Funded by Ministry of Industry and Energy, Spain.

#### **AWARDS, PRIZES AND OTHER RECOGNITIONS**

- International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) ‘Outstanding Technical Committee Award’ period 2013-2107. Technical Committee: ‘TC308 on Energy Geotechnics’. TC308 Chair: Dr. Marcelo Sánchez
- Outstanding Reviewer 2015. Journal “*Computers and Geotechnics*”
- Invited Professor, École Polytechnique Federal Lausanne (EPFL). Lausanne, Switzerland, Aug. 2015.
- Outstanding Reviewer 2014. Journal “*Computers and Geotechnics*”
- ‘Impact on Research 2014’ Zachry Department of Civil Engineering, Texas A&M University.
- Appointed by the National Accreditation Board of Colombia to evaluate the graduate program in geotechnical engineering of the National University of Colombia, Bogota. Activities to be performed during Aug. and Sep. 2014.
- Outstanding Reviewer 2013. Journal “*Computers and Geotechnics*”.
- NRC, *Canadian Geotechnical Journal*, paper recognition with an “Editor’s Choice” for 2012; distinction granted to papers of particularly high caliber and topical importance. Paper: “Thermal–hydraulic–mechanical (THM) behaviour of a large-scale in situ heating experiment during cooling and dismantling” *Can. Geotech. Jnl.*, 2012, 49:(10) 1169–1195, 10.1139/t2012-076

- “George Stephenson Medal 2012”. Institution of Civil Engineers (ICE, UK) Prestigious award for outstanding papers published across all ICE Journals in 2011. Paper: Hydromechanical behaviour of a heterogeneous compacted soil: experimental observations and modeling”. *Géotechnique* 2011. Volume 61(5): 367 –386. DOI: 10.1680/geot.SIP11.P.015
- Prize ‘Best Doctoral Thesis Session 2004-2005’. ‘School of Civil Engineering’. UPC, Barcelona, Spain. September 2006.
- Awarded medal for outstanding research paper at the International Workshop 3x4: Constitutive Modelling and Analysis of Boundary Value Problems in Geotechnical Engineering, Naples, Italy. June 2003. Paper title: “Coupled thermo-mechanics and beyond”.

#### **SUPERVISION OF GRADUATE STUDENTS AND POST-DOCTORAL RESEARCHERS**

- **Post-Doctoral Researchers**

1. **Dr. Jianxin Sun.** Funded by Ministry of Education of the P.R. China. Jan. 2017 to Jan. 2018.
2. **Dr. Beatrice Pomaro.** Funded by the Padova University, Italy. Feb. 2014 to Jul. 2014.
3. **Dr. Marcin Zielinski.** Funded by the EC via Marie Curie IIF Fellowship, RISMAL Project, Jun. 2011 to Jul. 2013.
4. **Dr. Henghui Fan.** Funded Ministry of Education of the P.R. China. Oct. 2010 to Oct. 2011.
5. **Dr. Manoel Porfirio.** Funded by the EC via Marie Curie IIF Fellowship), MADUS “Modeling Anisotropy and Deconstruction in Unsaturated Soils”, Nov. 2007 to May 2009. Strathclyde University.

- **Ph.D. Students**

##### *Supervisions at Texas A&M University*

1. **Heber Fabri.** Project title: “Numerical Modeling of Gas Migration Phenomena through Barriers Materials”. Chair. Aug. 2019 to present. Estimated graduation: Dec. 2022.
2. **Yichi Du.** Project title: “Numerical Modeling of Drying cracks under actual environmental conditions”. Chair. Jan. 2019 to present. Estimated graduation: May. 2022.
3. **Muhammad Ali.** Project title: “Experimental Study on Gas Migration through Barriers Materials”. Chair. Jan. 2019 to present. Estimated graduation: May. 2022.
4. **Yue Chen.** Project title: “Experimental Study of Shrink-Swell Soils Subjected to Climatic Actions”. Chair. Set. 2017 to present. Estimated graduation: Aug. 2020
5. **Bohan Zhou.** Project title: “Behavior of Soils Subjected to Freeze-Thaw Cycles: An Experimental and Numerical Study”. Chair. Jan. 2017 to present. Estimated graduation: Jul 2020.
6. **Xi Luo.** Project title: “Modeling of natural expansive clays”. Chair. Aug. 2015 to present. Estimated graduation: Feb. 2020.
7. **Seokhyung Lee.** Project title: “Detection of drying cracks in soils”. Chair. Aug. 2014 to present. Estimated graduation: Feb. 2020.
8. **JuYoung Lee.** Project title: “Behavior of frozen soils subjected to freeze/thaw cycles”. Chair. Aug. 2014 to present. Estimated graduation: Dec. 2020.
9. **Sewon Kim.** Project title: “Effect of intense drying in soils”. Chair. Sep. 2014 to present. Estimated graduation: May. 2020.
10. **Michel Maedo.** Project title: “Coupled THM modeling of discontinuities in geomaterials”. Chair. Aug. 2015 to present. Graduation date: Aug. 2019.
11. **Jumanah Hajjat.** Project title: “Hydromechanical behavior of unsaturated soils near saturation”. Chair. Completed. Graduation date: Jul. 2018.

12. **Mehdi Teymouri.** Project title: “Constitutive Modeling of Gas Hydrates Sediments” Chair. Completed. Graduation date: May. 2018.
13. **Xuerui Gai.** Project title: “Thermo-hydro-chemo-mechanical coupled models for hydrate-bearing sediments in marine and permafrost settings”. Chair. Completed. Graduation date: Jan. 2018.
14. **Dong Wang.** Project title: “Rails on Shrink Swell Soils: Problems and Possible Solutions”. Chair. Completed. Graduation date: Dec. 2016.
15. **Mohsen Mahdavi.** Project title: “Numerical modeling of creep behavior of soil nails in high plasticity clays”. Chair. Completed. Graduation date: Aug. 2015.
16. **Gang Bi.** Project title: “Behavior of soil nail, walls in high plasticity clays”. Co-Chair. Completed Graduation: Jul. 2015.
17. **Leonardo Cabral.** Project title: “Coupled hydro-mechanical fault reactivation analysis incorporating evidence theory for uncertainty quantification”. Chair at TAMU. Completed. Graduation: Jul. 2015
18. **Mohammad Aghahadi.** Project title: “MSE retaining wall: an experimental and numerical study”. Co-Chair. Completed. Graduation: Dec. 2014
19. **Ajay Shastri.** Project title: “Advanced coupled analyses in porous media”. Chair. Completed. Graduation date Aug. 2014.
20. **Ghassan Akrouch.** Project title: “Energy piles in cooling dominated climates”. Co-Chair. Completed. Graduation: May 2014.

*Supervisions at Strathclyde University, UK*

21. **Alvis Antique.** Project title: “Effect of dissection cracks on hydro-mechanical properties of soils”. Co-Chair. Jun. 2007 to Jul. 2013. Completed.
22. **Thi Minh Hue Le.** Project title: “Risk management of slope instability”. Sponsored by JRI. Co-Chair. Jul. 2008 to Dec. 2011. Completed.
23. **Marti Lloret.** Project title: “Numerical Modeling of Coupled Behavior in Unsaturated Soils”. Sponsored by SYNERGY scholarships. Co-Chair. Oct. 2006 to Jun. 2011. Completed.
24. **Gráinne El Mountassir** (maiden name McCloskey). Project title: “Geotechnical stability of flood embankments in Indonesia”. Chair. Oct 2006 to Jan 2011. Completed.

• **MSc. Students**

*Supervisions at Texas A&M University*

1. **Zihao Shang:** Project title: “Experimental and Numerical Study on Unsaturated Frozen Soils”. Chair. Completed. Graduation date: Aug. 2019.
2. **Yichi Du.** Project title: “Numerical Modeling of Drying cracks under actual environmental conditions”. Chair. Completed. Graduation date: Dec. 2018.
3. **Bohan Zhou.** Project title: “Experimental and Numerical Study of Frozen Soils”. Chair. Completed. Graduation date: Jul. 2016
4. **Abhijith Chandr Kamath** Project title: “Experimental and Numerical Study of Soil Nail Walls in High Plasticity Soils”. Chair. Completed. Graduation date May 2016.
5. **Duaa Aljeznawi.** Project title: “Experimental and numerical studies associated with desiccation cracks in soils”. Chair. Completed. Graduation date: May 2015.
6. **Fernando Aponte.** Project title: “Coupled Analyses Involving Low Permeability Clays”. Chair Completed. Graduation date: Dec. 2013.
7. **Lakshman K Dontha.** Project title: “Uncertainty Quantification in Coupled Thermo-Hydro-Mechanical Problems”. Co-chair. Completed. Graduation date: May 2012

8. **Siddharth Khandelwal**. Project title: “Effect of Desiccation Cracks on Earth Embankments”. Co-chair. Completed. Graduation date: May 2011.

#### EXTERNAL EXAMINER/REVIEWER OF PHD THESES ABROAD

1. **Yanling Li**. PhD thesis title: ‘On the impact of temperature perturbations on the creep of sensitive clay’. *Chalmers University of Technology*, Sweden, 26<sup>th</sup> Mar. 2019.
2. **Octavio E. Cardenas-Diaz**, PhD thesis title: ‘Collapse Behavior upon Wetting of a Clayed-Sand Subjected to a Generalized Stress State’. *Technical University of Catalonia (UPC)*, Spain. Oct. 2018
3. **Benjamin Michael Shannon**, PhD thesis title: ‘Fracture propagation of cohesive soils under tensile loading and desiccation’. External examiner. *Monash University*. Australia. Nov. 2013.
4. **Khaled Khalil Altarawne**, PhD thesis title: ‘Experimental and Numerical Studies of Diffusion in Geomaterials’. External examiner. *The University of Newcastle*. Australia. Jul. 2011.
5. **Annan Zhou**, PhD thesis title: ‘Constitutive Modelling of Hydromechanical Behaviour of Unsaturated Soils’. External examiner. *The University of Newcastle*. Australia. Jun. 2011.
6. **Abel Jacinto**, PhD thesis title: ‘Numerical modeling of clay barrier for nuclear waste disposal at high temperature’. External examiner. *School of Civil Engineering, Technical University of Catalonia (UPC)*. Barcelona, Spain. Sep. 2010.
7. **Lakshmikantha, M. R.** PhD thesis title: ‘Experimental and theoretical analysis of cracking in drying soils’. External examiner. *School of Civil Engineering Technical, University of Catalonia (UPC)*. Barcelona, Spain. Apr. 2009.
8. **Francesco Cecinato**. PhD thesis title: ‘Thermo-poro-mechanical modelling of large-scale landslides’. External examiner. *School of Civil Engineering, University of Southampton UK*. Marc. 2009.
9. **Sérgio Lourenço** PhD thesis title: ‘Suction measurements and water retention in unsaturated soils’. External examiner. *Durham University*, Durham, UK. Aug. 2008.
10. **Iván Rafael Berdugo De Moya**. PhD thesis title: ‘Tunnelling in sulphate-bearing rocks – expansive phenomena’. External reviewer. *Technical University of Catalonia*, Spain. Dec. 2007.
11. **Salvatore Castagna**. PhD thesis title: ‘Thermo Hydraulic Behaviour of Unsaturated Salt Aggregates’, External examiner. *School of Civil Engineering, Technical University of Catalonia (UPC)*. Barcelona, Spain. May 2007.
12. **Liang Zheng**. PhD thesis title: ‘Coupled Thermo-Hydro-Mechanical-Geochemical modes for deformed structured porous media’. External examiner. *University of La Coruña*, A Coruña, Spain. Nov. 2006.
13. **Dorival Pedroso**. PhD thesis title: ‘Mathematical representation of the mechanical cyclic behaviour of saturated and unsaturated soils’. *University of Brasilia*, Brasilia, Brazil. Sep. 2006.

#### PROFESSIONAL SERVICE

1. Chairman of the Technical Committee TC308 [“Energy Geotechnics”](#). *International Society for Soil Mechanics and Geotechnical (ISSMGE)*. Sep. 2013 to present.
2. Member of the Unsaturated Soils Committee. *American Society of Civil Engineers (ASCE)*. Jan. 2010 to present.
3. Member of the Soil Properties and Modeling Committee. *American Society of Civil Engineers (ASCE)*. Mar. 2011 to present.
4. Member of the *American Geophysical Union (AGU)*. Jul. 2010 to present.
5. Member of the *American Rock Mechanics Association (ARMA)*. May 2013 to present.

6. Invited instructor by “Plaxis bv” (<http://www.plaxis.nl/>) for the “Summer Plaxis Advanced Course on Computational Geotechnics”. New York, 27<sup>th</sup> to 29<sup>th</sup> Jun, 2012.
7. Invited instructor by “Plaxis bv” (<http://www.plaxis.nl/>) for the “Plaxis Advanced Course on Computational Geotechnics”. Houston, Texas, 7<sup>th</sup> to 8<sup>th</sup> October, 2014

#### CONFERENCE ORGANIZER, COMMITTEE SERVICE AND SESSION CHAIR

- **Conference/Symposium organizer**

1. Symposium on “*Energy Geotechnics*”, SEG2015. Barcelona, Spain, 1<sup>st</sup> to 3<sup>rd</sup> Jun. 2015. Co-organizer in collaboration with Professors Enrique Romero, Antonio Gens and Sebastia Olivella.
2. 1<sup>st</sup> International Conference on Geo-Energy & Geo-Environment (GeGe2015). 4<sup>th</sup> to 5<sup>th</sup> December 2015, Hong Kong University of Science and Technology (HKUST). Member of the Organizing Committee.

- **Session organizer**

1. Co-organizer of the Technical Session#19 on Energy Geotechnics”. XVI Pan-American Conference on Soil Mechanics and Geotechnical Engineering (XVI PCSMGE), 17<sup>th</sup> to 20<sup>th</sup> Nov. 2019, Cancun, Mexico. Session Co-Chairs: Norma Patricia Lopez-Acosta (National University of Mexico) and **Marcelo Sanchez**.
2. Co-organizer of the Mini-Symposium: “Multiphysics Analysis of Geo-energy Problems involving Non-isothermal Processes”. *Engineering Mechanics Institute Conference 2019* (EMI 2019). California Institute of Technology, Pasadena, USA, June 19<sup>th</sup> to 21<sup>st</sup> 2019. Organizers: Tugce Baser (University of Illinois at Urbana Champaign), and **Marcelo Sanchez**.
3. Co-organizer of the Mini-Symposium: “Current advances and challenges associated with geological disposal for high level nuclear waste: from laboratory to field scale tests and modeling”. *International Symposium on Energy Geotechnics (SEG-2018)*. Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland. 26<sup>th</sup> to 28<sup>th</sup> Sep. 2018. Organizers: Maria Victoria Villar (CIEMAT, Madrid, Spain), and **Marcelo Sanchez**.
4. Co-organizer of the Panel Discussion on “Modeling and Analysis of Desiccation Cracking in Soils”. Second Pan-Am Unsaturated Soils Conference, Dallas, TX, Nov. 12-15, 2017. Organizers: **Marcelo Sanchez** and Gerry Miller (University of Oklahoma).
5. Co-organizer of the Technical Session: “Clay barriers performance in the long-term isolation of waste: thermal, hydro-mechanical and chemical interactions”. *16<sup>th</sup> International Clay Conference (ICC)*, Granada, Spain. Granada 16<sup>th</sup> to 21<sup>st</sup> Jul 2017. Organizers: Jaime Cuevas (Autonomous Univ. of Madrid, Spain), Maria Victoria Villar (CIEMAT, Madrid, Spain), and **Marcelo Sanchez**.
6. Co-convenor of the session: “Session ID 12884: Hydrate bearing sediments: characterization, modeling, and thermal, hydrological, and geomechanical behavior”. *American Geophysical Union Fall 2016 Meeting*, Dec. 2016, San Francisco, California. Conveners: Jeen-Shang Lin (Univ. of Pittsburgh), Yongkoo Seol (NETL, DOE), **Marcelo Sanchez** and Steve Phillips (The Univ. of Texas, Austin).
7. Co-organizer of the Mini-Symposium: “Geomechanical characterization and modeling of hydrate bearing sediments”. *1<sup>st</sup> International Conference on Energy Geotechnics*. Kiel, Germany. 29<sup>th</sup> to 31<sup>st</sup> Aug. 2016. Organizers **Marcelo Sanchez** and Christian Deusner.
8. Co-organizer of the Technical Session B21: “Energy Geotechnics”. *2016 Geo-Chicago: Sustainability, Energy, and the Geoenvironment*. August 14<sup>th</sup> to 18<sup>th</sup>, 2016. Organizers: Marcelo Sanchez Xinbao Yu (Univ. of Texas at Arlington).



9. Co-organizer of the Technical Session: “Effect of Desiccation Cracking on Geo-structures”, *2016 ASCE Geotechnical and Structural Engineering Conference*. Phoenix, Arizona. 14<sup>th</sup> to 17<sup>th</sup> Feb. 2016. Organizers: **Marcelo Sanchez**, Gerald Miller (Univ. of Oklahoma).
10. Co-organizer of the Technical Session: “Soil-structure Interaction for Energy Geo-structures”, *ASCE Geotechnical and Structural Engineering Conference*. Phoenix, Arizona. 14<sup>th</sup> to 17<sup>th</sup> Feb. 2016. Organizers: Sherif Abdelaziz (Stony Brook Univ.). **Marcelo Sanchez**.
11. Co-convener of the session: “Session ID 7432: Hydrate bearing sediments: characterization, modeling and implications on geohazard and gas production”. *American Geophysical Union Fall 2015 Meeting*, Dec. 2015, San Francisco, California. Conveners: Jeen-Shang Lin (Univ. of Pittsburgh), Yongkoo Seol (NETL, DOE), Timothy Kneafsey (Berkeley National Lab), and **Marcelo Sanchez**.
12. Co-organizer of the Minisymposium: “Multiphysical Modeling of Geomaterials”. *13<sup>th</sup> US National Congress on Computation Mechanics*. San Diego, California, 26<sup>th</sup> to 30<sup>th</sup> Jul. 2015. Session organized in collaboration with Drs. WaiChing Sun, Qiushi, Chen and Craig Foster.
13. Co-organizer of the Track: “Geo-Engineering for Energy and Sustainability”. *XV Pan-American Conference on Soil Mechanics and Geotechnical Engineering*. Buenos Aires, Argentina. 15<sup>th</sup> to 18<sup>th</sup> Nov. 2015. Track Coordinator. Track consists of three components: a Keynote Lecture, a Panel Session and two Technical Sessions. Organizers: **Marcelo Sanchez**, Guillermo Narsilio (The Univ. of Melbourne, Australia), Jose Alvarelos (Repsol Oil Company, Spain) and Leonardo Guimarães (Univ. Federal de Pernambuco, Brazil).
14. Co-convener of the session: “Session ID 1457: Hydrate bearing soils: characterization, modeling and geomechanical implications”. *American Geophysical Union Fall 2014 Meeting*, Dec. 2014, San Francisco, California. Conveners: Jeen-Shang Lin (University of Pittsburgh), Yongkoo Seol (NETL, DOE), Timothy Kneafsey (Berkeley National Lab), and **Marcelo Sanchez**.
15. Co-organizer of the Session: “Modeling Coupled Hydro-Mechanical-Thermal-Chemical Processes” *20<sup>th</sup> International Conference on Computational Methods in Water Resources (CMWR 2014)* Stuttgart, Germany (9<sup>th</sup> to 13<sup>th</sup> Jun., 2014). Organizers: **Marcelo Sanchez** and Carl Steefel (Lawrence Berkeley National Lab.)
16. Co-convener of the session: “MR012: Mudstone Multiphysics: Matrix to Fractures and Back Again”. *American Geophysical Union Fall 2012 Meeting*, Dec. 2012, San Francisco, California. Conveners: Thomas Dewers (Sandia National Lab.), Jason Heath (Sandia National Lab.) Dr. Peter Eichhubl (Bureau of Economic Geology, Texas University), and **Marcelo Sanchez**.
17. Co-organizer of the Panel Session: “Impact of Desiccation Cracking and Tensile Strength on the Stability and Performance of Slopes and Embankments”. *2013 Geo-Congress: Stability and Performance of Slopes and Embankments III*. San Diego, California. 3<sup>rd</sup> to 6<sup>th</sup> Mar. 2013. Organizers: **Marcelo Sanchez**, Louis Ge (National Taiwan Univ. of Science and Technology), Kuo-Hsin Yang (National Taiwan Univ. of Science and Technology) and Lyesse Laloui (Swiss Federal Institute of Technology).
18. Co-organizer of two Technical Sessions on “Impact of Desiccation Cracking and Tensile Strength on the Stability and Performance of Slopes and Embankments”. *2013 Geo-Congress: Stability and Performance of Slopes and Embankments III*. San Diego, California 3<sup>rd</sup> to 6<sup>th</sup> Mar. 2013. Organizers: **Marcelo Sanchez**, Louis Ge (National Taiwan Univ. of Science and Technology), Kuo-Hsin Yang (National Taiwan Univ. of Science and Technology) and Lyesse Laloui (Swiss Federal Institute of Technology).

- **International conferences and other events. Committee service**

1. *1<sup>st</sup> International Conference on Sustainability in Geotechnical Engineering*, Lisbon, Portugal, 27<sup>th</sup> to 30<sup>th</sup> Jun. 2021. Member of the International Advisory Committee
2. *3<sup>rd</sup> Pan American Conference on Unsaturated Soils*, Rio de Janeiro, Brazil, 25<sup>th</sup> to 28<sup>th</sup> Jul. 2021. Member of the Advisory Committee.
3. *16<sup>th</sup> International Conference of the International Association for Computer Methods and Advances in Geomechanics (16IACMAG)*, Torino, Italy. 29<sup>th</sup> Jun. to 3<sup>rd</sup> Jul. 2020. Member of the International Scientific Committee.
4. *4<sup>th</sup> European Conference on Unsaturated Soils (E-UNSAT 2020)*. Lisbon, Portugal, from 24<sup>th</sup> to 26<sup>th</sup> June 2020. Member of the Scientific Committee.
5. *7<sup>th</sup> Asia-Pacific Conference on Unsaturated Soils: 'AP-UNSAT2019'*. Nagoya, Japan. 23<sup>rd</sup> to 25<sup>th</sup> Aug. 2019. Member of the International Technical Committee.
6. *7<sup>th</sup> International Symposium on Deformation Characteristics of Geomaterials - IS-Glasgow2019*. Glasgow, Scotland, 26<sup>th</sup>-28<sup>th</sup> Jun. 2019. Member of the Technical Committee for the 'Laboratory Stress Strain Strength Testing of Geomaterials.
7. *Engineering Mechanics Institute Conference 2019 (EMI 2019)*. California Institute of Technology, Pasadena, USA, June 19<sup>th</sup> to 21<sup>st</sup> 2019. Co-Track Leader: Multiscale and Multiphysics.
8. *First International Offshore Geotechnics Symposium: VSOE2018'*. Hanoi Vietnam 1<sup>st</sup> to 3<sup>rd</sup> Nov. 2018. Members of the International Scientific Committee
9. *The Second Pan American Conference on Unsaturated Soils*. Dallas/Fort Worth, Texas, USA. Geo-Institute - ASCE. Nov. 2017. Local Chair.
10. *Second International Symposium on Coupled Phenomena in Environmental Geotechnics (CPEG2)*. University of Leeds, UK. September 6<sup>th</sup> and 7<sup>th</sup>, 2017. Member of the Symposium's Technical Advisory Committee.
11. *2<sup>nd</sup> International Conference on Geo-Energy and Geo-Environment (GeGe2017)*. 5<sup>th</sup> to 7<sup>th</sup> July, 2017. Zhejiang University Hangzhou, China. Member of the International Advisory Committee.
12. *5<sup>th</sup> International Conference on Geotechnical Engineering & Soil Mechanics*. Teheran. Iran 15<sup>th</sup> to 17<sup>th</sup> November 2016. Member of the Conference's Scientific Committee.
13. *1<sup>st</sup> International Conference on Energy Geotechnics*. Kiel, Germany. 29<sup>th</sup> to 31<sup>st</sup> Aug. 2016. Member of the international advisory committee.
14. *16<sup>th</sup> European Conference on Unsaturated Soils, E-UNSAT'16*, Paris, France, 12<sup>th</sup> to 14<sup>th</sup> September 2016
15. *XV Pan-American Conference on Soil Mechanics and Geotechnical Engineering*. Buenos Aires. 15<sup>th</sup> to 18<sup>th</sup> Nov. 2015. Member of the international advisory committee.
16. *4<sup>th</sup> Unsaturated Soils: Research & Applications*. Sydney, Australia. 2<sup>nd</sup> to 4<sup>th</sup> Jul. 2014. Member of the international advisory committee
17. *1<sup>st</sup> Pan-American Conference on Unsaturated Soils*. Cartagena, Colombia, 20<sup>th</sup> to 22<sup>nd</sup> Feb. 2013. Member of the international advisory committee.
18. *2<sup>nd</sup> European Conference on Unsaturated Soils*. Naples, Italy. 20<sup>th</sup> to 22<sup>nd</sup> Jun. 2012. Member of the international advisory committee.
19. *5<sup>th</sup> International Conference on Unsaturated Soils*. Barcelona, Spain. 6<sup>th</sup> to 8<sup>th</sup> Sep. 2010. Member of the international advisory committee.
20. *5<sup>th</sup> Workshop New Frontiers on Computational Geotechnics*. Brisbane, Australia. 26<sup>th</sup> to 27<sup>th</sup> Jul. 2010. Member of the international advisory committee.
21. *4<sup>th</sup> Asian Pacific Conference on Unsaturated Soils*. Newcastle, Australia. 23<sup>rd</sup> to 25<sup>th</sup> Nov. 2009. Member of the international advisory committee.
22. *2<sup>nd</sup> International Workshop on Geotechnics of Soft Soils*. Glasgow UK. 3<sup>rd</sup> to 5<sup>th</sup> Sep. 2008. Member of the local organizing committee.

23. *1<sup>st</sup> European Conference on Unsaturated Soils*. Durham United Kingdom. 30<sup>th</sup> Jun. - 4<sup>th</sup> Jul. 2008. Member of the scientific committee.
  24. *International Conference on Geotechnical and Highway Engineering*, GEOTROPIKA 2008. Kuala Lumpur, Malaysia. 25<sup>th</sup> to 28<sup>th</sup> May 2008. Member of the international advisory committee.
- **Session chairman and panelist**
    1. Chairman of the “Technical Session#19 on Energy Geotechnics”. XVI Pan-American Conference on Soil Mechanics and Geotechnical Engineering (XVI PCSMGE), 19<sup>th</sup> to 20<sup>th</sup> Nov. 2019, Cancun, Mexico.
    2. Chairman of the “Plenary Lecture 2” at the “3<sup>rd</sup> Br Interpore Conference in Porous Media”. National Laboratory for Scientific Computation. Petropolis, Brazil. 5<sup>th</sup> to 8<sup>th</sup> Aug 2019.
    3. Chairman of the “PS 2.5: Constitutive Modelling Session” 2 at the 7<sup>th</sup> *International Symposium on Deformation Characteristics of Geomaterials*, Glasgow, 26<sup>th</sup> to 28<sup>th</sup> Jun 2019.
    4. Co-Chairman of a Plenary Session at the 8<sup>th</sup> International Congress on Environmental Geotechnics (ICEG). Hangzhou, China, 28<sup>th</sup> Oct. to 1<sup>st</sup> Nov. 2018.
    5. Co-Chairman of the Mini-Symposium: “Current Advances and Challenges Associated with Geological Disposal. *International Symposium on Energy Geotechnics (SEG-2018)*. Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland. 26<sup>th</sup> to 28<sup>th</sup> Sep. 2018.
    6. Chairman of the Technical Session: “Modeling of Cracked Soils and Effects of Cracking”. Second Pan-Am Unsaturated Soils Conference, Dallas, TX, Nov. 12 to 15, 2017.
    7. Panelist of the Panel Discussion on “Modeling and Analysis of Desiccation Cracking in Soils”. Second Pan-Am Unsaturated Soils Conference, Dallas, TX, Nov. 12 to 15, 2017.
    8. Chairman of the TC308 Workshop: “Energy Geotechnics: Current and Future Challenges”. 19<sup>th</sup> International Conference for Soil Mechanics and Geotechnical Engineering. (ICSMGE). Seoul, Korea, 20<sup>st</sup> Sep. 2017.
    9. Chairman of the Technical Session on “Energy Geotechnics”. 19<sup>th</sup> ICSMGE. Seoul, Korea, 21<sup>st</sup> Sep. 2017.
    10. Chairman of the Keynote Lecture “Analysis of the vertical deformation of energy pile groups” delivered by Prof. Lyesse Laloui. Kiel, Germany. 29<sup>th</sup> to 31<sup>st</sup> Aug. 2016.
    11. Chairman of the Keynote Lecture “Subsurface energy storage: determining impacts of heat or gas storage in the subsurface” delivered by Prof. y Sebastian Bauer. Kiel, Germany. 29<sup>th</sup> to 31<sup>st</sup> Aug. 2016.
    12. Co-moderator Technical Session: “Effect of Desiccation Cracking on Geo-structures”, 2016 ASCE Geotechnical and Structural Engineering Conference. Phoenix, Arizona. 14<sup>th</sup> to 17<sup>th</sup> Feb. 2016.
    13. Co-moderator Technical Session: “Soil-structure Interaction for Energy Geo-structures”, ASCE Geotechnical and Structural Engineering Conference. Phoenix, Arizona. 14<sup>th</sup> to 17<sup>th</sup> Feb. 2016.
    14. Chairman “Session 1 on Energy Geotechnics”. 1<sup>st</sup> International Conference on Geo-Energy and Geo-Environment (GeGe2015). 4<sup>th</sup> and 5<sup>th</sup> December, Hong Kong.
    15. Chairman of the Panel Session: “Geo-Engineering for Energy and Sustainability”. XV Pan-American Conference on Soil Mechanics and Geotechnical Engineering. Buenos Aires, Argentina. 15<sup>th</sup> to 18<sup>th</sup> Nov. 2015.
    16. Invited Panelist, Research Workshop: ‘Fossil-based Technologies for Energy’. Texas A&M Energy Institute. College Station, USA. 12<sup>th</sup> Jun. 2015
    17. Moderator of the Panel Session 4 on “Gas Hydrate Sediments” Symposium on Energy Geotechnics”, SEG2015. Barcelona, Spain, 1<sup>st</sup> to 3<sup>rd</sup> Jun. 2015.
    18. Chairman of the “Joint Session TC215-TC308 on Session Energy Geoenvironmental Technology” at the 7<sup>th</sup> International Congress on Environmental Geotechnics (7ICEG). Melbourne, Australia (7<sup>th</sup> to 10<sup>th</sup> Nov. 2014).

19. Chairman of the Plenary Session on “Measuring stiffness of soils in situ”. 14<sup>th</sup> International Conference of the International Association for Computer Methods and Advances in Geomechanics (14IACMAG), Kyoto, Japan (22<sup>nd</sup> to 25<sup>th</sup> Sept. 2014).
20. Invited Panelist at the mini-symposium on “Soil-Atmosphere Interaction”. 14<sup>th</sup> International Conference of the International Association for Computer Methods and Advances in Geomechanics (14IACMAG), Kyoto, Japan (22<sup>nd</sup> to 25<sup>th</sup> Sept. 2014).
21. Chairman of the three sessions on “Modeling Coupled Hydro-Mechanical-Thermal-Chemical Processes” (Sessions 19). 20<sup>th</sup> International Conference on Computational Methods in Water Resources (CMWR 2014) Stuttgart, Germany (9<sup>th</sup> to 13<sup>th</sup> Jun., 2014).
22. Invited Panelist at the “Energy Geotechnique panel” hold during the *PGS Workshop on Energy Geotechnics*. Purdue University. 6<sup>th</sup> Apr. 2014.
23. Chairman of the Panel Session: “Impact of Desiccation Cracking and Tensile Strength on the Stability and Performance of Slopes and Embankments”, which took place during the *2013 Geo-Congress: Stability and Performance of Slopes and Embankments III*. San Diego, California. 3<sup>rd</sup> to 6<sup>th</sup> Mar. 2013.
24. Chairman of a Technical Sessions on “Impact of Desiccation Cracking and Tensile Strength on the Stability and Performance of Slopes and Embankments”; which took place during the *2013 Geo-Congress: Stability and Performance of Slopes and Embankments III*. San Diego, California 3<sup>rd</sup> to 6<sup>th</sup> Mar. 2013.
25. Chairman of Session: “Coupled hydro-mechanical and chemical analysis of saturated and unsaturated soils and rock”. *1<sup>st</sup> Pan-American Conference on Unsaturated Soils*. Cartagena, Colombia. Feb. 2013
26. Chairman of Session: “Environmental Geotechnics”. *2<sup>nd</sup> European Conference on Unsaturated Soils*, Naples, Italy. Jul. 2012.
27. Chairman of Session: ‘Mechanical Characterization’. *4<sup>th</sup> Asian Pacific Conference on Unsaturated Soils*. Newcastle, Australia. Nov. 2009.
28. Chairman of Session ‘Constitutive Modelling I’. *1<sup>st</sup> European Conference on Unsaturated Soils*. Durham Unites Kingdom, July 2008.
29. Co-Chairman of Session 03B: ‘Hydration/Dehydration’. *ANDRA Symposium: Using Natural and Engineered Clay-based Barriers for the Containment of Radioactive Waste*. Tours, France, 2005.
30. Secretary of Session 6: ‘Stability Analysis and Tunnels’. Discussion Leader: Prof. G.N. Pande. *International Workshop of Young Doctors in Geomechanics 2002*. Paris, France. Dec. 2002.

#### **DEPARTMENT AND UNIVERSITY SERVICE AT TEXAS A&M UNIVERSITY - USA**

1. Dean of Faculties and Associate Provost Search Committee (College of Engineering delegate). Nov. 2018.
2. Graduate Advisor Geotechnical Program. Set. 2017 to present.
3. Search Committee Faculty in Construction Engineering.
4. Faculty Advisor of the Texas A&M University Geo-Institute of ASCE. Aug. 2013 – present.
5. CEOB Reorganization Committee. Zachry Department of Civil Eng. Sep. 2016 – Jan. 2017.
6. Curriculum Committee. Zachry Department of Civil Engineering. Mar. 2015 -2018.
7. Curriculum Transformation Team. Zachry Department of Civil Eng. Mar. 2015 – present.
8. Member of the search committee. Faculty Position in Construction Engineering. 2015-2016
9. Member of the search committee. Faculty Position in Geotechnical Engineering. 2014-2015
10. Center for Tectonophysics, TAMU. Associated faculty. Sep. 2011 to present.
11. Texas A&M Energy Institute. Faculty member. Oct. 2011 to present.

#### **DEPARTMENT AND UNIVERSITY SERVICE AT STRATHCLYDE UNIVERSITY - UK**

1. Session 2008/2009: PhD Program Manager (Civil and Environmental Engineering).
2. Session 2007/2008: Program Leader for the MSc in 'Geotechnics in Partnership with the Industry'.
3. Sessions 2005/2006 and 2006/2007: 2<sup>nd</sup> Year Coordinator. Undergraduate program, Civil Engineering.

#### **INTERNATIONAL JOURNAL EDITORIAL BOARD MEMBER AND GUEST EDITOR**

1. Editorial Board Member of the journal *Computers and Geotechnics* (2014 to present).
2. Editorial Board Member of the *Journal of Rock Mechanics and Geotechnical Engineering* (2014 to present).
3. Editorial Board Member of the Journal *Soils and Foundations* (2014 - 2017).
4. Editorial Board Member of the journal *Journal of Geotechnical and Geoenvironmental Engineering ASCE*' (2015 to present).
5. Editorial Board Member of the journal *Journal of Geomechanics for Energy and the Environment* (2015 to present).
6. Editorial Board Member of the journal *Canadian Geotechnical Journal* (2017 to present).
7. Editorial Board Member of the Journal *Environmental Geotechnics*' (2108 to present).
8. Editor for North America, *Bulletin ISSMGE*. International Society for Soils Mechanics and Geotechnical Engineering (2015 to present).
9. Guest Editor: '*Journal of Geomechanics for Energy and the Environment*'. 'SEG-2015-Part I'. Selected papers submitted to the SEG-2015, Barcelona, Spain, June 2<sup>nd</sup> to 4<sup>th</sup> 2015. <https://doi.org/10.1016/j.gete.2016.05.002>
10. Guest Editor: *Journal of Geomechanics for Energy and the Environment*. 'SEG-2015-Part II' Continuation of 'SEG-2015-Part I'. [https://doi.org/10.1016/S2352-3808\(16\)30111-3](https://doi.org/10.1016/S2352-3808(16)30111-3)
11. Guest Editor Journal '*Environmental Geotechnics*'. Themed issue 'XV Pan-American Conference Selected papers on Energy Geotechnics'. <https://doi.org/10.1680/jenge.2017.4.2.67>.
12. Guest Editor: '*Journal of Geomechanics for Energy and the Environment*'. Themed Issue 'Position Papers on Energy Geotechnics' (in progress).
13. Guest Editor: '*Journal of Geomechanics for Energy and the Environment*'. Themed Issue 'Methane Gas Hydrates Sediments' (in progress).
14. Guest Editor: Journal '*Renewable Energy Journal*', Special Issue on '[Shallow Geothermal Energy](#)' (in progress).

#### **REVIEWER FOR TECHNICAL JOURNALS AND RESEARCH PROPOSALS**

##### **• Journals**

1. International Journal for Numerical and Analytical Methods in Geomechanics.
2. Géotechnique.
3. Water Resources Research.
4. Computer and Geotechnics.
5. Canadian Geotechnical Journal.
6. Engineering Geology.
7. Physics and Chemistry of the Earth.
8. Applied Clay Science.
9. Annals of the Brazilian. Academy of Sciences.
10. Journal of Hydrology.
11. Journal of Structural Geology.

12. Boletín Geológico y Minero (Spain)
13. Journal of Contaminant Hydrology.
14. Geotechnical Testing Journal
15. Soils and Foundations
16. Journal of Geotechnical and Geoenvironmental Engineering
17. Journal of Materials in Civil Engineering
18. Proceeding of the Royal Society (UK)
19. Journal of Testing and Evaluation
20. Journal of Performance of Constructed Facilities
21. International Journal of Rock Mechanics and Mining Sciences.
22. Géotechnique Letters.
23. Environmental Geotechnics.
24. Computers & Geosciences.
25. Journal of Engineering Mechanics.
26. Journal of Geotechnical and Geological Engineering.
27. International Journal of Geomechanics.
28. The Journal of Unconventional Oil and Gas Resources.
29. Geotextiles & Geomembranes
30. Journal of Waterway, Port, Coastal, and Ocean Engineering
31. Acta Geotechnica
32. Geomechanics for Energy and the Environment
33. Journal of Geophysical Research - Solid Earth - AGU
34. Marine Structures
35. Journal of Mechanics of Materials and Structures
36. Rock Mechanics and Rock Engineering
37. G-Cubed Geochemistry, Geophysics and Geosystems - AGU
38. Journal of Cleaner Production

- **Proposals**

1. NSF (National Science Foundation, USA), Geomechanics and Geomaterials Program. Panelist: 2013, 2018.
2. NSF, Geomechanics and Geomaterials Program. Proposal reviewer: 2012, 2013, 2015.
3. NSF, Geophysics Program. Proposal reviewer: 2018.
4. NSF, Hydrologic Sciences Program. Proposal reviewer: 2014.
5. NSF, Graduate Research Fellowship Program (GRFP). Panelist: 2012.
6. DoE (Department of Energy, USA), Nuclear Energy University Programs (NEUP). Proposal reviewer: 2011, 2013, 2015, 2018, 2019.
7. DoE. Office of Basic Energy Sciences. Geosciences Research Program. Proposal Reviewer: 2011.
8. DoD (Department of Defense, USA) Strategic Environmental Research and Development Program (SERDP). Proposal reviewer: 2018.
9. The Leverhulme Trust (UK). Proposal reviewer: 2011.
10. Dutch Technology Foundation (STW, The Netherlands). Proposal reviewer: 2010.

## **OTHER ACTIVITIES**

- **Instructor of Pre-Congress Courses**

1. XVI Pan-American Conf. on Soil Mechanics and Geotechnical Engineering Title: ‘Shallow Geothermal Energy: from the basics to the practice’. Cancun, Mexico. 17<sup>th</sup> Nov. 2019. Instructors: **Marcelo Sánchez** & Norma P. Lopez (upcoming)
2. Pan-American Conference on Unsaturated Soils (UNSAT 2017). Pre-conference course. Title: ‘Simple methods to characterize and model unsaturated soil behavior’. Nov. 12<sup>th</sup> 2017. Intercontinental Dallas, Dallas, Texas USA. Instructors: Xiong Zhang, Laureano Hoyos & Marcelo Sánchez
3. XV Pan-American Conf. on Soil Mechanics and Geotechnical Engineering Title: ‘Advance course on coupled multiphysics analysis in geo-engineering’. Buenos Aires, Argentina. 15<sup>th</sup> Nov. 2015.

- **Guest Lectures**

1. Guangzhou University, Guangzhou, China (12/02/2019).
2. China University of Geoscience, Wuhan, China, (10/21/2019).
3. Universidade do Sao Paulo, São Paulo, Brazil (08/14/2019).
4. National University of San Juan, Argentina (07/26/2019).
5. Chalmers University, Gothenburg, Sweden (03/28/2019).
6. WSP Headquarter Office, New York, USA (06/24/2109).
7. Universidade de Sao Paulo, São Paulo, Brazil. (08/14/2019).
8. Auburn University, Alabama, USA (02/07/2019).
9. Zhejiang University, Hangzhou, China (10/26/2018).
10. University de Houston, Houston, USA (10/5/2018).
11. Universitat Politècnica de Catalunya, Barcelona, Spain (06/24/2018).
12. Imperial College, London, UK (07/20/2017).
13. Monash University, Victoria, Australia (05/11/2017).
14. Universidade do Estado do Rio de Janeiro, Brazil (03/20/2017).
15. Universidade Estadual Paulista. Bauru, Brazil (03/14/2017).
16. Universidade Federal de Pernambuco, Recife, Brazil (03/09/2017).
17. Universidade Federal de Campina Grande. Campina Grande, Brazil (03/08/2017).
18. Universidade de São Paulo, Escola de Engenharia de São Carlos, Brazil (02/17/2017).
19. L. "Corky" Frank '58 Graduate Seminar Series, Petroleum Eng. TAMU (10/18/2016).
20. National University of San Juan, Argentina (08/18/2016).
21. Pontifical University of Chile, Chile (08/10/2016).
22. Australian Geomechanics Society, Melbourne, Australia (06/07/2016).
23. King Saud University, Riyadh, Kingdom of Saudi Arabia (11/02/2016).
24. National University of San Juan, Argentina (11/13/2015).
25. The University of Texas at Austin, Austin, USA (10/30/2015)
26. École Polytechnique Fédérale de Lausanne (EPFL), Switzerland (08/13/2015) and (08/27/2015).
27. Cambridge University, Cambridge, UK (10/09/2015).
28. Northwestern University, Evanston, USA (12/2014).
29. Australian Geomechanics Society, Melbourne, Australia (07/2014).
30. Monash University, Melbourne, Melbourne, Australia (07/2014)
31. University of Pittsburgh, Pittsburgh, USA. (01/24/2014)

32. Universidade Federal de Pernambuco, Recife-Brazil (05/2013)
  33. Universidade Estadual Paulista. Bauru, Brazil. (05/2013)
  34. Sandia National Laboratories, Albuquerque-US (01/2012) and (10/2012)
  35. University of Texas at San Antonio (02/2011)
  36. Sandia National Laboratories, Albuquerque-US (01/2011)
  37. Universidade Federal de Pernambuco, Recife-Brazil (08/2010)
  38. Lawrence Berkeley National Laboratory, San Francisco-US (06/2010)
  39. The University of Western Australia, Perth-Australia (11/2009)
  40. University of Glasgow, Glasgow-UK (11/08)
  41. Universidade Federal de Pernambuco, Recife-Brazil (07/2008)
  42. Massachusetts Institute of Technology (MIT), Boston-US (03/2008)
  43. Universidade Federal de Pernambuco, Recife-Brazil (08/2007)
  44. Universidade de Brasilia, Brasilia-Brazil (06/2007)
  45. University of Strathclyde, Glasgow (02/2007)
  46. Durham University, Durham-UK (11/2006)
  47. National Univ. of Tucuman, Tucuman- Argentina (10/07/2006)
  48. Tongji University, Shanghai-China (05/26/2006)
  49. University Teknologi Malaysia, Johor Darul Ta'Zim- Malaysia (03/17/2006).
  50. Institut Teknologi Sepuluh Nopember (ITS), Surabaya-Indonesia (03/14/2006).
- **Short Courses**
    1. “Modeling Soil Behavior Using Critical State Concepts”. Instituto de Geociências, Universidade de Sao Paulo, Sao Paulo, Brazil. Mar. 13<sup>th</sup> 2019.
    2. “Coupled Unsaturated and THM Behavior of Soils and Rocks. Applications to Geo-Energy and Geo-Environmental Problems”. GIAN Course. National Institute of Technology, Rourkela, India, Dec. 17<sup>th</sup> to 21<sup>st</sup> 2018
    3. “Numerical and experimental investigation on thermo-hydro-mechanical behavior of unsaturated soils and rocks”. Universidade Estadual Paulista, Bauru, Brazil. Mar 13<sup>th</sup> to 17<sup>th</sup>. 2017.
    4. “Introduction to the Mechanical and Flow Behavior of Porous Media”. Universidade Estadual Paulista, Bauru, Brazil. Jun, 29<sup>th</sup> and 30<sup>th</sup>. 2016.
    5. “Modeling of coupled Thermo-Hydro-Mechanical problems”. Georgia Institute of Technology. Nov. 12<sup>th</sup> to 15<sup>th</sup> Apr 2007.
  - **Visiting lecturer** ITS, Surabaya, Indonesia (6<sup>th</sup> to 17<sup>th</sup> Mar. 2006)
  - **Media coverage.** On Jan 6<sup>th</sup> 2016, KBTX requested Dr. Sanchez’s opinion as part of the article entitled: ‘Lake Bryan Dam Repairs Continue After Sensors Detect Slight Movement’. Report and video can be found at: <http://www.kbtx.com/home/headlines/Lake-Bryan-Dam-Repairs-Continue-After-Sensors-Detect-Slight-Movement-364307311.html>
  - **Coordinator/Editor** of the article ‘TAMU Geotechnical Engineering and Geomechanics Group - Research Highlights’ *Bulletin of the International Society for Soil Mechanics and Geotechnical Engineering*. V 9 (3), Pp 35. Jun 2015. Report can be found at [http://issmge2014.ust.hk/~issmge/jun2015/1.Research\\_highlights.pdf](http://issmge2014.ust.hk/~issmge/jun2015/1.Research_highlights.pdf)



## FELLOWSHIPS

- GIAN (Global Initiative Academic Network, Ministry of Human Resource Development, Government of India) fellowship to visit National Institute of Technology, Rourkela, India, 17<sup>th</sup> to 21<sup>st</sup> Dec 2018.
- FAPESP (Sao Paulo Research Agency, Brazil) fellowship to visit the Universidade Estadual Paulista, Bauru, Brazil for two months (Feb. and Mar. 2017).
- ASCE ExCEED Fellow. The ASCE's (American Society of Civil Engineering) Committee on Faculty Development selected Dr. Sánchez to attend the six-day 2014 ASCE ExCEED (Excellence in Civil Engineering Education) Teaching Workshop at the Florida Gulf Coast University, Jun. 22<sup>nd</sup> - 27<sup>th</sup>, 2014.
- Research fellowship CIMNE (UPC). January 2001 – May 2005.
- Doctoral scholarship MUTIS program, AECI (Spanish Agency of International Cooperation). January 1998 – December 2000.
- FOMEC program, Ministry of Education, Argentina. Scholarship to undertake the Master Course at UPC, Barcelona, Spain. January-December 1996.
- Scholarship to attend the “XII International Course of Soil Mechanics and Engineering in Foundations”. Madrid, Spain. January-May 1994. ICI program (AECI, Spain).

## PUBLICATIONS

\* indicates past or present graduate students, \*\* indicates past or present postdoctoral researchers.

### I JOURNAL PUBLICATIONS

#### • PUBLISHED

1. Tran H, Wang Y, Nguyen D, Kodikara J. **Sánchez M.**, Bui H. (2019). “Modelling 3D desiccation cracking in clayey soils using a size-dependent SPH computational approach”. *Computers and Geotechnics*. Vol. 116: 103209. <https://doi.org/10.1016/j.compgeo.2019.103209>.
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- **ACCEPTED**
65. Cleto P., Manzoli O., **Sánchez M.**, Maedo M., Brunet L., Guimaraes L. “Hydro-mechanical coupled modeling of hydraulic fracturing using the mesh fragmentation technique”. *Computers and Geotechnics*. (under second review).
66. Loveridge F., McCartney J., Narsilio G., **Sánchez M.** “Energy geostructures: a review of analysis approaches, in situ testing and model scale experiments”. *Geomechanics for Energy and the Environment* (under second review).
- **UNDER REVIEW**
1. \*Teymouri M., **Sánchez M.**, Santamarina J.C. “A Pseudo-Kinetic Model to Simulate Phase

- Changes in Hydrate Bearing Sediments”. *Marine and Petroleum Geology*.
2. Hong Y. Yang B., Wang L, **Sanchez M.** “Distinct undrained cyclic behavior of fine-grained gassy soil at various initial pore water pressures”. *Journal of Geotechnical and Geoenvironmental Engineering*.
  3. \*Maedo M., **Sanchez M.**, \*Al-jeznawi D., Manzoli O., Guimaraes L., Cleto P. “Analysis of Soil Drying Incorporating a Constitutive Model for Curling”. *Acta Geotechnica*.
  4. Rodrigues R., Soares F., **Sanchez M.** “Settlements of footings on compacted and natural collapsible soils upon loading and soaking”. *Journal of Geotechnical and Geoenvironmental Engineering*.
  5. Khoa M., Bui H. **Sánchez M.**, Kodikara J. “A DEM water particle approach to study desiccation processes in soils”. *Computers and Geotechnics*.

## II BOOK CHAPTERS AND MONOGRAPHS

### • PUBLISHED

1. Book title: “*Shale: Subsurface Science and Engineering*” (2019). Editors: Thomas Dewers (Sandia Nat. Lab.), Jason Heath (Sandia Nat. Lab.) and **Marcelo Sánchez** (TAMU). American Geophysical Union (AGU) Book. Publisher Wiley. ISBN: 978-1-119-06668-2
2. Book title: “*Energy Geotechnics*” (2016). Proceedings of the 1<sup>st</sup> International Conference on Energy Geotechnics. Editors: Wuttke F. (Kiel Univ.), Bauer S. (Kiel Univ.), and **Sánchez M.** Kiel, Germany. 29<sup>th</sup> to 31<sup>st</sup> Aug. 2016. CRC Press/Balkema. ISBN 978-1-138-03299-6
3. Chapter Title: “Energy Geo-structures in Cooling-Dominated Climates” (2013). \*Akrouch G, **Sánchez M.** and Briaud JL. Book title: *Energy geo-structures: innovation in underground engineering*. Editor: Lyesse Laloui and Alice Di Donna. Publisher Wiley. ISBN: 9781848215726. Pp: 175-190.
4. Chapter title: “Heat Propagation around Geothermal Piles and Implications on Energy Balance” (2013). Arson C.; Berns E., \*Akrouch G., **Sánchez M.** and Briaud J-L. Book title: *Materials and processes for energy: communicating current research and technological developments*. Editor: A. Méndez-Vilas. Publisher: Formatex Research Center. ISBN (13): 978-84-939843-7-3. Pp:628-635.
5. **Sánchez M.** and Gens A. (2006). “Full-scale Engineered Barriers Experiment”. Final Report on Thermo-Hydro-Mechanical modelling. ENRESA Technical Publication, Madrid, 163 Pages. ISSN: 1134-380X. D.L.:M-53197-2006l
6. **Sánchez M.**, Co-author. Chapter 7 (2006). “Full-scale Engineered Barriers Experiment”. Update Final Report. ENRESA Technical Publication, Madrid, 590 Pages. ISSN: 1134-380X. D.L.:M-53195-2006.
7. **Sánchez M.**, Co-author. Chapter 6 (2000). “Full-scale Engineered Barriers Experiment for a deep geological repository for high level radioactive waste in crystalline rock. ENRESA Technical Publication, Madrid, 350 Pages. ISSN: 1134-380X. D.L.: M-14403-2000.

## III KEYNOTE AND INVITED/FEATURED CONFERENCE PRESENTATIONS AND PAPERS

Underline indicates the speaker

1. **Sánchez M.** (2019). Keynote Lecture: “Coupled THM Modeling of Evolving Discontinuities in Geo-Energy Problems”. *3<sup>rd</sup> Geo-Energy and Geo-Environment Conference - GeGe2019*. (abstract only). Changsha, China. 30<sup>th</sup> Nov and 1<sup>st</sup> Dec. 2019.
2. **Sánchez M.** (2019). Keynote Lecture: “Coupled Analysis of Problems Involving Gas Hydrates Bearing Sediments (HBS)”. *2<sup>nd</sup> International Symposium on Marine Engineering Geology - ISMEG 2019*. (abstract only). Dalian, China. 18<sup>th</sup> – 20<sup>th</sup> Oct. 2019.

3. **Sánchez M.** (2019). Theme lecture: “Enhanced Geothermal Systems: Challenges and Opportunities”. *3<sup>rd</sup> Br Interpore Conference in Porous Media*. (abstract only). National Laboratory for Scientific Computation, Petropolis, Brazil. 5<sup>th</sup> – 8<sup>th</sup> Aug 2019.
4. **Sánchez M.** (2019). Theme lecture: “Coupled THM Modeling of Evolving Discontinuities in Geo-materials – Application to Enhanced Geothermal Systems”. *7<sup>th</sup> Int. Symp. on Deformation Characteristics of Geomaterials* (abstract only). Glasgow, UK. 26<sup>th</sup> - 28<sup>th</sup> Jun 2019.
5. **Sánchez M.** (2019). Invited lecture: “Clays as Barrier Materials”. *Workshop Clays: New Perspectives, Challenges & Opportunities*. Massachusetts Institute of Technology, 2<sup>nd</sup> and 3<sup>rd</sup> May 2019, Massachusetts, USA. (abstract only).
6. **Sánchez M.** (2018). Featured lecture: “Behavior of Gas Hydrates Bearing Sediments: Geomechanical and Numerical Modeling”. (abstract only). *International Symposium on Energy Geotechnics SEG-2018*. École polytechnique fédérale de Lausanne, Switzerland. 25<sup>th</sup> to 28<sup>th</sup> Sept. 2018.
7. **Sánchez M.** (2018). Invited speaker: “General Report on Environmental and Energy Geotechnics”. *7<sup>th</sup> Int. Conference on Unsaturated Soils*. Hong Kong Univ. of Science and Technology, Hong Kong. 3<sup>rd</sup> to 5<sup>th</sup> Aug. 2018.
8. **Sánchez M.** and Maedo M. (2018). Invited lecture: “Geo-Energy Applications Involving Heat Exchange with the Ground”. *Prague Geotechnical Days*. Prague, Czech Republic. 21<sup>st</sup> and 22<sup>nd</sup> May 2018.
9. **Sánchez M.**, Santamarina JC, Gai X, and Teymouri M (2017). Invited presentation: “Coupled numerical modeling of gas hydrates bearing sediments from laboratory to field-scale conditions” (abstract only). *2017 AGU Fall Meeting*. New Orleans, USA. 11<sup>th</sup> to 15<sup>st</sup> Dec. 2017.
10. **Sánchez M.**, (2017). Invited speaker: “Energy & Environmental Geotechnics: Challenges and Opportunities”. (abstract only). *India-US Science and Technology Forum (IUSSTF) Supported workshop on Environmental Geotechnics*. IIT Bombay, Mumbai, India. 1<sup>st</sup> -2<sup>nd</sup> Dec. 2017.
11. **Sánchez M.**, \*Wang D., Fry G., Briaud J-L (2017). Invited presentation. “Railroads on shrink-swell soils: highlights from a case study in Texas” *19<sup>th</sup> International Conference on Soil Mechanics and geotechnical engineering - Workshop TC106 Unsaturated Soils*. COEX, Seoul, Korea, 17<sup>th</sup> to 22<sup>nd</sup> Sep. 2017 (abstract only).
12. **Sánchez M.** (2016). Keynote lecture: “Behavior of Hydrates Bearing Sediments”. *1<sup>st</sup> International Conference on Energy Geotechnics*. Kiel, Germany. 29<sup>th</sup> to 31<sup>st</sup> Aug. 2016.
13. **Sánchez M.** (2016). Invited presentation: “Thermo-Coupled Process in Geoengineering Problems”. NSF Sponsored Geotechnical Workshop on *Geotechnical Fundamentals in the Face of New World Challenges*. Arlington, Virginia, USA. 17<sup>th</sup> to 19<sup>th</sup> Jul. 2016.
14. **Sánchez M.** (2016). Invited presentation: “Creep Behavior in Soil Nail Walls in High Plasticity Index (PI) Soil” (abstract only). *Texas Department of Transportation (TxDOT) Spring 2016 Research Meeting*. Texas Department of Transportation, Austin, 22<sup>nd</sup> Mar. 2016.
15. **Sánchez M.** (2016). Invited lecture: “Soil Nail Walls in High Plasticity Clays”. *Geo-San Antonio 2016 - Geotechnical Advances in the Transportation Sector*. Organized by the Geo-Institute Texas and San Antonio Chapters. The Universidad of Texas at San Antonio, 18<sup>th</sup> Mar. 2016 (abstract only).
16. **Sánchez M.**, \*Kim S., Manzoli O, and Guimarães L., \*\*Zielinski M., \*Atique A., and Romero E. (2015). Keynote lecture: “Drying cracks in soils: current advances and challenges”. *VII Simposio Brasileiro de Solos Nao Saturados*, Fortaleza, Brazil, 25<sup>th</sup> to 27<sup>th</sup> Nov. 2015.
17. **Sánchez M.** (2015). Keynote lecture: “The role of a Civil Engineering in Problems related to Geo-Environmental and Geo-Energy Engineering” (abstract only). *CONEIC 8<sup>th</sup> Conference*. 9<sup>th</sup> Oct. 2015. San Juan Argentina.

18. **Sánchez M.** (2015). Invited lecture: “Engineered barriers” (abstract only). *7<sup>th</sup> Olek Zienkiewicz Course Summer School of ALERT Geomaterials on “Unsaturated Soil Mechanics: From Fundamentals to Applications”*. Universitat Politècnica de Catalunya, Barcelona-Tech, 26<sup>th</sup> to 29<sup>th</sup> May 2015. (Abstract only).
19. \*Akrouch G, Briaud J.L. and **Sánchez M.** (2014). Invited lecture: “Energy Piles in Cooling Dominated Climate”. *7<sup>th</sup> International Congress on Environmental Geotechnics*. Melbourne, Australia. 10<sup>th</sup> to 14<sup>th</sup> Nov. 2014.
20. **Sánchez M.**, \*Akrouch G., and Briaud JL. (2014). Invited lecture: “Geothermal Energy in Texas” (abstract only). *Texas CECON (Civil Engineering Conference) 2014, ASCE Texas Section*. September 17-19, 2014, San Luis Resort, Galveston, Texas.
21. **Sánchez M.**, \*Akrouch G., and Briaud JL. (2014). Invited lecture: “Energy Piles in Cooling Dominated Climates” (abstract only). *Geo-San Antonio 2014 - Geotechnical Topics in the Energy Sector*. Organized by the Geo-Institute Texas and San Antonio Chapters. The Universidad of Texas at San Antonio, 14<sup>th</sup> Mar. 2014.
22. **Sánchez M.** (2013). Invited lecture: “Estimation of the Maximum Injection Pressure Using Evidence Theory in Coupled Hydro-Mechanical Problems Involving Geological Faults” (abstract only). *IV International Seminar on Oilfield Water Management*, Rio de Janeiro, Brazil. 28<sup>th</sup> to 30<sup>th</sup> Aug. 2013.
23. **Sánchez M.** (2013). Invited lecture: “Behavior of an Underground Compressed Air Energy Storage Facility in Sandstone” (abstract only). *International Workshop Geo-engineering Energy Geo-Storage*, Weimar, Germany. 3<sup>rd</sup> to 5<sup>th</sup> Jul. 2013.
24. **Gens A.**, **Sánchez M.** and Vallejan B. (2011). Keynote lecture: “Generalized Plasticity for Geomaterials with Double Structure” (abstract only). *International Conference on Computational Plasticity – COMPLAS XI*, Barcelona, Spain, 7<sup>th</sup> to 9<sup>th</sup> Sep. 2011.
25. **Guimarães L.**, Gens A, **Sánchez M.** and Olivella S. (2009). Keynote paper: “Coupled THMC modelling of unsaturated swelling clays: constitutive formulation and boundary value problems”. *4<sup>th</sup> Asian Pacific Conference on Unsaturated Soils*, Newcastle, Australia. 23<sup>rd</sup> to 25<sup>th</sup> Nov. 2009.
26. **Gens A.**, Guimaraes L., **Sánchez M.** and Sheng D. (2008). Keynote lecture: “Developments and modelling the generalised behaviour of unsaturated soils”. *1<sup>st</sup> E-UNSAT*, Durham, UK. 2<sup>nd</sup> to 4<sup>th</sup> Jul. 2008.
27. **Sánchez M.** (2007) Invited lecture: “Behavior of expansive clays subjected to heating and hydration” (abstract only). *IUTAM (International Union of Theoretical and Applied Mechanics) Symposium on Swelling and Shrinking of Porous Materials From Colloid Science to Poromechanics*, Rio de Janeiro, Brazil. 6<sup>th</sup> to 10<sup>th</sup> Aug. 2007.
28. **Sánchez M.**, Villar M.V., Lloret A. and **Gens A.** (2007). Keynote lecture: “Analysis of the expansive clay hydration under low hydraulic gradient”. *International Conference: Mechanics of Unsaturated Soils*, Weimar, Germany. 7<sup>th</sup> to 9<sup>th</sup> Mar. 2007.
29. **Sánchez M.**, **Gens A.**, Guimarães L. and Olivella S. (2007). Invited lecture: “A generalised plasticity model for swelling clays: formulation, implementation and validation”. *International Workshop on Constitutive modelling – Development, Implementation, Evaluation, and Application*. Hong Kong, China. 12<sup>th</sup> to 13<sup>th</sup> Jan. 2007.
30. **Sánchez M.** (2006). Keynote lecture: “Coupled analysis of engineered barriers”. *XVIII CAMSIG. Argentinean Congress of Soil Mechanics and Geotechnical Engineering*, San Juan, Argentina. 27<sup>th</sup> to 30<sup>th</sup> Sep. 2006.
31. **Sánchez M.**, Gens A Guimarães L. and Olivella S. (2006). Invited lecturer: “Modelling coupled behaviour of a clay barrier at high temperatures”. *2<sup>nd</sup> International Conference on*



*Coupled T-H-M-C Processes in Geo-systems: Fundamentals, Modelling, Experiments & Applications*, Nanjing, China. 22-24 May, 2006.

32. Gens A., Guimaraes L., **Sánchez M.** and Olivella S. (2002) Keynote lecture: “Chemoplasticity modelling of the hydro-mechanical behaviour of active clays”. *International Conference on Computational Plasticity VII. Fundamentals and Applications*. Barcelona, Spain. April, 2002. ISBN 84-95999-226.
33. Gens A., Olivella S., **Sánchez M.** (2002). Invited lecture: “Thermo-hydrromechanical effects on the behaviour of clay barriers”. *International meeting on Clays in Natural and Engineered Barriers for radioactive waste confinement*, Reims, France. December, 2002.

#### IV PEER REVIEWED CONFERENCES PAPERS

1. \*Maedo M., **Sánchez M.**, Manzoli O., Guimarães L., and Cleto P. (2019). “Numerical modeling of evolving discontinuities in rocks using solid interface finite elements”. 53<sup>rd</sup> US Rock Mechanics / Geomechanics Symposium. American Rock Mechanics Association (ARMA). 23<sup>rd</sup> to 26<sup>th</sup> June 2019, New York, USA,
2. \*Maedo M., **Sánchez M.**, Guimarães L., Manzoli O., and Cleto P. (2019). “Coupled THM modeling of evolving fractures in geo-materials”. 7<sup>th</sup> *International Symposium on Deformation Characteristics of Geomaterials* (IS-Glasgow 2019). 26<sup>th</sup> to 28<sup>th</sup> June 2019, Glasgow, UK. DOI: 10.1051/e3sconf/20199216003.
3. López-Acosta, N.P; Barba-Galdámez, F.; **Sánchez M.** (2018). “Numerical Analysis of the Thermo-Mechanical Behavior of an Energy Pile in Mexico”. *International Symposium on Energy Geotechnics (SEG-2018)*. 147-154, Springer. Swiss Federal Institute of Technology in Lausanne (EPFL), Switzerland. 26<sup>th</sup> to 28<sup>th</sup> Sep. 2018.
4. \*Maedo M., **Sánchez M.**, Manzoli O., and Guimarães L. (2018). “Computer Simulation of 3D Desiccation Cracks in Soils”. 7<sup>th</sup> *International Conference on Unsaturated Soils*, 3<sup>rd</sup> to 5<sup>th</sup> Aug. 2018. Hong Kong.
5. \*Hajjat J., **Sánchez M.**, Guillermo A. (2018). “Unsaturated and Saturated Soil-Interface Effect on Shearing Behavior of Soils”. 7<sup>th</sup> *International Conference on Unsaturated Soils*, 3<sup>rd</sup> to 5<sup>th</sup> Aug. 2018. Hong Kong.
6. Gens A., Pomaro, B.; **Sánchez, M.**, Villar, M.V. (2018). “On the hydration of unsaturated barriers for high-level nuclear waste disposal”. 7<sup>th</sup> *International Conference on Unsaturated Soils*, 3<sup>rd</sup> to 5<sup>th</sup> Aug. 2018. Hong Kong.
7. Rodrigues E., Manzoli O., Bitencourt L., Bittencourt T., and Sanchez M. (2018). “An adaptive concurrent multiscale model for concrete based on coupling finite elements”. *Computers Methods in Applied Mechanics and Engineering. (EURO-C 2018)*, 328(1): 26-46. 26<sup>th</sup> Feb. to 1<sup>st</sup> Mar. 2018, Bad Hofgastein, Austria.
8. López-Acosta, N.P; Barba-Galdámez, F.; **Sánchez M.** (2017). “Energy piles. Direct use of geothermal energy through deep foundations (In Spanish: Pilas de energía. Uso directo de la energía geotérmica través de las cimentaciones profundas). 4<sup>o</sup> *Simposio Internacional de Cimentaciones Profundas*. 15<sup>th</sup> to 16<sup>th</sup> Nov. 2017 CDMX, México.
9. \*Wang D., **Sánchez M.**, Sáez E., Ovalle C., and Briaud J-L. (2017). “Study of a natural unsaturated clay and its effect on railroads”. 2<sup>nd</sup> *Pan American Conference on Unsaturated Soils*, 12<sup>th</sup> to 15<sup>th</sup> Nov. 2017. Dallas, USA. DOI: 10.1061/9780784481691.025.
10. \*Keshavarz M., **Sánchez M.**, Akrouch G., and Briaud J-L. (2017). “Field Measurements on Geothermal Foundations”. 2<sup>nd</sup> *Pan American Conference on Unsaturated Soils*, 12<sup>th</sup> to 15<sup>th</sup> Nov. 2017. Dallas, USA. DOI: 10.1061/9780784481691.025.

11. \*Lloret M., Wheeler S., and **Sánchez M.** (2017). “Compression Planar Surfaces for Specific Volume and Degree of Saturation”. *2<sup>nd</sup> Pan American Conference on Unsaturated Soils*, 12<sup>th</sup> to 15<sup>th</sup> Nov. 2017. Dallas, USA. DOI: 10.1061/9780784481691.025.
12. \*Shastri A., **Sánchez M.**, and \*Le, T. (2017). “Thermo-Hydro-Mechanical Characterization of compressed Air Energy Systems.” *2<sup>nd</sup> Pan American Conference on Unsaturated Soils*, 12<sup>th</sup> to 15<sup>th</sup> Nov. 2017. Dallas, USA. DOI: 10.1061/9780784481691.025.
13. \*Hajjat J., **Sánchez M.**, Guillermo A. (2017). “Behavior of Soil Nails in High Plasticity Clay under Various Load Level”. *2<sup>nd</sup> Pan American Conference on Unsaturated Soils*, 12<sup>th</sup> to 15<sup>th</sup> Nov. 2017. Dallas, USA
14. \*Mahdavi-Kharanaghi M., **Sánchez M.**, Briaud J-L. (2017). “Behavior of Soil Nails in High Plasticity Clay under Various Load Level”. *2<sup>nd</sup> Pan American Conference on Unsaturated Soils*, 12<sup>th</sup> to 15<sup>th</sup> Nov. 2017. Dallas, USA. DOI: 10.1061/9780784481691.025.
15. \*Zhou B., **Sánchez M.**, Shastri A., and Lee J. (2017). “Mechanical Behavior of Soil Subjected to Freezing-thawing Cycles”. *2<sup>nd</sup> Pan American Conference on Unsaturated Soils*, 12<sup>th</sup> to 15<sup>th</sup> Nov. 2017. Dallas, USA.
16. \*Maedo M., **Sánchez M.**, Manzoli O., and Guimarães L. (2017). “Modeling the 3D Crack Network Observed in Desiccated Soils”. *2<sup>nd</sup> Pan American Conference on Unsaturated Soils*, 12<sup>th</sup> to 15<sup>th</sup> Nov. 2017. Dallas, USA.
17. Tran H., Bui H., Nguyen G., Kodikara J., and **Sanchez, M.** (2017). “A Continuum Based Approach to Modelling Tensile Cracks in Soils”. *Poromechanics VI: Proceedings of the Sixth Biot Conference on Poromechanics*. Vandamme, Dangla, Pereira, and Ghabezloo (eds.). Reston, Virginia: American Society of Civil Engineers: 337-344. 9<sup>th</sup> to 13<sup>th</sup> Jul., 2017. Paris, France.
18. \*Wang D., **Sánchez M.**, and Briaud J-L. (2017). “Existing railroads on shrink-swell soils: field monitoring, laboratory tests and numerical simulation”. *First International Conference on Rail Transportation*. Chengdu, China, 10<sup>th</sup> to 12<sup>th</sup> Jul. 2017. DOI: 10.1061/9780784481691.025.
19. \*Gai X, **Sánchez M.**, Santamarina JC. (2017). “A Constitutive Mechanical Model for Gas Hydrate Bearing Sediment”. *9<sup>th</sup> International Conference for Gas Hydrates (ICGH 2017)*. 25<sup>th</sup> to 30<sup>th</sup> 2017 Jun. Denver, USA.
20. \*Dong W., **Sánchez M.**, and Briaud J-L (2016) “Behavior of Railroads on Shrink-Swell Soils”. *3<sup>rd</sup> European Conference on Unsaturated Soils, Paris, France*, 12<sup>th</sup> to 14<sup>th</sup> Sep. 2016
21. **Sánchez M.**, \*Gai X. (2016). “Geomechanical and numerical modeling of gas hydrate sediments”. In: Wuttke, Bauer, Sanchez, editors. *1<sup>st</sup> International Conference on Energy Geotechnics, Kiel, Germany*. Energy Geotechnics. CRC Press/Balkema; 2016. 19–24
22. **Sánchez M.**, Falcao F., Mack M. Pereira J-M (2015) “Panel Session on Energy Geo-Engineering”. *XV Panamerican Conference on Soil Mechanics and Geotechnical Engineering*, Buenos Aires, Argentina 15<sup>th</sup> to 18<sup>th</sup> Nov. 2015.
23. \*Dong W., **Sánchez M.**, Briaud J-L (2015) “Problems Associated with Railroads on Shrink-Swell Soils”. *XV Panamerican Conference on Soil Mechanics and Geotechnical Engineering*, Buenos Aires, Argentina 15<sup>th</sup> to 18<sup>th</sup> Nov. 2015.
24. \*Gai X, **Sánchez M.** (2015). “Mechanical Modeling of Gas Hydrate Bearing Sediments Using an Elasto-Plastic Framework”. *XV Panamerican Conference on Soil Mechanics and Geotechnical Engineering*, Buenos Aires, Argentina 15<sup>th</sup> to 18<sup>th</sup> Nov. 2015.
25. **Sánchez M.**, Santamarina J.C., \*Shastri A., and \*Gai X, (2015). Numerical Modeling of Gas Hydrate Bearing Sediments. *XVI ECSMGE European Conference on Soil Mechanics and Geotechnical Engineering*, Edinburgh, UK, 13<sup>th</sup> to 17<sup>th</sup> Sep. 2015.

26. \*Cabral L., Guimares L., **Sanchez M.** (2015). “Uncertainty quantification for reservoir geomechanics”. *SPESPE Paper Contest 2015 - PHD category*. Houston, USA, 28<sup>th</sup> to 30<sup>th</sup> Sep. 2015
27. \*Akrouch G., **Sánchez M.**, and Briaud, J-L. (2015). “Effect of the Unsaturated Soil Condition on the Thermal Efficiency of Energy Piles”. *International Foundations Congress and Equipment Expo 2015*, San Antonio, USA, 17<sup>th</sup> to 21<sup>st</sup> March 2015
28. **Sánchez M.**, Manzoli O, and Guimarães L. (2014). “Modeling Drying Cracks in Soils Using a Mesh Fragmentation Method”. *14<sup>th</sup> International Conference of the International Association for Computer Methods and Advances in Geomechanics*, 14<sup>th</sup> IACMAG. Kyoto, Japan. 22<sup>nd</sup> to 25<sup>th</sup> Sep. 2014.
29. **Sánchez M.**, \*Shastri A., Santamarina J.C. and \*Gai X. (2014). “Coupled Modeling of Gas Hydrate Bearing Sediments”. *14<sup>th</sup> International Conference of the International Association for Computer Methods and Advances in Geomechanics*, 14<sup>th</sup> IACMAG. Kyoto, Japan. 22<sup>nd</sup> to 25<sup>th</sup> Sep. 2014.
30. \*\*Zielinski M., **Sánchez M.**, Romero E., \*Atique A. (2014). “Observation of soil curling using 2D laser scanner”. *International Conference UNSAT2014*. Unsaturated Soils: Research & Applications, Sydney, Australia. 2<sup>nd</sup> to 4<sup>th</sup> Jul. 2014.
31. **Sánchez M.**, Manzoli O, Guimarães O. (2014). “Modeling the Formation and Propagation of Desiccation Cracks in Soils”. *International Conference UNSAT2014*. Unsaturated Soils: Research & Applications, Sydney, Australia. 2<sup>nd</sup> to 4<sup>th</sup> Jul. 2014.
32. \*Le T, Gallipoli D, **Sánchez M.**, Wheeler S. (2014). “Mechanisms of Rainfall Induced Differential Settlements in Unsaturated Heterogeneous Foundations”. *International Conference UNSAT2014*. Unsaturated Soils: Research & Applications, Sydney, Australia. 2<sup>nd</sup> to 4<sup>th</sup> Jul. 2014.
33. Bai Y. Niedzwecki J., **Sánchez M.** (2014). “Numerical Investigation of Thermal Fields around Subsea Buried Pipelines”. *Proceedings of the ASME 2014 33<sup>rd</sup> International Conference on Ocean, Offshore and Arctic Engineering OMAE2014*, San Francisco, California, US. 8<sup>th</sup> to 13<sup>th</sup> Jun. 2014.
34. \*Shastri A., **Sánchez M.** (2014). “Numerical Modeling of Frozen Soils”. *Geo-Congress 2014 ASCE*, Atlanta, US. 23<sup>rd</sup> to 26<sup>th</sup> Feb. 2014.
35. **Sánchez M.**, Gens A., Guimarães L, \*Dontha L. (2013). “Coupled THM analysis of a nuclear waste repository in crystalline rock”. *47<sup>th</sup> US Rock Mechanics/Geomechanics Symposium*, San Francisco, CA, US. 23<sup>rd</sup> to 26<sup>th</sup> Jun. 2013.
36. \*Khandelwal S., **Sánchez M.**, Medina-Cetina Z. (2013). “Effect of Depth of Desiccation Cracks on Earth Embankments”. *Geo-Congress 2013 ASCE*, San Diego, US. 3<sup>rd</sup> to 6<sup>th</sup> Mar. 2013.
37. **Sánchez M.**, \*Atique A., \*Kim S., Romero E., and Zielinski M. (2013). “Study of desiccation cracks in soils using a 2D laser scanner”. *Geo-Congress 2013 ASCE*, San Diego, US. 3<sup>rd</sup> to 6<sup>th</sup> Mar. 2013.
38. \*Shastri A., **Sánchez M.** and Lizcano A. (2013). “Unsaturated Flow of Unfrozen Water in Frozen Soils”. *1<sup>st</sup> Pan-American Conference on Unsaturated Soils*, Cartagena, Colombia. 20<sup>th</sup> to 22<sup>nd</sup> Feb. 2013.
39. \*Shastri A., **Sánchez M.** and Santamarina JC. (2013). “Modeling Gas Hydrate Bearing Sediments Using a Coupled Approach”. *1<sup>st</sup> Pan-American Conference on Unsaturated Soils*; Cartagena, Colombia. 20<sup>th</sup> to 22<sup>nd</sup> Feb. 2013.
40. Bean J., **Sánchez M.** and Argüello J. G. (2012). “Application of a Double Structure Constitutive Model for Expansive Clays”. *46<sup>th</sup> US Rock Mechanics/Geomechanics Symposium*, Chicago, IL, USA. 24<sup>th</sup> to 27<sup>th</sup> Jun. 2012.

41. \*Shastri A., **Sánchez M.** (2012). “Mechanical Modeling of Frozen Soil Incorporating the Effect of Cryogenic Suction and Temperature”. *Geo-Congress 2012 ASCE*. Oakland, California USA. 25<sup>th</sup> to 29<sup>th</sup> Mar. 2102.
42. \*Lloret M., **Sánchez M.** and Wheeler S. (2012) “Generalisation to the 3D conditions of a fully coupled constitutive model for unsaturated soils”. *Geo-Congress 2012 ASCE*, Oakland, California. 25<sup>th</sup> to 29<sup>th</sup> Mar. 2102.
43. \*Shastri A., **Sánchez M.** (2012) “Modeling the Mechanical Behavior of Frozen Soils”. *2<sup>nd</sup> European E-UNSAT 2012*, Naples, Italy, 20<sup>th</sup> to 22<sup>nd</sup> Jun. 2012.
44. Gens A., Vallejan B., and **Sánchez M.** (2011). “Hydromechanical modelling of multi-porosity clays”. *IACMAG 2011*, Melbourne, Australia, 9<sup>th</sup> to 11<sup>th</sup> May 2011.
45. **Sánchez M.**, \*Shastri A., and Gens A. (2011). “Transient behavior of a clay barrier subjected to high temperature changes”. *Geo-Frontiers 2011 ASCE*. 13<sup>th</sup> to 16<sup>th</sup> Mar. 2011. Dallas, US.
46. Zielinski M., **Sánchez M.**, Romero E. and Sentenac P. (2011). “Water Retention Behavior of an Embankment Model”. *Geo-Frontiers 2011 ASCE*, Dallas, US. 13<sup>th</sup> to 16<sup>th</sup> Mar. 2011.
47. \*Atique A., **Sánchez M.**, and Romero (2011). “Analysis of Cracking Behavior of Drying Soil”. *International Conference on Environmental Science and Technology-ICEST 2011*, Singapore, 24<sup>th</sup> to 28<sup>th</sup> Feb. 2011.
48. **Sánchez M.**, Villar M.V., Gomez R., Lloret A. and Gens A. (2010). “Swelling pressure evolution in compacted bentonite: experiments and modeling”. *5<sup>th</sup> International Conference on Unsaturated Soils*, Barcelona, Spain. 6<sup>th</sup> to 8<sup>th</sup> Sep. 2010.
49. \*Le T., Gallipoli D., **Sánchez M.**, Wheeler J. (2010). “Influences of spatially varying porosity on unsaturated flow through earth structures”. *5<sup>th</sup> International Conference on Unsaturated Soils*, Barcelona, Spain. 6<sup>th</sup> to 8<sup>th</sup> Sep. 2010.
50. Zielinski M., Sentenac P., \*Atique A., **Sánchez M.**, and Romero E. (2010). “Comparison of four methods for determining the soil water retention curve”. *5<sup>th</sup> International Conference on Unsaturated Soils*, Barcelona, Spain. 6<sup>th</sup> to 8<sup>th</sup> Sep. 2010.
51. Gens A., Guimarães L., **Sánchez M.** and Vallejan B. (2010). “A coupled Analysis of Double Porosity Swelling Clays”. *International Workshop on Multiscale and Multiphysics Processes in Geomechanics*, Stanford University Campus, US. 23<sup>rd</sup> to 25<sup>th</sup> Jun. 2010.
52. **Sánchez M.**, Gens A., Villar M.V., and Lloret A. (2010). “Simulation of expansive clay behavior under simultaneous heating-hydration for nuclear waste storage applications”. *GeoFlorida ASCE*, West Palm Beach, Florida, US. 20<sup>th</sup> to 24<sup>th</sup> Feb. 2009.
53. \*Lloret M., **Sánchez M.** and Wheeler S. (2009). “Generalised elasto-plastic stress-strain and modified suction-degree of saturation relations of a fully coupled model”. *4<sup>th</sup> Asia-Pacific Conference on Unsaturated Soils*, Newcastle, Australia. 23<sup>rd</sup> to 25<sup>th</sup> Nov. 2009.
54. \*McCloskey G., **Sánchez M.**, and Romero E. (2009). “Characterization, mechanical and microstructural behaviour of an unsaturated silt”. *4<sup>th</sup> Asia Pacific Conference on Unsaturated Soils*. Newcastle, Australia. 23<sup>rd</sup> to 25<sup>th</sup> Nov. 2009.
55. \*Atique A., **Sánchez M.**, and Romero E. (2009). “Investigation of crack desiccation in soil from a flood protection embankment”. *4<sup>th</sup> Asia-Pacific Conference on Unsaturated Soils*, Newcastle, Australia. 23<sup>rd</sup> to 25<sup>th</sup> Nov. 2009.
56. \*\*Cordão-Neto M., **Sánchez M.**, Karstunen M. and Farias M. (2009). “Extension of the Barcelona Basic Model Considering Sub-loading Concepts”. *4<sup>th</sup> Asia-Pacific Conference on Unsaturated Soils*, Newcastle, Australia. 23<sup>rd</sup> to 25<sup>th</sup> Nov. 2009.
57. \*Lloret M., **Sánchez M.**, Wheeler S. and Karstunen M. (2009). “A generalised fully coupled mechanical-water retention model for unsaturated soils”. *1<sup>st</sup> International Symposium on Computational Geomechanics ComGeo I*, Juan-les-Pins, Cote d'Azur, France. April 29<sup>th</sup> to May 1<sup>st</sup> 2009.

58. \*\*Cordão-Neto M., **Sánchez M.** and Karstunen M. (2009). “A Constitutive Model for Structured Anisotropic Soils”. *1<sup>st</sup> International Symposium on Computational Geomechanics ComGeo I*, Juan-les-Pins, Cote d'Azur, France. April 29<sup>th</sup> to May 1<sup>st</sup> 2009.
59. Villar MV, **Sánchez M.**, Gómez-Espina R, Gens A. 2008. “NF-PROC3: Experimental and Modelling Studies of the THM Behaviour of the Clay Barrier”. *Euradwaste 2008*. Euradwaste '08. Programme and abstracts. European Commission. Luxembourg. 20<sup>th</sup> to 22<sup>nd</sup> Oct. 2008.
60. **Sánchez M.**, Villar M.V., Gens A., Gómez-Espina R. and Lloret A. (2008). “Swelling pressure in compacted bentonite: laboratory tests and modelling”. *1<sup>st</sup> European Conference on Unsaturated Soils*, Durham, UK. 2<sup>nd</sup> to 4<sup>th</sup> Jul. 2008.
61. \*Lloret M., **Sánchez M.**, Wheeler S. and Karstunen M. (2008). “Generalised elasto-plastic stress-strain relations of a fully coupled hydromechanical model”. *1<sup>st</sup> European Conference on Unsaturated Soils*, Durham, UK. 2<sup>nd</sup> to 4<sup>th</sup> Jul. 2008.
62. \*McCloskey G., **Sánchez M.**, Dyer M. and Kenny M. (2008). “Behaviour of a silt used in flood embankment construction in Indonesia” *1<sup>st</sup> European Conference on Unsaturated Soils*, Durham, UK. 2<sup>nd</sup> to 4<sup>th</sup> July, 2008.
63. \*McCloskey G., **Sánchez M.**, Dyer M. and Soemitro R. (2008). “Collapse behaviour of a silt used in flood embankment construction in Indonesia”. *Third International Workshop on Unsaturated Soils*, Trento, Italy. 4<sup>th</sup> to 7<sup>th</sup> Feb. 2008.
64. \*McCloskey G., **Sánchez M.**, Dyer M. and Soemitro R. (2008). “Experimental behaviour of a compacted silt used in a flood defence embankment in Indonesia”. *International Conference on Geotechnical and Highway Engineering*, Geotropika 2008, Kuala Lumpur, Malaysia. 26<sup>th</sup> to 27<sup>th</sup> May 2008.
65. Gens A., Guimarães L., Fernandez A.M., **Sánchez M.** and Olivella S. (2008). “Formulation for the THMC analysis of clayey materials. Application to radioactive waste disposal”. *GeoCongress 2008 ASCE*, New Orleans, US. 9<sup>th</sup> to 12<sup>th</sup> Mar. 2008.
66. **Sánchez M.**, Villar M.V., Gens A Guimarães L. and Olivella S. (2007) “Modelling the effect of temperature on unsaturated swelling clays”. *Tenth International Symposium on Numerical Models in Geomechanics. NUMOG X*, Rhodes, Greece. 25<sup>th</sup> to 27<sup>th</sup> Ap. 2007.
67. **Sánchez M.**, Gens A Guimarães L. and Olivella S. (2006) “Response of an unsaturated expansive clay under high temperature changes”. *Fourth International Conference on Unsaturated Soils. UNSAT 2006*, Arizona, USA. 2<sup>nd</sup> to 5<sup>th</sup> Ap. 2006,
68. Guimarães L., Fernandez A., Gens A., Olivella S., **Sánchez M.** (2006). Coupled THMC analysis of a clay-based engineered barrier for nuclear waste disposal. *5<sup>th</sup> Environmental Geotechnics ICEG*, Cardiff, UK. 26<sup>th</sup> to 30<sup>th</sup> Jun. 2006.
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## V OTHER CONFERENCE AND WORKSHOP CONTRIBUTIONS (generally no peer reviewed)

1. \*Teymouri M., **Sánchez M.**, Santamarina J.C (2017). “Analysis of Key Factors Affecting Gas Production from Hydrate Bearing Sediments.” *9<sup>th</sup> International Conference for Gas Hydrates (ICGH 2017)*. 25<sup>th</sup> to 30<sup>th</sup> 2017 Jun. Denver, USA.
2. \*Teymouri M., **Sánchez M.**, Santamarina J.C. (2017). “Constitutive Modeling of Gas Production from Hydrate Bearing Sediments.” *Engineering Mechanics Institute Conference (EMI 2017)*. US San Diego, 4<sup>th</sup> to 7<sup>th</sup> Jun. 2017.
3. \*Maedo M., **Sánchez M.**, Manzoli O., and Guimarães L. (2017). “Numerical modeling of desiccation cracks in soils using interface elements”. *3<sup>rd</sup> EMI International Conference*. 19<sup>th</sup> to 22<sup>th</sup> Mar. 2017. Rio de Janeiro, Brazil.
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7. Coupled THMG Analysis in Geomechanics Incorporating Solid Phase Transformations. KAUST Athenaeum on Dissolution and Precipitation: Implications for Energy Geo-Engineering. King Abdullah University of Science and Technology, Saudi Arabia, Feb 2016.
8. Gai X., **Sánchez M.** Geomechanical Modeling of Gas Hydrate Bearing Sediments. *2015 AGU Fall Meeting*, San Francisco, USA, 14<sup>th</sup> to 18<sup>th</sup> December 2015.
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10. **Sánchez M.**, Gai X, Shastri A., and Santamarina J.C. Coupled THCM Modeling of Gas Hydrate Bearing Sediments. *2014 AGU Fall Meeting, San Francisco, USA, 15<sup>th</sup> to 19<sup>th</sup> December 2014*
11. **Sánchez M.**, Santamarina J.C, Gai X. and \*Shastri A. (2014). “Coupled THMC Modeling of gas Hydrates Sediments”. Presentation: *SES Annual Technical Meeting*. Purdue University, US. Oct 1<sup>st</sup> to 2<sup>nd</sup> 2014.
12. **Sánchez M.**, and \*Shastri A. (2014). “Coupled THM Analysis of an Underground Compressed Air Storage Facility in Sandstone”. Presentation: *PGS 2014 - Workshop on Energy Geotechnics*. Purdue University, US. 26<sup>th</sup> Apr. 2014.
13. **Sánchez M.**, (2014). “ISSMGE TC308 on Energy Geotechnics”. Presentation: *PGS 2014 - Workshop on Energy Geotechnics*. Purdue University, US. 26<sup>th</sup> Apr. 2014.

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15. **Sánchez M.**, Santamarina J.C., \*Shastri A., and \*Gai X. “Numerical THCM Modeling of HBS Using a Truly Coupled Approach”. Poster: *Gordon Research Conference on Natural Gas Hydrate Systems*. Galveston, US. 23<sup>rd</sup> to 28<sup>th</sup> Mar. 2014.
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19. **Sánchez M.**, and Arson C. (2012). “Analysis of Unsaturated Clayed Materials Hydration Incorporating the Effect of Thermo-Osmotic Flow”. Poster: *5<sup>th</sup> International Meeting for Clays in Natural and Engineered Barriers for Radioactive Waste Confinement*. Montpellier, France. 22<sup>nd</sup> to 25<sup>th</sup> Oct. 2012.
20. Bean J., **Sánchez M.**, and Argüello J. G. (2012). “Sierra Mechanics, An Emerging Massively Parallel HPC Capability, for use in Coupled THMC Analyses of HLW Repositories in Clay/Shale”. Poster: *5<sup>th</sup> International Meeting for Clays in Natural and Engineered Barriers for Radioactive Waste Confinement*. Montpellier, France. 22<sup>nd</sup> to 25<sup>th</sup> Oct. 2012.
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22. **Sánchez M.**, and Santamarina JC. (2010). “Thermo-Hydro-Mechanical modeling of Gas Hydrates Sediments”. Poster: *Gordon Research Conference on Natural Gas Hydrate Systems*. Colby College in Waterville, Maine. US. 6<sup>th</sup> to 11<sup>th</sup> Jun. 2010.
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26. Villar, M.V., **Sánchez, M.**, Gens, A. (2007). “Behaviour of a bentonite barrier in the laboratory: experimental results up to 8 years and numerical simulation”. *3<sup>rd</sup> International Meeting on Clays in Natural & Engineered Barriers for Radioactive Waste Confinement*, Lille, France. 17<sup>th</sup> to 20<sup>th</sup> Sep. 2007.
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## VI TECHNICAL REPORTS

1. **Sánchez M.** Santamarina J.C. (2017). “Final Report”. DOE Award No.: DE-FE0013889. Project: THCM Coupled Model For Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings). Jan. 2016. Pp 28.
2. **Sánchez M.** Gai X., Teymouri M. (2016). “Quarterly Research Performance Progress Report (Period ending 12/31/2015)”. DOE Award No.: DE-FE0013889. Project: THCM Coupled Model For Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings). Jan. 2016. Pp 28.
3. **Sánchez M.** Briaud JL., Mahdavi M., and Bi G. (2016). “Final Report: TxDOT Project 0-6784 Creep Behavior of Soil Nail Walls in High Plasticity Index (PI) Soils. Pp 453. (Under review).
4. Briaud JL., **Sánchez M.** and Aghahadi M. (2015). “Final report: TxDOT Project 0-6715, Interaction Between Drilled Shafts and Mechanically Stabilized Earth (MSE) Walls. FHWA/TX-15/0-6715-1. Pp 202
5. **Sánchez M.**, Gai X., Teymouri M. (2015). “Quarterly Research Performance Progress Report (Period ending 09/30/2015)”. DOE Award No.: DE-FE0013889. Project: THCM Coupled Model For Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings). Oct. 2015. Pp 19.
6. **Sánchez M.** Gai X., Teymouri M. (2015). “Quarterly Research Performance Progress Report (Period ending 06/30/2015)”. DOE Award No.: DE-FE0013889. Project: THCM Coupled Model For Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings). Jul. 2015. Pp 24.
7. **Sánchez M.** Santamarina C., Gai X. and Sun Z. (2015). “Quarterly Research Performance Progress Report (Period ending 03/31/2015)”. DOE Award No.: DE-FE0013889. Project: THCM Coupled Model For Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings). Apr. 2015. Pp 21.

8. **Sánchez M.** Santamarina C., Gai X. and Sun Z. (2014). “Quarterly Research Performance Progress Report (Period ending 12/31/2014)”. DOE Award No.: DE-FE0013889. Project: THCM Coupled Model For Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings). Jan. 2015. Pp 35.
9. **Sánchez M.** Santamarina C., G., Gai X. and Sun Z. (2014). “Quarterly Research Performance Progress Report (Period ending 09/30/2014)”. DOE Award No.: DE-FE0013889. Project: THCM Coupled Model For Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings). Oct. 2014. Pp 18.
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12. **Sánchez M.** Santamarina C., G., Gai X. and Sun Z. (2014). “Quarterly Research Performance Progress Report (Period ending 12/31/2013)”. DOE Award No.: DE-FE0013889. Project: THCM Coupled Model For Hydrate-Bearing Sediments: Data Analysis and Design of New Field Experiments (Marine and Permafrost Settings). Jan. 2014. Pp 16.
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14. Sebesta S., Oj J., Lee SI. **Sánchez M.**, and Taylor R. (2014). “Initial Review of Rapid Moisture Measurement for Roadway Base and Subgrade”. Technical Report 0-6676-1. Project 0-6676. May 2013. Pp114
15. **Sánchez M.** Briaud JL., Bi G., and Mahdavi M. (2013). “Task Report #2: Instrumentations Design and Installation”. TxDOT Project 0-6784 Creep Behavior of Soil Nail Walls in High Plasticity Index (PI) Soils. Feb. 2013. Pp 97.
16. **Sánchez M.** Briaud JL., Mahdavi M., and Bi G. (2013). “Task Report #1: Information Search”. TxDOT Project 0-6784 Creep Behavior of Soil Nail Walls in High Plasticity Index (PI) Soils. Feb. 2013. Pp 67.
17. Briaud JL., **Sánchez M.** and Aghahadi M. (2013). “Task Report #3, Monitoring and Testing at Field Sites–Progress Report”. TxDOT Project 0-6715, Interaction Between Drilled Shafts and Mechanically Stabilized Earth (MSE) Walls. Jun. 2013. Pp 172.
18. Briaud JL., **Sánchez M.** Huang J., and Aghahadi M. (2013). “Task Report #1: Information Search”. TxDOT Project 0-6715, Interaction Between Drilled Shafts and Mechanically Stabilized Earth (MSE) Walls. Feb. 2012. Pp 17.
19. Briaud JL., **Sánchez M.** and Aghahadi M. (2013). “Task Report #2, Instrumentation Design and Installation”. TxDOT Project 0-6715, Interaction Between Drilled Shafts and Mechanically Stabilized Earth (MSE) Walls. Jan. 2012. Pp 50.
20. Sang Ick L., Zollinger D., **Sánchez M.**, Rashid A.A., and Lytton R. (2011). “3D Modeling of Heat and Moisture Transfer in Airfield Pavement Structures: Phase I”. Texas Transportation Institute. The Texas A&M University. Technical Report: Feb. 2011. Pp 35.
21. **Sánchez M.** and Gens A. (2007). Deliverable 3.2.14: “Final Activity Report WP3.2”. NF-PRO Project.
22. **Sánchez M.** and Gens A. (2007). Deliverable 3.3.10: “Final Activity Report WP3.3”. NF-PRO Project.

23. **Sánchez M.** and Gens A. (2006). Deliverable 3.3.1: “Progress report on comparison of existing predictions with ongoing measurement in-situ test (WP3.3)”. NF-PRO Project.
24. **Sánchez M.** and Gens A. (2006). Deliverable 3.2.5: “Progress report on numerical analyses of laboratory experiments incorporating new THM phenomena (WP3.2)”. NF-PRO Project.
25. **Sánchez M.** and Gens A. (2006). Deliverable 3.2.1: “Progress report on comparison of existing predictions with ongoing measurement mock-up test (WP3.3)”. NF-PRO Project.
26. Alonso E and **Sánchez M** (1994). “Study of the Canyeret anchorage retaining wall. Auscultation analysis and evaluation of its behavior”. UPC Report.
27. **Sánchez M.** and Gens A. (2004). “FEBEX II Project. Final report”. UPC Geomechanical Group. European Community and ENRESA publication. November, 2004.
28. **Sánchez M.** and Gens A. (2004). “Final report on Thermo-Hydro-Mechanical laboratory tests”. ENRESA Report N° 70-UPC-L-7-013. May, 2004.
29. **Sánchez M.** and Gens A (2002). “Second report on THM modelling results. Febex II”. UPC Geomechanical Group. ENRESA: 70-UPC-L-5-011. October, 2002.
30. **Sánchez M.** and Gens A (2001). Report on THM modelling results. Febex II”.
31. **Sánchez M.** and Gens A. UPC Geomechanical Group. ENRESA: 70-UPC-L-5-010. Oct., 2001.
32. **Sánchez M.** and Gens A (2001). “Proposal of the study program until the dismantling” (in Spanish). UPC Geomechanical Group. ENRESA: 70-UPC-C-5-011. June, 2001.

## **TEACHING EXPERIENCE**

### **I Under-graduate teaching at Texas A&M University (2009 to present):**

- Introduction to Geotechnical Engineering (CVEN365). Student evaluations score: 4.30/5.0 (average of 10 semesters)
- Mechanics of Materials (CVEN305). Student evaluation score: 3.95/5.0 (average of 2 semesters)

### **II Graduate teaching at Texas A&M University (2010 to present):**

- Transport Phenomena in Porous Media (CVEN 673). Student evaluation score: 4.75/5.0 (average of 7 semesters).
- Foundations on Expansive Soils (CVEN 646). Student evaluation score: 4.68/5.0 (FA13)
- Physical and Engineering Properties of Soils (CVEN 649). Student evaluation score: 4.55/5.0 (average of 5 semesters)

### **III Under-graduate teaching at Strathclyde University (2005 to 2009):**

- Basic Soil Mechanics. Instructor in charge.
- Geotechnical Engineering I. Instructor in charge.
- Engineering Science IV. (co-taught course)
- Supervisor of over 10 MEng/BEng projects since 2005.

### **IV Graduate teaching at Strathclyde University (2008 to 2009):**

- Introduction to Geotechnics. MSc in Geotechnics. (co-taught course).
- Soil Modeling and Numerical Analysis. MSc in Geotechnics. (co-taught course).

### **V Under-graduate Teaching at Nat. Univ. of San Juan, Argentina (1991 to 1998):**

- Soil Mechanics (co-taught course).
- Foundations and Geotechnical Engineering (co-taught course).
- Rock-Mechanics (co-taught course).

## **VI Graduate Teaching at National Universities in Argentina (2006 to present):**

- Numerical modeling in Soil Mechanics. MSc and PhD Program. National Univ. of Tucuman (Jun. 2006)
- Advanced Soil Mechanics. MSc and PhD Program. National Univ. of San Juan (Jun. 2009).
- Advanced Soil Mechanics. MSc and PhD Program. Nat. Univ. of San Juan (Jul. 2013)

## **CONSULTANCY (two more recent only)**

- “Potential Effects of Shrink-Swell Soils on the Houston-Dallas High Speed Train”. Experimental and numerical investigation conducted per CMS Engr. Group’s request (Jul. 2016).
- Review Posiva Working Report 2016-25: “TH and THM modelling of a KBS-3H deposition drift”. Dec. 2017).

A handwritten signature in blue ink, appearing to read 'J. E. ...', is written over a horizontal line.

*10<sup>th</sup> December 2019*