

# CURRICULUM VITAE

## Antonio Gens

Catedrático de Ingeniería del Terreno

Institución: Departamento de Ingeniería del Terreno, Cartográfica y Geofísica  
E.T.S. de Ingenieros de Caminos, Canales y Puertos de Barcelona  
Universidad Politécnica de Cataluña

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## Títulos académicos

|      |                                                                   |                                                                            |
|------|-------------------------------------------------------------------|----------------------------------------------------------------------------|
| 1972 | Ingeniero de Caminos, Canales y Puertos                           | E.T.S. Ingenieros de Caminos, C. y P.<br>Universidad Politécnica de Madrid |
| 1973 | M.Sc. & D.I.C.                                                    | Imperial College, Londres                                                  |
| 1982 | Ph.D.                                                             | Imperial College, Londres                                                  |
| 1983 | Doctor Ingeniero de Caminos, Canales y<br>Puertos (convalidación) | Ministerio de Educación (España)                                           |

## Puestos ocupados

|           |                                                   |                                                                             |
|-----------|---------------------------------------------------|-----------------------------------------------------------------------------|
| 1974-1976 | Ingeniero                                         | RODIO                                                                       |
| 1976-1978 | Estudiante de Doctorado                           | Imperial College, Londres                                                   |
| 1978-1982 | Ayudante de investigación (Research<br>Assistant) | Imperial College, Londres                                                   |
| 1983-1988 | Profesor Titular de Universidad                   | Universidad Politécnica de Cataluña                                         |
| 1988-     | Caedrático de Universidad                         | Universidad Politécnica de Cataluña                                         |
| 2013-2017 | Vice-Presidente para Europa                       | International Society for Soil<br>Mechanics and Geotechnical<br>Engineering |

## **Cargos académicos**

Miembro de la Comisión para la Selección y Evaluación del Personal Docente e Investigados (CSAPDIU). Universidad Politécnica de Cataluña (desde 2015)

Miembro del Claustro de la Universidad Politécnica de Cataluña (desde 2006)

Vicepresidente del Consejo de Departamentos de la Universidad Politécnica de Cataluña (2005-2006)

Director del Departamento de Ingeniería del Terreno, Cartográfica y Geofísica, Universidad Politécnica de Cataluña (1999-2006).

Miembro de la Junta de Gobierno de la Universidad Politécnica de Cataluña (2002 – 2006)

Miembro de la Comisión Permanente de la Junta de Gobierno de la Universidad Politécnica de Cataluña (2005-2006)

Miembro de la Comisión de Investigación, Universidad Politécnica de Cataluña (2003 - 2005)

Miembro de la Comisión de Personal y Acción Social de la Universidad Politécnica de Cataluña (2003 - 2005)

Miembro de la Comisión de Docencia, Universidad Politécnica de Cataluña (2002-2003)

Miembro de la Comisión de Desarrollo Estatutario, Universidad Politécnica de Cataluña (2002-2003)

Subdirector de Plan estratégico, E.T.S. de Ingenieros de Caminos, Canales y Puertos, Universidad Politécnica de Cataluña (1996-1997)

Secretario General y Subdirector de Asuntos Económicos de la E.T.S. de Ingenieros de Caminos, Canales y Puertos, Universidad Politécnica de Cataluña (1994-1996)

## Premios

- Kevin Nash Gold Medal. International Society for Soil mechanics and Geotechnical Engineering. 2017
- Distinción de ATESS (Asociación de Empresas de la Tecnología del Suelo y del Subsuelo). 40 Aniversario de la Asociación.
- Cross Canada Lecture Tour. Canadian Geotechnical Society. 2016.
- Premio UPC a la Calidad en la Docencia Universitaria. Consejo Socils. Universitat Politecnica de Catalunya. 2016.
- Narcís Monturiol. Generalitat de Catalunya. 2015.
- Mont Terri project Award. Mont Terri Consortium, Suiza. 2015.
- Medalla de Honor del Colegio Nacional de Ingenieros de Caminos, Canales y Puertos. 2014.
- Geotechnical Research Medal. Institution of Civil Engineers. UK. 2014.
- Doctor Honoris Causa. Université Joseph Fourier, Grenoble, Francia. 2014.
- Vicepresidente para Europa (1er vicepresidente). Sociedad Internacional de Mecánica del Suelo e Ingeniería Geotécnica. 2013-2017.
- Conferencia Šuklje. Sociedad Geotécnica Eslovena, Ljubljana, Eslovenia, 2013.
- Conferencia Coulomb. Comité Français de Mécanique des Sols et la Géotechnique, Paris, Francia, 2013.
- Medalla George Stephenson. Institution of Civil Engineers, Reino Unido. 2012.
- Miembro (Fellow) de la Royal Academy of Engineering del Reino Unido. Desde 2011.
- Outstanding Contribution Award. International Association for Computer Methods and Advances in Geomechanics (IACMAG). 2011.
- R.M. Quigley Award (primer premio). Canadian Geotechnical Society. 2009.
- Medalla George Stephenson Medal. Institution of Civil Engineers, Reino Unido. 2008.
- The Golders Associates Distinguished Lecture. Queen's University, Kingston, Ontario, Canadá, 2008.
- Medalla Telford. Institution of Civil Engineers, Reino Unido. 2007.
- 47th Conferencia Rankine. Londres, British Geotechnical Association, 2007.
- Conferencia anual. Tunnel and Underground Construction Society, Singapur (TUCSS). 2007
- Medalla Ildefonso Cerdá Medal. Delegación del Colegio de Ingenieros de Caminos, Canales y Puertos de Cataluña, 2007.
- Rock Mechanics Case History Award. American Rock Mechanics Association, 2006
- Miembro de la Real Academia de Doctores de Barcelona. Desde 2005.
- Medalla de la E.T.S. de Ingenieros de Caminos, Canales y Puertos de Barcelona. 2004.
- Medalla Chandra Desai. International Association for Computer Methods and Advances in Geomechanics. 2001.
- 8th Prague Lecture. Comité checo y eslovaco de Mecánica del Suelo e Ingeniería Geotécnica. 2000.
- British Geotechnical Society Touring Lecturer. 1998.

- Premio José Torán (accesit). Comité Español de Grandes Presas. 1995.
- Medalla Telford. Institution of Civil Engineers. Reino Unido. 1994.
- Visiting Fellowship Research Grant. Imperial College. London. Engineering and Physical Sciences Research Council. Reino Unido. 1994-1996
- NATO Fellowship (Beca) para una estancia en el MIT. 1991.
- Beca para estudios en el Reino Unido. Fundación Juan March. 1977-1978.
- Beca para estudios en el Reino Unido. British Council. 1976-1977
- Beca “C.H. Roberts Bequest” (Beca para estudios en el Reino Unido). Institution of Civil Engineers y British Council. 1972-1973.
- Premio Escalona al número 1 de la promoción. E.T.S. de Ingenieros de Caminos, Canales y Puertos de Madrid.

## **Conferencias plenarias y especiales (keynote). Reportes generales.**

Participación especial en más de 100 Congresos y Simposios internacionales. Algunas conferencias seleccionadas:

- Conferencia especial (keynote) de apertura. “Deep underground excavations in argillaceous rocks”. Mont Terri Consortium Technical Meeting. Porrentruy, Switzerland
- Conferencia Invitada. “Coupled THM processes and nuclear waste disposal in argillaceous materials”. International Workshop on Coupled Processes in Geological Disposal of Nuclear Waste and Underground Research Laboratory. Seoul, Korea. 2018.
- Conferencia especial (keynote). “Underground Research Laboratories in nuclear waste containment”. International Symposium on Energy Geotechnics SEG-2018. Lausanne, Switzerland. 2018.
- Conferencia especial (keynote). “On the hydration of unsaturated barriers for high-level nuclear waste disposal”. The 7th International Conference on Unsaturated Soils (UNSAT 2018). Hong-Kong 2018
- Conferencia especial (keynote). “Irreversible behaviour of crushable sands: a DEM study”. 15th International Conference of the Association for Computer Methods and Advances in Geomechanics. Wuhan, China. 2017.
- Conferencia especial (keynote). “Geomechanics of clay rocks”. The 7th International Conference on clays in natural and engineered barriers for radioactive waste confinement. Davos, Switzerland. 2017.
- Conferencia Invitada. “Analysis of the cone penetration test”. TC 103 Workshop. 19th International Conference on Soil Mechanics and Geotechnical Engineering. Seoul, Korea. 2017
- Conferencia Invitada. “Large scale tests for high-level nuclear waste disposal”. TC 308 Workshop. 19th International Conference on Soil Mechanics and Geotechnical Engineering. Seoul, Korea. 2017
- Conferencia Plenaria Invitada. “Simulation of penetration problems in Geomechanics”. XIV International Conference on Computational Plasticity. Fundamentals and Applications. COMPLAS 2017. Barcelona, Spain. 2017.
- Conferencia especial (keynote). THM interactions in nuclear waste repositories: lessons from large scale tests”. International Symposium on Coastal and Offshore Geotechnics (ISCOG 2017) & International Conference on Geo-Energy and Geo-Environment (geGe 2017). Hangzhou, China. 2017.
- Conferencia Invitada. “On the Mechanical Behaviour of Bentonite - Why Beacon”. Beacon Workshop on Mechanical Properties of Bentonite Barriers. Kaunas, Lithuania. 2017.
- Conferencia especial (keynote). “Modelling the Mechanical Behaviour of Callovian-Oxfordian Argillite. Formulation and Application” International Workshop: Advances in Laboratory Testing & Modelling of Soils and Shales (ATMSS). Villars-sur-Ollon, Switzerland. 2017.

- Conferencia especial (keynote). “Simulation of the cone penetration test: discrete and continuum approaches”. 5th International Conference on Geotechnical and Geophysical Site Characterisation, ISC’5. Gold Coast, Queensland, Australia. 2016.
- Conferencia especial (keynote). “Failure of a harbour quay founded on soft ground”. 4th International Conference on New Developments in Soil Mechanics and Geotechnical Engineering. Near East University, Nicosia, North Cyprus. 2016.
- Conferencia especial (keynote). “The International Society for Soil Mechanics and Geotechnical Engineering”. The 17th Nordic Geotechnical Meeting. Reykjavik, Iceland, 2016.
- Conferencia Invitada. “Plasticity and DEM”. 80th Anniversary of the Geotechnical Engineering Group. EPFL. Lausanne, Switzerland, 2016.
- Conferencia especial (keynote). “The role of geotechnics in high-level nuclear waste disposal”. 5th International Workshop of Young Doctors in Geomechanics, W(H)YDOC 15. Paris, France, 2015.
- Conferencia Plenaria Invitada. “Controlling tunnelling-induced ground movement in Barcelona Metro construction”. European Conference on Geo-Environment and Construction. Tirana, Albania, 2015.
- Conferencia Plenaria. “Plasticity in Crushable Granular Materials via DEM”. XIII International Conference on Computational plasticity. COMPLAS XIII. Barcelona. 2015.
- Conferencia especial (Theme lecture). “THM analysis of pellet-based materials for engineered barriers for nuclear waste”. 7th International Congress on Environmental Geotechnics. Melbourne, Australia. 2014.
- Conferencia Plenaria. "Failure of a harbour quay founded on soft ground". 7th PanHellenic Conference on Geotechnical Engineering. Atenas, Greece, 2014.
- Conferencia especial (keynote). “Constitutive model for expansive clays under chemical changes”. Session on Multiphysics Modelling of Porous Media: Geomaterials, Biomaterials and Others. 11th World Congress on Computational Mechanics (WCCM XI). Barcelona, España, 2014.
- Conferencia Plenaria. “Unsaturated soil mechanics in deep geological repositories”. 1st Geoffrey Bight Lecture. 6th International Conference on Unsaturated Soils. Sydney, Australia, 2014.
- Conferencia semi-plenaria. “Evolving heterogeneity in unsaturated clay barriers”. 6th International Conference on Unsaturated Soils. Sydney, Australia, 2014.
- Conferencia especial (keynote). “THM behaviour of argillaceous rocks for nuclear waste containment. Observations and modelling”. 10th Euroconference on Rock Physics and Rock Mechanics. Aussois, Francia, 2014.
- Conferencia especial (keynote). “Coupled modelling of barriers for radioactive waste disposal”. Coupled Phenomena in Environmental Geotechnics. A TC 215 Symposium. Turín, Italia, 2013.
- Conferencia invitada. “Homogenization in clay barriers and seals: two case studies”. International Symposium on Unsaturated Soils and Deep Geological Disposal. UNSAT-WASTE 2013. Shanghai, China, 2013.

- Conferencia especial (keynote). “Coupled thermo-hydraulic-mechanical analyses of freezing soils”. 5<sup>th</sup> International Conference on Coupled problems in Science and Engineering. Ibiza, 2013.
- Conferencia invitada especial. “Stiff clays and mudstones: fundamentals, progressive failure and deep underground excavations”. 20 Darmstädter Geotechnik-Kolloquium an der TU Darmstadt. Jubiläumskolloquium, Darmstadt, Alemania, 2013.
- Conferencia especial (keynote). “Ventilation effects in an argillaceous rock tunnel examined via unsaturated soil mechanics”. 1st Pan-American Conference on Unsaturated Soils. Cartagena de Indias, Colombia, 2013.
- Conferencia especial plenaria. “Numerical simulation of THMC phenomena associated with jet-grouting”. ICGI 2012, International Conference on Ground Improvement and Ground Control. Wollongong, Australia, 2012.
- Conferencia especial (keynote). “Some applications of unsaturated soil mechanics”. AP-UNSAT, 5th Asian-Pacific Conference on Unsaturated Soils, Pattaya, Tailandia, 2012
- Conferencia anual. “Excavaciones de túneles ferroviarios en el entorno de Barcelona”. Sociedad Española de Mecánica del Suelo e Ingeniería Geotécnica, Madrid, 2012.
- Conferencia invitada especial. “The role of suction in geotechnics: unsaturated soils, freezing soils and expansive rocks”. XIII Congresso Nacional de Geotecnica, VI Congreso Luso-Brasileiro de Geotecnica, Lisboa, Portugal, 2012.
- Panel, contribución invitada. “Multi-scale characterization and Modeling of Heterogeneous Soils”, Geo-Congress: State of the Art and Practice in Geotechnical Engineering, Geo-Institute, Oakland, CA, USA, 2012.
- Conferencia invitada. “Comportamiento hidromecánico de rocas blandas arcillosas”, Jornada Técnica: Ingeniería en rocas blandas, Sociedad Española de Mecánica de Rocas, Madrid, 2012.
- Conferencia especial (keynote). “On the hydromechanical behaviour of argillaceous hard soils – weak rocks”. XV European Conference on Soil Mechanics and Foundation Engineering. Athens, Greece. 2011
- Conferencia especial plenaria (keynote). “Hydromechanical modeling of multi-porosity clays”. 13th International Conference of the Association for Computer Methods and Advances in Geomechanics (IACMAG 2011). Melbourne, Australia. 2011.
- Conferencia especial (keynote). “Mechanisms of progressive failure in brittle argillaceous materials. The failure of Aznalcóllar Dam. OGG Workshop on Computational Methods in Geomechanics – Failure Mechanisms and Parameter Identification. Österreichische Gesellschaft für Geomechanik. Salzburgo, Austria. 2011.
- Conferencia especial (keynote). “Generalized plasticity model of geomaterials with double structure”. 11th International Conference on Computational Plasticity. COMPLAS XI. Barcelona, 2011.
- Conferencia especial: “Analysis of underground excavations in clay rocks”. 2<sup>nd</sup> International Symposium on Computational Geomechanics (COMGEO II). Cavtat-Dubrovnik, Croacia. 2011.

- Conferencia plenaria: “Environmental geotechnics and nuclear waste”. 6th International Congress on Environmental Geotechnics. Delhi, India, 2010.
- Reportero general de la session: “Urban Environmental Geotechnics”. International Geotechnical Conference on Geotechnical Challenges in Megacities. Moscú, Rusia, 2010.
- Conferencia inaugural plenaria. “Some issues in constitutive modelling of unsaturated soils”. 4th Asia-Pacific Conference on Unsaturated Soils. Newcastle, Australia. 2009.
- Conferencia especial (keynote). “Modelling THMC Interactions for Nuclear Waste Disposal”. International Symposium on Unsaturated Soil Mechanics and Deep Geological Nuclear Waste Disposal. Shanghai, China. 2009.
- Conferencia inaugural. “Fundamentals of Soil Behaviour”. XXII Torino Geotechnical Conference. Risk Mitigation by Soil Imprvment and Reinforcement. Turín, Italia.
- Conferencia especial (keynote). “Characterisation and modelling”. Géotechnique Symposium in Print on Thermal Behaviour of the ground. Institution of Civil Engineers, Londres, 2009.
- Conferencia especial (keynote). “The failure of Aznalcóllar Dam”. Aktuelle Entwicklungen bei der Anwendung numerischer Verfahren in der Geotechnik. Workshop des DGGT Arbeitskreises 1.6: Numerik in der Geotechnik. Karlsruhe, Alemania, 2009.
- Conferencia especial. “Modelos, comportamiento y auscultación – una visión integrada”. Jornada Técnica AETOS: Singularidades constructivas en les túneles de los Metros de Barcelona, Madrid y Sevilla. Barcelona, 2009.
- Conferencia especial (keynote). “Modelling the response of argillaceous rocks in underground excavations”. The 12th International Conference of International Association for Computer Methods and Advances in Geomechanics (IACMAG), Goa, India, 2008
- Conferencia inaugural. “Geotechnical engineering in a deltaic environment: Civil engineering works in the Llobregat Delta, Barcelona”. European Conference on Engineering Geology, Madrid, 2008.
- Conferencia invitada. “Contributions of publications in Géotechnique to theory”. Celebration of the Diamond Jubilee Anniversary of Géotechnique. Londres 2008.
- Conferencia especial (keynote). “Coupled analysis of chemo-mechanical processes”. 3rd International Conference on Coupled THMC processes in Geo-Systems, Lille, Francia, 2008.
- Conferencia invitada. “The failure of Azanalcóllar dam”. The 2007 International Forum on Landslide Disaster Management”. Hong Kong, 2007.
- Conferencia especial (keynote). “Analysis of expansive clay hydration using non-conventional models” 2nd International Conference on Mechanics of Unsaturated Soils. Weimar Alemania. 2007.
- Discussion Leader. Sesión 5.1. “Settlement compensation by grouting in urban areas”. XIV European Conference on Soil Mechanics and Geotechnical Engineering. Madrid 2007.
- Conferencia especial. “Analysis of chemo-mechanical interactions in argillaceous materials”. 10th International Symposium on Numerical Models in Geomechanics. Rodas, Grecia. 2007.

- Conferencia especial. “Muros pantalla: movimientos producidos por la excavación”. Jornadas Técnicas SEMSIG-AETESS: Muros pantallas en ámbito urbano. Barcelona, 2007.
- Conferencia especial (keynote). “Response of a saturated mudstone under excavation and thermal loading”. International Symposium of the International Society for Rock Mechanics, EUROCK 2006. Lieja, Bélgica, 2006.
- Discussion Leader. Sesión 6. “Fate and Transport of Pollutants”. 5th International Conference on Environmental Geotechnics (5th ICEG). Cardiff, Reino Unido. 2006.
- Conferencia especial (keynote). “Coupled thermo-hydro-mechanical analysis of engineered barriers for high level radioactive waste”. International Symposium on Engineered Barriers for High Level Radioactive Waste disposal (ISEB 2005). Shanghai, China. 2005.
- Conferencia especial (keynote). “Elastoplastic and damage modelling of hard soil and soft rocks: Formulation and Applications”. 8th International Conference on Computational Plasticity (COMPLAS VIII). Barcelona, 2006.
- Conferencia especial. “On constitutive modelling of unsaturated soils”. International Workshop on Modern Trends in Geomechanics. Viena, Austria. 2005.
- Conferencia especial (keynote). “On modelling coupled phenomena in porous media”. International Conference on Computational and Experimental Engineering and Sciences (ICCES’05). Chennai, India. 2005.
- Conferencia especial (keynote). “Numerical modelling in nuclear waste storage engineering”, 11th International Conference on Computer Methods and Advances in Geomechanics (IACMAG). Turín, Italia. 2005.
- Conferencia especial (keynote). “Coupled analysis in Geomechanics. From effective stress to THMC formulations”, XXV Iberian Latin American Congress on Computational Mechanics. Recife, Brasil. 2004.
- Conferencia especial (keynote). “Aspects of modelling geotechnical problems in hard soils and soft argillaceous rocks”, 9th International Symposium on Numerical Models in Geomechanics NUMOG IX, Ottawa, Canadá. 2004
- Conferencia especial (keynote), “Developments in understanding soil behaviour” (with R.J. Jardine, D.W. Hight & M. R. Coop). The Skempton Memorial Conference, Londres, 2004.
- Conferencia especial. “The role of geotechnical engineering in nuclear energy utilisation”. XIII European Conference on Soil Mechanics and Geotechnical Engineering. Praga, República Checa, 2003
- Conferencia especial (keynote). “Chemoplastivity Modelling of the hydro-mechanical behaviour of active clays”, 7th International Conference on Computational Plasticity (COMPLAS VII). Barcelona, 2003.
- Conferencia inaugural. “Thermo-hydromechanical effects on the behaviour of clay barriers”, International Meeting on Clays in Natural and Engineered Barriers for radioactive waste confinement, Reims, Francia. 2002.
- Conferencia especial (keynote). “Coupled chemomechanical analysis for saturated and unsaturated soils”, International Symposium on Environmental Geomechanics, Monte Veritá, Ascona, Suiza, 2002.

- Conferencia especial (keynote). “Analysis of the Hydration of bentonite seals and barriers in a deep radioactive waste repository”. 8th International Symposium on Numerical Models in Geomechanics, NUMOG VIII. Roma, Italia, 2002.
- Conferencia especial (keynote). “Coupled thermo-hydro-mechanical analysis of saline materials. Application to radioactive waste containment”. European Congress on Computational Methods and Applied Sciences in Engineering. ECCOMAS 2000. Barcelona. 2000.
- Conferencia especial (keynote). “The behaviour of unsaturated geomaterials: recent developments”. International Workshop on Geomechanics. Hydromechanical and Thermohydro-mechanical Behavior of Deep Argillaceous Rocks, Paris, Francia. 2000.
- Conferencia especial. “Geotechnical Design and Construction of Breakwaters, Bilbao Harbour”. 12th European Conference on Soil Mechanics and Geotechnical Engineering. Amsterdam, Holanda, 1999.
- Conferencia especial (keynote). “Coupled THM analysis of waste repositories in saline materials”. 5th US National Congress on Computational Mechanics. Boulder, Colorado, USA, 1999.
- Conferencia especial (keynote). “Finite element analysis for the safety evaluation of a dam on fractured rock foundation”. International Symposium: Beyond 2000 in Computational Geotechnics. Amsterdam. Holanda. 1999.
- Conferencia especial (keynote). “Thermo-hydro-mechanical analysis in Geomechanics. Formulation and applications”. 4th World Congress on Computational Mechanics. Buenos Aires, Argentina. 1998.
- Co-reportero general de la sesión: “Numerical modelling and information technology”. 11th European Conference on Soil Mechanics and Foundation Engineering. Copenhague, Dinamarca, 1995.
- Conferencia especial (keynote). “Constitutive modelling. Application to compacted soils”. 1st International Conference on Unsaturated Soils. Paris, Francia, 1995.
- Reportero general de la sesión: “Prediction, performance and design”. International Symposium on Prefailure deformation characteristics of geomaterials, Sapporo, Japón. 1994.
- Conferencia especial (keynote). “Behaviour of unsaturated active clays”. Workshop on stress partitioning in engineered clay barriers. Duke University, Raleigh, North Carolina, USA, 1991.
- Conferencia especial (keynote). “Prediction of ground movements in partially saturated soils”. 4th International Conference on Ground movements and structures. Cardiff, Reino Unido, 1991.
- General co-reporter: “Special problem soils”. 9th European Conference on Soil Mechanics and Foundation Engineering. Dublín, Irlanda, 1987

## **Comités editoriales**

- International Journal for Numerical and Analytical Methods in Geomechanics (Wiley)
- Computers and Geotechnics (Elsevier)
- International Journal of Geomechanics (ASCE)
- Geomechanics and Geoengineering (co-editor) (Taylor & Francis)
- Geotechnical and Geological Engineering (Springer)
- Revista Internacional de Métodos Numéricos en Ingeniería (Elsevier-UPC)
- Rivista Italiana di Geotecnica (AGI)
- Environmental Geotechnics (ICE, UK)
- Geomechanics for Energy and the Environment (Editorial Policy Advisor) (Elsevier).
- Géotechnique Advisory Panel (2012-2015)
- Géotechnique Working Group (2014-2016)
- Geotechnical Engineering (I.C.E., U.K.) 2000-2016

## **Sociedades científicas y técnicas**

- Miembro de la Junta Directiva de la Sociedad Española de Mecánica del Suelo e Ingeniería Geotécnica. Desde 2006.
- Miembro del Board of Directors del European Network of Laboratories, ALERT: Geomaterials. Desde 1993 a 2010.
- Miembro del Board of Directors of the European Network of Laboratories, GRECO: Rheologie des Geomateriaux. 1989-1993.
- Miembro del Consejo Asesor del Centro Internacional de Métodos Numéricos en Ingeniería (CIMNE). 1991-2002.
- Miembro del Comité Ejecutivo del Centro Internacional de Métodos Numéricos en Ingeniería (CIMNE). 1988-1991 y desde 2002.
- Miembro del Comité Asesor del Instituto Geológico y Minero de España (Spanish Geological Survey). 2003-2011.
- Core member del Comité TC-5 y TC-215: “Environmental Geotechnics” de la Sociedad Internacional de Mecánica del Suelo e Ingeniería Geotécnica (from 1999).
- Miembro del Comité TC-6 and TC-106: “Unsaturated Soils” de la Sociedad Internacional de Mecánica del Suelo e Ingeniería Geotécnica (desde 2001). Core member de 2010-2013.
- Miembro del Comité TC-12: “Validation of Computer Simulations” de la Sociedad Internacional de Mecánica del Suelo e Ingeniería Geotécnica (1990-1997).
- Miembro del Comité TC-32: “Engineering practice of risk assessment and management” de la Sociedad Internacional de Mecánica del Suelo e Ingeniería Geotécnica (2001 - 2010).
- Miembro del Comité TC-34: “Prediction methods in large strain Geomechanics” de la Sociedad Internacional de Mecánica del Suelo e Ingeniería Geotécnica (2001-2010).
- Miembro del Comité TC-35: “Geotechnics of the particulate media” de la Sociedad Internacional de Mecánica del Suelo e Ingeniería Geotécnica (Desde 2001).

- Miembro del Comité TC-103: “Numerical Methods in Geomechanics” de la Sociedad Internacional de Mecánica del Suelo e Ingeniería Geotécnica g (Desde 2010).
- Miembro del Comité Científico Asesor del proyecto Mechanical Behaviour of Partially and Multiphase Saturated Chalks (PASSACHALK) (1997-2000).
- Miembro del Board of the International Association for Computer Methods and Advances in Geomechanics (IACMAG). From 2002.
- Presidente de la Engineered Barrier Systems (EBS) Task Force. SKB and Aspö International Joint Committee. Desde 2004.
- Miembro del Evolution Group 9 del Eurocódigo sobre problemas asociados con la consideración de presiones de agua. Desde 2011.
- Task A Leader. DECOVALEX 2011 International Cooperative Project. 2008-2011.

### **Revisor y Examinador externo**

- European Science Foundation (ESF) College of Expert Reviewers. Desde 2014
- Nominador para el 2015 Japan Prize
- Miembro del Géotechnique Working Group. 2012-2015.
- Miembro del Géotechnique Advisory Panel. 2011-2014.
- Examinador externo del grado de MEng Civil & Environmental Engineering. Imperial College, London. Desde 2008/9 a 2011/12.
- Comisión de Evaluación. Plan Nacional de Investigación I+D+I. 2007-2010.
- Experto del programa ACADEMIA de evaluación para la promoción de profesores, Ministerio de Educación. 2009-2012.
- Miembro del Peer Review College for the Engineering and Physical Sciences Research Council (EPSRC), Reino Unido. 2005-2010.
- Asesor del Research Assessment Exercise 2001. Higher Education funding bodies, Reino Unido.
- Jurado para premios de la Institution of Civil Engineers (Reino Unido).
- Jurado para premios de IACMAG (International Association for Computer Methods and Advances in Geomechanics).
- Jurado para el premio al major artículo. Journal: Geomechanics and Geoengineering
- Revisor para proyectos de investigación. Australian Research Council
- Revisor para proyectos de investigación. Research Grants Council, Hong Kong SAR
- Revisor para proyectos de investigación. National Science and Engineering Research Council (NSERC-CRSNG), Canadá.
- Revisor para proyectos de investigación. Foundation for Research Development (FRD), South Africa.
- Revisor para evaluación de investigadores. Fonds National de la Recherche Scientifique, Belgium.
- Revisor para proyectos de investigación. National Science Foundation, EEUU.
- Revisor para proyectos de investigación. National Science Foundation, Suiza.
- Miembro del Panel de Evaluación de proyectos de investigación. National Science Foundation, EEUU. 2004.

- Miembro del Panel de Evaluación de proyectos de investigación. Fundação para a Ciencia e a Tecnologia, Ministerio de Ciencia e da Tecnologia, Portugal. 2002
- Miembro de Tribunales de Habilitación en Francia. Laboratoire Central des Ponts et Chaussées, Paris, Université de Grenoble, Ecole National des Ponts et Chaussées, Francia, Université de Lille.
- Examinador externo para el título de D. Sc. University of Newcastle (Australia).
- Examinador externo para el título de Ph.D. University of Wales, Cardiff., Imperial College, London, University of Sidney (Australia), University of Newcastle (Australia), Ecole National des Ponts et Chausées, Paris, Ecole Centrale de Paris, Université d'Orleans (Francia). Université de Montpellier (Francia), Université Pierre and Marie Curie, Paris, Université des Sciences et Technologies de Lille (Francia), Université Joseph Fourier, Grenoble (Francia), Institut National des Sciences Appliquées (INSA) de Rennes (Francia), University of Manitoba, Winnipeg (Canadá). Université de Liège (Bélgica), Universität Stuttgart (Alemania), Universität Bochum (Alemania), EPFL, Lausanne (Suiza), Universidad de la Coruña (Spain), Universidad Autónoma de Madrid.
- Revisor de libros para Taylor & Francis, John Wiley & Sons y CRC Press.
- Revisor para las siguientes revistas internacionales (seleccionadas): Géotechnique, International Journal for Numerical Methods in Engineering, Engineering Computations, Canadian Geotechnical Journal, Engineering Geology, Journal of Geotechnical and Geoenvironmental Engineering (ASCE), Quarterly Journal of Engineering Geology, Rock Mechanics and Rock Engineering, Physics and Chemistry of the Earth, Communications of Numerical Methods in Engineering, Soils and Foundations, ASTM Geotechnical Testing Journal, Journal of Hydrology, Transport in porous media.

### **Profesor vistante y conferencias invitadas**

- Profesor vistante. Geotechnical Engineering Group. Department of Civil Engineering. Massachusetts Institute of Technology. Enero 1991-Marzo 1991.
- Profesor vistante. Geotechnical Engineering Group. Department of Civil, Environmental and Surveying Engineering. University of Newcastle, Australia. Junio 1996- Agosto 1996.
- Profesor visitante. EPSRC visiting Fellowship Research Grant. Imperial College, London. Diversas estancias en el período 1997-2000.
- Conferencias invitadas (seleccionadas) en las Universidades de Cambridge, Oxford, Glasgow, Nottingham, Surrey, Newcastle (Reino Unido), Ecole National Ponts et Chaussées, Paris, Graz (Austria), Sidney, Newcastle, Melbourne, Perth, Hobart, Brisbane, Adelaide (Australia), Canterbury, Wellington, Auckland (Nueva Zelanda), Rio de Janeiro, Sao Paulo, Porto Alegre, Recife (Brazil), Santiago (Chile), Querétaro, UNAM (Mexico), U. de los Andes, Bogotá (Colombia), Laval, Winnipeg, Queen's, Ontario, (Canadá), ETH, Zurich, EPFL, Lausanne (Suiza), Politecnico di Torino, University of Naples, Universita Roma La Sapienza (Italia), Delft University of Technology (Holanda), Université de Liège (Bélgica), MIT (US), Tonji University, Shanghai (China), University of Hong Kong.

## **Publicaciones seleccionadas**

Más de 400 publicaciones en Revistas y Congresos nacionales e internacionales.

**Número de citas: 7324/9013/16806** (Fuente: ISI Web of Science/Scopus/Google Scholar)

**Índice h: 41/45/61** (Fuente: ISI Web of Science/Scopus/Google Scholar)

**Citas del artículo más citado: 1394/1576/2545** (Fuente: ISI Web of Science/Scopus/Google Scholar)

**Número de artículos altamente citados** (Fuente: ISI Web of Science/Scopus/Google Scholar):

Más de 200 citas: **8/9/16**

100-200 citas: **7/12/25**

Algunas publicaciones seleccionadas:

### *Artículos*

- Ciantia, M.O., Arroyo, M., O'Sullivan, C., Gens, A., Liu T. (2019). Grading evolution and critical state in a discrete numerical model of Fontainebleau sand. *Geotechnique*, 69 (1), 1-15. doi.org/10.1680/jgeot.17.P.023
- Gens A. (2019). Clays in natural and engineered barriers for nuclear waste disposal. *Geomechanics for Energy and the Environment*, 17, 1-2. doi.org/10.1016/j.gete.2018.11.004
- Conesa, S., Mánica, M., Gens, A. Huang, Y. (2019). Numerical simulation of the undrained stability of slopes in anisotropic fine-grained soils. *Geomechanics and GeoEngineering: an International Journal*, 14 (1), 18-29. doi.org/10.1080/17486025.2018.1490460
- Finsterle, S., Lanyon, B., Åkesson, M., Baxter, S., Bergström, M., Bockgård, N., Dershowitz, W., Dessirier, B., Frampton, A., Fransson, Å , Gens, A., Gylling, B., HančIllová, I., Holton, D., Jarsjö, J., Kim, J.-S., Kröhn, K.-P., Malmberg, D., Pulkkanen, V. M., Sawada, A., Sjöland, A., Svensson, U., Vidstrand, P., Viswanathan. H. (2018). Multiple Roles of Clays in Radioactive Waste Confinement (Norris, S., Neeft, E.A.C. & Van Geet, M. eds), Geological Society, London, Special Publications, 482, doi.org/10.1144/SP482.12
- Di Mariano, A., Amoroso, S., Arroyo, M., Monaco, P., Gens A (2018). SDMT-Based Numerical Analyses of Deep Excavation in Soft Soil. *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 145 (1):04018102. doi: 10.1061/(ASCE) GT.1943-5606.0001993  
*(Editor's choice for ASCE SmartBrief)*
- Manica, M., Gens, A., Vaunat, J., Ruiz, D.F. (2018). Nonlocal plasticity modelling of strain localisation in stiff clays. *Computers and Geotechnics*, 103, 138–150. doi.org/10.1016/j.compgeo.2018.07.008

- Monforte, L., Arroyo, M., Carbonell, J.M., Gens, A. (2018). Coupled effective stress analysis of insertion problems in geotechnics with the Particle Finite Element Method. *Computers and Geotechnics*, 101, 114–129. doi.org/10.1016/j.compgeo.2018.04.002
- Gallipoli, D., Grassl, P., Wheeler, S., Gens, A. (2018). On the choice of stress-strain variables for unsaturated soils and its effect on plastic flow. *Geomechanics for Energy and the Environment*, 15, 3-9. doi.org/10.1016/j.gete.2018.02.002
- Butlanska, J., Arroyo, M., Amoroso, S., Gens, A. (2018). Marchetti Flat Dilatometer Tests in a Virtual Calibration Chamber. *Geotechnical Testing Journal*, 41 (5), 930-945, <https://doi.org/10.1520/GTJ20170370>
- Monforte, L., Carbonell, J.M., Arroyo, M., Gens, A. (2017). Performance of mixed formulations for the particle finite element method in soil mechanics problems. *Computational Particle Mechanics*, 4, 269-284. doi: 10.1007/s40571-016-0145-0.
- Manica, M., Gens, A., Vaunat, J., Ruiz, D.F. (2017). A time-dependent anisotropic model for argillaceous rocks. Application to an underground excavation in Callovo-Oxfordian claystone. *Computers and Geotechnics*, 85, 341-350. doi:10.1016/j.compgeo.2016.11.004
- Seyed, D.M., Gens, A. (2017). Numerical analysis of the hydromechanical response of Callovo-Oxfordian claystone to deep excavations. *Computers and Geotechnics*, 85, 75-76. doi: 10.1016/j.compgeo.2017.03.006
- Gens, A., Wieczorek, K., Gaus, I., Garitte, B., Mayor, J.C., Schuster, K., Armand, G., Garcia-Sineriz, J.L., Trick, T. (2017). Performance of the Opalinus Clay under thermal loading: experimental results from Mont Terri rock laboratory (Switzerland). *Swiss Journal of Geosciences*, 110, 269-286. doi: 10.1007/s00015-016-0258-8
- Monforte, L., Arroyo, M., Carbonell, J.M., Gens, A. (2017). Numerical simulation of undrained insertion problems in geotechnical engineering with the Particle Finite Element Method (PFEM). *Computers and Geotechnics*, 82, 144-156. doi:10.1016/j.compgeo.2016.08.013
- Sanchez, M., Gens, A., Villar, M.V., Olivella, S. (2016). Fully Coupled Thermo-Hydro-Mechanical Double-Porosity Formulation for Unsaturated Soils. *International Journal of Geomechanics*, 16 (6), D4016015, 1-17. doi:10.1061/(ASCE)GM.1943-5622.0000728
- Charlton, T.S., Rouainia, M., Gens, A. (2016). Numerical analysis of suction embedded plate anchors in structured clay. *Applied Ocean Research*, 61, 156-166. doi:10.1016/j.apor.2016.10.009
- Gens, A., Arroyo, M., Butlanska, J., Carbonell, J.M., Ciantia, M., Monforte, L., O'Sullivan, C. (2016). Simulation of the cone penetration test: discrete and continuum approaches. *Australian Geomechanics* 51(4),169-182.
- Ciantia, M.O., Arroyo, M., Calvetti, F., Gens, A. (2016). A numerical investigation of the incremental behavior of crushable granular soils. *Int. J. Numer. Anal. Meth. Geomech.* 40, 1773–1798. doi: 10.1002/nag.2503
- Sanchez, M., Arson, C., Gens, A., Aponte, F. (2016). Analysis of unsaturated materials hydration incorporating the effect of thermo-osmotic flow. *Geomechanics for Energy and the Environment*. 6, 101-115. doi: 10.1016/j.gete.2016.05.001

- Mánica, M., Gens, A., Vaunat, J., Ruiz, D.F. (2016). A cross-anisotropic formulation for elasto-plastic models. *Geotechnique Letters* 6, 156-162.  
<http://dx.doi.org/10.1680/jgele.15.00182>
- Gonzalez, C., Arroyo, M., Gens, A. (2016). Thrust and torque components on mixed-face EPB drives. *Tunnelling and Underground Space Technology*. 57, 47-54. doi: 10.1016/j.tust.2016.01.037
- González, C., Arroyo, M., Gens, A. (2015). Wear and abrasivity: observations from EPB drives in mixed soft – rock sections. *Geomechanics and Tunnelling* 8, No. 3, 258-264. DOI: 10.1002/geot.201500007
- Ciantia, M.O., Arroyo, M., Calvetti, F. & Gens, A. (2015) An approach to enhance efficiency of DEM modelling of soils with crushable grains, *Geotechnique* 65, No. 2, 91–110. <http://dx.doi.org/10.1680/geot.13.P.218>
- Casini, F., Gens, A., Olivella, S. Viggiani, G.M.B. (2014). Artificial ground freezing of a volcanic ash: laboratory tests and modelling. *Evironmental Geotechnics*, 1-14. <http://dx.doi.org/10.1680/envgeo.14.00004>
- Lloret-Cabot, M. Wheeler, S.J., Pineda, J.A., Sheng, D., Gens, A. (2014). Relative performance of two unsaturated soil models using different constitutive variables. *Canadian Geotechnical Journal*, 51(12), 1423-1437. DOI: 10.1139/cgj-2013-0462
- Garitte, B., Gens, A., Vaunat, J., Armand, G. (2014). Thermal conductivity of argillaceous rocks: Determination methodology using in situ heating tests. *Rock Mechanics and Rock Engineering*, 47 (1), 111-129.
- Climent, N., Arroyo, M., O'Sullivan, C., Gens, A. (2014). Sand production simulation coupling DEM with CFD. *European Journal of Environmental and Civil Engineeering*, 18 (9), 983-1008.
- Indaratna, B., Premadasa, W., Brown, E.T., Gens A., Heitor, A. (2014). Shear strength of rock joints influenced by compacted infill. *Int. J. Rock Mechanics & Mining Sciences*, 70, 296-307.
- Butlanska J., Arroyo M., Gens A., O'Sullivan, C. (2014). Multi-scale analysis of cone penetration test (CPT) in a virtual calibration chamber. *Canadian Geotechnical Journal*, 51 (1), 51-66.
- Butlanska, J., Arroyo, M., Gens, A. (2013). Steady State of Solid-Grain Interfaces during Simulated CPT. *Studia Geotechnica et Mechanica*, Vol. 35(4). DOI: 10.2478/sgem-2013-0034.
- Gens, A., Valleján, B., Zandarín M-T., Sánchez M. (2013). Homogenization in clay barriers and seals: Two case studies. *Journal of Rock Mechanics and Geotechnical Engineering* 5, 191-199.
- Guimaraes, L. do N., Gens, A., Sánchez, M., Olivella, S. (2013). A chemo-mechanical constitutive model accounting for cation exchange in expansive clays. *Geotechnique* 63, (3), 221–234 [<http://dx.doi.org/10.1680/geot.SIP13.P.012>]
- Garitte, B., Gens, A., Vaunat, J., Armand, G. (2013). Thermal Conductivity of Argillaceous Rocks: Determination Methodology Using In Situ Heating Tests. *Rock Mech Rock Eng*. DOI 10.1007/s00603-012-0335-x
- Alonso, E.E., Pinyol, N.M., Gens A. (2013). Compacted soil behaviour: initial state, structure and constitutive modelling. *Geotechnique*, 63 (6), 463-478.

- Garitte, B., Bond, A., Millard A., Zhang, C., Mcdermotte, C., Nakamaf, S., Gens, A. (2013). Analysis of hydro-mechanical processes in a ventilated tunnel in an argillaceous rock on the basis of different modelling approaches. *Journal of Rock Mechanics and Geotechnical Engineering* 5 (2013) 1–17
- Gonzalez, N.A., Rouainia, M., Arroyo, M., Gens, A. (2012). Analysis of tunnel excavation in London Clay incorporating soil structure. *Geotechnique*, 62 (12), 1095-1109.
- Sánchez, M., Gens, A., Guimaraes, L. (2012). Thermal–hydraulic–mechanical (THM) behaviour of a large-scale in situ heating experiment during cooling and dismantling. *Canadian Geotechnical Journal*, 2012, 49 (10): 1169–1195.  
*(Editor's choice, CGJ)*
- Sánchez, M., Gens, A., Olivella, S. (2012). “THM analysis of a large scale heating test incorporating material fabric changes” *International Journal Numerical and Analytical Methods in Geomechanics*, 36: 391-421.
- Arroyo, M., Ciantia, M., Castellanza, R., Gens, A., Nova, R. (2012). Simulation of cement-improved clay structures witha bonded elasto-plastic model: A practical approach. *Computers and Geotechnics*, 45, 140-150.
- Zhou, A.-N., Sheng, D., Sloan, S.W., Gens, A. (2012). Interpretation of unsaturated soil behaviour in the stress-saturation space, I: Volume change and water retention behaviour. *Computers and Geotechnics*, 43, 178-187.
- Zhou, A.-N., Sheng, D, Sloan, S.W., Gens, A. (2012). Interpretation of unsaturated soil behaviour in the stress saturation space II: Constitutive relationships and validations. *Computers and Geotechnics*, 43, 111-123
- Zandarin M.T., Gens A., Olivella S., Alonso E.E. (2011). Thermo-hydro-mechanical model of the Canister Retrieval Test. *J. Phys. Chem. Earth*, 36, 1806-1816.
- Gens, A., Valleján, B., Sánchez, M., Imbert, C., Villar, M.V., Van Geet, M. (2011). “Hydromechanical behaviour of a heterogeneous compacted soil: experimental observations and modelling”. *Geotechnique*, 61, 367-386.  
*(George Stephenson Medal, ICE, UK)*
- Arroyo, M., Butlanska, J., Gens, A., Calvetti, F., Jamiolkowski, M. (2011). “Cone penetration tests in a virtual calibration chamber”. *Géotechnique*. 61, 525-531.
- Gens, A., Guimarães, L. do N., Sánchez, M., Olivella, S. (2010). “Modelling thermo-hydro-mechano-chemical interactions for nuclear waste disposal”. *Journal of Rock Mechanics and Geotechnical Engineering*, 2, 97-102.
- Gens, A. (2010). “Soil-environment interactions in geotechnical engineering. 47th Rankine Lecture”. *Geotechnique*, 60, 3-74
- Gens A., Garitte, B., Olivella, S., Vaunat, J. (2009). “Application of multiphysical geomechanics un underground nuclear waste storage”. *European Journal of Environmental and Civil Engineering*, 13, No 7-8, 937-962
- Gens A., Sánchez, M., Guimarães, L. do N., Alonso, E.E., Lloret, A., Olivella, S., Villar, M.V., Huertas, F. (2009). “A full-scale in situ heating test for high-level nuclear waste disposal: observations, analysis and interpretation”. *Geotechnique*, 59, 377-399
- Nishimura, S., Gens A., Olivella, S., Jardine, R.J. (2009). “THM-coupled finite element analysis of frozen soil: formulation and application”. *Geotechnique*, 59, 159-171

- Berdugo, I.R., Alonso, E., Romero, E., Gens, A., Albis, M. (2009). “A review of expansive phenomena in Wagenbur North Tunnel”. Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales, 33 (129), 456-468.
- Berdugo, I.R., Alonso, E., Romero, E., Gens, A. (2009). “Tunnelling and Swelling in Triassic Sulphate–Bearing Rocks. Part I. Case studies from Baden–Württemberg”. Épsilon, 12, 13-37.
- Berdugo, I.R., Alonso, E., Romero, E., Gens, A. (2009). “Tunnelling and Swelling in Triassic Sulphate–Bearing Rocks. Part II. Case studies from Jura Mountains”. Épsilon, 12, 39-53.
- Sheng, D., Gens, A., Fredlund D.G., Sloan, S.W. (2008). “Unsaturated soils: From constitutive modelling to numerical algorithms”. Computers and Geotechnics, 35 (6), 810-824.
- Gallipoli, D., Gens, A., Chen, G., D’Onza F. (2008). “Modelling unsaturated soil behaviour during normal consolidation and at critical state”. Computers and Geotechnics, 35 (6), 825-834.
- Sánchez, M., Gens, A., Guimarães, L., Olivella, S. (2008). “Implementation algorithm of a generalised plasticity model for swelling clays”. Computers and Geotechnics, 35 (6), 860-871.
- Sheng, D., Fredlund, D.G., Gens, A. (2008). “A new modelling approach for unsaturated soils using independent stress variables”. Canadian Geotechnical Journal, 45: 511-534.  
(*2009 R.M. Quigley award, Canadian Geotechnical Society*)
- Villar M.V., Sánchez, M., Gens, A. (2008). “Behaviour of a bentonite barrier in the laboratory: Experimental results up to 8 years and numerical simulation”. Physics and Chemistry of the Earth, 33, S476-S485.
- Castellanos, E., Villar, M.V., Romero, E., Lloret, A., Gens, A. (2008). “Chemical impact on the hydro-mechanical behaviour of high-density FEBEX bentonite”. Physics and Chemistry of the Earth, 33, S516-S526.
- A. Menin, V.A. Salomoni, R. Santagiuliana, L. Simoni, A. Gens, B.A. Schrefler (2008). “A mechanism contributing to subsidence above gas reservoirs”. International Journal for Computational Methods in Engineering Science & Mechanics, 9(5), 270-287.
- Gens, A., Vaunat, J., Garitte, B. & Wileveau, Y. (2007). “In situ behaviour of a stiff layered clay subject to thermal loading: observations and interpretation”. Geotechnique, 57, 207-228.  
(*George Stephenson Medal, ICE, UK*)
- Guimaraes, L. do N., Gens, A., Olivella, S. (2007). “Coupled thermo-hydro-mechanical and chemical analysis of expansive clay subjected to heating and hydration”. Transport in porous media, 66: 341-372
- Van Geet, M.m Volckaert, G., Bastiens, W., Maes, N., Weetjens, E., Sillen, X., Vallejan, B., Gens, A. (2007). “Efficiency of a borehole seal by means of pre-compacted bentonite blocks”. Physics and Chemistry of the Earth, 32, 123-134.
- Gens, A., Sánchez, M., Sheng, D. (2006). “On constitutive modelling of unsaturated soils”. Acta Geotechnica, 1: 137-147.

- Guimaraes, L. do N., Gens, A., Sánchez, M., Olivella, S. (2006). “THM and reactive transport of expansive clay barrier”. Communications in Numerical Methods in Engineering, 22: 849-859
- Gens, A., Olivella, S. (2006). “Coupled Thermo-hydro-mechanical analysis of engineered barriers for high level radioactive waste”. Chinese Journal of Rock Mechanics and Engineering, 25: 670-680
- Alonso, E. E., Gens, A. (2006). “Aznalcóllar dam failure. Part 1: Field observations and material properties”. Geotechnique, 56: 165–183.  
*(Telford Medal, ICE, UK)*
- Gens, A., Alonso, E. E., (2006). “Aznalcóllar dam failure. Part 2: Stability conditions and failure mechanism”. Geotechnique, 56: 185–201  
*(Telford Medal, ICE, UK)*
- Alonso, E. E., Gens, A. (2006). “Aznalcóllar dam failure. Part 3: Dynamics of the motion”. Geotechnique, 56: 203–210
- Gens, A., Guimaraes, L. do N., Olivella, S. (2005). “THMC coupling in partially saturated geomaterials”. Revue européenne de génie civil, 9: 747-765.
- Schrefler, B.A., Gens, A., Simoni, L. (2005). “New data about surface subsidence above gas reservoirs”. Revue européenne de génie civil, 9: 817-825.
- Vaunat, J., A., Gens, A. (2005). “Analysis of the hydration of a bentonite seal in a deep radioactive waste repository”. Engineering Geology, 81: 317-328.
- Sánchez, M., Gens, A., Guimaraes, L. do N., Olivella, S (2005). “A double generalized plasticity model for expansive materials”. International Journal for Numerical and Analytical Methods in Geomechanics, 29: 751-787.
- Olivella, S., Gens A. (2005). “Double structure THM analysis of a heating test in a fractured tuff incorporating intrinsic permeability variations”. International Journal of Rock Mechanics and Mining Sciences, 42: 667-679.
- Rutqvist J., Barr D., Datta R., Gens A., Millard, A., Olivella S., Tsang C.-F., Tsang Y. (2005). “Coupled thermal–hydrological–mechanical analyses of the Yucca Mountain Drift Scale Test—Comparison of field measurements to predictions of four different numerical models”. International Journal of Rock Mechanics and Mining Sciences, 42: 680-697.  
*(Rock Mechanics Case History Award. American Rock Mechanics Association)*
- Mata, C., Guimaraes, L. do N., Ledesma, A., Gens, A., Olivella, S. (2005). “A hydro-geochemical analysis of the saturation process with salt water of a bentonite crushed granite rock mixture in an engineered nuclear barrier”. Engineering Geology, 81: 227-245.
- Sheng, D., Sloan, S. W., Gens A. (2004). “Constitutive model for unsaturated soils: thermomechanical and computational aspects”. Computational Mechanics, 33: 453-465
- Alonso, E.E., Gens, A., Delahaye, C. (2003). “Influence of rainfall on the deformation and stability of a slope in overconsolidated clays: a case study”. Hidrogeology Journal, 11: 174-192.
- Gallipoli, D., Gens, A., Sharma, R., Vaunat, J. (2003). “An elasto-plastic model for unsaturated soil incorporating the effects of suction and degree of saturation on mechanical behaviour”. Géotechnique, 53, 123-135

- Romero, E., Gens, A., Lloret, A. (2003). “Suction effects on a compacted clay under non-isothermal conditions”. *Géotechnique*, 53, 65-81
- Lloret, A., Villar, M.V., Sanchez, M., Gens, A., Pintado, X., Alonso, E.E. (2003). “Mechanical behaviour of a heavily compacted bentonite under high suction changes”. *Géotechnique*, 53, 27-40
- Sheng, D., Sloan, S.W., Gens, A., Smith, D.W. (2003). “Finite element formulation and algorithms for unsaturated soil. Part I: Theory”. *International Journal for Numerical and Analytical Methods in Geomechanics*, 27: 745-765.
- Sheng, D., Smith, D.W., Sloan, S.W., Gens, A. (2003). “Finite element formulation and algorithms for unsaturated soil. Part II: Verification and application”. *International Journal for Numerical and Analytical Methods in Geomechanics*, 27: 767-790.
- Musso, G., Romero, E., Gens, A., Castellanos, E. (2003). “The role of structure in the chemically induced deformations of FEBEX bentonite”. *Applied Clay Science*, 23, 229-237
- Olivella, S., Gens, A. (2002). “A constitutive model for crushed salt”. *International Journal for Numerical and Analytical Methods in Geomechanics*, 26: 719-746.
- Gens, A., Guimaraes L. Do N., Garcia-Molina, A., Alonso, E.E. (2002). “Factors controlling rock–clay buffer interaction in a radioactive waste repository”. *Engineering Geology*, 64: 297-308.
- Pestana, J.M., Whittle, A.W., Gens, A. (2002). “Evaluation of a constitutive model for clays and sands: Part II – clay behaviour”. *International Journal for Numerical and Analytical Methods in Geomechanics*, 26: 1123-1146.
- Guimaraes, L. do N., Gens, A., Olivella, S. (2002). “Investigation of damage formation around wellbores using reactive transport modelling”. *Geochimica et Cosmochimica Acta*, 66: 187-189.
- Romero, E., Gens, A., Lloret, A. (2001). “Temperature effects on the hydraulic behaviour of an unsaturated clay”. *Geotechnical and Geological Engineering*, 19:311-332
- Gens, A., Olivella, S. (2001). “THM phenomena in saturated and unsaturated porous media”. *Revue française de génie civil*, 5: 693-717.
- Gens, A., Olivella, S. (2001). “Clay barriers in radioactive waste disposal”. *Revue française de génie civil*, 5: 845-856.
- Alonso, E.E., Gens, A., Lloret, A. (2000). “Precompression design for secondary settlement reduction”. *Géotechnique*, 50: 645-656
- Olivella, S., Gens, A. (2000). “Vapour transport in low permeability unsaturated soils with capillary effects”. *Transport in Porous Media*, 40:219-241.
- Vaunat, J., Cante, J.C., Ledesma, A., Gens, A. (2000). “A stress point algorithm for an elastoplastic model in unsaturated soils”. *International Journal of Plasticity*, 16: 121-141.
- Romero, E., Gens, A., Lloret, A. (1999). “Water permeability, water retention and microstructure of unsaturated compacted Boom clay” *Engineering Geology*, 54: 117-127.
- Alonso, E.E., Vaunat, J. & Gens, A. (1999). Modelling the mechanical behaviour of expansive clays. *Engineering Geology*, 54: 173–83.

- Gens, A., Garcia-Molina, A.J., Olivella, S., Alonso, E.E., Huertas, F. (1998). “Analysis of a full scale in situ test simulating repository conditions”. International Journal for Numerical and Analytical Methods in Geomechanics, 22: 515-548.
- Gens, A., Alonso, E.E., Delage, P. (1997). “Computer modelling and applications to unsaturated soils”. Unsaturated Soil Engineering Practice, Geotechnical Special Publication No. 68, ASCE, New York: 299-330.
- Ledesma, A., Gens, A. and Alonso, E.E. (1996). “Parameter and variance estimation in geotechnical backanalysis using prior information”. International Journal for Numerical and Analytical Methods in Geomechanics”, 20: 119-141.
- Ledesma, A., Gens, A. and Alonso, E.E. (1996). “Estimation of parameters in geotechnical backanalysis. I. Maximum likelihood approach”. Computers and Geotechnics, 18: 1-27.
- Gens, A., Ledesma, A. and Alonso, E.E. (1996). “Estimation of parameters in geotechnical backanalysis. II. Application to a tunnel excavation problem”. Computers and Geotechnics, 18: 29-46.
- Olivella, S., Carrera, J., Gens, A. and Alonso, E.E. (1996). “Porosity variations in saline media caused by temperature gradients coupled to multiphase flow and dissolution/precipitation” Transport in porous media, 25: 1-25.
- Olivella, S., Gens, A., Carrera, J., and Alonso, E.E. (1996). “Numerical formulation for a simulator (CODE-BRIGHT) for the coupled analysis of saline media” Engineering Computations, 13:87-112.
- Gens, A. (1995). “Constitutive modelling. Application to compacted soils”. Unsaturated soils (E.E. Alonso, P. Delage, eds.), A.A. Balkema, Rotterdam, 3: 1179-1200.
- Olivella, S., Carrera, J., Gens, A., and Alonso, E.E. (1996). “Non-isothermal Multiphase Flow of Brine and Gas through Saline media”, 13:87-112. Transport in porous media, 15: 271-293.
- Alonso, E.E., Gens, A. and Lloret, A. (1993). “The landslide of Cortes de Pallás. A case study. Geotechnique. 43: 507-521.  
(Telford Medal, ICE, UK)
- Gens, A. and Nova, R. (1993). “Conceptual bases for a constitutive model for bonded soils and weak rocks”. Geotechnical Engineering of Hard Soils-Soft Rocks (Anagnostopoulos, A., Schlosser, F., Kalteziotis, N, and Frank, R. ed.). A.A. Balkema, Rotterdam. 1:485-494.
- Gens, A. and Alonso, E.E (1992). “A framework for the behaviour of unsaturated expansive soils” Canadian Geotechnical Journal. 29: 1013-1032.
- Alonso, E.E., Gens, A. and Josa, A. (1990). “A constitutive model for partially saturated soils” Géotechnique. 40: 405-430.
- Gens, A., Carol, I. and Alonso, E.E. (1990). “A constitutive model for rock joints. Formulation and numerical implementation” Computers and Geotechnics. 9: 3-20.
- Gens, A., Hutchinson, J.N. and Cavounidis, S. (1988). “Three dimensional analysis of slides in cohesive soils”. Géotechnique. 38:1-23.
- Symes, M.J., Gens, A. and Hight, D.W. (1988). “Drained principal stress rotation in saturated sand”. Géotechnique. 38:59-81.

- Gens, A. and Potts, D.M. (1988). “Critical State Models in Computational Geomechanics”. *Engineering Computations*. 5:178-197.
- Gens, A., Carol, I. and Alonso, E.E. (1988). “An interface element for the analysis of soil-reinforcement interaction”. *Computers and Geotechnics*. 7:133-151.
- Alonso, E.E., Gens, A., Hight, D.W. (1987). “Special problem soils”. General Report: Session 5. Groundwater effects in Geotechnical Engineering. (E.T. Hanrahan, T.L.L. Orr and T.F. Widdis, ed.). A.A. Balkema. Rotterdam. 3:1087-1146.
- Potts, D.M. and Gens, A. (1985). “A critical assessment of methods for correcting for drift from the yield surface in elasto-plastic finite element analysis”. *International Journal for Numerical and Analytical Methods in Geomechanics*. 9:149-159.
- Symes, M.J., Gens, A. and Hight, D.W. (1984). “Undrained anisotropy and principal stress rotation in saturated sand”. *Géotechnique*. 34:11-27.
- Gens, A. and Potts, D.M. (1984). “Formulation of quasi-axisymmetric boundary value problems for finite element analysis”. *Engineering Computations*. 1:144-150.
- Potts, D.M. and Gens, A. (1984). “The effect of plastic potential in boundary value problems involving plane strain deformation”. *International Journal for Numerical and Analytical Methods in Geomechanics*. 8:259-286.
- Hight, D.W., Gens, A. and Symes, M.J. (1983). “The development of a new hollow cylinder apparatus for investigating the effect of principal stress rotation in soils”. *Géotechnique*. 33:355-383.

### *Capítulos de libros*

- Gens, A., Alonso, E.E., Casanovas, J., Uzcanga, L. (2013). “The Buen Pastor Cathedral in San Sebastian”. *Geotechnics and Heritage* (Bilotta, E, Flora, A., Lirer, S., Viggiani, C. eds.), CRC Press, Taylor & Francis Group, Boca Raton: 179-193.
- Gens, A., Guimaraes, L. do N., Sánchez, M., Vallejan, B. (2011). “Coupled analysis of double porosity swelling clays”. *Multiscale and Multiphysics Processes in Geomechanics*, SSGG (Borja, R.I., ed.), Springer-Verlag, Berlin: 85-88.
- Gens, A. (2010). “Mechanics of unsaturated geomaterials applied to nuclear waste storage”. Chapter 12. *Mechanics of Unsaturated Geomaterials* (Laloui, L., ed.). 279-302.
- Nagel, F., Stascheit, J., Meschke, G., Gens, A., Rodic, T. (2010). Process-oriented numerical simulation of mechanised tunnelling. Chapter 6. *Technology Innovation in Underground Construction* (Beer, G., ed.). 87-127.
- Gens, A., Casanovas, J., Alonso, E.E., Uzcanga, L. (2005). “Proyecto y construcción de una excavación adyacente a la catedral del Buen Pastor en San Sebastián”. Capítulo 13, *Ingeniería del Terreno 5*, 359-370.
- Gens, A., Olivella, S. (2001). “Numerical analyses for radioactive waste disposal”. *Environmental Geomechanics*. (B.A. Schrefler, ed.), Springer-Verlag, Wien: 203-234.
- Gens, A., Ledesma, A. (2000). Capítulo 4. “Análisis inverso e identificación de parámetros en Geotecnia”. Libro homenaje a José Antonio Jiménez Salas, Sociedad Española de Mecánica del Suelo e Ingeniería Geotécnica, 27-41.

- Gens, A. (1995). “Constitutive laws” Chapter 2. Modern issues in non-saturated soils. (A. Gens, P. Jouanna, B.A. Schrefler, eds.), Springer-Verlag, Wien: 129-158.
- Gens, A., Carol, I., Alonso, E.E. (1995). “Rock Joints: FEM Implementation and Applications”. Chapter 17. Mechanics of Geomaterials Interfaces (A.P.S. Selvadurai, M.J. Boulon, eds.), Studies in Applied Mechanics 42, Elsevier, Amsterdam. 395-420.
- Gens, A., Ledesma, A. y Alonso, E.E. (1989). “Identificación de parámetros en Geomecánica”. Capítulo 1. Sistemas en la Ingeniería Civil (J. Rodellar, ed.). CIMNE. Barcelona. 1-47.
- Alonso, E.E. y Gens, A. (1989). “Interacción medidas de campo-análisis numéricos”. Capítulo 4. Instrumentación de obras (E.E. Alonso and A. Gens, ed.). Edicions de la Universitat Politècnica de Catalunya. 89-150.
- Gens, A. (1989). “Instrumentación de pilotes”. Capítulo 17. Instrumentación de obras (E.E. Alonso and A. Gens, ed.). Edicions de la Universitat Politècnica de Catalunya. 489-513.
- Gens, A. (1989). “Corrección de taludes inestables”. Capítulo 8. Estabilidad de taludes y laderas naturales (J. Corominas, ed.) Sociedad Española de Geomorfología. Zaragoza. 231-248.
- Hight, D.W., Jardine, R.J. and Gens, A. (1987). “The behaviour of soft clays”. Chapter 2. Embankments on soft clays. Public Works Research Center. Athens. 33-158
- Hight, D.W., Gens, A. and Jardine, R.J. (1985). “Evaluation of geotechnical parameters from triaxial tests on off-shore clays”. Chapter 16. Advances in Underwater Technology and Offshore Engineering 3. Graham and Trotman. London. 253-268.

#### *Edición de libros y numeros especiales de revistas*

- 2016. Special issue: “Numerical analysis of the hydromechanical response of Callovian-Oxfordian claystone in deep excavations” Computers and Geotechnics. Elsevier. ISSN: 0266-352X.
- 2014. Proceedings of the 23rd European Young Geotechnical Engineers Conference. M. Arroyo, A. Gens, eds. UPC. ISBN-10: 84-697-1036-2.
- 2011. Unsaturated Soils. E.E. Alonso, A. Gens. Taylor & Francis Group, London. ISBN 978-0-415-60428-4 (2 volumes), 978-0-203-83401-5 (eBook).
- 2008. Special issue: “Unsaturated soils: Models, algorithms and applications”. Computers and Geotechnics, 35 (6). Elsevier. ISSN: 0266-352X. 809-915.
- 2002. Special issue: “Key issues in waste isolation research”. Engineering Geology, 64 (2-3). Elsevier. ISSN: 0013-7952. 89-316.
- 2001. Environmental Geomechanics. R. Charlier, Gens, A., eds. Hermes Science Publications, Paris. ISBN 2-7462-0338-8. 236 páginas.
- 1995. Modern issues in non-saturated soils. A. Gens, P. Jouanna, B.A. Schrefler, eds. Springer-Verlag, Wien New York. 1995. ISBN 3-211-82783-8. 504 páginas
- 1990. Caracterización del terreno mediante técnicas de identificación de sistemas. A. Gens, A. Ledesma, E. Alonso. ETS Ingenieros de Caminos. Barcelona. ISBN 84-404-7470-9. 248 páginas.

- 1989. Instrumentación de obras. E.E. Alonso A. Gens, eds. Ediciones UPC. Barcelona. ISBN 84-7653-015-0. 646 páginas.
- 1986. Comportamiento mecánico de juntas y macizos rocosos. Análisis de la cimentación de la presa bóveda de Canelles. Alonso, E.E., Carol, I., Gens, A. ETS Ingenieros de Caminos. Barcelona. ISBN 84-398-82 52-1. 156 páginas.
- 1986. Aplicaciones del método de los elementos finitos: Ingeniería Geotécnica. E.E. Alonso, A. Gens, E. Oñate, eds. Ediciones UPC. Barcelona. 1986. ISBN 84-7653-011-0. 333 páginas.

## Proyectos de investigación financiados

(más de 4.0M euros en total)

- Bentonite Mechanical Evolution. BEACON. EURATOM FISSION 2017-2021, topic NFRP 6: Addressing key priority R&I issues for the first-of-the-kind geological repositories. Grant Agreement (GA) No: 745942 European Union Commission. 2017-2021.
- Inestabilidad hidromecanica en suelos: detección y evaluación. INHISDE. BIA2017-84752-R. Ministerio de Economía, Industria y Competitividad. 2018-2020..
- Developing performance-based design for foundation systems of WIND turbines in AFRICA (WindAfrica). Engineering and Physical Sciences Research Council, UK (EP/P029434/1). 2017-2020.
- Simulación avanzada para optimizar el reconocimiento geotécnico submarino. SIMGESUB. BIA2014-59467-R. Ministerio de Economía y Competitividad. 2015-2018.
- Mechanics of Hard Soils and Soft Rocks. ARC Discovery Grant DP150103396. Australian Research Council. Partner Investigator.
- Numerical modelling of artificial ground freezing (NuMAGF). FP7-PEOPLE-2010 IEF: Marie Curie Action. European Union Commission. 2012-2014.
- Conminución granular y resistencia en la interfaz. Aplicación a pilotes offshore. (BIA2011-27217). Ministerio de Educación. 2011-2014.
- Fission-2009-1.1.1: Long-term performance of Engineered Barrier Systems (PEBS). European Union Commission (Grant agreement 249681). 2010-2014.
- Modelización avanzada de tratamientos del terreno por erosión y mezcla. (BIA2008-06537). Ministerio de Educación. 2009-2011.
- Coupled thermal-hydrological-mechanical-chemical (THMC) processes for application in repository safety assessment (THERESA). (FP6-036458). European Union Commission. 2007-2010.
- Thermal Impact on the Damaged Zone around a Radioactive Waste Disposal in Clay Host Rocks (TIMODAZ) (FP6-036449). European Union Commission. 2006-2010.
- Micro-Measurement and Monitoring System for Ageing Underground Structures. European Science Foundation Eurocores project. 2006-2010.
- Engineered Barrier System (EBS) Task Force. Chairmanship. SKB (Agencia sueca de residuos radioactivos). Desde 2004
- Thermo-hydro-mechanical behaviour of saturated and unsaturated Boom clay. Experimental and constitutive study. ESV EURIDICE GIE (European Underground Research Infrastructure for Disposal of Nuclear Waste in Clay Environment), Agencia belga de residuos radioactivos. 2005-2008.
- Interpretación avanzada de ensayos geotécnicos in situ. Aplicación a suelos no saturados y estructurados. (BIA2005-05801). Ministerio de Educación y Ciencia. 2005-2008.
- Integrated project on Technology Innovation in Underground construction (TUNCONSTRUCT) (NMP2-CT-2005-011817). European Union Commission. 2004-2008.
- Mechanics of Unsaturated Soils for Engineering (MUSE) (MRTN-CT-2004-506861). European Union Commission. 2004-2008.

- Understanding and physical and numerical modelling of the key processes in the near field, and their coupling, for different host rocks and repository strategies (NF-PRO) (FI6W-CT-2003-02389). European Union Commission y ENRESA (Agencia española de residuos radioactivos). 2004-2007.
- Coupled THMC formulations. Developmenst and applications to environmental geotehnics and petroleum engineering. Spain-Brazil project. Ministerio de Educación y Ciencia. 2004-2005.
- Evaluation of the thermohydromechanical behaviour in and around storage cells for waste C and used fuel CU. HAVL Project. ANDRA (Agencia francesa de residuos radioactivos). 2004-2007.
- Actividades geotécnicas e hidrogeológicas en relación con la Línea 9. GISA. 2003-2007.
- Thermohydromechanical Modelling of the TER Mock Up Experiment at Mont-Terri (Switzerland). Mont Terri Consortium. ANDRA. 2003-2006.
- Development of constitutive laws for unsaturated and cemented soils. Alban Project. European Union Commission. 2003-2006.
- Flow and transport modelling of a storage facility at centre de l'Aube gravel facility case. ANDRA. 2003-2005.
- THM modelling of a seal of expansive clay with thin slots. HAVL Project. ANDRA. 2003-2006.
- Fractura hidráulica y otros fenómenos acoplados en discontinuidades geomecánicas (BTE2001-2227). Ministerio de Ciencia y Tecnología. 2001-2004.
- Unsaturated Soils and Numerical Application to Pressuremeter Testing. (HPMF-CT1999-00302). European Union Commission. 2000-2002.
- A large scale in situ demonstration test for repository sealing in an argillaceous host rock - phase II (RESEAL II). (FIS-5-1999-00101). European Union Commission. 2000-2003.
- Decovalex III Project. Task 2: The Yucca Mountain – Drift Scale Test. ENRESA. 2000-2003.
- Elaboration of hydromechanical coupled models by interpretation of the disturbances observed during the sinking of the main shaft of an underground laboratory in Eastern France (FIKW-CT-2000-00029). European Union Commission. 2000-2003.
- Full Scale Engineered Barriers Experiment in Crystalline Host Rock Phase II (FIKW-CT-2000-00016). European Union Commission y ENRESA. 2000-2003.
- Modelling the THM behaviour of engineered barriers including gap, corrosion and gas generation and transport. ANDRA. 1999-2000.
- Heater experiment: rock bentonite thermo-hydro-mechanical processes in the near field. Mont Terri Consortium. 1999-2003.
- Modelling flow in a surface storage facility (AUBE). ANDRA. 1999-2000.
- TSX, Tunnel in situ sealing Experiment. 2<sup>nd</sup> Phase. ANDRA. 1999-2000.
- Generation and transport of gas in bentonite (GASBEN). ENRESA. 1997-1998.
- Modelling the THM behaviour of engineered barriers (C Waste Canisters, C Waste Canisters, Spent Fuel Canisters). ANDRA. 1997-1999.
- A large scale in-situ demonstration test for repository sealing in an argillaceous host rock (RESEAL). Nuclear Fission Safety Programme (FI4W-CT95-0025). European Union Commission and ENRESA. 1996-1999.

- Análisis acoplados THMC (termo-hidro-mecánicos y químicos) considerando precipitación de solutos, cementación y fisuración. CICYT. 1996-1999.
- Calculation and testing of behaviour of unsaturated clay (CATSIUS CLAY). Nuclear Fission Safety Programme (FI4W-CT95-0003). European Union Commission. 1996-1999.
- Backfill Behaviour in Emplacement Drifts and Borehole in a Salt Repository (BBDB). Nuclear Fission Safety Programme (FI4W-CT95-0009). European Union Commission. 1996-1999.
- TSX, Tunnel in situ sealing Experiment. ANDRA. 1996-1997.
- Full scale engineered barriers experiment in crystalline host rock, FEBEX (FI4W-CT95-0006). European Union Commission y ENRESA. 1995-1999.
- Framework research program on geotechnical aspects related to radioactive waste disposal in deep geological formations. ENRESA. 1995-1999.
- A parallel computing solution of the simulation of waste disposal problems and contaminant transport in the ground for the use on an expert system for safety monitoring (PARCOMPWASTE). COPERNICUS Programme (CP94-0009). European Union Commission. 1995-1998.
- European validation exercise of gas migration model. RAD-WAS Programme (FI2W-CT93-0125). European Union Commission. 1994-1996.
- Research Fellowship. Human Capital and Mobility Program (ERBCHBI-CT94-1369). European Union Commission. 1994-1996.
- Fenómenos de daño y localización en materiales quasi-frágiles y su modelización numérica. CICYT. 1993-1996.
- ALERT: Geomaterials Network. Human Capital and Mobility Program (CHRX-CT93-0217). European Union Commission. 1993-1996.
- A study of the performance of clay materials as engineered barriers for the storage and disposal of waste products (WASCLAYBARS). PECO Programme (CT92-4007). European Union Commission. 1993-1996.
- Modelling and testing of hydration of clay, backfilling and sealing materials. RAD-WAS Programme (FI2W-CT90-0033). European Community Commission. 1991-1994.
- Physical processes in the Mediterranean climates and related slope instabilities in overconsolidated clayey soils. Epoch Programme (EPOC-CT91-0034). European Community Commission. 1991-1993.
- Beca de infraestructura (GR90-0200). CICYT. US\$80,000. 1990.
- Desarrollo de métodos avanzados para el estudio de la seguridad de excavaciones subterráneas. OCIDE (PIE 135024). 1988-1992.
- Caracterización del terreno por métodos de identificación de sistemas. CICYT. 1987-1990.
- Numerical modelling of rock laboratory experiments. BP International. 1986-1987.

## Tesis Doctorales dirigidas

- Alberto Ledesma Villaba. 1987 (Ph.D. prize)  
Identificación de parámetros en geotecnia. Aplicación a la excavación de túneles  
(Identification of parameters in geotechnics. Application to tunnel excavation)
- Alfredo Raúl Balmaceda. 1990.  
Suelos compactados. Un estudio teórico y experimental. (Compacted soils. A theoretical and experimental study)
- Sebastià Olivella. 1995.  
Non isothermal multiphase flow of brine and gas through saline media.
- Angel García Molina. 1998.  
Coupled thermo-hydro-mechanical analysis in Geomechanics.
- Enrique Romero. 1999. (Ph. D. Prize)  
Estudio teórico experimental de los efectos de succión y temperatura en suelos no saturados. (Theoretical and experimental study of the effects of suction and temperature on unsaturated soils).
- Leonardo do Nascimento Guimaraes. 2002.  
Análisis multi-componente no isotermo en medio porosa deformable no saturado. (Multi-component non isothermal analysis in unsaturated deformable porous media).
- Marcelo Javier Sánchez. 2004 (Ph.D. Prize)  
Thermo-hydro-mechanical coupled analysis in low permeability media
- Carlos Buenfil. 2011.  
Caracterización experimental del comportamiento mecánico de suelos no saturados  
(Experimental characterization of the mechanical behaviour of unsaturated soils).
- Analice F. Lima. 2011.  
Thermohydromechanical behaviour of two deep belgian clay formations: Boom and Ypresian clays
- Nubia González. 2011.  
Development of a family of constitutive models for geotechnical applications
- Zhan Zhifong. 2012.  
Numerical modeling of delayed and progressive failure in stiff clays with two-stage softening behaviour
- Joanna Butlanska. 2014.  
Cone penetration tests in a virtual calibration chamber
- Claudia González. 2014.  
Rendimiento, desgaste y abrasividad en excavación mecanizada de túneles en terrenos heterogéneos (Performance, wear and abrasivity in mechanial excavation of tunnels in heterogenous materials)
- Cristian de Santos. 2015.  
Backanalysis Methodology Based on Multiple Optimization Techniques for Geotechnical Problems
- Natalia Climent. 2016  
A coupled CFD-DEM Model for Sand Production in Oil Wells.
- Yanxin Mao. 2018  
Study of ice content and hydro-mechanical behaviour of frozen soils
- Miguel Mánica. 2018  
Analysis of underground excavations in argillaceous hard soils – weak rocks
- Lluis Monforte. 2018

## Insertion problems in Geomechanics with the Particle Finite Element Method

- Beatriz Valleján (in progress)  
Numerical modelling of the hydromechanical behaviour of FoCa clay powder and pellets mixtures.
- Ramón Barboza de Vasconcelos (in progress)  
Comportamiento hidromecánico y termohidromecánico de una arcilla a gran profundidad (Hydromechanical and thermohydromechanical behaviour of a clay at great depth).
- María Teresa Yubero (in progress)  
Estudio de la ejecución mecánica de túneles en el entorno de Barcelona. El caso de la línea 9. (Study of mechanized tunenlling in Barcelona. The Line 9 case).
- Dani Tarragó (in progress)  
Hydraulic fill liquefaction. Effect on quay stability
- Daniel Ruiz Restrepo (in progress)  
Modelación de fenómenos acoplados en el sellado de excavaciones profundas en roca arcillosa (Modelling coupled phenomena in the sealing of deep excavations in argillaceous rock)
- Ricardo Madrid (in progress)  
Short and long term performance of vertical breakwater on soft soils
- Saeed Torchí (in progress)  
Analysis of disposal concepts for high-level nuclear waste
- Lu He (in progress)  
Bentonite homogenization in selas and engineered barriers
- Eduard Puig (in progress)  
Micromechanics of three-phase granular materials

## Afiliaciones

- Colegio de Ingenieros de Caminos, Canales y Puertos
- International Society for Soil Mechanics and Geotechnical Engineering.
- Sociedad Española de Mecánica del Suelo e Ingeniería Geotécnica
- British Geotechnical Association.
- International Society for Rock Mechanics
- International Association of Engineering Geology
- International Association for Computer Methods and Advances in Geomechanics.
- International Association for Computational Mechanics
- European Community on Computational Mechanics in Applied Sciences
- Member of Convocation, University of London.
- The Royal Institution, London (hasta 1996).
- Sociedad Española de Métodos Numéricos en Ingeniería
- Sociedad Española de Mecánica de Rocas
- Asociación Española de Geología Aplicada a la Ingeniería
- South East Asian Geotechnical Society

## Actividad profesional

El profesor Antonio Gens ha estado intensamente implicado en actividades de consultoría geotécnica en relación con destacadas obras de ingeniería. Ha participado en más de 100 proyectos, en España y en el extranjero, que incluyen túneles, excavaciones profundas, diques y muelles, presas de hormigón y de tierra, presas de residuos mineros, centrales térmicas y nucleares, aeropuertos, repositorios de residuos radioactivos, grandes instalaciones científicas, cimentaciones superficiales y profundas (en tierra y offshore), mejora del terreno, estabilidad de laderas, recalce de estructuras y reconocimiento del terreno. Antonio Gens es también un Associate del Geotechnical Consulting Group (GCG) de Londres desde 1983.

Algunos trabajos seleccionados:

- Miembro del Design Review Board para la presa de Bisri (Líbano). Desde 2018
- Miembro del Panel de Expertos Independientes para la revisión de las normas de riesgo y medidas de control en trabajos de túneles. Building Construction Authority. Singapur. Desde 2018.
- Experto Geotécnico Independiente para International Court of Arbitration sobre el desarrololo de Muscat International Airport (Oman). 2016-2018.
- Experto Geotécnico Independiente para la International Court of Arbitration sobre el diseño y construcción del Al Faw Grand Port (Iraq). Desde 2016
- Consultor geotécnico para la Línea 2 del Metro de Lima (Peru). Desde 2018.
- Consultor geotécnico para Navi Mumbai International Airport (India). Since 2016.
- Consultor geotécnico para la Autoridad Portuaria de Barcelona. Desde 2007.
- Revisor Geotécnico del Proyecto del Puerto de Nador West Med (Marruecos). 2014-2015.
- Miembro del Comité de expertos para la gestión a largo plazo de los residuos radioactivos de la fábrica de uranio de Comurhex-Malvési (Francia), la mayor planta de refinado y conversión de uranio en el mundo. 2010 -2018.
- Miembro del Comité de Expertos (creado por el Ministerio de Cultura de España y UNESCO) para la construcción de un túnel cerca de la basílica de la Sagrada Familia y otros edificios protegidos por la UNESCO en Barcelona. 2011-2012.
- Miembro del Comité Asesor de Túneles y Obras Singulares de la Generalitat de Cataluña. Organismo creado por la ley de Obra Pública de Cataluña. Desde 2007.
- Miembro del Comité Asesor de Túneles del Ayuntamiento de Barcelona para la construcción de los túneles del Tren de Alta Velocidad en el centro de Barcelona. 2009-2011.
- Obras de Ingeniería Civil y Edificación de GISA (en la actualidad Infraestructures S.A.). Consultor geotécnico desde 2008.
- Reconstrucción del Muelle Prat. Autoridad Portuaria de Barcelona. Desde 2007.
- Miembro del Comité de Expertos para la investigación de la rotura del Muelle Prat. Autoridad Portuaria de Barcelona. 2007.
- Daños a edificios causados por la contrucción del Tren de Alta Velocidad. El Prat de Llobregat (Barcelona). Informe de expertos para ADIF. 2007-2008.

- Rotura del Túnel del Carme. Línea 5, Metro de Barcelona. Consultor geotécnico para GISA. 2006-2008.
- Entrada del tren de alta velocidad en Barceloba. Tramo: Hospitalet-Barcelona. Consultor geotécnico para ADIF. 2005-2008.
- Construcción de la Línea 9 del metro de Barcelona. GISA. Consultor geotécnico. Desde 2002.
- Ampliación del Puerto de Barcelona. Consultor geotécnico para la estimación de asientos en el Muelle Prat. 2005-2008..
- Ampliación del Puerto de Barcelona. Diseño geotécnico de los diques y consultor geotécnico. Desde 1997.
- Efecto de la construcción de un túnel para el tren de alta velocidad sobre la estrucrura de la Sagrada Familia. Ayuntamiento de Barcelona y Patronato del templo 2005-2006.
- Miembro del Comité de Expertos nombrado por el Gobierno de Singapur para la investigación del colapso de Nicoll Highway. 2004-2005.
- Reparación de los túneles de Lilla (Tarragona) sujetos a la expansión de yesos. Tren de Alta Velocidad. Consultor Geotécnico para ADIF. 2003-2006.
- Ampliación del Aeropuerto de Barcelona. Tercera pista y construcciones auxiliares. Consultor Geotécnico. 1999-2006.
- Mina de cobre de las cruces (Sevilla). Estudio de factibilidad de una presa de residuos. Consultor Geotécnico. 1999 -2001.
- Rotura de la Presa de Aznalcóllar () Perito judicial. 1998-2000.
- Excavación para Diagonal Mar, Barcelona. Consultor y modelización geotécnica. 1998-2000.
- Presa de tierra de Jiloca. Consultor Geotécnico. 1997-1998.
- Depuradora del Llobregat, Barcelona. Consultor Geotécnico y Diseño de la Mejora del Terreno. 1997 – 2002.
- Estudio de factibilidad de un repositorio profundo en roca salina para residuos especiales, Cardona. Diseño geomecánico y consultor, 1996-1997.
- Selección de la localización del sincrotrón español. Consultor Geotécnico. 1995-1997.
- Bibliotheca Alexandrina, Alexandria, Egipto. Consultor sobre Mejora del Terreno. 1994-1995.
- Flujo de calor en oleoductos. Modelización Geotécnica. Shell UK. 1994-1995.
- Inestabilidad de la ladera de Berasategui. Perito judicial. 1993-1994.
- Emisario del Besós. Consultor Geotécnico. 1992-1995.
- Excavación profunda alrededor de la cathedral del Buen Pastor, San Sebastián. Diseño geotécnico y consultoría. 1990-1992.
- Ampliación del Puerto de Bilbao. Diseño geotécnico del dique y consultoría geotécnica. 1988-1996.
- Presa arco de Canelles (Lérida). Estudio de estabilidad y modelización geotécnica. 1988-1994.
- Inestabilidad de la ladera de Cortes de Pallás, Valencia. Diseño de medidas correctoras y consultoría geotécnica. 1987-1992.

- Levantamiento de la Central Nuclear Ascó II. Modelización y consultoría geotécnica.1986-1990.