PABLO F. SANZ REHERMANN

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EDUCATION

9/2004 - Present — STANFORD UNIVERSITY (Stanford, CA)
Ph.D. Candidate in Civil Engineering. Dissertation advisor: Prof. R.I. Borja. GPA: 4.00

6/2002 — STANFORD UNIVERSITY (Stanford, CA)
M.S. in Civil Engineering. Geomechanics program. GPA: 4.00

6/1999 — CEDEX (Madrid, Spain)
Master's Degree in Geotechnical Engineering

9/1997 — UNIVERSITY OF BUENOS AIRES (Buenos Aires, Argentina)
Civil Engineering Diploma (6-year program). Honor Diploma.

RESEARCH EXPERIENCE

9/2004 - Present — RESEARCH ASSISTANT. Department of Civil and Environmental Engineering, Stanford University. Investigate folding, faulting, fracturing, and strain localization of rocks using finite element modeling and non-linear contact mechanics. Developed and implemented an elastoplastic constitutive law for rock materials and a large deformation frictional contact element to model geologic phenomena with discontinues displacement fields. Analyze and calibrate numerical models of fault related fold processes to determine the evolution of existing fractures.

11/2000 - 12/2002 — RESEARCH ASSISTANT. National Performance of Dams Program (NPDP), Stanford University. Analyzed dam incident information to evaluate the condition and performance of different types of dams. Worked on the development of a mathematical model to estimate and predict the condition of earthfill and rockfill dams. Created a database with performance information of dams during earthquakes.

TEACHING EXPERIENCE

9/2005 - 3/2007 — SUBSTITUTE LECTURER. Stanford University, Department of Civil and Environmental Engineering. Lectured the undergraduate *Geotechnical Engineering* course (autumn, 2005) and the graduate *Foundation Engineering* course (winter, 2006 and 2007) in professor's absence.

4/2006 - 6/2006 — TEACHING ASSISTANT. Stanford University, Department of Civil and Environmental Engineering. *Computational Geomechanics.* Graduate level course by Prof. R.I. Borja.

1/2005 - 3/2005 — TEACHING ASSISTANT. Stanford University, Department of Mechanical Engineering. *Continuum Mechanics.* Graduate level course by Prof. A.J. Lew. Lectured review sessions.

1/2002 - 3/2002 — TEACHING ASSISTANT. Stanford University, Department of Civil and Environmental Engineering. *Foundation Engineering.* Graduate level course by Prof. R.I. Borja.

3/1995 - 7/2000 — LECTURER AND TEACHING ASSISTANT. University of Buenos Aires. *Soil Mechanics.* Assisted professor in teaching. Created and graded weekly assignments. Taught lab classes to students, demonstrated and supervised experiments.

PROFESSIONAL EXPERIENCE

1/2003 - 8/2004 ENGINEER. Exponent Failure Analysis (Menlo Park, CA)
Performed work on geotechnical issues related to expansive soil, performance and failure of slopes, excavations, foundations, retaining wall, and failures involving soil-structure interaction. Managed several insurance investigations. The scope of these projects included, site inspections, discussions with witnesses, engineering analysis, and preparation of a report. Participated in the investigation of the World Trade Center collapse.

6/2002 - 9/2002 ENGINEER INTERN. Jack R. Benjamin and Associates, Inc. (Menlo Park, California)
Worked on the estimation of earthquake ground motion parameters for three possible nuclear power plants in the Central and Eastern U.S. As part of this EPRI project, studied nine ground motion attenuation models and compared them to recorded data to evaluate their performance on frequencies and distance bins.

7/1996 - 8/2000 SENIOR ENGINEER. L&G, Consulting Engineering (Buenos Aires, Argentina)
Performed work in geotechnical and structural engineering focusing on the analysis and design of deep and shallow foundations, embankments, retaining walls and sheet piles. Responsibilities included interpretation of soils reports and definition of soil parameters, structural and geotechnical engineering analyses, and preparation of design reports. Carried out projects where I independently completed designs and calculations. In charge of the structural and geotechnical analysis of several harbor foundations and in the foundation analysis of the tallest building in Argentina at the time of construction, "Torres El Faro."

PROFESSIONAL REVIEWS

- Reviewer for technical journals including: Acta Geotechnica and ASCE Journal of Performance of Constructed Facilities.
- Technical Reviewer and co-author of 50 Geotechnical Engineering Questions for "Civil PE Sample Examination" by Michael Lindeburg, published by Professional Publications Inc., 2005.
- Technical Reviewer for "Six-Minutes Solutions for Civil PE Exam-Geotechnical Problems" by Bruce Wolle, published by Professional Publications Inc., 2004.

HONORS AND AWARDS

- Shell Campus Development Award, Texas (2006)
- Stanford University Shah Graduate Funding Award, California (2002 and 2004)
- Organization of American States (OAS) Travel Award, Argentina (1998)
- Spanish Agency for International Cooperation (AECI) Study Abroad Scholarship, Uruguay (1998)
- School of Engineering Honors Diploma, University of Buenos Aires, Argentina (1997)
- Argentine Structural Engineers Association Award, Argentina (1996)

ADDITIONAL INFORMATION

- Registered Professional Civil Engineer, California, No. C66468
- Registered Professional Civil Engineer, Argentina, No. CPIC 15373
- Professional affiliations: American Society of Civil Engineers, American Geophysical Union

JOURNAL PUBLICATIONS

Sanz PF, Borja RI and Pollard DD (2007). Finite Element Modeling of Fractures During Rock Folding, in progress.

Sanz PF, Liu FS and Borja RI (2007). Comparison of Contact Mechanics and XFEM Solutions of Thrust-Related Faulting Processes, in progress.

Sanz PF, Borja RI and Pollard DD (2007). Mechanical Aspects of Thrust Faulting Induced by Far-Field Compression and their Implications for Fold Geometry. *Acta Geotechnica*, 2(1), pp.17-31.

Borja RI, Sama KM and Sanz PF (2003). On the Numerical Integration of Three-Invariant Elastoplastic Constitutive Models. *Computer Methods in Applied Mechanics and Engineering*, 192(9-10), pp.1227-1258.

CONFERENCE PROCEEDINGS AND PRESENTATIONS

Sanz PF, Borja RI and Pollard DD (2007). Computational Modeling of Fault Related Folds Using Large Deformation Contact Mechanics. Ninth International Conference on Computational Plasticity Fundamentals and Applications, Barcelona, Spain, accepted.

Sanz PF, Borja RI and Pollard DD (2007). Finite Element Model of Faulting, Folding, and Fracturing of Rocks with Frictional Contact Mechanics. Ninth U.S. National Congress on Computational Mechanics, San Francisco, California, accepted.

Borja RI, Sanz PF and Liu FS (2007). Comparison of two Multiscale Finite Element Techniques for Thrust Faulting in Geologic Media. Proceedings for COMPDYN 2007, Crete, Greece.

Boldini D, Borja RI and Sanz PF (2007). A Three-Invariant Non-associative Plasticity Model for Hard Rocks: Implicit Integration and Strain Localization Analysis. Proceedings for Tenth International Symposium on Numerical Models in Geomechanics, Rhodes, Greece.

Sanz PF and Borja RI (2006). Mechanical Modeling of Thrust Faulting and Large Deformation Folding in Sedimentary Rock Strata. Eos Trans. AGU, 87(52), Fall Meet. Suppl., Abstract T43A-1628.

Borja RI, Foster CD, Liu FS, Pollard DD and Sanz PF (2006). Numerical Modeling of Thrust Faulting and Folding of Rock Strata. Invited Lecture at AGU Fall Meeting, San Francisco, California.

Sanz PF, Borja RI and Pollard DD (2006). Elastoplastic Multi-Layer Folding of Rocks with Finite Deformation Frictional Contact Kinematics. Seventh World Congress on Computational Mechanics, Los Angeles, California, in CD-ROM.

Sanz PF and Borja RI (2006). Mechanical Modeling of Multi-Layer Sedimentary Rock Folding. Third European Conference on Computational Mechanics, Lisbon, Portugal, in CD-ROM.

Sama KM and Sanz PF (2006). Some Stability Characteristics of Three-Invariant Plasticity Models. GeoCongress 2006, Atlanta, Georgia.

Borja RI, Sanz PF and Pollard DD (2006). Ductile Folding of Sedimentary Rocks. GeoCongress 2006, Atlanta, Georgia, in CD-ROM.

Sanz PF, Borja RI, Fiore PE and Pollard DD (2005). Computational Modeling of Ductile Folding in Sedimentary Rocks of the Sheep Mountain Anticline, Wyoming. Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract T51D-1364.

Borja RI, Andrade JE, Foster CD and Sanz PF (2005). Computational Plasticity in Geomechanics Across Different Scales. Plenary lecture at Eighth International Conference on Computational Plasticity Fundamentals and Applications, Barcelona, Spain.

Sanz PF and Borja RI (2005). Localization of Sedimentary Rocks During Ductile Folding Processes. Eighth U.S. National Congress on Computational Mechanics, Austin, Texas, in CD-ROM.

Medley E and Sanz PF (2004). Characterization of Bimrocks (Rock/Soil Mixtures) with Application to Slope Stability Problems. Proceedings of Eurock 2004 and 53rd Geomechanics Colloquium, Salzburg, Austria.

Medley E and Sanz PF (2003). Increases in Slope Stability of Rock/Soil Mixtures due to Tortuosity of Failure Surfaces Around Rock Blocks. Oral presentation at Geological Society of America Annual Conference, Seattle, Washington.

Sanz PF and McCann MW (2001). Gathering, Interpreting, and Modeling Data on the Condition of Dams. Presentation at United States Bureau of Reclamation - National Performance of Dams Program meeting, Stanford University, Stanford, California.