

LIST OF SCIENTIFIC PUBLICATIONS

of

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January 2014

PAPERS IN INTERNATIONAL JOURNALS

1. C. Janna, M. Ferronato and G. Gambolati (2013), *Enhanced Block FSAI preconditioning using Domain Decomposition techniques*, SIAM Journal of Scientific Computing, 5, S229–S249. DOI: 10.1137/120880860.
2. M. Ferronato, C. Janna and G. Pini (2014), *A generalized Block FSAI preconditioner for unsymmetric indefinite matrices*, Journal of Computational and Applied Mathematics, 256, 230–241.
3. M. Ferronato, N. Castelletto, G. Gambolati, C. Janna and P. Teatini (2013), *II cycle compressibility estimate from satellite measurements*, Geotechnique, 63, 478–486. DOI: 10.1680/geot.11.p.149
4. N. Castelletto, M. Ferronato, G. Gambolati, C. Janna, D. Marzorati and P. Teatini (2013), *Can natural fluid pore pressure be safely exceeded in storing gas underground?*, Engineering Geology, 153, 35–44.
5. M. Ferronato, C. Janna and G. Pini (2012), *Efficient parallel solution to large size sparse eigenproblems with Block FSAI preconditioning*, Numerical Linear Algebra with Applications, 19, 797–815. DOI: 10.1002/nla.813.
6. C. Janna, M. Ferronato and G. Gambolati (2012), *Parallel inexact constraint preconditioning for ill-conditioned consolidation problems*, Computational Geosciences, 16, 661–675. DOI: 10.1007/s10596-012-9276-4.
7. C. Janna, N. Castelletto, M. Ferronato, G. Gambolati and P. Teatini (2012), *A geomechanical transversely isotropic model of the Po river basin, Italy, using PSInSAR derived horizontal displacement*, International Journal of Rock Mechanics and Mining Sciences, 51, 105–118. DOI: 10.1016/j.ijrmms.2012.01.015.
8. M. Ferronato, G. Pini and C. Janna (2012), *A shifted FSAI preconditioner for the parallel solution of stochastic diffusion models*, International Journal for Numerical Methods in Engineering, 89, 1707–1719. DOI: 10.1002/nme.3309.
9. M. Ferronato, C. Janna and G. Pini (2012), *Parallel solution to ill-conditioned FE geomechanical problems*, International Journal for Numerical and Analytical Methods in Geomechanics, 36, 422–437. DOI: 10.1002/nag.1012.
10. C. Janna and M. Ferronato (2011), *Adaptive pattern research for Block FSAI preconditioning*, SIAM Journal on Scientific Computing, 33 (6), 3357–3380.
11. G. Gambolati, M. Ferronato and C. Janna (2011), *Preconditioners in computational geomechanics: a survey*, International Journal for Numerical and Analytical Methods in Geomechanics, 35, 980–996. DOI: 10.1002/nag.937.
12. P. Teatini, N. Castelletto, M. Ferronato, G. Gambolati, C. Janna, E. Cairo, D. Marzorati, D. Colombo, A. Ferretti, A. Bagliani and F. Bottazzi (2011), *Geomechanical response to seasonal gas storage in depleted reservoir: a case study in the Po River basin, Italy*, Journal of Geophysical Research - Earth Surface, 116, DOI: 10.1029/2010JF001793.

13. N. Castelletto, M. Ferronato, G. Gambolati, C. Janna and P. Teatini (2010), *Numerical modeling of case sliding in radioactive marker boreholes of the Northern Adriatic basin, Italy*, SPE Reservoir Evaluation and Engineering, 13 (6), 906–913. SPE-135736-PA. DOI: 10.2118/135736-PA.
14. C. Janna, M. Ferronato and G. Gambolati (2010), *A Block FSAI-ILU parallel preconditioner for symmetric positive definite linear systems*, SIAM Journal on Scientific Computing, 32 (5), 2468–2484.
15. M. Ferronato, G. Gambolati, C. Janna and P. Teatini (2010), *Geomechanical issues of anthropogenic CO₂ sequestration in exploited gas fields*, Energy Conversion and Management, 51, 1918–1928.
16. C. Janna, A. Comerlati and G. Gambolati (2009), *A comparison of projective and direct solvers for Finite Elements in elastostatics*, Advances in Engineering Software 40, 675–685.
17. C. Janna, M. Ferronato and G. Gambolati (2009), *Multilevel incomplete factorizations for the iterative solution of non-linear FE problems*, International Journal for Numerical Methods in Engineering, 80, 651–670. DOI: 10.1002/nme.2664.
18. M. Ferronato, G. Gambolati, P. Teatini and C. Janna (2008), *Letter to the editor of Petroleum Science & Engineering: comment on Casing influence while measuring in situ reservoir compaction by P. Macini, E. Mesini, V.A. Salomoni and B.A. Schrefler [J. Pet. Sci. Eng. 50 (2006), 40 V54]*, Journal of Petroleum Science and Engineering 60, pp. 67–70.
19. M. Ferronato, C. Janna and G. Gambolati (2008), *Mixed constraint preconditioning in computational contact mechanics*, Computer Methods in Applied Mechanics and Engineering 197 (47), pp. 3922–3931.
20. M. Ferronato, G. Gambolati, C. Janna and P. Teatini (2008), *Numerical modelling of regional faults in land subsidence prediction above gas/oil reservoirs*, International Journal for Numerical and Analytical Methods in Geomechanics 32, pp. 633–657.
21. M. Ferronato, G. Gambolati, P. Teatini and C. Janna (2007), *Casing influence in reservoir compaction measurement by radioactive markers in the Northern Adriatic, Italy*, International Journal of Geomechanics 7, pp. 444–447.

BOOK CHAPTERS

1. C. Janna, M. Ferronato and G. Gambolati (2013), *Approximate inverse preconditioning for the solution of large sparse linear systems*, B. H. V. Topping and P. Ivanyi editors, *Computational Technology Review*, vol. 7, pp. 25-41. Saxe-Coburg Publication, Stirlingshire (UK).
2. C. Janna, M. Ferronato and G. Gambolati (2011), *Two-level block preconditioners for contact problems*, G. Zavarise and P. Wriggers editors, *Trends in Computational Contact Mechanics*, Lecture Notes in Applied and Computational Mechanics, vol. 58, pp. 211-226. Springer-Verlag, Berlin Heidelberg (Germany).

PAPERS IN PROCEEDINGS OF INTERNATIONAL CONFERENCES

1. N. Castelletto, M. Ferronato, G. Gambolati, C. Janna and P. Teatini, *Compartmentalization effects in geologic CO₂ sequestration. A case study in an offshore reservoir in Italy*, C. Hellmich et al. (eds.), Poromechanics V, pp. 1265-1270, 2013. American Society of Civil Engineers, USA.

2. M. Ferronato, C. Janna and G. Gambolati, *A parallel Domain Decomposition-Block FSAI preconditioner for geomechanical applications*, B. Amaziane et al. (eds.), Proceedings of the 5th International Conference on Approximation Methods and Numerical Modelling in Environment and Natural Resources, 2013. Editorial Universidad de Granada, Granada, Spain.
3. M. Ferronato, C. Janna and G. Pini (2012), *Generalizing block FSAI preconditioning to unsymmetric indefinite matrices*, T. E. Simos et al. editors, Numerical Analysis and Applied Mathematics ICNAAM 2012, pp. 2166-2169. American Institute of Physics, Vol. 1479, DOI: 10.1063/1.4756621.
4. N. Castelletto, P. Teatini, C. Janna, G. Gambolati, M. Ferronato, M. Politi (2012), *CO² geological sequestration: a numerical study of a multi-compartment reservoir in the northern Adriatic sea, Italy*, A. J. Valocchi editor, Proceedings of the XIX International Conference on Computational Methods in Water Resources, pp. 303-310. University of Illinois at Urbana-Champaign, IL.
5. M. Ferronato, N. Castelletto, C. Janna (2012), *Block FSAI performance with graph partitioning in large size subsurface problems*, A. J. Valocchi editor, Proceedings of the XIX International Conference on Computational Methods in Water Resources, pp. 176-183. University of Illinois at Urbana-Champaign, IL.
6. C. Janna, M. Ferronato, and G. Gambolati (2012), *A Parallel Adaptive Block FSAI Preconditioner for Finite Element Geomechanical Models*, F. L. Gaol and Q. V. Nguyen editors, *Advances in Intelligent and Soft Computing*, Proceedings of the 2011 2nd International Congress on Computer Applications and Computational Science, Vol. 2, pp. 331-338.
7. M. Ferronato, C. Janna, G. Pini and G. Gambolati (2011), *A Parallel Jacobi-Davidson Algorithm with Block FSAI Preconditioning*, T. E. Simos editor, Numerical Analysis and Applied Mathematics ICNAAM 2011, AIP Conference Proceedings, pp 1694-16977. DOI: 10.1063/1.3636935
8. N. Castelletto, G. Gambolati, M. Ferronato, C. Janna, P. Teatini, D. Marzorati, E. Cairo, D. Colombo, A. Ferretti, A. Bagliani and F. Bottazzi (2011), *Sustainable underground gas storage activities in a Po Plain gas field, Northern Italy*, Proceedings of the 2011 Offshore Mediterranean Conference and Exhibition, Cd-Rom, Ravenna (Italy).
9. M. Ferronato, C. Janna and G. Gambolati (2011), *A novel parallel preconditioner for ill-conditioned consolidation problems*, N. Khalili and M. Oeser editors, *Computer Methods for Geomechanics: Frontiers and New Applications*, Vol. 1, pp 72-76. Centre of Infrastructure Engineering and Safety, Sydney, Australia.
10. M. Ferronato, C. Janna and G. Gambolati (2011), *Parallel preconditioners for saddle-point problems*, Second International Conference on Parallel, Distributed, Grid and Cloud Computing for Engineering, P. Ivanyi and B. H. V. Topping editors, 11-15 April, Ajaccio, Corsica, paper 37.
11. N. Castelletto, M. Ferronato, G. Gambolati, C. Janna and P. Teatini (2010), *Thermo-poroelastic effects in the anthropogenic uplift of Venice by deep seawater injection*, Eight International Symposium on Land Subsidence, 17-22 October, Queretaro, Mexico. IAHS publ. 339.
12. P. Teatini, G. Gambolati, N. Castelletto, M. Ferronato, C. Janna, E. Cairo, D. Marzorati, D. Colombo, A. Ferretti, A. Bagliani, F. Bottazzi and F. Rocca (2010), *Monitoring and modeling 3-D ground movements induced by seasonal gas storage in deep reservoirs*, Eight International Symposium on Land Subsidence, 17-22 October, Queretaro, Mexico. IAHS publ. 339.
13. C. Janna, M. Ferronato, G. Gambolati and P. Teatini (2010), *Simulation of ground failure due to groundwater pumping*, Eight International Symposium on Land Subsidence, 17-22 October, Queretaro, Mexico. IAHS publ. 339.

14. C. Janna, M. Ferronato and G. Gambolati (2010), *A novel hybrid FSAI-ILU preconditioner for the efficient parallel solution of sparse linear systems*, Seventh International Conference on Engineering Computational Technology, 14-17 September, Valencia, Spain.
15. N. Castelletto, M. Ferronato, G. Gambolati, C. Janna, P. Teatini, D. Marzorati, E. Cairo, D. Colombo, A. Ferretti, A. Bagliani and S. Mantica (2010), *3D Geomechanics in UGS projects. A comprehensive study in northern Italy*, Proceedings of the 44th US Rock Mechanics Symposium and 5th US-Canada Rock Mechanics Symposium, 27-30 June, Salt Lake City, USA.
16. M. Ferronato, G. Gambolati, C. Janna and P. Teatini (2009), *Poromechanical modeling of CO₂ sequestration in exploited gas fields*, Proceeding of the 4th International Biot conference on Poromechanics, 7-11 June 2009, New York, USA, pp. 171–176.
17. C. Janna, M. Ferronato and G. Gambolati (2009), *Efficient multilevel preconditioners for large size geomechanical simulations*, Proceedings of the first International Symposium on Computational Geomechanics, 29 April - 1 May 2009, Juan Les Pins, France, pp 359–369.
18. G. Gambolati, M. Ferronato and C. Janna (2009), *Preconditioners for Finite Element consolidation*, Proceedings of the 16th International conference on Computational and Experimental Engineering and Sciences, 8-13 April 2009, Phuket, Thailand, pp. 26–32.
19. N. Castelletto, M. Ferronato, G. Gambolati, C. Janna and P. Teatini (2008), *Geomechanical effects of gas storage in depleted gas fields*, Proceedings of the fifth Asian Rock Mechanics Symposium, 24-26 November 2008, Tehran, Iran, Vol. 2 pp 1015–1021.
20. M. Ferronato, G. Gambolati and C. Janna (2008), *Efficient block preconditioners for the numerical modelling of geological faults*, Proceedings of the 12th International Conference of International Association for Computer Methods and Advances in Geomechanics, 1-6 October 2008, Goa, India, pp. 244–250.
21. C. Janna, M. Ferronato and G. Gambolati (2008), *Multilevel incomplete factorization for nonlinear FE problems in geomechanics*, Proceedings of the 15th International conference on Computational and Experimental Engineering and Sciences, 16-22 March 2008, Honolulu, Hawaii, pp. 611–616.
22. M. Ferronato, G. Pini, G. Gambolati and C. Janna (2007), *Symmetric and Unsymmetric Block Preconditioning for the Iterative Solution to FE Coupled Consolidation*, Proceedings of the International Conference on Numerical Analysis and Applied Mathematics, 16-20 September 2007, Corfu, Greece pp. 216-219.
23. C. Janna, M. Ferronato and G. Gambolati (2007), *Block Preconditioning for the FE Solution to Contact Problems*, Proceedings of the International Conference on Numerical Analysis and Applied Mathematics, 16-20 September 2007, Corfu, Greece, pp. 284–287.
24. N. Castelletto, M. Ferronato, C. Janna, G. Gambolati and P. Teatini (2007), *Modeling geomechanical effects of the well case on radioactive marker measurements in the Northern Adriatic, Italy*, Proceedings of the Offshore Mediterranean Conference and Exhibition, 28-30 March 2007, Ravenna, Italy, Cd-Rom.
25. A. Comerlati, C. Janna and G. Gambolati (2006), *Reorderings for the iterative solution of hybrid elastic structures*, Proceedings of the Eight International Conference on computational Structures Technology (CST 2006), 12-15 September 2006, Las Palmas de Gran Canaria, Spain, paper 175.

TECHNICAL REPORTS

1. N. Castelletto, M. Ferronato, G. Gambolati, C. Janna and P. Teatini, *Modellazione dei processi geomeccanici derivanti dallo stoccaggio di gas naturale nel campo di Settala*, Technical Report, DMMMSA, University of Padova, 109 pp., 2008.
2. N. Castelletto, M. Ferronato, G. Gambolati, C. Janna and P. Teatini, *Studio previsionale con modello agli elementi finiti della subsidenza attesa dalla coltivazione del campo di Regina*, Technical Report, DMMMSA, University of Padova, 97 pp., 2007.
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4. M. Ferronato, G. Gambolati, C. Janna and P. Teatini, *Modellazione dei processi geomeccanici derivanti dal confinamento di gas serra in giacimenti di gas naturale depletati o di stoccaggio (Programma GHG) - Relazione Tecnica Fase III*, Technical Report, DMMMSA, University of Padova, 108 pp., 2006.
5. M. Ferronato, G. Gambolati, C. Janna and P. Teatini, *Modellazione dei processi geomeccanici derivanti dal confinamento di gas serra in giacimenti di gas naturale depletati o di stoccaggio (Programma GHG) - Relazione Tecnica Fase II*, Technical Report, DMMMSA, University of Padova, 30 pp., 2005.
6. A. Comerlati, M. Ferronato, G. Gambolati, C. Janna and P. Teatini, *Studio previsionale con modello agli elementi finiti della subsidenza attesa dalla coltivazione dei campi di Tea, Lavanda e Arnica di gas serra in giacimenti di gas naturale depletati o di stoccaggio - Relazione Tecnica Fase IIIa/IIIb*, Technical Report, DMMMSA, University of Padova, 70 pp., 2005.
7. A. Comerlati, M. Ferronato, G. Gambolati, C. Janna and P. Teatini, *Studio previsionale con modello agli elementi finiti della subsidenza attesa dalla coltivazione dei campi di Tea, Lavanda e Arnica di gas serra in giacimenti di gas naturale depletati o di stoccaggio - Relazione Tecnica Fase II*, Technical Report, DMMMSA, University of Padova, 15 pp., 2005.
8. A. Comerlati, M. Ferronato, G. Gambolati, C. Janna and P. Teatini, *Studio previsionale con modello agli elementi finiti della subsidenza attesa dalla coltivazione dei campi di Tea, Lavanda e Arnica di gas serra in giacimenti di gas naturale depletati o di stoccaggio - Relazione Tecnica Fase I*, Technical Report, DMMMSA, University of Padova, 45 pp., 2005.