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Dernière mise à jour : 20/09/2015

### **Thèse de doctorat:**

Mollon, G. (2010). "Etude déterministe et probabiliste du comportement des tunnels", *Thèse de l'INSA Lyon, Université de Lyon*, 378p.

### **Chapitre d'ouvrage**

1. Mollon, G., Richefeu, V., Daudon, D. and Villard, P. (2011), "Assessment of DEM parameters for rock mass propagation", *Landslide Science and Practice*, Vol. 3 : Spatial Analysis and Modelling, editors C. Margottini, P. Canuti, K. Sassa, 2013, XVII, 440p.

### **Articles de revues internationales avec comités de lecture:**

20. Mollon, G., Richefeu, V., Villard, P., and Daudon, D. "Discrete modelling of rock avalanches: sensitivity to block and slope geometries", *Granular matter*, DOI: 10.1007/s10035-015-0586-9, *accepted*

19. Mollon, G. (2015). "A numerical framework for discrete modelling of friction and wear using Voronoi polyhedrons", *Tribology International*, 90, 343-355, DOI: 10.1016/j.triboint.2015.04.011

18. Ibrahim, E., Soubra, A.-H., Mollon, G., Raphael, W., Dias, D., and Reda, A. (2015). "Three-dimensional face stability analysis of pressurized tunnels driven in a multilayered frictional medium", *Tunnelling and Underground Space Technology*, 49, 18-34, DOI: 10.1016/j.tust.2015.04.001

17. Daudon, D., Villard, P., Richefeu, V., and Mollon, G. (2014), "Influence of the morphology of slope and blocks on the energy dissipations in a rock avalanche", *Comptes Rendus de l'Académie des Sciences*, 343(2), 166-177, DOI: 10.1016/j.crme.2014.11.003

16. Mollon, G., and Zhao, J. (2014), "3D generation of realistic granular samples based on random fields theory and Fourier shape descriptors", *Computer Methods for Applied Mechanics and Engineering*, 279, 46-65, DOI: 10.1016/j.cma.2014.06.022

15. Mollon, G., Dias, D., and Soubra, A.-H. (2013), "Range of the safe retaining pressure of a pressurized tunnel face by a probabilistic approach", *Journal of Geotechnical and Geoenvironmental Engineering*, 139(11), 1954-1967, DOI: 10.1061/(ASCE)GT.1943-5606.0000911

14. Mollon, G., and Zhao, J. (2013), "Characterization of fluctuations in granular hopper flow", *Granular Matter*, 15(6), 827-840, DOI: 10.1007/s10035-013-0445-5

13. Senent, S., Mollon, G., and Jimenez, R. (2013), "Tunnel face stability in heavily fractured rock masses that follow the Hoek-Brown failure criterion", *International Journal for Rock Mechanics and Mining Science*, 60, 440-451, DOI: 10.1016/j.ijrmms.2013.01.004

12. Mollon, G., and Zhao, J. (2013), "Generating realistic 3D sand particles using Fourier descriptors", *Granular Matter*, 15(1), 95-108, DOI: 10.1007/s10035-012-0380-x

11. Mollon, G., Dias, D., and Soubra, A.-H. (2013), "Probabilistic analysis of tunnelling-induced ground movements", *Acta Geotechnica*, 8(2), 181-199, DOI: 10.1007/s11440-012-0182-7
10. Mollon, G., Dias, D., and Soubra, A.-H. (2013)., "Continuous velocity fields for collapse and blow-out of a pressurized tunnel face in purely cohesive soil", *International Journal for Numerical and Analytical Methods in Geomechanics*, 37(13), 2061-2083, DOI: 10.1002/nag.2121
9. Richefeu, V., Mollon, G., Daudon, D., and Villard, P. (2012), "Dissipative contacts and realistic block shapes for modelling rock avalanches", *Engineering Geology*, 19-150 (2012), 78-92, DOI: 10.1016/j.enggeo.2012.07.021
8. Mollon, G., Richefeu, V., Daudon, D, and Villard, P. (2012), "Numerical simulation of rock avalanches: Influence of local dissipative contact model on the collective behaviour of granular flows", *Journal of Geophysical Research, Solid Earth*, AGU, 117(2012), F02036, DOI: 10.1029/2011JF002202
7. Mollon, G., and Zhao, J. (2012), "Fourier-Voronoi-based generation of realistic samples for discrete modelling of granular materials", *Granular Matter*, 14(2012), 621-638, DOI: 10.1007/s10035-012-0356-x
6. Mollon, G., Dias, D., and Soubra, A.-H. (2011), "Probabilistic analysis of pressurized tunnels against face stability using collocation-based stochastic response surface method", *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 137(4), 385-397, DOI: 10.1061/(ASCE)GT.1943-5606.0000443
5. Mollon, G., Dias, D., and Soubra, A.-H. (2011), " Rotational failure mechanisms for the face stability analysis of tunnels driven by a pressurized shield", *International Journal for Numerical and Analytical Methods in Geomechanics*, 35(12), 1363-1388, DOI: 10.1002/nag962
4. Mollon, G., Phoon, K.-K., Dias, D., and Soubra, A.-H. (2011), "Validation of a new 2D failure mechanism for the stability analysis of a pressurized tunnel face in a spatially varying sand", *Journal of Engineering Mechanics*, ASCE, 137(1),1-14, DOI: 10.1061/(ASCE)EM.1943-7889.0000196
3. Mollon, G., Dias, D., and Soubra, A.-H. (2010). "Face stability analysis of circular tunnels driven by a pressurized shield" *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 136(1), 215-229, DOI: 10-1061/(ASCE)GT.1943-5606.0000194
2. Mollon, G., Dias, D., and Soubra, A.-H. (2009). "Probabilistic analysis and design of circular tunnels against face stability." *International Journal of Geomechanics*, ASCE, 9(6), 237-249, DOI: 10.1061/(ASCE)1532-3641(2009)9:6(237)
1. Mollon, G., Dias, D., and Soubra, A.-H. (2009). "Probabilistic analysis of circular tunnels in homogeneous soils using response surface methodology." *Journal of Geotechnical and Geoenvironmental Engineering*, ASCE, 135(9), 1314-1325, DOI: 10.1061/(ASCE)GT.1943-5606.0000060

### **Résumés étendus :**

12. Mollon, G. (2015), "Discrete modelling of friction and wear using Voronoi polyhedrons", International Conference of Tribology (ITC2015), Tokyo, Japan, 17th-20th of September 2015.
11. Tsala, S., Berthier, Y., Mollon, G., and Bertinotti, A. (2015), "Numerical study of the rod seal contact in an elastomeric sealing system: the contact pressure approach", International Conference of Tribology (ITC2015), Tokyo, Japan, 17th-20th of September 2015.
10. Kounoudji, K.A., Mollon, G., Renouf, M., Berthier, Y., Ben Lassoued, M., Hamdi, A., Daidié, A., Albanel, J., Fourès, S., and Orsinger, S. (2015), "Tribological analysis of bloted joints submitted to vibrations", International Conference of Tribology (ITC2015), Tokyo, Japan, 17th-20th of September 2015.

9. Kounoudji, K.A., Mollon, G., Renouf, M., Berthier, Y. (2015), "Analyse tribologique des assemblages boulonnés sous sollicitations vibratoires : cas des vannes de prélèvement d'air des avions", Congrès Français de Mécanique (CFM2015), Lyon, France, 24th-28th of August 2015.
8. Nader, F., Silvani, C., Djeran-Maigre, I., and Mollon, G. (2015), "Discrete element model for grain breakage", Congrès Français de Mécanique (CFM2015), Lyon, France, 24th-28th of August 2015.
7. Mollon, G., and Zhao, J. (2015), "Génération d'échantillons réalistes pour la modélisation discrète", Congrès Français de Mécanique (CFM2015), Lyon, France, 24th-28th of August 2015.
6. Kounoudji, K.A., Mollon, G., Renouf, M., Berthier, Y., Ben Lassoued, M., Hamdi, A., Daidié, A., Albanel, J., Fourès, S., and Orsinger, S. (2015), "Analyse tribologique des assemblages boulonnés sous sollicitations vibratoires : cas des vannes de prélèvement d'air des avions", Colloque Supmeca, Saint Ouen, France, 1st-2nd of July 2015.
5. Kounoudji, K.A., Renouf, M., Mollon, G., and Berthier, Y. (2015), "Tribologies des assemblages boulonnés des structures d'avions", Journées Internationales Francophones de Tribologie (JIFT2015), Nantes, France, 27th-29th of May 2015.
4. Tsala, S, Berthier, Y., and Mollon, G. (2015), "Conception d'un essai de frottement avec un matériau élastomère", Journées Internationales Francophones de Tribologie (JIFT2015), Nantes, France, 27th-29th of May 2015.
3. Kounoudji, K.A., Renouf, M., Mollon, G., and Berthier, Y. (2015), "Analyse tribologique d'un contact d'assemblage boulonné via la DEM", Colloque National en Calcul des Structures (CSMA2015), Presqu'île de Giens, France, 18th-22nd of May 2015.
2. Tsala, S, Berthier, Y., Mollon, G., and Bertinotti, A. (2015), "Sealing of hydraulic pistonactuators of landing gear brake systems", Eurobrake 2015, Dresden, Germany, April 2015.
1. Mollon, G., and Zhao, J. (2014), "Building realistic samples for accurate discrete modelling of granular materials", World Conference of Computational Mechanics (WCCM 2014), Barcelona, Spain, 20-25 juillet 2014.

***Conférences sans actes, séminaires et workshops invités:***

10. "Discrete modelling of rock avalanches", invited seminar, Universidad Politécnica de Madrid, ETGI Caminos, Canales y Puertos, Laboratorio de Geotecnia, 16th of April 2015.
9. "Eléments polyédriques cohésifs pour la tribologies et la géomécanique", seminar, Journées Utilisateurs LMGC90, Villeurbanne, 25th of March 2015.
8. "Génération d'échantillons granulaires à morphologies complexes", seminar, Journée LaMCoS, Villeurbanne, 27th of February 2014.
7. "Discrete modeling of rock avalanches", invited lecture, US-France Workshop, ICACM, Aussois, 24th of May 2013.
6. "Discrete modeling of rock avalanches: influence of sizes and shapes of the blocks", colloquium, Tectonomechanics 2013, Ecole Normale Supérieure de Paris, 16th of April 2013.
5. "Modélisation discrète des écoulements granulaires : application aux avalanches rocheuses", invited seminar, Institute of Earth Sciences (ISTERRE), Grenoble, 29th of March 2013.
4. "Realistic modeling of a granular mass", seminar, Hong Kong University of Science and Technology, Civil and Environmental Engineering Department, 22nd of December 2011.
3. "Numerical prediction of rock avalanches", seminar, Honk Kong University of Science and Technology, Civil and Environmental Engineering Department, 16th of November 2011.

2. "Deterministic and probabilistic study of tunnel face stability", invited seminar, Universidad Politécnica de Madrid, ETGI Caminos, Canales y Puertos, Laboratorio de Geotecnia, 22nd of September 2011.

1. "Experimental assessment of contact parameters for the simulation of rock avalanches", invited lecture, Euromech 2011 Grenoble, 5-8 July 2011, Grenoble.

### **Actes de conférences internationales :**

14. Liu, Z., Zhao, J., and Mollon, G. (2014) "The influence of particle shape for granular media: a Fourier-shape-descriptor-based micromechanical study", IS-Cambridge 2014: the Second International Symposium on Geomechanics from Micro to Macro, 1-3 September 2014, University of Cambridge, Cambridge, UK

13. Liu, Z., Zhao, J., and Mollon, G. (2013) "The role of irregular shape on rolling and sliding behavior of particles in granular assembly", 26th KKHTCNN Symposium on Civil Engineering, 18-20 November 2013, Singapore

12. Al-Bittar, T., Soubra, A.-H., Mollon, G., Dias, D., Billion, P., and Humbert, N. (2013). "Effect of the soil spatial variability on the seismic behavior of a free field elastic medium", ICROSSAR 2013, 16-20 June 2013, New York City

11. Mollon, G., and Zhao, J. (2013), "The influence of particle shape on granular hopper flow", Proceedings of the 7th International Conference on Micromechanics of Granular Media, 1542, 690-693, AIP Conf. Proc., 08-12 July 2013, Sydney, DOI: 10.1063/1.4812025

10. Mollon, G., Richefeu, V., Villard, P., and Daudon, D. (2013), "Dissipative discrete element model applied to rock avalanches", Proceedings of the 7th International Conference on Micromechanics of Granular Media, 1542, 638-641, AIP Conf. Proc., 08-12 July 2013, Sydney, DOI: 10.1063/1.4812012

9. Mollon, G., and Zhao, J. (2012), "Realistic Generation and Packing of DEM sand samples", ICGE2012, 26-29 Aout 2012, Seoul

8. Senent, S., Mollon, G., and Jimenez, R. (2012), "Stability of a tunnel face in rocks using the Hoek-Brown failure criterion", World Tunnel Congress (WTC2012), 18-23 Mai 2012, Bangkok

7. Mollon, G., Richefeu, V., Daudon, D., and Villard, P. (2011), "Assessment of DEM parameters for rock mass propagation", Second World Landslide Forum, 3-7 October 2011, Roma

6. Mollon, G., Dias, D., and Soubra, A.-H. (2011), "Extension of CSRSM for the parametric study of the face stability of a pressurized tunnel", Risk Assessment and Management in Geoenvironment (Georisk 2011), Atlanta, USA, 26-28 juin 2011

5. Mollon, G., Phoon, K.-K., Dias, D., and Soubra, A.-H. (2011), "Influence of the scale of fluctuation of the friction angle on the face stability of a pressurized tunnel in sands", Risk Assessment and Management in Geoenvironment (Georisk 2011), Atlanta, USA, 26-28 juin 2011

4. Mollon, G., Phoon, K.-K., Dias, D., and Soubra, A.-H. (2010), "A new 2D failure mechanism for face stability analysis of a pressurized tunnel in spatially variable sand", GEOFLORIDA 2010, West Palm Beach, USA, 20-24 February 2010

3. Mollon, G., Dias, D., and Soubra, A.-H. (2009), "Reliability-based approach for the stability analysis of shallow circular tunnels driven by a pressurized shield", EURO:TUN09, Bochum, Germany, 9-11 September 2009

2. Mollon, G., Dias, D., and Soubra, A.-H. (2009), "Two new limit analysis mechanisms for the computation of the collapse pressures of circular tunnels driven by a pressurized shield", EURO:TUN09, Bochum, Germany, 9-11 September 2009

1. Mollon, G., Dias, D., and Soubra, A.-H. (2009), "Probabilistic analysis of the face safety of circular tunnels", IFCEE09, Floride, USA, 15-19 March 2009

### **Actes de conférences nationales :**

5. Mollon, G., Dias, D., et Soubra, A.-H. (2010), «Analyse de la stabilité d'un tunnel par un nouveau mécanisme 3D d'effondrement du front de taille», Journées Nationales de Géotechnique et de Géologie pour l'ingénieur (JNGG 2010), Grenoble, France, 7-9 juillet 2010
4. Mollon, G. (2010), « Analyse de la stabilité d'un front de taille pressurisé par deux nouveaux mécanismes rotationnels d'effondrement», Rencontres Universitaires de Génie Civil 2010 (AUGC 2010), La Bourboule, France, 2-4 juin 2010
3. Mollon, G., Dias, D., et Soubra, A.-H. (2010), « Application de la méthode de surface de réponse stochastique à l'analyse de stabilité d'un tunnel pressurisé», Rencontres Universitaires de Génie Civil 2010 (AUGC 2010), La Bourboule, France, 2-4 juin 2010
2. Mollon, G., Dias, D., et Soubra, A.-H. (2010), « Contribution à la méthode de la surface de réponse stochastique - Application à l'analyse de stabilité d'un tunnel », Journées de Fiabilité des Matériaux et Structures (JFMS 2010), Toulouse, France, 24-26 mars 2010
1. Mollon, G., Dias, D., et Soubra, A.-H. (2008), "Analyse tridimensionnelle de la stabilité du front de taille d'un tunnel circulaire par une approche fiabiliste", Journées Nationales de Géotechnique et de Géologie pour l'ingénieur (JNGG 2008), Nantes, France, 18-20 juin 2008