

Guilhem MOLLON



Associate Professor
PhD in Civil Engineering, HDR
INSA Engineer, ENS Graduate, "Agrégé"
41 years old

guilhem.mollon@insa-lyon.fr
<http://guilhem.mollon.free.fr>



Last update: 23rd of September 2023

GEOMECHANICS – TRIBOLOGY – GEOPHYSICS

Education:

- 2022: "Habilitation à Diriger des Recherches" (HDR), INSA Lyon
2007-2010: PhD at INSA Lyon, University of Lyon (France)
2006-2007: Research Master Degree in Civil Engineering « MEGA de Lyon », Civil Engineering and Geotechnical Sciences, INSA Lyon, University of Lyon
2006: Laureate of the Civil Engineering Teaching Degree, "Agrégation" (National teaching recruitment, ranked first): Accredited teacher
2005-2006: Preparation of Civil Engineering Teaching Degree ("Agrégation") in Ecole Normale Supérieure de Cachan
2005: Master Degree of Engineering of INSA Lyon, University of Lyon, Civil Engineering and Urban Planning Department (GCU)

Professional experience:

ENS PARIS, September 2019-August 2020: Invited Researcher at the Laboratoire de Géologie, Fault Mechanics team

INSA LYON, Since September 2013: Associate Professor in the Laboratory of Contacts and Structures Mechanics (LaMCoS), Tribology and Mechanics of Interfaces (TMI) team

UNIVERSITY OF GRENOBLE, September 2012-August 2013: Lecturer at the Polytech Grenoble Engineering School, in the Geotechnical Engineering Department. Researcher at the Soils, Solids, Structures and Risks Laboratory (3SR Lab).

HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY, October 2011-September 2012: Research Associate in Prof. Jidong Zhao's research team, on the topic "Micromechanical analysis of sands"

UNIVERSITY OF GRENOBLE, 3SR LAB, October 2010 to October 2011: Postdoc researcher on the topic "Modelling of rock avalanches by discrete elements methodology" as part of the European research project MASSA, under the supervision of Prof. P. Villard.

NATIONAL UNIVERSITY OF SINGAPORE, March to September 2009: Research stay on the topic "Analysis of the stability of a pressurized tunnel face in a spatially varying soil", under the supervision of Prof. K.-K. Phoon.

UNIVERSITY OF LYON, INSA LYON, LGCIE, September 2007 to August 2010: PhD thesis on the topic "Deterministic and probabilistic study of the behaviour of tunnels", under the supervision of Dr. D. Dias and Prof. A.-H. Soubra.

UNIVERSITY OF LYON, INSA LYON, LGCIE, January-July 2006: Laboratory internship on the topic "Numerical analysis and prediction of the ground settlements induced by the excavation of a shallow tunnel: study of a real case in an urban context", linked with the future road tunnel of Toulon (France).

Scientific production:

9 co-supervised PhD thesis
13 co-supervised Master thesis
4 co-supervised Postdoc

45 articles in international journals
88 international conferences
18 national conferences
34 invited seminars and workshops

Scopus: ~2800 citations; Hindex=20.
Scholar: ~3400 citations; Hindex=23.

Implication in research projects:

-European project **MASSA** ("Medium And Small Size rockfall hazard Assessment"), 2010-2011.
-French national project **CARAB** ("Advanced and Robust Conception for Bolted Joints", 2014-2016
-INSA project ("Numerical modelling of lubrication by deformable lipid vesicles"), **principal investigator**, 2015-2018.
-LabEx Manutech SISE project **MORPHORHEO** ("Links between Morphology and Rheology of tribological third-bodies"), **principal investigator**, 2016-2019.
-ANR project **XFEW** ("Development of an extended friction energy – third body wear approach to predict the fretting wear rate of metal interfaces"), 2017-2019
-EUR Manutech Sleight project **QUANTRI** ("Identification quantitative de caractéristiques physiques des interfaces solides en lien avec les propriétés tribologiques"), 2019-2022
-LabEx Manutech SISE project **REFILL** ("Reactive Frictional Fluidics"), 2020-2023
-LabEx Manutech SISE project **CISASURF** ("Développement d'essais de microC/SAillement in-situ sous MEB pour la caractérisation de SURFaces micrométriques"), 2021-2023
-ANR project **DRAMA** ("Do Rock Faults Melt or Abrade during earthquakes?"), **principal investigator**, 2022-2025
-LaMCoS-funded project **COMUN** ("COntacts MUlti-échelles Numériques ») , **principal investigator**, 2023-2024

Industrial partnerships:

-Umicore, Safran Landing Systems, Thales-Trixell, Framatome, Safran Aircraft Engines, Michelin.

Development of codes:

CVORO2D – Voronoi-based discrete preprocessor
MELODY2D - Multibody meshfree simulation code
DEMLAB - Discrete Element Modelling with Matlab
PACKING3D - Generation and packing of a 3D granular sample
PACKING2D - Generation and packing of a 2D granular sample
TFSS - Deterministic and probabilistic design of a pressurized tunnel face
ROCKTUN - Design of a pressurized tunnel face in rock

Editorial activities:

- **Granular Matter** (Springer): Associate Editor, since 2020.
- **Tribology International** (Elsevier): Guest Editor, Special Issue "Machine Learning in Tribology", 2022
- **Computers and Geotechnics** (Elsevier): Member of the editorial board, since 2015.

Reviewing:

- **Reviewer for research grant attributions** AGIR 2015, AGIR 2016, HESSO 2018, SLEIGHT 2022-2023
- Member of **2 PhD thesis scientific committees**, of **5 PhD thesis juries in France**, and of **4 PhD juries in foreign countries**.
- Member of **3 Committees of selection** for assistant professors recruitment.
- About 10-15 **reviews of scientific papers** each year in various domains:

Granular Physics

Granular Matter (Springer) – **Frequent reviewer**
New Journal of Physics (IOP Science)
Powder Technology (Elsevier)
Transport in Porous Media (Springer)

Tribology

Tribology International (Elsevier) – **Frequent reviewer**
Journal of Tribology (ASME)
Tribology Transactions (Taylor and Francis)
Engineering Tribology (Elsevier)
Tribology Letters (Springer)
Wear (Elsevier)
Lubrication Science (Wiley)
Journal of Engineering Tribology (Sage)

Geophysics

Proceedings of the National Academy of Science
Journal of Geophysical Research (AGU)
Geology (GeoScienceWorld)
Journal of Volcanology and Geothermal Research (Elsevier)
Engineering Geology (Elsevier)
Georisk (Taylor and Francis)
Environmental Earth Sciences (Springer)
Geosciences (MDPI)
Pure and Applied Geophysics (Springer)
Tectonophysics (Elsevier)
Geosciences Journal (Springer)

Computational Mechanics

Computers and Geotechnics (Elsevier) – **Frequent reviewer**
International Journal for Numerical and Analytical Methods in Geomechanics (Wiley)
Computational Methods in Applied Mechanics and Engineering (Elsevier)
Computational Mechanics (Springer)
International Journal for Numerical Methods in Engineering (Wiley)
Journal of Computational Physics (Elsevier)

Geomechanics and Civil Engineering

Geotechnique (ICE)
Tunneling and Underground Space Technology (Elsevier)
Acta Geotechnica (Springer)
Canadian Geotechnical Journal (Canadian Science Publishing)
Geotechnique Letters (ICE)
Advances in Building Technologies and Construction Materials (Hindawi)
Journal of Computing in Civil Engineering (ASCE)
Civil Engineering and Environmental Systems (Taylor and Francis)
Soils And Foundations (Elsevier)
Journal of Geotechnical and Geoenvironmental Engineering (ASCE)
European Journal of Environmental and Civil Engineering (Taylor and Francis)
Automation in Construction (Elsevier)

Mechanical Engineering

Probabilistic Engineering Mechanics (Elsevier)
Proceedings A (Royal Society Publishing)
Structural Engineering and Mechanics (Techno Press)
Mechanics and Industry (EDP Science)

Teaching activities:

EPFL, summer school, Visp, Switzerland August 2021

Lectures in the 2021 Summer School "Tribology and Surface Interactions" organized by EPFL: "Rock tribology – Understanding earthquakes" and "Geological sliding in the field"

INSA LYON, Lyon, Since September 2013

Associate Professor in the department of Engineering Mechanics and Design (GMD) and then Mechanical Engineering (GM), in charge of tutorials and lab courses of Solid Dynamics, Numerical Mathematics, Numerical Analysis by Finite Elements, Solid Mechanics, and Granular Materials. In charge of the fifth year engineering internships.

ECOLE NATIONALE D'INGENIEURS DE SAINT ETIENNE, Saint Etienne, 2014-2016

Course of Numerical Tribology in the framework of the Research Master "Mechanics and Materials"

UNIVERSITY OF GRENOBLE, France, September 2012-August 2013

Lecturer at Polytech Grenoble Engineering School. Responsible for the Continuum Mechanics class (courses, tutorials), teachings in Fluid Mechanics (courses) and Soil Mechanics (Lab classes)

UNIVERSITY OF LYON, France, September 2007-June 2010

Teacher at the Lyon Technological Institute of civil Engineering. Courses of stability, structural mechanics, timber construction, fluid mechanics, and concrete materials: Tutorials, lab classes, projects.

"*AGREGE*" *IN CIVIL ENGINEERING*, session 2006

National teaching ranking and recruitment, Option Structures and Buildings, ranked first

Current courses:

Numerical methods, INSA, First Cycle, tutorials, level L2

Granular materials, INSA, First Cycle, course, level L2

Mathematics, INSA, Mechanical Engineering Department, tutorials, level L3

Programation, INSA, Mechanical Engineering Department, tutorials, level L3

Finite Elements theory, INSA, Mechanical Engineering Department, tutorials, level L3

Solid Mechanics, INSA, Mechanical Engineering Department, tutorials, level L3

Numerical resolution of ODE and PDE, INSA, Mechanical Engineering Department, tutorials and lab classes, level M1

Tribology, INSA, Mechanical Engineering Department, courses, level M2

Master degree projects, INSA, Mechanical Engineering Department, **14** projects supervised since 2013, level M2

Organization of conferences:

- **Contact Mechanics International Symposium (CMIS) 2024**, Member of the Organization Committee

- **Leeds-Lyon Symposium for Tribology 2015, 2017, 2019, 2024**: Co-organizer of the poster sessions, held in Ecully in September 2015, September 2017, and September 2019

- **World Tribology Congress 2022**: Member of the organization committee, in charge of the Young Tribologists Event.

- **Journée de la Matière Condensée 2022**: Session co-organizer « Granular matter in its environment »

- **EMI International Conference**, Lyon July 2019: Organizer and chair of the "Induced Seismicity" symposium

- **LMGC90 software**: Organizer of the Users Colloquium, held in Villeurbanne in March 2015

Administrative responsibilities:

- **LabEx MANUTECH SISE:** Member of the scientific committee of theme 3, "Perception engineering and white light processing", 2014-2019.
- **LabEx MANUTECH SISE:** Member of the pedagogic committee, since 2019
- **EUR Manutech SLEIGHT:** Member of the Scientific Council, co-leader of Scientific Axis 2 (since 2021)
- **LaMCoS:** In charge of the scientific seminars and of the annual scientific meeting of the laboratory (2015-2018, again since 2021)
- **LaMCoS:** Elected member of the "Conseil de Laboratoire" (Laboratory Council), since 2021
- **LaMCoS:** Member of the Lab Scientific Council (since 2021)
- **INSA Lyon Mechanical Engineering Department:** In charge of the industrial internships of the department (2014-2019)
- **INSA Lyon:** Member of the taskforce "Carbon reduction in professional travels" (2020)
- **INSA Lyon:** Member of the pedagogical programs committee – Mechanical Engineering Department (2022-2023)

Scientific production:

(Publications are available for download at the URL <http://guilhem.mollon.free.fr>)

Last update: 23rd of September 2023

PhD thesis co-supervisions

9. Anis Ouchene, "Reactive Frictional Fluidics" (2020-2023), Co-supervised with Guillaume Dumazer, and funded by LabEx Manutech Sise
8. Kévin Daigne, "Modélisation numérique de l'usure du contact pneu-chaussée" (2020-2023), Co-supervised with Nicolas Fillot and Sylvie Descartes, and funded by Michelin
7. Alizée Bouchot, "Identification quantitative de caractéristiques physiques des interfaces solides en lien avec les propriétés tribologiques" (2019-2022), Co-supervised with Sylvie Descartes and Johan Debayle, and funded by EUR Manutech Sleight
6. Olivier Bouillanne, "Modélisation locale du contact en situation de fretting, dans la perspective d'une approche multi-échelle prédictive" (2018-2021). Co-supervised with Aurélien Saulot and Sylvie Descartes, and funded by Safran Aircraft Engines
5. Nathalie Casas, "Vers un contrôle des micro-instabilités sismiques induites par la géothermie profonde" (2018-2021). Co-supervised with Ali Daouadji and funded by Ministry grant
4. Adriana Quacquarelli, "Modélisation multi-échelle de l'usure d'un outil diamanté pour l'optimisation microstructurale" (2017-2020). Co-supervised with Nicolas Fillot, and funded by the company USPF.
3. Rabii Jaza, "Comportement mécanique d'un contact avec troisième corps solide : de la description morphologique du troisième corps aux paramètres rhéologiques" (2016-2019). Co-supervised with Yves Berthier and Sylvie Descartes, and funded by the LabEx Manutech SISE.
2. Serge Tsala-Moto, "Compatibilité tribologique d'un revêtement de surface avec une application donnée. Cas d'un revêtement de WS2 sur une tige de piston de frein aéronautique" (2014-2017). Co-supervised with Yves Berthier, and funded by the company Safran Landing Systems.
1. Komla Kounoudji, "Intimité tribologique des assemblages boulonnés par une approche modélisation et expérimentation : application aux assemblages des structures d'aéronefs" (2013-2016). Co-supervised with Yves Berthier and Mathieu Renouf, and funded by the FUI project CARAB.

Post-doc co-supervisions

4. Daigne Kévin, "Multiscale Contact Mechanics » (2023-2024)
3. Clerc Adriane, "Do Rock faults Asperities Melt of Abrade during earthquakes" (2022-2024).
2. Abdouhadid Fadlallah, "Development of in-situ micro-shear tests in the SEM for surface layer characterization" (2022-2023). Co-supervised with Gaylord Guillonnet (LTDS) and Nicolas Fillot
1. Yinyin Zhang, "Development of an extended friction energy – third body wear approach to predict the fretting wear rate of metal interfaces" (2018-2019). Co-supervised with Sylvie Descartes

Master thesis co-supervisions

13. Pons Heiarri, "Impact d'un géocroiseur dans un sol naturel" (2021).
12. Pons Heiarri, "Generation of real grain shapes and Discrete Element Modelling" (2020). Co-supervised with Nathalie Casas

11. Qihang Liu, "Simulation of stress fields within sand grains in relation with their morphologies" (2018).
10. Adriana Quacquarelli, "Morphological characterization of grains and discrete modelling of complex samples" (2017). Co-supervised with Giaoccino Viggiani and Edward Andò (3SR, Grenoble).
9. Cédric Dervillers, "Modélisation numérique d'un fluide synovial biomimétique" (2017).
8. Amani Zouari, "Caractérisation expérimentale des vésicules lipidiques" (2017). Co-supervised with Ana-Maria Trunfio-Sfarghiu and Laetitia Martinie.
7. Emna Krid, "Etude mécanique et thermique d'un lit de particules fines dans un tambour tournant. Expérimentation et simulation DEM" (2017). Co-supervised with Roman Peczalski (LAGEP, Villeurbanne).
6. Nesrine Darragi Raies, "Synthèse et caractérisation des vésicules lipidiques biomimétiques du liquid synovial pour la modélisation de leurs comportements face à des contraintes mécaniques et la compréhension des mécanismes de la bio-lubrification" (2016). Co-supervised with Ana-Maria Trunfio-Sfarghiu.
5. Marie Dalémat, "Modélisation biomécanique par éléments finis des vésicules d'un fluide synovial biomimétique" (2016).
4. Ayoub Ait Aariba, "Etude de la segregation des particules fines dans un tambour tournant. Expérimentation et simulation DEM" (2016). Co-supervised with Roman Peczalski (LAGEP, Villeurbanne).
3. Rabii Jaza, "Analyse d'image pour la caractérisation morphologique des troisièmes corps tribologiques" (2016). Co-supervised with Sylvie Descartes.
2. Jihed Jelassi, "Modélisation du troisième corps tribologique, d'une description discrete à une description continue" (2015). Co-supervised with Benyebka Bou-Saïd.
1. Benjamin Bade, "Lubrification fractionnée dans un balai d'essui-glace" (2014). Co-supervised with Yves Berthier.

PhD Thesis:

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

HDR Thesis:

Mollon, G. (2010). "Modélisation discrète des écoulements solides : géomécanique granulaire, troisièmes corps tribologiques, et glissements sismiques", *HDR de l'INSA Lyon, University of Lyon*, 217p, in French.

Book Chapter:

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 in International Journals:

52. Bouchot, A., Ferrieux-Paquet, A., Debayle, J., Mollon, G., and Descartes, S. (2024), "Machine learning as a tool to predict friction : Features analysis", *In prep.*

51. Casas, N., Bolotskaya, E., and Mollon, G. (2024), "Earthquake rupture simulations on faults with different degrees of cementation", *In prep.*
50. Bouchot, A., Ferrieux-Paquet, A., Debayle, J., Mollon, G., and Descartes, S. (2024), "Can Machine Learning Predict Friction from Third Body Morphology?", *In prep.*
49. Mollon, G., Aubry, J., and Schubnel, A. (2024), "Laboratory Earthquakes Simulations – Emergence, Structure, and Evolution of Fault Heterogeneity", *In prep.*
48. Daigne, K., Mollon, G., Descartes, S., Fillot, N., Baral, P., Kermouche, G., Jeanneret-Dit-Grosjean, R., Biesse, F., and Perriot, A. (2024), "Indentation of a soft material in a tribological perspective : a multibody approach", *In prep.*
47. Daigne, K., Mollon, G., Descartes, S., Fillot, N., Jeanneret-Dit-Grosjean, R., Biesse, F., and Perriot, A. (2024), "Shear-induced diffusion in a sliding interface: the tire-road contact", **Wear**, *Under review*
46. Bouillanne, O., Mollon, G., Saulot, A., Descartes, S., Serres, N., Chassaing, G., and Demmou, K. (2024), "Wear in Progress : How Third Body Flow Controls Surface Damage", **Journal of the Mechanics and Physics of Solids**, *Under review*
45. Ouchene, A., Mollon, G., Ollivier, M., Xxx, S., Pascale-Hamri, A., Dumazer, G., and Serris, E. (2023), "Roughness and wettability control of soda-lime silica glass surfaces by femtosecond laser texturing and curing environment", **Applied Surface Science**, 630, 157490
44. Ku, Q., Zhao, J., Mollon, G., and Zhao, S. (2023), Compaction of Highly Deformable Cohesive Granular Powders: a Multi-Particle FEM Study, **Powder Technology**, 421, 118455
43. Mollon, G., Aubry, J., and Schubnel, A. (2023), "Laboratory Earthquakes Simulations – Typical Events, Fault Damage, and Gouge Production", **Journal of Geophysical Research: Solid Earth**, 128, e2022JB025429
42. Casas, N., Mollon, G., and Daouadji, A. (2023), "Influence of Grain-Scale Properties on Localization Patterns and Slip Weakening within Dense Granular Fault Gouges", **Journal of Geophysical Research: Solid Earth**, 128, e2022JB025666
41. Quacquarelli, A., Mollon, G., Commeau, T., and Fillot, N. (2023), "Combining Discrete and Continuum Mechanics to Investigate Local Wear Processes Induced by an Abrasive Particle Flow", **Tribology International**, 179, 108126
40. Bouchot, A., Ferrieux-Paquet, A., Mollon, G., Descartes, S., and Debayle, J. (2022). "Segmentation and morphological analysis of weartrack/particles images using machine learning", **Journal of Electronic Imaging**, 31(5), 051605
39. Mollon, G., Quacquarelli, A., Zhang, Y., Casas, N., Bouillanne, O., Bouchot, A., and Daigne, K. (2022). "Confined sheared flow of hard and soft granular materials: some challenges in tribology and fault mechanics", **Papers in Physics**, 14, 140012
38. Bouillanne, O., Mollon, G., Saulot, A., Descartes, S., Serres, N., Chassaing, G., and Demmou, K. (2022). "How vorticity and agglomeration control shear strength in soft cohesive granular flows", **Granular Matter**, 24:55
37. Casas, N., Mollon, G., and Daouadji, A. (2022). "DEM analyses of cemented granular fault gouges at the onset of seismic sliding: peak strength, development of shear zones and kinematics", **Pure and Applied Geophysics**, 179, 679-707
36. Mollon, G. (2022). "The Soft Discrete Element Method", **Granular Matter**, 24-11
35. Mollon, G., Aubry, J., and Schubnel, A. (2021). "Simulating melting in seismic fault gouge", **Journal of Geophysical Research: Solid Earth**, 126, e2020JB021485.
34. Quacquarelli, A., Mollon, G., Commeau, T., and Fillot, N. (2021). "A dual numerical-experimental approach for modeling wear of Diamond Impregnated Tools", **Wear**, 478–479, 203763

33. Bouchot, A., Ferieux, A., Debayle, J., Mollon, G., and Descartes, S. (2021). "Image processing applied to tribological dry contact analysis", **Wear**, 476, 203748
32. Jaza, R., Mollon, G., Descartes, S., Paquet, A., and Berthier, Y. (2021). "Lessons learned using Machine Learning to link third body particles morphology to interface rheology", **Tribology International**, 153, 106630
31. Mesnier, A., Peczalski, R., Mollon, G., Vessot-Crastes, S., and Vacus, P. (2020). "Mixing of bi-dispersed milli-beads in a rotary drum. Mechanical segregation analysed by lab-scale experiments and DEM simulation". **Processes**, 8, 1166
30. Mollon, G. (2020), "Periodic Instationarities of granular flows in conical hoppers", **Granular Matter**, 22:58
29. Mollon, G., Quacquarelli, A., Ando, E., and Viggiani, G. (2020), "Can friction replace roughness in the numerical simulation of granular materials?", **Granular Matter**, 22:42
28. Zhang, Y., Mollon, G., and Descartes, S. (2020), "Significance of third body rheology in friction at a dry sliding interface observed by a multibody meshfree model: Influence of cohesion between particles", **Tribology International**, 145, 106188
27. Mollon, G. (2019). "Solid Flow Regimes Within Dry Sliding Contacts", **Tribology Letters**, 67:120
26. Mollon, G. (2018). "Mixtures of hard and soft grains: micromechanical behavior at large strains", **Granular Matter**, 20, 39
25. Mollon, G. (2018). "A unified numerical framework for rigid and compliant granular materials", **Computational Particle Mechanics**, 5, 517-527
24. Tsala-Moto, S., Berthier, Y., Mollon, G., and Bertinotti, A. (2018). "Numerical analysis of the contact pressure in a quasi-static elastomeric reciprocating sealing system", **ASME Journal of Tribology**, 140, 064502-1
23. Mollon, G. (2016). "A multibody meshfree strategy for the simulation of highly deformable granular materials", **International Journal for Numerical Methods in Engineering**, 108(12), 1477-1497
22. Kounoudji, K., Mollon, G., Renouf, M., and Berthier, Y. (2016). "Tribological analysis of bolted joints submitted to vibrations", **Tribology Online**, 11(2), 255-263
21. Kounoudji, K., Renouf, M., Mollon, G., and Berthier, Y. (2016) "Role of Third Body on Bolted Joints Self-Loosening", **Tribology Letters**, 61:25, DOI: 10.1007/s11249-016-0640-8
20. Mollon, G., Richefeu, V., Villard, P., and Daudon, D. (2016) "Discrete modelling of rock avalanches: sensitivity to block and slope geometries", **Granular matter**, 17(5), 645-666, DOI: 10.1007/s10035-015-0586-9
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

Invited seminars and workshops:

34. "On the emergence of fault complexity in numerical simulations of lab earthquakes", ERC Tectonic International Workshop, Roma, Italy, September 2023
33. "Rock tribology: Understanding earthquakes", EPFL Summer School, Visp, Switzerland, July 2023
32. "Rock tribology: Understanding earthquakes", TRAMME Summer School, Lyon, July 2023
31. "Some notes about grain shapes", Invited International Workshop, Lorentz Center, Leiden, Netherlands, June 2023
30. "Numerical insights into laboratory earthquakes", Invited Seminar, Institut de Physique de Rennes, January 2023
29. "Modélisation locale du frottement et de l'usure au LaMCoS : le code MELODY", Seminar, Safran Group, Tribology Section, September 2022 (Held online)
28. "Main features of laboratory earthquakes reproduced by a coupled discrete-continuum model", Invited seminar, Fault Mechanics Workshop, Njord, Oslo, June 2022
27. "Local Numerical Tribology", INSA Seminar, visit of the delegation of the Czech Academy of Science, May 2022, Villeurbanne, France
26. "Laboratory earthquakes revealed by a coupled discrete-continuum model", Geomech International Research Network, topical workshop "Mechanics and Geosciences", May 2022, Paris, France
25. "Granular simulation of fault gouge frictional melting", GeoAzur laboratory, Invited seminar, May 2022, Nice, France (held online)
24. "Frottement sec et lubrifié : vers une approche convergente ?", with Laetitia Martinie, LaMCoS, Annual Lab Seminar, April 2022, Lyon, France
23. "Fusion dans les failles sismiques", LaMCoS, team Tribology and Mechanics of Interfaces, periodic « midi-science » workshops, December 2021, Villeurbanne, France
22. "Projet Morphorhéo", LabEx Manutech SISE, Annual Workshop, October 2021, Marcoux, France
21. "Geological sliding in the field", EPFL summer school on Tribology and Surface Interactions, August 2021, Visp, Switzerland
20. "Rock tribology – Understanding earthquakes", EPFL summer school on Tribology and Surface Interactions, August 2021, Visp, Switzerland
19. "Mécanique des matériaux granulaires – introduction à la modélisation discrete", Séminaire, Pôle de Compétitivité Axelera, Groupe Solides, 4th of May 2021, Lyon, *held online*
18. "Can friction replace roughness in granular simulations?", Seminar, GDRI Geomech Workshop, 18th of January 2021, *online*
17. "Discrete methods for the modeling of friction", Invited seminar, 8th of October 2019, Laboratoire de Géologie, ENS, Paris, France
16. "Modélisation des écoulements cohésifs solides dans les contacts secs", Seminar, GDR MePhy Workshop, 5th of November 2018, Paris, France
15. "Tribologie numérique au LaMCoS", Invited seminar, Safran Group Tribology Workshop, 20th of March 2018, Toulouse, France
14. "Numerical simulation of a mechanical contact at the mesoscale: from tribology to geophysics", Invited seminar, Institute of Earth Sciences (ISTerre), 26th of September 2017, Grenoble, France
13. "Modélisation sans maillage appliquée aux milieux granulaires déformables", Invited seminar, Laboratory SMS-ID, 17th of November 2016, Villeurbanne, France

12. "These MORPHORHEO: Comportement mécanique d'un contact texture, de la description morphologique du troisième corps aux paramètres rhéologiques", Manutech SISE, journée Scientifique Axe 3, 30th of June 2016, Saint Etienne, France
11. "Simulation of debris flows inside a contact using a multibody meshfree strategy", invited workshop, CECAM workshop on The Flow of Amorphous Solids, From Atomistic Simulations To Earth Science Applications, ENS Lyon, 17th of April 2016
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 conference, 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.

International Conferences:

88. Daigne, K., Mollon, G., Descartes, S., Fillot, N., Jeanneret-Dit-Grosjean, R., Biesse, F., and Perriot, A. (2023), "How road mineral particles are captured by tyres surfaces", Leeds-Lyon Symposium for Tribology, Leeds, UK, September 2023
87. Bouillanne, O., Mollon, G., Saulot, A., Descartes, S., Serres, N., Chassaing, G., and Demmou, K. (2023), "From third body flow regime to surface degradation: a numerical perspective", Leeds-Lyon Symposium for Tribology, Leeds, UK, September 2023
86. Clerc, A., Mollon, G., Ferrieux, A., Lafarge, L., and Saulot, A., "Behaviour of a single fault asperity during seismic slip", Leeds-Lyon Symposium for Tribology, Leeds, UK, September 2023
85. Bouchot, A., Ferrieux-Paquet, A., Mollon, G., Descartes, S., and Debayle, J. (2023), "Inferring friction from third body morphology using Machine Learning", Leeds-Lyon Symposium for Tribology, Leeds, UK, September 2023
84. Abouhadid, F., Sao-Jao, S., Kermouche, G., Mollon, G., Fouvry, S., and Guillonneau, G. (2023), "Shear mechanical properties measurements in thin coatings and tribolayers", Leeds-Lyon Symposium for Tribology, Leeds, UK, September 2023
83. Bouchot, A., Ferrieux-Paquet, A., Debayle, J., Descartes, S., and Mollon, G. (2023), "How to correlate physical characteristics of tribological interfaces with rheological properties?", Wear of Materials Conference, Banff, Canada, April 2023

82. Bouchot, A., Ferrieux-Paquet, A., Debayle, J., Descartes, S., and Mollon, G. (2023), "Le Machine learning comme outils de prédiction du frottement", Journées Internationales Francophones de Tribologie, Lille, France, June 2023
81. Mollon, G., Aubry, J., and Schubnel, A. (2023), "A numerical perspective on fault complexity", EGU General Assembly, Vienna, Austria, April 2023
80. Casas, N., Mollon, G., and Daouadji, A. (2022), Link Between Localization Patterns, Frictional Behaviors, and Breakdown Energy within Dense Fault Goues for Difference Grain-Scale Properties, AGU Fall Meeting 2022, December 2022
79. Mollon, G., Aubry, J., and Schubnel, J. (2022), Spontaneous Emergence of Fault Heterogeneity Revealed by a Discrete-Continuum Model of Laboratory Earthquakes, AGU Fall Meeting 2022, December 2022
78. Ouchene, A., Dumazer, G., Bonnefy, O., Ollivier, M., Mollon, G., Hamri, A., XXX, S., and Serris, E. (2022), Experimental and Numerical Study of Frictional Flow Regimes in Confined Geometry, WCPT9, Madrid, 18-22/09/2022
77. Sayilan, A., Bouchot, A., Descartes, S., Mollon, G., Debayle, J., Steyer, P., and Mary, N. (2022), Texture analysis of friction track during running-in period", MSE 2022, Francfort, 03-07/09/2022
76. Bouillanne, O., Mollon, G., Saulot, A., Descartes, S., Serres, N., Chassaing, G., and Demmou, K. (2022), « Consequences of third-body thickness on first-bodies », WCCM Congress 2022, July 2022, Yokohama, Japan (held online)
75. Bouillanne, O., Mollon, G., Saulot, A., Descartes, S., Serres, N., Chassaing, G., and Demmou, K. (2022), « Consequences of third-body vorticity on first bodies », ECCOMAS Congress 2022, 5-9 June 2022, Oslo, Norway
74. Casas, N., Mollon, G., and Daouadji, A. (2022), « Time and space evolution of R-bands in a dense granular material, relation to the evolution of the entire gouge », ECCOMAS Congress 2022, 5-9 June 2022, Oslo, Norway
73. Daigne, K., Mollon, G., Fillot, N., Descartes, S., Jeanneret-Dit-Grosjean, R., and Biesse, F. (2022), « The degraded layer of a tyre tread: A numerical model combining discrete and continuum approaches », ECCOMAS Congress 2022, 5-9 June 2022, Oslo, Norway
72. Mollon, G. (2022), « A multibody meshfree approach for the simulation of gouge melting in seismic faults », ECCOMAS Congress 2022, 5-9 June 2022, Oslo, Norway
71. Daigne, K., Mollon, G., Fillot, N., Descartes, S., Jeanneret-Dit-Grosjean, R., and Biesse, F. (2022), "The degraded surface layer of a tyre tread : characterization and simulation", 7th World Tribology Congress, WTC 2022, Lyon, France
70. Casas, N., Mollon, G., and Daouadji, A. (2022), "Geological third bodies at the onset of sliding", 7th World Tribology Congress, WTC 2022, Lyon, France
69. Mollon, G. (2022), "How third-body accommodation regime controls dry friction", 7th World Tribology Congress, WTC 2022, Lyon, France
68. Bouchot, A., Ferrieux-Paquet, A., Debayle, J., Mollon, G., and Descartes, S. (2022), "Dry friction analysis: A correlative study", 7th World Tribology Congress, WTC 2022, Lyon, France
67. Daigne, K., Mollon, G., Fillot, N., Descartes, S., and Jeanneret-dit-Grosjean, R. (2022), "Mechanical characterization of an uncured rubber composite in a tribological perspective : a soft granular approach", 18th European Mechanics of Materials Conference (EMMC18), April 4-6, 2022, Oxford, UK
66. Mollon, G. (2022), "Recent advances in the simulations of soft granular media", 18th European Mechanics of Materials Conference (EMMC18), April 4-6, 2022, Oxford, UK
65. Mollon, G. (2021), "The Soft Discrete Element Method, an extension of DEM to soft grains", Particles 2021, Hamburg, 4-6 October 2021

64. Mollon, G., Aubry, J., and Schubnel, A. (2021), "Reproducing laboratory earthquakes with a discrete-continuum model", *Powders and Grains 2021*, July 5, 13, 21, 29 and August 5, 2021, *held online*
63. Bouillanne, O., Mollon, G., Saulot, A., Descartes, S., Serres, N., Demmou, K., and Chassaing, G. (2021), "Detecting vorticity in cohesive deformable granular material", *Powders and Grains 2021*, July 5, 13, 21, 29 and August 5, 2021, *held online*
62. Casas, N., Mollon, G., and Daouadji, A. (2021). "Shear bands in dense fault gouge", *Powders and Grains 2021*, July 5, 13, 21, 29 and August 5, 2021, *held online*
61. Bouchot, A., Ferieux, A., Debayle, J., Mollon, G., and Descartes, S. (2021). "Image processing applied to tribological dry contact analysis", *Wear of Materials 2021*, 26-29 April 2021, *held online*
60. Bouillanne, O., Mollon, G., Saulot, A., Serres, N., Chassaing, G., and Demmou, K. (2021), "Strain on first bodies induced by rheology of third body", *Wear of Materials 2021*, 26-29 April 2021, *held online*
59. Casas, N., Mollon, G., and Daouadji, A. (2021), "Rheology and kinematics of dense granular fault gouge with DEM: shear bands formation and evolution", *AGU General Assembly*, 26-30 April 2021, Vienna, Austria, *held online*
58. Mollon, G., Aubry, J., and Schubnel, A. (2021), "A micromechanically calibrated model reproducing earthquake cycle in the lab", *AGU General Assembly*, 26-30 April 2021, Vienna, Austria, *held online*
57. Bouchot, A., Ferrieux-Paquet, A., Descartes, S., Mollon, G., and Debayle, J. (2021). "Towards a quantitative characterization of wear particles using image analysis and machine learning", *QCAV 2021*, May 12-14 2021, Tokushima, Japan
56. Bouillanne, O., Mollon, G., Saulot, A., Serres, N., Chassaing, G., and Demmou, K. (2021). "Consequences of third-body rheology on first bodies", *14th World Congress in Computational Mechanics (WCCM), ECCOMAS*, 19-24 July 2020, Paris, France, *held online*
55. Mollon, G. (2021). "Agglomeration in cohesive flows of soft particles", *14th World Congress in Computational Mechanics (WCCM), ECCOMAS*, 19-24 July 2020, Paris, France, *held online*
54. Quacquarelli, A., Mollon, G., Fillot, N., Commeau, T., and Nouveau, A. (2021), "Scratch resistance and wear of metal-bonded diamond tools", *14th World Congress in Computational Mechanics (WCCM), ECCOMAS*, 19-24 July 2020, Paris, France, *held online*
53. Bouillanne, O., Mollon, G., Saulot, A., Descartes, S., Serres, N., Chassaing, G., and Demmou, K. (2020). "The third-body flow regime influence on the surface response to tribological loading", *STLE Tribology Frontiers Conferences*, November 8-11, 2020, Cleveland, USA
52. Quacquarelli, A., Mollon, G., Fillot, N., Commeau, T., and Nouveau, A. (2020). "A multi-scale strategy for wear modeling of diamond tools", *STLE Tribology Frontiers Conferences*, November 8-11, 2020, Cleveland, USA
51. Casas, N., Mollon, G., and Daouadji, A. (2020). "Role of cohesion in a sheared layer of granular material with DEM", *EMI Conference*, May 26-29, 2020, New York, USA
50. Casas, N., Mollon, G., and Daouadji, A. (2020). "A small-scale numerical study of fault slip mechanisms using DEM", *European Geophysical Union General Assembly*, 4-8 May 2020, Vienna, Austria
49. Mollon, G., Aubry, J., and Schubnel, A. (2020). "Simulating melting of fault gouges at the local scale", *European Geophysical Union General Assembly*, 4-8 May 2020, Vienna, Austria
48. Zhang, Y., Mollon, G., and Descartes, S. (2019). "Significance of third body rheology on friction during dry sliding wear: Multibody meshfree modelling", *46th Leeds-Lyon Symposium on Tribology*, 3rd of September 2019, Lyon, France

47. Bouillanne, O., Mollon, G., Saulot, A., Serres, N., and Demmou, K. (2019). "Multibody meshfree model with thermal model and adaptive mass scaling for simulation of fretting contact", 46th Leeds-Lyon Symposium on Tribology, 3rd of September 2019, Lyon, France
46. Casas, N., Daouadji, A., and Mollon, G. (2019). "Slip in granular fault gouges", 46th Leeds-Lyon Symposium on Tribology, 3rd of September 2019, Lyon, France
45. Quacquarelli, A., Mollon, G., Fillot, N., Commeau, T., and Nouveau, A. (2019). "Experimental and numerical investigation on the wear of microstructure of diamond impregnated tools for cutting concrete", 46th Leeds-Lyon Symposium on Tribology, 3rd of September 2019, Lyon, France
44. Jaza, R., Mollon, G., Descartes, S., Paquet, A., and Berthier, Y. (2019). "Relating the morphological description of the third body to its rheological behavior", Journées Internationales Francophones de Tribologie 2019, 25th of April 2019, Tours, France
43. Mollon, G. (2019). "Regimes d'écoulements solides dans un contact sec", Journées Internationales Francophones de Tribologie 2019, 25th of April 2019, Tours, France
42. Quacquarelli, A., Mollon, G., Commeau, T., Nouveau, A., and Fillot, N. (2019). "Modélisation multi-échelles de l'usure d'outils diamantés pour la découpe de la pierre", Journées Internationales Francophones de Tribologie 2019, 25th of April 2019, Tours, France
41. Casas, N., Mollon, G., and Daouadji, A. (2019). "Physics of slip triggering: from DEM to friction into granular gouges", AGU Fall Meeting, 10th of December 2019, San Francisco, USA
40. Casas, N., Mollon, G., and Daouadji, A. (2019). "Slip in granular fault gouges", EMI international conference, 5th of July 2019, Lyon, France
39. Zhang, Y., Mollon, G., and Descartes, S. (2018). "Consequences of surface texturing on third body flows during fretting tests", Materials Science and Engineering conference, 27th of September 2018, Darmstadt, Germany
38. Mollon, G. (2018). "Solid flow regimes within sliding interfaces: some insights from numerical tribology", AGU Fall Meeting, 12th of December 2018, Washington DC, USA
37. Mollon, G. (2018). "A numerical insight into third body flow regimes within dry contacts", Multiscale Modelling of Materials, 29th of October 2018, Osaka, Japan
36. Quacquarelli, A., Fillot, N., Mollon, G., Commeau, T., and Nouveau, A. (2018). "A novel multiscale framework for modeling of diamond tools wear", Multiscale Modelling of Materials, 29th of October 2018, Osaka, Japan
35. Darrage-Raies, N., Maniti, O., Martinie, L., Piednoir, A., Girard-Egrot, A., Mollon, G., Berthier, Y., Landoulsi, A., and Trunfio-Sfarghiu, A.M. (2018). "Role of phospholipid membrane fluidity in the tribological properties of phospholipid biomimetic vesicles. Application in the synovial fluid substitute development", 45th Leeds-Lyon Symposium on Tribology, 5th of September 2018, Leeds, UK
34. Jaza, R., Mollon, G., Descartes, S., and Berthier, Y. (2018). "Mechanical behaviours of a texture contact: from the morphological description of the third body to the rheological parameters", 45th Leeds-Lyon Symposium on Tribology, 5th of September 2018, Leeds, UK
33. Mollon, G. (2017). "Fault gauge numerical simulation: Dynamic rupture propagation and local energy partitioning", AGU Fall Meeting, 13th of December 2017, New Orleans, USA
32. Mollon, G. (2017). "Simulation of compliant third bodies with a multibody meshfree approach", 6th World Tribology Congress, 17th of September 2017, Beijing, China
31. Mollon, G. (2017). "A multibody strategy for deformable grains", Powders and Grains 2017, 3-7 July 2017, Montpellier, France, *EPJ Web of Conferences*, 140, 15010 (2017)
30. Mollon, G., and Zhao, J. (2017). "Granular flow fluctuations in a conical hopper", Powders and Grains 2017, 3-7 July 2017, Montpellier, France, *EPJ Web of Conferences*, 140, 03030 (2017)

29. Mollon, G., Massa, S., Fillot, N., Commeau, T., and Nouveau, A. (2017). "Numerical simulation of the wear of stone-cutting tools by a multibody meshfree approach", 2nd African Conference on Tribology, 19th of April 2017, Marrakech, Morocco
28. Jaza, R., Mollon, G., Descartes, S., and Berthier, Y. (2017). "From the morphological description of the third body to its rheological behavior", 2nd African Conference on Tribology, 19th of April 2017, Marrakech, Morocco
27. Essefi, I., Hakkouna, H., Brizuela, L., Youjil, S., Renault, E., Mollon, G., Berthier, Y., Trunfio-Sfarghiu, AM. (2017). "Tribological expertise for dual mobility HIP prosthesis", 2nd African Conference on Tribology, 19th of April 2017, Marrakech, Morocco
26. Mollon, G. (2016). "Simulation of dry friction and wear at mesoscale using a multibody meshfree approach", Multiscale Modelling of Materials (AIP), 16th of October 2016, Dijon, France
25. Tsala-Moto, S., Berthier, Y., Mollon, G., and Bertinotti, A. (2016). "Design methodology of an elastomeric reciprocating sealing system: Case of quasi-static operating conditions", 15th EDF/PPRime Workshop, 6th of October 2016, Futuroscope, France
24. Essefi, I., Hakkouna, H., Ouenzerfi, G., Mollon, G., Hamza, S., Renault, E., Berthier, Y., Trunfio-Sfarghiu, A-M. (2016). "Tribological characterization of UHMWPE used in dual mobility total hip prosthesis", 7th International Conference on Advanced Concepts on Mechanical Engineering (ACME), 09-10 June 2016, Iasi, Romania
23. Mollon, G. (2016), "A multibody meshfree method for third-body simulation", Annual meeting of the Society of Tribology and Lubrication Engineers (STLE 2016), 15-19 May 2016, Las Vegas, USA
22. Tsala-Moto, S., Mollon, G., and Berthier, Y. (2016), "Experimental study of the wear process at the rod-seal interface in a reciprocating sealing system", Annual meeting of the Society of Tribology and Lubrication Engineers (STLE 2016), 15-19 May 2016, Las Vegas, USA
21. Mollon, G. (2015), "Discrete modelling of friction and wear using Voronoi polyhedrons", International Conference of Tribology (ITC2015), Tokyo, Japan, 17th-20th of September 2015.
20. 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.
19. 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.
18. Kounoudji, K.A., Renouf, M., Mollon, G., and Berthier, Y. (2015), "Tribologies des assemblages boulonnés des structures d'aéronefs", Journées Internationales Francophones de Tribologie (JIFT2015), Nantes, France, 27th-29th of May 2015.
17. 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.
16. 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.
15. 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.
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", ICOSAR 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 August 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 May 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 June 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 June 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, Florida, USA, 15-19 March 2009

National Conferences:

18. Daigne, K., Mollon, G., Fillot, N., Descartes, S., Jeanneret-Dit-Grosjean, R., and Biesse, F. (2022), The degraded surface layer of a tyre tread : characterization and simulation, 25^è Congrès Français de Mécanique, Nantes, 29/08/2022
17. Bouillanne, O., Mollon, G., Saulot, A., Descartes, S., Serres, N., Demmou, K., and Chassaing, G. (2022), Conséquences de l'épaisseur de la couche de 3^è corps sur les premiers corps, 25^è Congrès Français de Mécanique, Nantes, 29/08/2022
16. Bouchot, A., Ferrieux-Paquet, A., Debayle, J., Mollon, G., and Descartes, S. (2022), L'analyse d'image au service de l'étude du frottement sec, 25^è Congrès Français de Mécanique, Nantes, 29/08/2022

15. Bouchot, A., Sayilan, A., Mary, N., Steyer, P., Debayle, J., Mollon, G., and Descartes, S. (2022), "Analyse d'images de texture pour cartographier l'évolution des surfaces frottée à l'échelle microscopique", Matériaux 2022, 24-28 octobre 2022, Lille, France
14. Bouchot, A., Ferrieux-Paquet, A., Debayle, J., Mollon, G., and Descartes, S. (2022), « L'analyse d'image u service de l'étude du frottement sec », 22è Congrès Français de Mécanique, 29 août-2 septembre 2022, Nantes, France
13. Mollon, G. (2021), « Modélisation locale des troisièmes corps pour la tribologie et la mécanique des failles », Journées de la Matière Condensée 2021, 27 August 2021, held online
12. Mollon, G. (2021), « Avancées récentes dans la simulation numérique des grains mous », Journées de la Matière Condensée 2021, 27 August 2021, held online
11. Mesnier, A., Peczalski, R., Mollon, G., Vessot-Crastes, S., Vacus, P., and Andrieu, J. (2017). "Segregation of fine particles in a rotating drum. Laboratory scale experiments and DEM simulations", SFGP 2017, Nancy, France, 11-13 July 2017
10. 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 aéronefs", Congrès Français de Mécanique (CFM2015), Lyon, France, 24th-28th of August 2015.
9. 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.
8. 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.
7. 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 aéronefs", Colloque Supmeca, Saint Ouen, France, 1st-2nd of July 2015.
6. 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.
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 July 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 June 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 June 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 March 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 June 2008