PUBLICATIONS

Theses

[1] SULEM J.(1983). Comportement différé des galeries profondes. Thèse de Docteur Ingénieur de l'Ecole Nationale des Ponts et Chaussées, 159 p.

[2] SULEM J.(1993). Phénomènes de bifurcation en mécanique des roches. Mémoire d'Habilitation à Diriger des Recherches, Université de Paris 7.

Books

[3] VARDOULAKIS I. and SULEM J., (1995) *Bifurcation in geomechanics*, 459 pp., Blackie Academic & Professional, Glasgow, England.

[4] HATZOR Y., SULEM J., VARDOULAKIS I. (2009) *Meso-scale Shear Physics in Earthquake and Landslide Mechanics*, Taylor & Francis.

[5] SULEM J., VIGGIANI C. (2019) The legacy of Ioannis Vardoulakis to Geomechanics, ALERT Doctoral School 2019.

[6] STEFANOU I., SULEM J. (2021) *Instabilities Modeling in Geomechanics*, ISTE, WILEY.

[7] PANET M., SULEM J. (2021) *Le calcul des tunnels par la méthode convergence-confinement*, Presses des Ponts et Chaussées.

[8] PANET M., SULEM J. (2022) *Convergence-confinement Method for Tunnel Design*, Springer Tracts in Civil Engineering, Springer.

Edition of special issues

[9] SULEM J. and PAPAMICHOS E, (2010) *Mathematical modelling in Geomechanics,* European Journal Environmental and Civil Enginnering, vol 14, issue 8-9.

[10] SULEM J. and LI X.L. (2014) *Thermo-Hydro-Mechanical Effects in Clay Host Rocks for Radioactive Waste Repositories*. Special Issue of Rock Mechanics and Rock Engineering, Springer, 47, 1.

[11] SULEM J., STEFANOU I., PAPAMICHOS E., VEVEAKIS E. (2016). *Modelling of instabilities and bifurcation in Geomechanics*. ALERT Geomaterials Doctoral school, http://alertgeomaterials.eu/data/school/2016/2016_ALERT_schoolbook.pdf.

[12] SULEM J., STEFANOU I. (2018) Special Issue on Geoproc 2017, Rock Mechanics and Rock Engineering, 51, 10.

Journal papers and book chapters

[13] SULEM J., PANET M. and GUENOT A., (1987). Closure analysis in deep tunnels. *International Journal of Rock Mechanics and Mining Sciences & Geomechanics Abstracts* 24(3), pp. 145-154.

[14] SULEM J., PANET M. and GUENOT A., (1987). An analytical solution for time-dependent displacements in a circular tunnel. *International Journal of Rock Mechanics and Mining Sciences & Geomechanics Abstracts* 24(3), pp. 155-164.

[15] VARDOULAKIS, I., SULEM, J. and GUENOT A.,(1988). Borehole instabilities as bifurcation phenomena. *International Journal of Rock Mechanics and Mining Sciences & Geomechanics Abstracts* 25(3), pp. 159-170.

[16] SULEM J. and VARDOULAKIS I., (1990). Bifurcation analysis of the triaxial test on rock specimens. A theoretical model for shape and size effect. *Acta Mechanica* 83, pp. 195-212.

[17] VARDOULAKIS I. and SULEM J., (1993). Application of bifurcation theory in rock mechanics problems. *Comprehensive Rock Engineering*, édité par J. Hudson, Pergamon Press vol. 1, chap. 23, pp 575-609.

[18] SULEM J, VARDOULAKIS I. and PAPAMICHOS E. (1995). Microstructure and scale effect in granular rocks. *Continuum Models for Materials with Micro-Structure,* 201-237, (éd. H.-B. Mühlhaus), John Wiley.

[19] A. PELLEGRINO, J. SULEM, G. BARLA (1997). The effect of slenderness an lubrication on the uniaxial behavior of a soft limestone. Technical note. *International Journal of Rock Mechanics and Mining Sciences.*, Vol. 34, N°2, 333-340.

[20] H.B. MÜHLHAUS, J. SULEM and P. UNTERREINER (1997). Discrete and Continuum Models for Dry Masonry Columns. Technical Note, *ASCE, Journal of Engineering Mechanics, ASCE*, Vol. 123 N°4, 399-403

[21] J. SULEM and H.B. MÜHLHAUS, (1997). A continuum model for periodic two-dimensional block structures *Mechanics of Cohesive-Frictional Materials,* 2, 31-46.

[22] J. SULEM. (1997). La localisation des deformations dans les sols et les roches comme phénomène de bifurcation. *Récents progrès en génie des procédés*, 159-172, Lavoisier

[23] M. CERROLAZA, J. SULEM and A. EL BIED (1999). A Cosserat non-linear finite element analysis software for blocky structures. *J. Advances in Engineering Software*, 30, 69-83.

[24] J. SULEM, I. VARDOULAKIS, E. PAPAMICHOS, A. OULAHNA and J. TRONVOLL, (1999). Elasto-plastic modelling of Red Wildmoor sandstone, *Mechanics of Cohesive-Frictional Materials,* 4, 215-245

[25] J. SULEM (1999). Modèles continus pour matériaux à microstructure, *Actes du séminaire Descartes 1998-1999*, 17-32, Presse des Ponts et Chaussées

[26] E. PAPAMICHOS, J. TRONVOLL, I. VAROULAKIS, J.F. LABUZ, A. SKJAERSTEIN, T.E. UNANDER, J. SULEM, (2000). Constitutive testing of Red Wildmoor sandstone, *Mechanics of Cohesive-Frictional Materials,* 5,1-40.

[27] J. SULEM, I. VARDOULAKIS and G. EXADAKTYLOS, (2001). Microstructural effects in stress concentration and fracture problems in rock mechanics, *Fracture Series on Nonlinear Fracture Mechanics and Damage Mechanics*, Ed. M.H. Aliabadi, WIT Press, UK, 161-199.

[28] J. SULEM et M. CERROLAZA, (2001). Modèles continus pour les structures rocheuses discontinues, *Revue française de Géotechnique*, 97, 41-51.

[29] J. SULEM and M. CERROLAZA, (2002). Finite element analysis of the indentation test on rocks with microstructure, *Computers and Geotechnics*, 29, 2, 95-117

[30] A. EL BIED, J. SULEM and F. MARTINEAU, (2002). Microstructure of shear zones in Fontainebleau sandstone. *International Journal of Rock Mechanics and Mining Sciences*, 39, 7, 917-932.

[31] J. SULEM (2002). Some applications of higher order continuum theories in rock mechanics. *Journal of the Mechanical Behavior of Materials*. 13, 3-4, 195-218.

[32] A. EL BIED et J. SULEM (2003). Adaptation du mode opératoire pour la réalisation d'essais en compression « vraie » sur les roches. *Revue française de Géotechnique*, vol. 103, 43-60.

[33] J. SULEM, I. VARDOULAKIS , H. OUFFROUKH, M. BOULON and J. HANS, (2004) Experimental characterization of the thermo-poro-mechanical properties of the Aegion fault gouge, *Comptes Rendus à l'Académie des Sciences*, *Geosciences*, 336, 455-466, https://doi.org/10.1016/j.crte.2003.12.009.

[34] J. SULEM, I. VARDOULAKIS , H. OUFFROUKH, V. PERDIKATSIS (2005) Thermo-poro-mechanical Properties of the Aigion Fault Clayey Gouge - Application to the Analysis of Shear Heating and Fluid Pressurization, *Soils and foundations* 45,2, 97-108

[35] J. SULEM, H. OUFFROUKH (2006) Hydromechanical behaviour of Fontainebleau sandstone, *Rock Mechanics and Rock Engineering*, 39, 3, 185-213

[36] J. SULEM, H. OUFFROUKH (2006) Shear banding in drained and undrained triaxial tests on a saturated sandstone: Porosity and permeability evolution, *International Journal of Rock Mechanics and Mining Sciences* 43, 2, 292-310.

[37] J. SULEM, P. LAZAR, I. VARDOULAKIS (2007) Thermo-poro-mechanical properties of clayey gouge and application to rapid shearing, *International Journal of Numerical and Analytical Methods in Geomechanics*, 31 523-540.

[38] J. SULEM (2007) Stress orientation evaluated from strain localisation analysis in Aigion fault, *Tectonophysics*, 442, 3-13, https://doi.org/10.1016/j.tecto.2007.03.005.

[39] S. GHABEZLOO, J. SULEM (2009) Stress dependent thermal pressurization of a fluid-saturated rock, *Rock Mechanics and Rock Engineering*, DOI 10.1007/s00603-008-0165-z, 42: 1–24.

[40] I. STEFANOU, J. SULEM, I. VARDOULAKIS (2008) Three-dimensional Cosserat homogenization of masonry structures: elasticity, *Acta Geotechnica*, 3:71–83.

[41] A. CORFDIR, J. SULEM (2008) Comparison of extension and compression triaxial tests for dense sand and sandstone, *Acta Geotechnica*, 3:241–246.

[42] S. GHABEZLOO, J. SULEM, S. GUÉDON, F. MARTINEAU, J. SAINT-MARC (2008) Poromechanical behaviour of hardened cement paste under isotropic loading, *Cement and Concrete Research*, Volume 38, 12, 1424-1437.

[43] S. GHABEZLOO, J. SULEM, S. GUÉDON, F. MARTINEAU (2009) Effective stress law for the permeability of a limestone, *International Journal of Rock Mechanics and Mining Sciences*, doi:10.1016/j.ijrmms.2008.05.006, Volume 46, Issue 2, February 2009, Pages 297-306.

[44] S. GHABEZLOO, J. SULEM, J. SAINT-MARC (2009) Evaluation of permeability-porosity relationship in a low permeability creeping material using a single transient test, *International Journal of Rock Mechanics and Mining Sciences*, doi:10.1016/j.ijrmms.2008.10.003, 46, 4, 761–768.

[45] S. GHABEZLOO, J. SULEM, J. SAINT-MARC (2009) The effect of undrained heating on a fluid-saturated hardened cement paste, *Cement and Concrete Research*, doi:10.1016/j.cemconres.2008.09.004, 39, 1, 54-64.

[46] J. SULEM, V. FAMIN (2009) Thermal decomposition of carbonates in fault zones: slip-weakening and temperature limiting effects, *Journal of Geophysical Research*, 114, B03309, doi:10.1029/2008JB006004.

[47] J. SULEM (2009) Multiphysics aspects of seismic slip, *European Journal of Environmental and Civil Engineering*, Vol. 13, 7-8, 889-910.

[48] J. SULEM, V. FAMIN, H. NODA (2009) A correction to " Thermal decomposition of carbonates in fault zones: slip-weakening and temperature limiting effects", *Journal of Geophysical Research*, 114, B06311, doi:10.1029/2009JB006576

[49] J. SULEM, V. FAMIN (2009) The effect of mineral decomposition as a mechanism of fault weakening during seismic slip, in: *Meso-scale Shear Physics in Earthquake and Landslide Mechanics*, Eds. Y. Hatzor, J. Sulem, I. Vardoulakis, Taylor & Francis.

[50] S. GHABEZLOO, J. SULEM, (2010) Effect of the volume of the drainage system on the measurement of undrained thermo-poro-elastic parameters *International Journal of Rock Mechanics and Mining Sciences*, 47, 60-68, doi:10.1016/j.ijrmms.2009.03.001.

[51] S. GHABEZLOO, J. SULEM (2010) Temperature induced pore fluid pressurization in geomaterials, *Italian Geotechnical Journal*, 1/2010, 29-43.

[52] I. STEFANOU, J. SULEM, I. VARDOULAKIS (2010) Homogenization of interlocking masonry structures using a generalized differential expansion technique. *International Journal Solids and Structures.* 47 1522-1536 doi:10.1016/j.ijsolstr.2010.02.011

[53] J. SULEM (2010) Bifurcation theory and localization phenomena, *European Journal of Environmental and Civil Engineering*, Vol. 14, 8-9, 989-1009.

[54] I STEFANOU, J. SULEM (2010) Continuum modeling of discontinuous rock structures - Homogenization of discrete particle assemblies, *European Journal of Environmental and Civil Engineering*, Vol. 14, 8-9, 1199-1217.

[55] J. SULEM, M. MONFARED, A.-M. TANG, P. DELAGE (2010) Thermo-mechanical behaviour of clayey rocks for application to nuclear waste disposal storage. In: MIR 2010, Problemi di stabilità nelle opere geotecniche, Chapitre 5, Edts (G. & M. Barla)

[56] J. SULEM, I. STEFANOU, E. VEVEAKIS (2011) Stability analysis of undrained adiabatic shearing of a rock layer with Cosserat microstructure. *Granular matter*, 13, 3, 261-268, doi 10.1007/s10035-010-0244-1.

[57] N. BRANTUT, J. SULEM, A. SCHUBNEL (2011) Effect of dehydration reactions on earthquake nucleation: Stable sliding, slow transients and unstable slip. *Journal of Geophysical Research* 116, B05304, doi:10.1029/2010JB007876

[58] M. MONFARED, P. DELAGE, J. SULEM, M. MOHAJERANI, A.M. TANG, E. DE LAURE (2011) A new cylinder triaxial cell to stucy the behaviour of geomaterials with low permeability, *International Journal of Rock Mechanics and Mining Sciences*, 48 pp. 637-649, doi:10.1016/j.ijrmms.2011.02.017.

[59] I. STEFANOU, J. SULEM (2011) Three-dimensional Cosserat continuum modeling of fractured rock masses, *J. Multiscale modelling*, Vol. 2, Nos. 3 & 4, 217–234, Imperial College Press, DOI: 10.1142/S1756973710000424.

[60] I., STEFANOU, SULEM, J., VARDOULAKIS I. (2011) Continuum modelling of masonry structures under static and dynamic loading In: *Fracture and Failure of Natural Building Stones*, 123–136. Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-1-4020-5077-0_8.

[61] M. MOHAJERANI, P. DELAGE, M. MONFARED, A.M. TANG, J. SULEM, B. GATMIRI (2011) Oedometric compression and swelling behaviour of the Callovo-Oxfordian Argillite, *International Journal of Rock Mechanics and Mining Sciences*, 48 pp. 606-615, doi:10.1016/j.ijrmms.2011.02.016

[62] M. VEVEAKIS, J. SULEM, I. STEFANOU (2012) Analysis of rock layers with Cosserat microstructure: Influence of thermal pressurization and chemical decomposition as weakening mechanisms. *J. Struct. Geology*, 38, 254-264, doi:10.1016/j.jsg.2011.09.012.

[63] G. KOVAL, F CHEVOIR, · J-N ROUX ·J SULEM · A CORFDIR (2011) Interface roughness effect on slow cyclic annular shear of granular materials. *Granular Matter*, Volume 13, Number 5, 525-540, DOI: 10.1007/s10035-011-0267-2.

[64] M. MONFARED, J. SULEM, P. DELAGE, M. MOHAJERANI (2011) A laboratory investigation on thermal properties of the Opalinus claystone, *Rock Mech & Rock Eng.* Volume 44, Number 6, 735-747 , DOI: 10.1007/s00603-011-0171-4

[65] I. STEFANOU, J. SULEM (2012) Micromorphic Continua: application to the homogenization of diatomic masonry columns, *Int. J. for Multiscale Computational Engineering*, 10(6), p. 599-613, DOI: 10.1615/IntJMultCompEng.2012004076 (in press)

[66] M. MONFARED, J. SULEM, P. DELAGE, M. MOHAJERANI (2012) On the THM behaviour of a sheared Boom clay sample: application to the behaviour and sealing properties of the EDZ, *Engineering Geology,* Volume 124, 47-58, doi:10.1016/j.enggeo.2011.10.002

[67] M. MOHAJERANI, P. DELAGE, J. SULEM, M. MONFARED, A.M. TANG, B. GATMIRI (2012) A laboratory investigation of thermally induced pore pressures in the Callovo-Oxfordian Claystone, *International Journal of Rock Mechanics and Mining Sciences*, doi:10.1016/j.ijrmms.2012.02.012, Volume 52, 112–121.

[68] N. BRANTUT, J. SULEM (2012) Strain Localisation and Slip Instability in a Strain-Rate Hardening, Chemically Weakening Material. *Journal of Applied Mechanics*, 79, 031004. DOI: 10.1115/1.4005880

[69] VU M.H, SULEM J., GHABEZLOO S., LAUDET J.B., GARNIER A., GUÉDON S. (2012) Time-dependent behaviour of hardened cement paste under isotropic loading, *Cement and Concrete Research*, 42, 789-797, doi:10.1016/j.cemconres.2012.03.002.

[70] VU M.H, SULEM J., LAUDET J.B., (2012) Effect of the curing temperature on the creep of a hardened cement paste, *Cement and Concrete Research*, 42, 1233-1241.

[71] SULEM J., (2012) Shear localization in deep geological layers during seismic slip, in: *Adiabatic Shear Localization, Second Edition: Frontiers and Advances* , B. Dodd & Y. Bai (Eds), 397-423, Elsevier.

[72] GASC-BARBIER M., HOANG T. T. N., MARACHE A., SULEM J., RISS J. (2012), Morphological and mechanical analysis of natural marble joints submitted to shear tests, *Journal of Rock Mechanics and Geotechnical Engineering*. 4 (4): 296-311.

[73] VU T.M., SULEM J., SUBRIN D., MONIN N., LASCOLS J. (2013) Anisotropic closure in squeezing rocks : the example of Saint-Martin-la-Porte access gallery, *Rock Mechanics and Rock Engineering*, 46, 2, 231-246, DOI 10.1007/s00603-012-0320-4

[74] VU T.M., SULEM J., SUBRIN D., MONIN N.(2013) Semi-analytical solution for stresses and displacements in a tunnel excavated in transversely isotropic formation with non linear behaviour, *Rock Mechanics and Rock Engineering*, 46,2, 213-229, DOI 10.1007/s00603-012-0296-0

[75] BOIS, A.-P., VU, M.-H., GHABEZLOO, S., SULEM, J., GARNIER, A., & LAUDET, J.-B. (2013). Cement Sheath Integrity for CO2 Storage – An Integrated Perspective. *Energy Procedia*, 37, 5628–5641. doi:10.1016/j.egypro.2013.06.485

[76] VEVEAKIS M., STEFANOU I., SULEM J. (2013) Failure in shear bands for granular materials: thermo-hydro-chemo-mechanical effects, *Geotechnique Letters*, 3 (2), 31-36, https://doi.org/10.1680/geolett.12.00063.

[77] SULEM J. (2013) Tunnel du Fréjus: Mesures géotechniques et interprétation, *Manuel de Mécanique des Roches* Tome IV, chap. 7, Presse des Mines.

[78] FEIA S., GHABEZLOO S., BRUCHON J-F, SULEM J., CANOU J., DUPLA J-C (2014) Evaluation of the pore access size distribution of sands by tensiometric method, *Geotechnical Testing Journal*, 37, 4. Doi: 10.1520/GTJ20130126

[79] MONFARED M., SULEM J., DELAGE P., MOHAJERANI M., MENACEUR H. (2014) Thermal impact on the permeability of a claystone, *Rock Mechanics and Rock Engineering*, 47,1, 101-110, DOI 10.1007/s00603-013-0459-7.

[80] MOHAJERANI M., DELAGE P., SULEM J., MONFARED M., TANG A.M., GATMIRI B. (2014) The thermal volume changes of the Callovo-Oxfordian claystone, *Rock Mechanics and Rock Engineering*, 47, 1, 131-142, 10.1007/s00603-013-0369-8.

[81] STEFANOU I., SULEM J. (2014) Chemically induced compaction bands in geomaterials, *Journal of Geophysical Research*: *Solid Earth*, 119, 2, 880-899. doi:10.1002/2013JB010342.

[82] FEIA S., SULEM J., CANOU, J., GHABEZLOO S., CLAIN X. (2014). Changes in permeability of sand during triaxial loading: effect of fine particles production, *Acta Geotechnica*, DOI 10.1007/s11440-014-0351-y.

[83] SULEM J., TRAN MANH H. (2014) Tunnels in squeezing ground: Modelling of time-dependent anisotropic deformation. In: MIR 2014, Interventi ed opere nelle formazioni complesse, Chapitre 7, Ed (G. Barla), 135-155.

[84] ROHMER, J., ALLANIC, C., BOURGINE, B., SULEM, J., SUHETT-HELMER, G., GHABEZLOO, S., POUYA A., RENARD, F., BEUCHER, H., MEHL, C., SIAVELIS M., TARDIEU, N. (2014). Improving our knowledge on the hydro-chemo-mechanical behaviour of fault zones in the context of CO2 geological storage. *Energy Proced*ia, 63, 3371–3378. doi:10.1016/j.egypro.2014.11.366

[85] GODIO M., STEFANOU I., SAB K., SULEM J. (2015). Dynamic Finite Element Formulation for Cosserat Elastic Plates. *International Journal for Numerical Methods in Engineering,* Volume: 101, Issue: 13 Pages: 992-1018, DOI: 10.1002/nme.4833.

[86] TRAN MANH .H., SULEM J., SUBRIN D. (2015) Closed-form solution for tunnels with arbitrary cross section excavated in elastic anisotropic ground, *Rock Mechanics and Rock Engineering*, 48, 1, 277-288, DOI 10.1007/s00603-013-0542-0.

[87] TRAN MANH .H., SULEM J., SUBRIN D., BILLAUX D. (2015) Anisotropic time-dependent modeling of tunnels in squeezing ground, *Rock Mechanics and Rock Engineering,* 48, 6, 2301-2317. DOI: 10.1007/s00603-015-0717-y

[88] TRAN MANH H., SULEM J., SUBRIN D. (2015) Interaction of circular tunnels in anisotropic elastic ground, *Géotechnique*, doi: 10.1680/geot.14.P.178.

[89] FEIA S., DUPLA J.C., GHABEZLOO S., SULEM J., CANOU J., ONAISI A., LESCANNE H., AUBRY E. (2015) Experimental investigation of particle suspension injection and permeability impairment in porous media, *Geomechanics for Energy and the Environment*, 3, 24-39.

[90] SULEM J., STEFANOU I. (2016) Thermal and chemical effects in shear and compaction bands, *Geomechanics for Energy and the Environment*, 6, 4-21, doi:10.1016/j.gete.2015.12.004.

[91] STEFANOU I., SULEM J. (2016) Existence of a threshold for brittle grains crushing strength: two- versus three-parameter Weibull distribution fitting, *Granular Matter*, 18:2. 1-10, https://doi.org/10.1007/s10035-015-0603-z.

[92] GUAYACAN-CARRILLO L.-M., SULEM J., SEYEDI D., GHABEZLOO S., NOIRET A, ARMAND G. (2016) Convergence analysis of an unsupported micro-tunnel at the Meuse/Haute-Marne underground research laboratory, *Geological Society of London Special Publication*, https://doi.org/10.1144/SP443.24.

[93] GUAYACAN-CARRILLO L.-M., SULEM J., SEYEDI D., GHABEZLOO S., NOIRET A, ARMAND G. (2016) Analysis of long-term anisotropic convergence in drifts excavated in Callovo-Oxfordian claystone, *Rock Mechanics and Rock Engineering,* 49, 1, 97-114, doi: 10.1007/s00603-015-0737-7.

[94] GODIO M., STEFANOU I., SAB K., SULEM J. (2016). Multisurface plasticity for Cosserat materials: plate element implementation and validation. *International Journal for Numerical Methods in Engineering*,108: 456-484. doi: 10.1002/nme.5219.

[95] TRAN MANH H., SULEM J., SUBRIN D. (2016) Progressive degradation of rock properties and time-dependent of deep tunnels, *Acta Geotechnica*, 11, 693-711, DOI: 10.1007/s11440-016-0444-x

[96] JANSSEN C., WENK H.-R., WIRTH R., MORALES L., KEMNITZ H., SULEM J., DRESEN G. (2016). Microstructures and their implications for faulting processes – Insights from DGLab core samples from the Gulf of Corinth. *J. Struct. Geol.*, vol. 86, pp. 62–74.

[97] SULEM J. (2016). Material instability and strain localization analysis. In: *Modelling of instabilities and bifurcation in Geomechanics*. Eds: J. Sulem, I. Stefanou, E. Papamichos, E. Veveakis, ALERT Geomaterials Doctoral school, 69-85, http://alertgeomaterials.eu/data/school/2016/2016_ALERT_schoolbook.pdf.

[98] SULEM J., STEFANOU I. (2016). Multiphysics couplings and strain localization in geomaterials. In: Modelling of instabilities and bifurcation in Geomechanics. Eds: J. Sulem, I. Stefanou, E. Papamichos, E. Veveakis, ALERT Geomaterials Doctoral school, 188-213, http://alertgeomaterials.eu/data/school/2016/2016_ALERT_schoolbook.pdf.

[99] FEIA S., DUPLA J.C., GHABEZLOO S., CANOU J., SULEM J., MAINGUY M., AUBRY E. (2017). An experimental setup with radial injection for investigation of transport and deposition of suspended particles in porous media. *Geotechnical Testing Journal*. Vol. 40,6, pp. 1115-1124, doi: 10.1520/GTJ20160032.

[100] STEFANOU I., SULEM J., RATTEZ H. (2019). Cosserat approach to localisation in geomaterials. In: *Handbook of Nonlocal Continuum Mechanics for Materials and Structures*, Ed. G. Voyiadjis, ISBN 978-3-319-58729-5, Springer, https://doi.org/10.1007/978-3-319-58729-5_10

[101] GUAYACAN-CARRILLO L.-M., GHABEZLOO S., SULEM J., SEYEDI D., ARMAND G. (2017) Tunnel excavation in low-permeability anisotropic ground: Effect of anisotropy and hydro-mechanical couplings on pore pressure evolution. *Int. J. Rock Mech. Min. Sci.* 97, 1-14.

[102] BRANTUT N., STEFANOU I., SULEM J. (2017) Dehydration-induced instabilities at intermediate depths in subduction zones *J. Geoph. Res.* 10.1002/2017JB014357.

[103] GODIO M., STEFANOU I., SAB K., SULEM J., S. SAKJI (2017).A limit analysis approach based on Cosserat continuum for the evaluation of the in-plane strength of discrete media: Application to masonry, *European Journal of Mechanics - A/Solids*, 66, 168-192, doi.org/10.1016/j.euromechsol.2017.06.011.

[104] BAHAFID S., DUC M., GHABEZLOO S., FAURE P., SULEM J. (2017) Effect of the hydration temperature on the microstructure of Class G cement: C-S-H composition and density. *Cement and Concrete Research*, 95, 270–281.

[105] EINAV I., ROGNON P., MILLER T., SULEM J. (2018). Faults get colder through transient granular vortices, *Geoph. Res. Lett.* 45, 2625-2632,, DOI: 10.1002/2017GL076029.

[106] BAHAFID S., GHABEZLOO S., FAURE P., SULEM J., DUC M. (2018) Effect of the hydration temperature on the pore structure of cement paste: Experimental investigation and micromechanical modelling, *Concrete and Cement Research*, 11, 1-14, DOI: 10.1016/j.cemconres.2018.06.014

[107] GUAYACAN-CARRILLO L.-M., SULEM J., SEYEDI D., GHABEZLOO S., ARMAND G. (2018) Size effect on the time-dependent closure of drifts excavated in Callovo-Oxfordian claystone. *International Journal of Geomechanics ASCE*, 18, 10, DOI: 10.1061/(ASCE)GM.19435622.0001213.

[108] RATTEZ H., STEFANOU, I., SULEM J. (2018). The importance of Thermo-Hydro-Mechanical couplings and microstructure to strain localization in 3D continua with application to seismic faults. Part I: Theory and Linear Stability Analysis. *Journal of Mechanics and Physics of Solids*, 15, 54-76, https://doi.org/10.1016/j.jmps.2018.03.004

[109] RATTEZ H., STEFANOU, I., SULEM J., VEVEAKIS M., POULET T. (2018). The importance of Thermo-Hydro-Mechanical couplings and microstructure to strain localization in 3D continua with application to seismic faults. Part II: Numerical implementation and post-bifurcation analysis. *Journal of Mechanics and Physics of Solids*, 115, 1-29, https://doi.org/10.1016/j.jmps.2018.03.003.

[110] RATTEZ H., STEFANOU, I., SULEM J., VEVEAKIS M., POULET T. (2018). Numerical analysis of strain localization in Rocks with Thermo-Hydro-Mechanical couplings using Cosserat continuum. *Rock Mechanics and Rock Engineering* 51(10), 3295–3311. https://doi.org/10.1007/s00603-018-1529-7

[111] BRAUN P., GHABEZLOO S., DELAGE P., SULEM J., CONIL N. (2018). Theoretical Analysis of Pore Pressure Diffusion in Some Basic Rock Mechanics Experiments. *Rock Mechanics and Rock Engineering*, 51(5), 1361-1378, https://doi.org/10.1007/s00603-018-1410-8.

[112] AGOFACK, N., GHABEZLOO, S., SULEM, J., GARNIER, A., & URBANCZYK, C. (2019). Onset of Creation of Residual Strain during the hydration of oil-well cement paste. *Cement and Concrete Research*, 116(March 2018), 27–37. https://doi.org/10.1016/j.cemconres.2018.10.022

[113] DE LA FUENTE, M., TAHERZADEH, R., SULEM, J., NGUYEN, X-S, SUBRIN, D. (2019) Applicability of the convergence-confinement method to full-face excavation of circular tunnels with stiff support system, *Rock Mechanics and Rock Engineering,* 52(7), 2361-2376, https://doi.org/ 10.1007/s00603-018-1694-8

[114] AGOFACK, N., GHABEZLOO, S., SULEM, J., GARNIER, A., URBANCZYK, C. (2019). Experimental investigation of the early-age mechanical behaviour of oil-well cement paste. Cement and Concrete Research, 117(March 2019), 91–102. https://doi.org/10.1016/j.cemconres.2019.01.001

[115] BRAUN P., GHABEZLOO S., DELAGE P., SULEM J., CONIL N. (2019). Determination of Multiple Thermo-Hydro-Mechanical Rock Properties in a Single Transient Experiment: Application to Shales. *Rock Mechanics and Rock Engineering*, 52(7), 2023–2038, https://doi.org/10.1007/s00603-018-1692-x

[116] LOVERA, A., GHABEZLOO, S. SULEM, J., RANDOLPH, M.F., KHAM, M., PALIX, E. (2021), Pile response to multi-directional lateral loading using P-y curves approach, *Géotechnique*, 71(4), 288-298. https://doi.org/10.1680/jgeot.18.P.297.

[117] DE LA FUENTE, M., SULEM, J., TAHERZADEH, R., SUBRIN, D. (2020) Tunneling in squeezing ground: effect of the excavation method, *Rock Mechanics and Rock Engineering* 53, 2, 601-623, DOI: 10.1007/s00603-019-01931-4

[118] BRAUN P., DELAGE P., GHABEZLOO S., SULEM J., CONIL N. (2020) Effect of anisotropy on the thermal volume changes of the Callovo–Oxfordian claystone, *Géotechnique Letters*, 10(1), 63–66. https://doi.org/10.1680/jgele.19.00045

[119] COLLINS-CRAFT, N. A., STEFANOU, I., SULEM, J., EINAV, I. (2020). A Cosserat Breakage Mechanics model for brittle granular media. *Journal of the Mechanics and Physics of Solids*, 141(0), 103975. https://doi.org/10.1016/j.jmps.2020.103975

[120] BRAUN, P., GHABEZLOO, S., DELAGE, P., SULEM, J., CONIL, N. (2021). Transversely isotropic poroelastic behaviour of the Callovo-Oxfordian claystone: A set of stress-dependent parameters. *Rock Mechanics and Rock Engineering*. 54(1), 359-375. https://doi.org/10.1007/s00603-020-02268-z

[121] BRAUN, P., GHABEZLOO, S., DELAGE, P., SULEM, J., CONIL, N. (2021). Thermo-poro-elastic behaviour of a transversely isotropic shale: Thermal expansion and pressurization. *Rock Mechanics and Rock Engineering*, 54(1), 377-396. https://doi.org/10.1007/s00603-020-02269-y

[122] ABDALLAH, Y., SULEM, J., BORNERT, M., GHABEZLOO, S., STEFANOU, I. (2021). Compaction Banding in High-Porosity Carbonate Rocks: 1. Experimental Observations. *Journal of Geophysical Research: Solid Earth*, 126(1), 1–24. https://doi.org/10.1029/2020JB020538

[123] ABDALLAH, Y., SULEM, J., STEFANOU, I. (2020). Compaction Banding in High-Porosity Carbonate Rocks: 2. A Gradient-Dependent Plasticity Model. *Journal of Geophysical Research: Solid Earth*, 125(12), 1–24. https://doi.org/10.1029/2020JB020610

[124] RATTEZ, H., DISIDORO, F., SULEM, J., & VEVEAKIS, M. (2021). Influence of dissolution on long-term frictional properties of carbonate fault gouge. *Geomechanics for Energy and the Environment*, 26, 100234. https://doi.org/10.1016/j.gete.2021.100234

[125] LIU Y., SULEM J., SUBRIN D., TRAN-MANH H., HUMBERT E. (2021) Numerical Modeling of Rock-Support Interaction Under Squeezing Conditions. In: Barla M., Di Donna A., Sterpi D. (eds) Challenges and Innovations in Geomechanics. IACMAG 2021. Lecture Notes in Civil Engineering, vol 126. Springer, Cham. https://doi.org/10.1007/978-3-030-64518-2_48

[126] SULEM J. (2021) New Advances in Strain Localization Analysis: Application to Seismic Faulting and Compaction Banding. In: Barla M., Di Donna A., Sterpi D. (eds) Challenges and Innovations in Geomechanics. IACMAG 2021. Lecture Notes in Civil Engineering, vol 125. Springer, Cham. https://doi.org/10.1007/978-3-030-64514-4_7

[127] GUAYACÁN-CARRILLO, L. M., SULEM, J., & GHABEZLOO, S. (2021). Main insights from 2D/3D poroelastic analysis of tunnel excavation in low permeability anisotropic ground. *Computers and Geotechnics*, 130, (December 2020). https://doi.org/10.1016/j.compgeo.2020.103935

[128] SULEM, J. (2021). Thermodynamique des grands glissements souterrains. *Revue Française de Géotechnique*. 161,6, https://doi.org/10.1051/geotech/2021020

[129] PANET, M., SULEM, J. (2021). La méthode Convergence- Confinement. Les contributions du Laboratoire de Mécanique des Solides (LMS). *Revue Française de Géotechnique*. https://doi.org/10.1051/geotech210022s

[130] SULEM, J. (2021). Material instability and strain localization analysis. In: *Instabilities Modeling in Geomechanics*, Eds: I. Stefanou & J. Sulem, Iste, Wiley, 73-94.

[131] SULEM, J. and STEFANOU, I. (2021). Multiphysics couplings and strain localization in geomaterials. In: *Instabilities Modeling in Geomechanics*, Eds: I. Stefanou & J. Sulem, Iste, Wiley, 253-278.

[132] LIU, Y., SULEM, J., SUBRIN, D., TRAN-MANH, H, HUMBERT, E. (2021). Time-dependent behavior of Saint-Martin-la-Porte exploratory galleries: Field data processing and numerical modeling of excavation in squeezing rock conditions. *International Journal of Geomechanics* (ASCE), 21(12), DOI: 10.1061/(ASCE)GM.1943-5622.0002200.

[133] NGUYEN, T.-T. , SULEM, J., MUHAMMED, R., DUPLA, J.-C., CANOU, J., BOERO-ROLLO J.-G., OCHI, J. (2022). An experimental setup with radial injection cell for investigation of fracturing in unconsolidated sand reservoirs under fluid injection, *Journal of Petroleum Science and Engineering*, https://doi.org/10.1016/j.petrol.2022.110362.

[134] PAPACHRISTOS, E., STEFANOU, I., SULEM, J. (2023). A discrete elements study of the frictional behavior of fault gouges, Journal of Geophysical Research: Solid Earth, 128, e2022JB02520, 9 DOI: 10.1029/2022JB025209.

[135] NGUYEN, T.-T. , SULEM, J., MUHAMMED, R., DUPLA, J.-C., CANOU, J., BOERO-ROLLO J.-G., OCHI, J. (2023). Experimental investigation of plugging and fracturing mechanisms in unconsolidated sand reservoirs under injection of water containing suspended fine particles, Geoenergy Science and Engineering, Volume 221, 2023, 211346, ISSN 2949-8910, https://doi.org/10.1016/j.geoen.2022.211346. (https://www.sciencedirect.com/science/article/pii/S2949891022000343).

[136] SULEM, J. (2023). Rock Mechanics: Strain Localization in Rocks. In: *Comprehensive Mechanics of Materials*, Eds: V. Silberschmidt, R. Barretta. ISBN: 9780323906463, Elsevier. https://doi.org/10.1016/B978-0-323-90646-3.00005-8.

[137] LOYOLA, A-C, SULEM J., DUPLA J.-C., OCHI, J.. (2024). Numerical Modeling of the Fracturing Mechanisms of Unconsolidated Sand Reservoirs under Water Injection. *Geomechanics for Energy and the Environment,* 38 (January): 100550. https://doi.org/10.1016/j.gete.2024.100550.

[138] GUAYACAN-CARRILLO, L., SULEM. J. (2024). Symbolic Regression Based Prediction of Anisotropic Closure in Deep Tunnels. *Computers and Geotechnics* 171: 106355. https://doi.org/10.1016/j.compgeo.2024.106355.*

[139] TRISTANI A., SULEM. J., GUAYACAN-CARRILLO, L. (2024). Analytical solutions considering face advance and time-dependent behavior for back-analysis of convergence measurements in deep circular tunnels under isotropic initial stress state, ,*International Journal of Rock Mechanics and Mining Sciences*, Vol. 182, 105866, https://doi.org/10.1016/j.ijrmms.2024.105866.

[140] TRISTANI A., GUAYACAN-CARRILLO, L., SULEM. J. (2024). Data-driven tools to evaluate support pressure, radial displacements and face extrusion for tunnels excavated in elastoplastic grounds. *International Journal for Numerical and Analytical Methods in Geomechanics* https://doi.org/10.1002/nag.3889.

[141] GUAYACÁN-CARRILLO LM, PEREIRA JM, SULEM J (2024). Machine Learning in Geotechnics. *Ingenius, revue numérique de l'Ecole des Ponts ParisTech*. https://ingenius.ecoledesponts.fr/en/articles/machine-learning-in-geotechnics/

[142] LARA, F., GUAYACÁN-CARRILLO, L.-M., SULEM, J., JABER, J., ARMAND, (2025) Time-dependent modeling of supported drifts excavated in Callovo-Oxfordian claystone considering the excavation-induced fractured zone, *Computers and Geotechnics*, Volume 179, March 2025, 107030, https://doi.org/10.1016/j.compgeo.2024.107030.

[143] SULEM, J. (2025) Strain localization in rocks – A multi-scale and Multiphysics problem, In: *Multiscale and Multiphysics modelling for advanced and sustainable materials*, Chapter 29, Edited by Patrizia Trovalusci, Tomasz Sadowski, and Adnan Ibrahimbegovic. Vol. 231. Advanced Structured Materials. Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-84379-2.

[144] DORÉ-OSSIPYAN, C., QUACQUARELLI, A., BORNERT, M., SULEM J., DIMANOV, A. (2025) Synchrotron 4D X Ray Computed Tomography of a Porous Limestone: Influence of Porosity on Deformation Mechanisms at Multiple Scales, *Journal of Geophysical Research Solid Earth*, 130 (10). https://doi.org/10.1029/2025JB031620. **DOI:** 10.1029/2025JB031620

[145] TRISTANI A., SULEM. J., GUAYACAN-CARRILLO, L. (2025). Des mesures de convergence à l'interaction terrain-revêtement : une approche par solutions analytiques et apprentissage automatique. *Tunnels et ouvrages souterrains,* vol. 292, pp. 69-81.

[146] DORÉ-OSSIPYAN, C., QUACQUARELLI, A., BORNERT, M., SULEM J., DIMANOV, A., AIMEDIEU, P., DE GREEF, V., KING, A. (2026). 4D Imaging of a Porous Carbonate Rock Under Triaxial Loading: Quantitative Correlation Between Local Porosity and Strain, *Journal of Synchrotron Radiation*, 33, https://doi.org/10.1107/S1600577526006958.

[147] COLLINS-CRAFT, N. A., STEFANOU, I., SULEM, J., EINAV, I., (2026). A study of the influence of grain crushing and pore collapse on the formation of faults, *Journal of Geophysical Research Solid Earth*, *Solid Earth*, 131, e2025JB033062. https://doi.org/10.1029/2025JB033062.

[148] LABUZ, J., SULEM, J., AMANN, F. et al. ISRM Suggested Method for Achieving Full Water Saturation of Rock (2026). *Rock Mech Rock Eng,* 59, 5475–5484. https://doi.org/10.1007/s00603-025-05071-w

[149] XU, Z., SULEM, J., BRAUN, P.(2026) Porosity-Permeability Evolution of Carbonate Rocks under Cyclic Hydrostatic Loading: Creep-Fatigue Interaction and Implications for Hydrogen Storage. *Journal of Geophysical Research Solid Earth*, 131, e2025JB033646. https://doi.org/10.1029/2025JB033646.

[150] GUAYACAN-CARRILLO, L., PEREIRA, J.-M., SULEM. J. (2026). Lessons Learned From Using Simple Supervised Learning Tools on Small-Ensemble Data—Applicability to Tunnel Design and Monitoring, *International Journal for Numerical and Analytical Methods in Geomechanics*, 50, 3397–3411, https://doi.org/10.1002/nag.70287.

[151] LARA, F., SULEM, J., GUAYACÁN-CARRILLO, L.-M., JABER, J., ARMAND, (2026) Approche numerique basee sur des donnees d'auscultation pour l'analyse des galeries dans l'argilite du callovo-oxfordien. *Tunnels et ouvrages souterrains*, vol. 295, pp 107-121.

[152] LARA, F., JABER, J., SULEM, J., L.-M., ARMAND, GUAYACÁN-CARRILLO, (2026), From convergence monitoring to numerical modeling: A practical engineering-oriented framework to assess the long-term behavior of drifts in Callovo-Oxfordian claystone, *Computers and Geotechnics,* Vol 199, 108343, https://doi.org/10.1016/j.compgeo.2026.108343.

[153] EGOROV, S., SANNER, A., SULEM, J., PASTEWKA, L., LE BIHAIN, M. (2026), Bridging perturbation and variational approaches in brittle fracture. *Computer Methods in Applied Mechanics and Engineering*, in print.