

Références externes publiées

Résumé :

Ce document constitue un inventaire évolutif des références externes publiées valorisant code_aster sur des applications représentatives de dossiers industriels. Celles-ci sont regroupées par **fonctionnalités**.

Il reprend la même classification que le document [R0,00,01].

1Algorithmes et méthodologies.....	4
1.1Analyse modale.....	4
1.2Analyse dynamique transitoire.....	4
1.3Analyse dynamique fréquentielle.....	4
1.4Analyse spectrale et réponse aléatoire.....	4
1.5Sous-structuration dynamique.....	4
1.6Extrapolation de mesures expérimentales.....	4
1.7Interaction sol-structure.....	4
1.8Mécanique de la rupture.....	6
1.9Recalage.....	6
1.10Méthodes probabilistes.....	6
1.11Conditions aux limites et de liaisons.....	6
1.12Mécanique non linéaire.....	6
1.13Solveurs algébriques.....	6
1.14Fatigue.....	6
1.15Thermo-hydro-mécanique couplée.....	6
1.16Contact et frottement.....	6
1.17Grandes déformations et grands déplacements.....	6
1.18Flambement.....	7
1.19Thermique.....	7
1.20Interaction fluide-structure.....	7
1.21Analyse limite.....	7
1.22Estimateurs d'erreur.....	7
1.23Outil-métiers.....	8
2Lois de comportement.....	9
2.1Éléments discrets et de poutres.....	9
2.2Thermo-élasticité.....	9
2.3Élastoplasticité incrémentale.....	9
2.4Élastoviscoplasticité sous irradiation.....	9
2.5Comportement des métaux polycristallins.....	9
2.6Géo-matériaux et milieux poreux.....	9
2.7Comportement des bétons.....	9
2.8Comportement du béton armé.....	9
2.9Comportement des armatures dans les structures en béton armé.....	10
2.10Endommagement.....	10
2.11Modèles métallurgiques.....	10
2.12Visco-élasticité.....	10
2.13Élastoviscoplasticité des métaux.....	10
2.14Lois cohésives et de joints.....	10
3Éléments finis.....	11

3.1Éléments finis.....	11
3.2Éléments de structure.....	11
3.3Éléments finis incompressibles.....	11
3.4Éléments de joints, d'interface et de discontinuités.....	11

1 Algorithmes et méthodologies

1.1 Analyse modale

1.2 Analyse dynamique transitoire

P. Massin, H. Andriambololona, D. Bosselut, Methodology for a numerical simulation of an insertion or a drop of the rod cluster control assembly in a PWR, Nuclear Engineering and Design, 237 (2007), pp.600-606.

1.3 Analyse dynamique fréquentielle

1.4 Analyse spectrale et réponse aléatoire

I. Zentner. Use of RVT for the Computation of In-Structure Response Spectra and Peak Responses and Comparison to Time History And Response Spectrum Analysis. Earthquake Spectra, Jul 13, 2018. <https://doi.org/10.1193/051417EQS090M>.

1.5 Sous-structuration dynamique

1.6 Extrapolation de mesures expérimentales

1.7 Interaction sol-structure

Greffet, N., Obrembski, Ch., Clouteau, D. New efficient numerical method for non linear seismic SSI simulation. Int. Conf. on Computational Methods for Coupled Problems in Science and Engineering. COUPLED PROBLEMS 2005. M. Papadrakakis, E. Oñate and B. Schrefler (Eds).

Obrembski, Ch., Clouteau, D., Greffet, N. "Time-Frequency" domain analysis in nonlinear dynamic soil-structure interaction. EURODYN, Paris, France, Sept. 4-7, 2005.

Devesa, G., Guyonvarh, V., Clouteau, D. Use of coupled and regulatory method in Soil-Structure Interaction and Soil-Fluid-Structure Interaction for nuclear plants and dams. First European Conference on Earthquake Engineering and Seismology, Geneva, 2006.

Vandeputte, D., Viallet, E., Devesa, G., Clouteau, D. Deconvolution and Soil-Structure Interaction with ProMiss3D software based on seismic recordings on Hualien array. Paper K05, SMIRT19.

Zentner, I. Simulation of spatially incoherent, non stationary seismic free field motion and its impact on response in soil-structure interaction analysis. ECCOMAS Thematic Conference on Computational Methods in Structural Dynamics and Earthquake Engineering. Rethymno, Crete, Greece, 13-16 June 2007.

HSE/NUCLEAR DIRECTORATE Generic Design Assessment - NEW CIVIL REACTOR BUILD - Step 3 Civil Engineering and External Hazards Assessment of the EDF and AREVA UK EPR. DIVISION 6 ASSESSMENT REPORT NO. AR 09/039-P. www.onr.org.uk/new-reactors/reports/step3-uk-epr-civil-engineering-external-hazards-assessment.pdf

Vandeputte, D., Billion, P., Courtois, A., Labbé, P., Devesa, G. Impedance Calculations for Foundations on Soil Reinforced with Concrete Inclusions. ECEE 14, Ohrid. See also : NEA/CSNI/R(2011), pp. 375-383. <http://www.oecd-nea.org/nsd/docs/2011/csni-r2011-6.pdf>. NEA/IAEA Workshop on "Soil Structure Interaction (SSI) Knowledge and Effect on Seismic Assessment of NPPs Structures and Components" - Workshop Proceedings, Ottawa, Canada, 6-8 October 2010.

Billion, P., Allain, F., Devesa, G., Humbert, N., Petre-Lazar, I. Linear and Non-Linear Soil-Structure Interaction (SSI) Calculations: Methods To Determine Raft Uplift. NEA/CSNI/R(2011), pp. 367-374. <http://www.oecd-nea.org/nsd/docs/2011/csni-r2011-6.pdf>.

Zentner, I. and Devesa, G. A methodology for soil-structure interaction analysis accounting for spatially incoherent seismic free field motion. In Proceedings of the 8th International Conference on Structural Dynamics, EURODYN2011, Leuven, Belgium.

Nieto-Ferro, A., Greffet, N., Devésa, G., Clouteau, D. Comparison between hybrid frequency-time domain and Laplace-time domain approaches for the evaluation of the interaction forces in dynamic soil-structure interaction problems. EURODYN2011, Leuven, Belgium.

Nieto-Ferro, A., Clouteau, D., Greffet, N., Devésa G. Hybrid Laplace-time domain approach for nonlinear dynamic soil-structure interaction problems. 3rd International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering. May 2011, Corfu, Greece.

Ravet, S., Petre-Lazar, I., Tong, W.-H., Ravindra, M.K., Zentner, I., Humbert, N., Bonfils, N. Determination of probabilistic seismic response spectra by structural analysis with soil structure interaction. SMiRT 21, 6-11 November, 2011, New Delhi, India.

Clouteau, D., Broc, D., Devesa, G., Guyonvarh, V. Calculation methods of Structure–Soil–Structure Interaction (3SI) for embedded buildings: Application to NUPEC tests. Soil Dynamics and Earthquake Engineering. Volume 32, Issue 1, January 2012, Pages 129-142.

Nieto-Ferro, A., Clouteau, D., Greffet, N., Devesa, G. On a hybrid Laplace-time domain approach to dynamic interaction problems. European Journal of Comp. Mechanics, 21 (3-6), 290–299, 2012.

Turpin, F., Bonfils, N., Suin, N., Humbert, N., Petre-Lazar, I. Seismic analysis with Soil-Structure Interaction KARISMA Benchmark. WCEE15, Lisboa, 2012.

Nieto-Ferro, A. PhD. Nonlinear Dynamic Soil-Structure Interaction in Earthquake Engineering. 17/01/2013. <https://tel.archives-ouvertes.fr/tel-00944139>.

Galindo Gimeno, C., Bou-Said, E., Erlicher, S., Viallet, E., Greffet, N. Influence of foundation flexibility on Soil-Structure Interaction: design of the base common raft of a nuclear power plant. Technical Innovation in Nuclear Civil Engineering – TINCE 2014. Paris (France), September 1st – 4th, 2014.

Nieto-Ferro, A., Devesa, G., Greffet, N., Caudron, M., Clouteau, D. Nonlinear dynamic Soil–Structure Interaction in earthquake engineering. 2nd European Conference on Earthquake Engineering and Seismology, Istanbul, August 2014.

Nieto-Ferro, A., Greffet, N., Devesa, G., Caudron, M. Accounting for nonlinear soil within dynamic soil-structure interaction calculations in earthquake engineering. COMPDYN, May 25th-27th, 2015.

Trevlopoulos, K., Zentner, I., Sensitivity analysis of the seismic response of an industrial building accounting for soil-foundation-structure interaction and spatial variability of the seismic ground motion. 1st International Conference on Natural Hazards & Infrastructure. 28-30 June, 2016, Chania, Greece.

A.Svay PhD. Modelling of Spatial Variability of Seismic Ground Motions for Soil-Structure Interaction Analysis. <https://tel.archives-ouvertes.fr/tel-01544447>.

Touhami, S., Alves-Fernandes, V., Lopez Caballero, F. Structure-soil-structure interaction analysis of NUPEC test cases. COMPDYN 2017. Rhodes Island, Greece, 15–17 June, 2017.

Alves-Fernandes, V., Banci, F., Devesa, G., Greffet, N., Jacquet, M., Kham, M., Nieto-Ferro, A., Volodire, F., Zentner, I. Dynamic soil-structure interaction modeling strategies applied to Kashiwazaki-Kariwa nuclear power plant case-study. COMPDYN 2017. Rhodes Island, Greece, 15–17 June, 2017.

1.8 Mécanique de la rupture

D. Colombo, P. Massin, Level set propagation for mixed mode crack advance, European Journal of Computational Mechanics, Vol. 21, Issue 3-6, pp. 219-230, 2012.

Y. Wadier, H.N. Le, R. Bargellini, An energy approach to predict cleavage fracture under non-proportional loading, Engineering Fracture Mechanics 97 (2013) 30–51.

Matthieu Le Cren, Patrick Massin. Méthode de fast marching pour la propagation de fissures 3D dans Code_Aster. 12e Colloque national en calcul des structures, May 2015, Giens, France.

G Ferté, Patrick Massin, N. Moes. 3D crack propagation with cohesive elements in the extended finite element method. Comput.methods Appl.Mech.Engrg, 2016, 300, pp.347-374.

1.9 Recalage

1.10 Méthodes probabilistes

1.11 Conditions aux limites et de liaisons

1.12 Mécanique non linéaire

1.13 Solveurs algébriques

1.14 Fatigue

1.15 Thermo-hydro-mécanique couplée

1.16 Contact et frottement

I. Nistor, M. L. E. Guiton, P. Massin, N. Moës, S. Geniaut, An X-FEM approach for large sliding contact along discontinuities, International Journal for Numerical Methods in Engineering, vol. 78, n°12, pp. 1407-1435, 2009.

1.17 Grandes déformations et grands déplacements

D. Al Akhrass, S. Drapier, J. Bruchon and S. Fayolle, Integrating a logarithmic-strain based hyperelastic formulation into a three-field mixed finite elemnt formulation to deal with incompressibility in finite-strain elastoplasticity. Finite Elements in Analysis and Design. Volume 86, September 2014, pp. 61-70.

1.18 Flambement

1.19 Thermique

1.20 Interaction fluide-structure

1.21 Analyse limite

François Volodire. Regularised Limit Analysis and Applications to the Load Carrying Capacities of Mechanical Components, 2000-09-11, European Congress on Computational Methods (ECCOMAS 2000), Barcelona.

François Volodire. Chapter in Book: Limit analysis by the Norton-Hoff-Friedrich regularising method. Numerical Methods for Limit and Shakedown Analysis. Deterministic and Probabilistic Problems. Edited by M.Heitzer and M.Staat. NIC Series, Volume 15, ISBN : 3-00-010001-6, John von Neumann Institute for Computing Publishers, 2003.

1.22 Estimateurs d'erreur

1.23 Outil-métiers

2 Lois de comportement

2.1 Éléments discrets et de poutres

2.2 Thermo-élasticité

2.3 Élastoplasticité incrémentale

Thomas Helfer, Jean-Michel Proix, Olivier Fandeur. Implantation de lois de comportement mécanique à l'aide de MFront: simplicité, efficacité, robustesse et portabilité. 12^{ème} Colloque national en calcul des structures, May 2015, Giens, France.

2.4 Élastoviscoplasticité sous irradiation

2.5 Comportement des métaux polycristallins

2.6 Géo-matériaux et milieux poreux

Ioanna Rapti, Arézou Modaressi-Farahmand Razavi, Alexandre Foucault, Fernando Lopez-Caballero, François Voldoire. Coupled S-P wave propagation in nonlinear regularized micromorphic media. Computers and Geotechnics, Elsevier, 2016, 77 (1), pp.106 – 114.

Rita Riedlbeck, Daniele Di Pietro, Alexandre Ern, Sylvie Granet, Kyrylo Kazymyrenko. Stress and flux reconstruction in Biot's poro-elasticity problem with application to a posteriori error analysis. Computers and Mathematics with Applications, Elsevier, 2017, 73 (7), pp.1593-1610.

Ioanna Rapti, Fernando Lopez-Caballero, Arézou Modaressi-Farahmand Razavi, Alexandre Foucault, François Voldoire. Liquefaction analysis and damage evaluation of embankment-type structures. Acta Geotechnica, Springer Verlag, 13, February 2018, DOI [10.1007/s11440-018-0631-z](https://doi.org/10.1007/s11440-018-0631-z).

2.7 Comportement des bétons

P. Badel, V. Godard, J.-B. Leblond, Application of some anisotropic damage model to the prediction of the failure of some complex industrial concrete structure, International Journal of Solids and Structures, Vol.44, Issues 18-19, pp.5848-5874, 2007.

2.8 Comportement du béton armé

D. Markovic, P. Koechlin, F. Voldoire. Reinforced concrete structures under extreme loading: Stress resultant Global Reinforced Concrete Models (GLRC). CompDyn, Rethymno, Crete, 13–16 June 2007.

Ch. Combescure, H. Dumontet, F. Voldoire. Dissipative Homogenised Reinforced Concrete (DHRC) constitutive model dedicated to reinforced concrete plates under seismic loading. International Journal of Solids and Structures, Volume 73–74, November 2015, Pages 78–98. <https://hal.inria.fr/hal-01634203>. DOI: [10.1016/j.ijsolstr.2015.07.007](https://doi.org/10.1016/j.ijsolstr.2015.07.007).

2.9 Comportement des armatures dans les structures en béton armé

2.10 Endommagement

P. Badel, V. Godard, J.-B. Leblond, Application of some anisotropic damage model to the prediction of the failure of some complex industrial concrete structure, International Journal of Solids and Structures, Vol.44, Issues 18-19, pp.5848-5874, 2007.

E. Lorentz, V. Godard, Gradient damage models : toward full-scale computations, Comput. Meth. Appl. Mech. Engrg. 200, pp. 1927-1944, 2011.

2.11 Modèles métallurgiques

F. Waeckel, P. Dupas, S. Andrieux. A Thermo-Metallurgical Model for Steel Cooling Behaviour: Proposition, Validation and Comparison with the Sysweld's Model. Journal de Physique IV, Volume 6, janvier 1996.

2.12 Visco-élasticité

2.13 Élastoviscoplasticité des métaux

E. Lorentz, J. Besson, V. Cano, Numerical simulation of ductile fracture : an efficient and robust implementation of the Rousselier constitutive law, Computer Methods in Applied Mechanics and Engineering, 197, pp. 1965-1982, 2008.

Zhang Y, Lorentz E, Besson J. Ductile damage modelling with locking-free regularised GTN model. Int J Numer Methods Eng., Vol. 113, pp.1871–1903, 2013. <https://doi.org/10.1002/nme.5722>

2.14 Lois cohésives et de joints

E. Lorentz, S. Cuvilliez, K. Kazymyrenko, Convergence of a gradient damage model toward a cohesive zone model, CR Mécanique 339, pp. 20-26, 2011.

E. Lorentz, S. Cuvilliez, K. Kazymyrenko, Modelling large crack propagation : from gradient damage to cohesive zone models, Int. J. Fracture, Vol. 178, n°1-2, pp. 85-95, 2012.

G. Debruyne, J. Laverne, P.-E. Dumouchel, Dynamic crack growth : analytical and numerical CZM approaches from basic tests to industrial structures, Engineering Fracture Mechanics, Vol. 90, pp. 1-29, 2012.

S. Cuvilliez, F. Feyel, E. Lorentz, S. Michel-Ponnelle, A Finite Element approach coupling a continuous gradient damage model and a cohesive zone model within the framework of quasi-brittle failure, CMAME, Vol. 237-240, pp. 244-259, 2012.

3 Éléments finis

3.1 Éléments finis

R. Fernandes, C. Chavant, R. Chambon, A simplified second gradient model for dilatant materials : theory and numerical implementation, International Journal of Solids and Structures, 45, pp. 5289-5307, 2008.

R. Bargellini, J. Besson, E. Lorentz, S. Michel-Ponnelle, A non local finite element based on volumetric strain gradient : application to ductile fracture, Computational Materials Science, Vol 45, pp. 762-767, 2009.

3.2 Éléments de structure

3.3 Éléments finis incompressibles

3.4 Éléments de joints, d'interface et de discontinuités