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List of publications*

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1 Journal articles

[J1] É. Kaeshammer, S. Belon, L. Borne, F. Willot, and P. Dokládal. "Dynamics simulations of RDX-based explosive materials during impact: role of the microstructure". In: *Computational Material Science* (2024).

[J2] P. Rieder, M. Neumann, L. Monteiro Fernandes, A. Mullard, H. Proudhon, F. Willot, and V. Schmidt. "Stochastic microstructure modeling of twinned polycrystals for investigating the mechanical behavior of γ-TiAl intermetallics". In: *Journal of Computational Material Science* (2024). arXiv pre-print cond-mat.mtrl-sci 2401.08349.

[J3] J. Amrioui, M. Duc, A. Le Kouby, J.-S. Guedon, L. Saussaye, S. Hemmati, F. Willot, and P. Dokladal. "Characterization by image analysis of materials heterogeneities produced by the Deep Soil Mixing technique". In: *Materials Today: Proceedings* (2023).

[J4] M. Mohammadi, S. Velasco-Forero, F. Willot, M. Sangalli, J. Angulo, and T. Walter. "Choquet Capacity networks for random point process classification". In: (2023). Proceedings of the 14$^{\text{rd}}$ International Symposium on Continuum Models and Discrete Systems, Paris, June 26–30. Hal: hal-04250560.

[J5] L. Monteiro Fernandes, P. Rieder, M. Neumann, H. Proudhon, V. Schmidt, and F. Willot. "Effect of crystallographic twins on the elasto-plastic response of polycrystals". In: *Proceedings in Mathematics and Statistics* (2023). Proceedings of the 14$^{\text{th}}$ conference on Continuous Models and Discrete Systems, Paris, June 26–30. Hal: hal-04385959.

*as of March 7, 2024.

[J6] S. Schäfer, F. Willot, M. N. Rad, S. T. Kelly, D. Enke, and J. Martins de Souza e Silva. "Intermittent in-situ high-resolution X-ray microscopy of 400-nm porous glass under uniaxial compression: study of pore changes and crack formation". In: *arXiv preprint arXiv:2307.01611* (2023). Hal: hal-04385906.

[J7] F. Willot and M. I. Idiart. "Effective conductivity of a nonlinear differential laminate assemblage". In: *Proceedings of the Royal Society A* (2023). DOI: hal-04386013.

[J8] S. Flouriot, V. de Rancourt, N. Authier, L. Lacourt, S. Forest, D. Ryckelynck, and F. Willot. "Fatigue life modeling of titanium alloy welds". In: *Chocs* 51 (2022), pp. 61–68. Hal: hal-03891328.

[J9] H. Launay, D. Ryckelynck, L. Lacourt, J. Besson, A. Mondon, and F. Willot. "Deep Multimodal autoencoder for crack criticality assessment". In: *International Journal for Numerical Methods in Engineering* 123.6 (2022), pp. 1456–1480. DOI: 10.1002/nme.6905. Hal: hal-03510024.

[J10] S. Weiller, F. Delloro, F. Willot, A. Thorel, M. Jeandin, and C. Garion. "Influence of Porosity on Ultra-High Vacuum Gas-Tightness in Cold-Sprayed Aluminum Coatings". In: *Transport in Porous Media* 144.2 (2022), pp. 339–366. DOI: 10.1007/s11242-022-01806-3. Hal: hal-03834713.

[J11] S. Belon, É Kaeshammer, F. Willot, P. Dokladal, and L. Borne. "Analyse et génération de microstructures numériques d'explosifs". In: *Chocs* 51 (2021), p. 48. Hal: hal-03891348.

[J12] B. Figliuzzi, A. Montaux-Lambert, F. Willot, G. Naudin, P. Dupuis, B. Querleux, and É. Huguet. "A Bayesian approach to morphological models characterization". In: *Image Analysis & Stereology* 40.2 (2021), pp. 171–180. DOI: 10.5566/ias.2641. Hal: hal-03510046.

[J13] É. Kaeshammer, L. Borne, F. Willot, P. Dokládal, and S. Belon. "Morphological characterization and elastic response of a granular material". In: *Computational Material Science* 190 (2021), p. 110247. DOI: 10.1016/j.commatsci.2020.110247. Hal: hal-03115043.

[J14] P. Lafourcade, C. Denoual, J.-B. Maillet, H. Trumel, M. Biessy, F. Rabette, O. Castelnau, K. Derrien, and F. Willot. "Multiscale modeling of solid explosives thermomechanical behaviour". In: *Chocs* 51 (2021), pp. 44–51. Hal: hal-04385822.

[J15] H. Launay, J. Besson, D. Ryckelynck, and F. Willot. "Hyper-reduced arc-length algorithm for stability analysis in elastoplasticity". In: *International Journal of Solids and Structures* 208–209 (2021), pp. 167–180. DOI: 10.1016/j.ijsolstr.2020.10.014. Hal: hal-03088229.

[J16] H. Launay, F. Willot, D. Ryckelynck, and J. Besson. "Mechanical assessment of defects in welded joints: morphological classification and data augmentation". In: *Journal of Mathematics in Industry: Shape, Form and Patterns in Medicine, Biotechnology and Materials Science* 11.18 (2021), pp. 1–19. DOI: 10.1186/s13362-021-00114-7. Hal: hal-03417140.

[J17] H. Trumel, F. Willot, T. Peyres, M. Biessy, and F. Rabette. "The irreversible thermal expansion of an energetic material". In: *Journal of Theoretical, Computational and Applied Mechanics* (2021). Online at https://hal.archives-ouvertes.fr/hal-03110877. DOI: 10.46298/jtcam.7091. Hal: hal-03110877.

[J18] V. Bortolussi, B. Figliuzzi, F. Willot, M. Faessel, and M. Jeandin. "Electrical conductivity of metal-polymer cold spray composite coatings onto carbon fiber-reinforced polymer". In: *Journal of Thermal Spray Technology* 29.4 (2020), pp. 642–656. DOI: 10.1007/s11666-020-00999-7. Hal: hal-03087970.

[J19] F. Cadiou, T. Douillard, F. Willot, J.-C. Badot, B. Lestriez, and E. Maire. "Effective electronic and ionic conductivities of dense EV-designed NMC-based positive electrodes using Fourier based numerical simulations on FIB/SEM volumes". In: *Journal of The Electrochemical Society* 167.14 (2020), p. 140504. DOI: 10.1149/1945-7111/abbf68. Hal: hal-03011766.

[J20] M. Neumann, O. Stenzel, F. Willot, L. Holzer, and V. Schmidt. "Quantifying the influence of microstructure on effective conductivity and permeability: virtual materials testing". In: *International Journal of Solids and Structures* 184 (2020), pp. 211–220. DOI: 10.1016/j.ijsolstr.2019.03.028. Hal: hal-02425310.

[J21] F. Willot. "The effective conductivity of strongly nonlinear media: the dilute limit". In: *International Journal of Solids and Structures* 184 (2020), pp. 287–295. DOI: 10.1016/j.ijsolstr.2019.06.006. Hal: hal-02425307.

[J22] F. Willot, R. Brenner, and H. Trumel. "Elastostatic field distributions in polycrystals and cracked media". In: *Philosophical Magazine* 100.6 (2020), pp. 661–687. DOI: 10.1080/14786435.2019.1699669. Hal: hal-02425491.

[J23] F. Willot and S. Forest. "Preface to a Special Issue of the International Journal of Solids and Structures on Physics and Mechanics of Random Structures: From Morphology to Material Properties In honor of Professor Dominique Jeulin (Mines ParisTech)". In: *International Journal of Solids and Structures* 184 (2020), pp. 1–2. DOI: 10.1016/j.ijsolstr.2019.10.005. Hal: hal-02425302.

[J24] F. Cadiou, A. Etiemble, T. Douillard, F. Willot, O. Valentin, J.-C. Badot, B. Lestriez, and E. Maire. "Numerical prediction of multiscale electronic conductivity of Lithium-ion battery positive electrodes". In: *Journal of the Electrochemical Society* 166.8 (2019), A1692–A1703. DOI: 10.1149/2.1221908jes. Hal: hal-02137415.

[J25] M. Neumann, B. Abdallah, L. Holzer, F. Willot, and V. Schmidt. "Stochastic 3D modeling of three-phase microstructures for the prediction of transport properties in solid oxide fuel cells". In: *Transport in Porous Media* 128.1 (2019), pp. 179–200. DOI: 10.1007/s11242-019-01240-y. Hal: hal-02103129.

[J26] J. Serra and F. Willot. "Special topic on multiscale modeling of granular media: a tribute to Prof. Dominique Jeulin". In: *Image Analysis & Stereology* 38.1 (2019), pp. 1–2. DOI: 10.5566/ias.2146. Hal: hal-02102998.

[J27] F. Willot, H. Trumel, and D. Jeulin. "The thermoelastic response of cracked polycrystals with hexagonal symmetry". In: *Philosophical Magazine* 99.5 (2019), pp. 606–630. DOI: 10.1080/14786435.2018.1547432. Hal: hal-02003023.

[J28] V. Bortolussi, B. Figliuzzi, F. Willot, M. Faessel, and M. Jeandin. “Morphological modeling of cold spray coatings”. In: *Image Analysis & Stereology* 37.2 (2018), pp. 145–158. DOI: 10.5566/ias.1894. Hal: hal-01837906.

[J29] J.-B. Gasnier, F. Willot, H. Trumel, D. Jeulin, and J. Besson. “Thermoelastic properties of microcracked polycrystals. Part I: Adequacy of Fourier-based methods for cracked elastic bodies”. In: *International Journal of Solids and Structures* 155 (2018), pp. 248–256. DOI: 10.1016/j.ijsolstr.2018.07.024. Hal: hal-01932739.

[J30] J.-B. Gasnier, F. Willot, H. Trumel, D. Jeulin, and M. Biessy. “Thermoelastic properties of microcracked polycrystals. Part II: The case of jointed polycrystalline TATB”. In: *International Journal of Solids and Structures* 155 (2018), pp. 257–274. DOI: 10.1016/j.ijsolstr.2018.07.025. Hal: hal-01932771.

[J31] H. Wang, D. Jeulin, F. Willot, L. Sorbier, and M. Moreaud. “Modelling of the microstructure of mesoporous alumina constrained by morphological simulation of nitrogen porosimetry”. In: *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 553 (2018), pp. 378–396. DOI: doi10.1016/j.colsurfa.2018.05.043. Hal: hal-01821865.

[J32] T. Prill, D. Jeulin, F. Willot, J. Balach, and F. Soldera. “Prediction of Effective Properties of Porous Carbon Electrodes from a Parametric 3D Random Morphological Model”. In: *Transport in Porous Media* 120.1 (2017), pp. 141–165. DOI: 10.1007/s11242-017-0913-1. Hal: hal-01678694.

[J33] H. Trumel, F. Bernard, J.-B. Gasnier, F. Willot, and D. Jeulin. “A mesoscopic simulation tool for TATB-based explosives”. In: *Chocs Focus* 5 (2017), pp. 22–23.

[J34] H. Wang, F. Willot, M. Moreaud, Rivallan M., Sorbier L., and D. Jeulin. “Numerical simulation of hindered diffusion in $\gamma-$alumina catalyst supports”. In: *Oil & Gas Science and Technology* 72.2 (2017). DOI: 10.2516/ogst/2017002. Hal: hal-01487954.

[J35] F. Willot. “Mean covariogram of cylinders and applications to Boolean random sets”. In: *Journal of Contemporary Mathematical Analysis* 52.6 (2017), pp. 305–315. DOI: 10.3103/S1068362317060061. Hal: hal-01678545.

[J36] B. Abdallah, F. Willot, and D. Jeulin. “Morphological modeling of three-phase microstructures of anode layers using SEM images”. In: *Journal of Microscopy* 263.1 (2016), pp. 51–63. DOI: 10.1111/jmi.12374. Hal: hal-01258887.

[J37] J. Escoda, F. Willot, D. Jeulin, J. Sanahuja, and C. Toulemonde. “Influence of the multiscale distribution of particles on elastic properties of concrete”. In: *International Journal of Engineering Science* 98 (2016), pp. 60–71. DOI: 10.1016/j.ijengsci.2015.07.010. Hal: hal-01238640.

[J38] B. Figliuzzi, D. Jeulin, M. Faessel, F. Willot, M. Koishi, and N. Kowatari. “Modelling the microstructure and the viscoelastic behaviour of carbon black filled rubber materials from 3D simulations”. In: *Technische Mechanik* 36.1–2 (2016), pp. 22–46. DOI: 10.24352/UB.OVGU-2017-009. Hal: hal-01263932.

[J39] F. Willot, B. Abdallah, and D. Jeulin. “The permeability of Boolean sets of cylinders”. In: *Oil & Gas Science and Technology* 71.52 (2016). DOI: 10.2516/ogst/2016003. Hal: hal-01490444.

[J40] B. Abdallah, F. Willot, and D. Jeulin. “Stokes flow through a Boolean model of spheres: Representative volume element”. In: *Transport in Porous Media* 109.3 (2015), pp. 711–726. DOI: 10.1007/s11242-015-0545-2. Hal: hal-01232510.

[J41] A. Ambos, F. Willot, D. Jeulin, and H. Trumel. “Numerical modeling of the thermal expansion of an energetic material”. In: *International Journal of Solids and Structures* 60–61 (2015), pp. 125–139. DOI: 10.1016/j.ijsolstr.2015.02.025. Hal: hal-01118112.

[J42] E. Couka, F. Willot, P. Callet, and D. Jeulin. “Optical response of a hematite coating: ellipsometry data vs. Fourier-based computations”. In: *Advanced Science, Engineering and Medicine* 7.11 (2015), pp. 925–931. DOI: 10.1166/asem.2015.1790. Hal: hal-01232497.

[J43] E. Couka, F. Willot, and D. Jeulin. “A mixed Boolean and deposit model for the modeling of metal pigments in paint layers”. In: *Image Analysis & Stereology* 34.2 (2015), pp. 125–134. DOI: 10.5566/ias.1220. Hal: hal-01154597.

[J44] E. Couka, F. Willot, and D. Jeulin. “Corrigendum: a mixed Boolean and deposit model for the modeling of metal pigments in paint layers”. In: *Image Analysis & Stereology* 34.3 (2015), p. 145. DOI: 10.5566/ias.1417. Hal: hal-01232489.

[J45] E. Couka, F. Willot, D. Jeulin, M. Ben Achour, A. Chesnaud, and A. Thorel. “Modeling of the multiscale dispersion of nanoparticles in a hematite coating”. In: *Journal of Nanoscience and Nanotechnology* 15.5 (2015), pp. 3515–3521. DOI: 10.1166/jnn.2015.9855. Hal: hal-00965908.

[J46] J. Escoda, D. Jeulin, F. Willot, and C. Toulemonde. “3D morphological modeling of concrete using multiscale Poisson polyhedra”. In: *Journal of Microscopy* 258.1 (2015), pp. 31–48. DOI: 10.1111/jmi.12213. Hal: hal-01096766.

[J47] J.-B. Gasnier, F. Willot, H. Trumel, B. Figliuzzi, D. Jeulin, and M. Biessy. “A Fourier-based numerical homogenization tool for an explosive material”. In: *Matériaux & Techniques* 103.3 (2015), p. 308. DOI: 10.1051/mattech/2015019. Hal: hal-01141495.

[J48] H. Wang, A. Pietrasanta, D. Jeulin, F. Willot, M. Faessel, Sorbier L., and M. Moreaud. “Modeling of mesoporous alumina microstructure by 3D random models of platelets”. In: *Journal of Microscopy* 260.3 (2015), pp. 287–301. DOI: 10.1111/jmi.12295. Hal: hal-01170616.

[J49] F. Willot. “Fourier-based schemes for computing the mechanical response of composites with accurate local fields”. In: *Comptes Rendus Mécanique* 343.3 (2015), pp. 232–245. DOI: 10.1016/j.crme.2014.12.005. Hal: hal-01096757.

[J50] F. Willot. “The power laws of geodesics in some random sets with dilute concentration of inclusions”. In: *Lecture Notes in Computer Science* 9082 (2015). Proceedings of the 12$^{\text{th}}$ International Symposium on Mathematical Morphology, Reykjavik, May 27-29, pp. 535–546. DOI: 10.1007/978-3-319-18720-4_45. Hal: hal-01247120.

[J51] H. Altendorf, D. Jeulin, and F. Willot. “Influence of the fiber geometry on the macroscopic elastic and thermal properties”. In: *International Journal of Solids and Structures* 51.23 (2014), pp. 3807–3822. DOI: 10.1016/j.ijsolstr.2014.05.013. Hal: hal-01002835.

[J52] F. Willot, B. Abdallah, and Y.-P. Pellegrini. “Fourier-based schemes with modified Green operator for computing the electrical response of madia with accurate local fields”. In: *International Journal for Numerical Methods in Engineering* 98.7 (2014), pp. 518–533. DOI: 10.1002/nme.4641.

[J53] D. Azzimonti, F. Willot, and D. Jeulin. “Optical properties of deposit models for paints: full-fields FFT computations and representative volume element”. In: *Journal of Modern Optics* 60.7 (2013), pp. 519–528. DOI: 10.24352/UB.OVGU-2017-009. Hal: hal-00836118.

[J54] F. Dunant C., B. Bary, B. Giorla A., C. Péniguel, J. Sanahuja, C. Toulemonde, B. Tran A., F. Willot, and J. Yvonnet. “A critical comparison of several numerical methods for computing effective properties of highly heterogeneous materials”. In: *Advances in Engineering Software* 58 (2013), pp. 1–12. DOI: 10.1016/j.advengsoft.2012.12.002. Hal: hal-00804043.

[J55] F. Willot, L. Gillibert, and D. Jeulin. “Microstructure-induced hotspots in the thermal and elastic responses of granular media”. In: *International Journal of Solids and Structures* 50.10 (2013), pp. 1699–1709. DOI: 10.1016/j.ijsolstr.2013.01.040. Hal: hal-00728155.

[J56] Y.-P. Pellegrini and F. Willot. “Generalized two-body self-consistent theory of random linear dielectric composites: an effective-medium approach to clustering in highly-disordered media”. In: *arXiv Disordered Systems and Neural Networks* 1206.0857 (2012). Online at https://arxiv.org/abs/1206.0857.

[J57] J. Escoda, F. Willot, D. Jeulin, J. Sanahuja, and C. Toulemonde. “Estimation of local stresses and elastic properties of a mortar sample by FFT computation of fields on a 3D image”. In: *Cement and Concrete Research* 41.5 (2011), pp. 542–556. DOI: 10.1016/j.cemconres.2011.02.003. Hal: hal-00553658.

[J58] A. Jean, F. Willot, S. Cantournet, S. Forest, and D. Jeulin. “Large-Scale computations of effective elastic properties of rubber with carbon black fillers”. In: *International Journal for Multiscale Computational Engineering* 9.3 (2011), pp. 271–303. DOI: 10.1615/IntJMultCompEng.v9.i3.30. Hal: hal-00661612.

[J59] F. Willot and D. Jeulin. “Elastic and electrical behavior of some random multiscale highly-contrasted composites”. In: *International Journal for Multiscale Computational Enginneering: special issue on multiscale modeling and uncertainty quantification of heterogeneous materials* 9.3 (2011), pp. 305–326. DOI: 10.1615/IntJMultCompEng.v9.i3.40. Hal: hal-00553376.

[J60] M.I. Idiart, F. Willot, Y.-P. Pellegrini, and P. Ponte Castañeda. “Infinite-contrast periodic composites with strongly nonlinear behavior: effective-medium theory versus full-field simulations”. In: *International Journal of Solids and Structures* 46.18 (2009), pp. 3365–3382. DOI: 10.1016/j.ijsolstr.2009.05.009.

[J61] F. Willot and D. Jeulin. “Elastic behavior of composites containing Boolean random sets of inhomogeneities”. In: *International Journal of Engineering Science* 47.2 (2009), pp. 313–324. DOI: 10.1016/j.ijengsci.2008.09.016. Hal: hal-00426398.

[J62] F. Willot, Y.-P. Pellegrini, M.I. Idiart, and P. Ponte Castañeda. “Effective-medium theory for infinite-contrast two-dimensionally periodic linear composites with strongly anisotropic matrix behavior: dilute limit and crossover behavior”. In: *Physical review B* 78.10 (2008), p. 104111. DOI: 10.1103/PhysRevB.78.104111.

[J63] F. Willot, Y.-P. Pellegrini, and P. Ponte Castañeda. “Localization of elastic deformation in strongly anisotropic, porous, linear materials with periodic microstructures: exact solutions and dilute expansions”. In: *Journal of the Mechanics and Physics of Solids* 56.4 (2008), pp. 1245–1268. DOI: 10.1016/j.jmps.2007.10.002.

2 Proceedings

[P1] J. Amrioui, M. Duc, A. Le Kouby, J.-S. Guedon, L. Saussaye, M. Bornert, P. Aimedieu, S. Hemmati, F. Willot, and P. Dokladal. “Characterization by image analysis of materials heterogeneities produced by the Deep Soil Mixing technique”. In: *Materials Today: Proceedings*. Recent Advancements in Construction Materials & Structures, Dec. 13-20, 2022. Calicut, India, 2023. DOI: 10.1016/j.matpr.2023.03.720.

[P2] L.-H. Brassart, S. Blusseau, F. Willot, F. Delloro, M. Jeandin, and A.-F. Gourgues-Lorenzon. “Quantitative characterization of ductility for fractographic analysis”. In: *Progress in Industrial Mathematics at ECMI 2021*. Ed. by M. Ehrhardt and M. Günther. Vol. 39. Mathematics in Industry. 2023, pp. 349–355. DOI: 10.1007/978-3-031-11818-0_46. Hal: hal-03886886.

[P3] F. Cadiou, T. Douillard, N. Besnard, F. Willot, E. Maire, and B. Lestriez. “Study of the Impact of Microstructure on the Effective Electrical Properties of Composite Electrodes for Lithium-Ion Batteries – Acquisition And Simulations on Real Microstructures”. In: *ECS Meeting Abstracts Composite Electrodes*. Vol. MA2020-01. 18th International Meeting on Chemical Sensors (IMCS 2020) May 10, 2020 – May 14, 2020. Online at https://doi.org/10.1149/MA2020-01492727mtgabs. Montreal, Canada: IOP Science, 2020, p. 2727.

[P4] É. Kaeshammer, P. Dokládal, F. Willot, S. Belon, and L. Borne. “Generation of virtual microstructures of energetic materials based on micro-computed tomography images analysis”. In: 50^{th} International Annual Conference of ICT, Energetic Materials: Past, Present and Future, June 25–28. Online at https://hal.archives-ouvertes.fr/hal-02139566. Karlsruhe: Fraunhofer ICT, 2019.

[P5] É. Kaeshammer, P. Dokládal, F. Willot, B. Erzar, S. Belon, and L. Borne. “A morphological study of energetic materials: analysis of micro-computed tomography images to generate representative microstructures”. In: Europyro 2019. 44^{th} International Pyrotechnics Seminar, Tours, France, June 3–7. Online at https://hal.archives-ouvertes.fr/hal-02139567. Tours: Af3P, 2019.

[P6] L. Lacourt, S. Forest, F. N'Guyen, D. Ryckelynck, F. Willot, S. Flouriot, V. de Rancourt, and A. Thomas. "Étude numérique de la nocivité des défauts dans les soudures". In: Colloque Mécamat, Aussois, France, January 21-25, 2019. Aussois: Mécamat, 2019.

[P7] L. Lacourt, S. Forest, D. Ryckelynck, F. Willot, S. Flouriot, and V. de Rancourt. "Étude numérique de la nocivité des défauts dans les soudures". In: *Colloque National en Calcul des Structures, Giens, France, May 13-17, 2019*. Online at https://hal.archives-ouvertes.fr/hal-02412756. Presqu'île de Giens: Computational Structural Mechanics Association, 2019.

[P8] F. Rabette, H. Trumel, and F. Willot. "Modélisation multiéchelle par champ de phase de la microfissuration d'un polycristal organique de forte anisotropie cristalline par FFT". In: Colloque National en Calcul des Structures, Giens, France, May 13-17, 2019. Online at https://hal.archives-ouvertes.fr/hal-02412743. Presqu'île de Giens: Computational Structural Mechanics Association, 2019.

[P9] F. Rabette, F. Willot, and H. Trumel. "Homogénéisation en champs complets par FFT pour un matériau énergétique à forte anisotropie cristalline : prise en compte de la microfissuration par une méthode de champ de phase". In: Colloque Mécamat, Aussois, France, January 21-25. Online at https://hal.archives-ouvertes.fr/hal-02311629. Aussois: Mécamat, 2019.

[P10] H. Trumel, F. Rabette, F. Willot, R. Brenner, E. Ongari, M. Biessy, and D. Picart. "Understanding the thermomechanical behavior of a TATB-based explosive via microstructure-level simulations. Part I: Microcracking and viscoelasticity". In: *Europyro 44th*$^{\text{th}}$ *International Pyrotechnics Seminar*. Tours, France, June 3–7. Online at https://hal.archives-ouvertes.fr/hal-02312483. Tours: Af3P, 2019.

[P11] F. Cadiou, F. Willot, B. Lestriez, J. Adrien, T. Douillard, O. Valentin, and E. Maire. "Étude de l'impact de la microstructure sur les propriétés électriques des batteries lithium-ion : simulations de microstructures réelles et génération d'architectures numériques". In: Colloque Mécamat, Aussois, France, January 22-26, 2018. Online at https://hal.archives-ouvertes.fr/hal-01965255. Aussois: Mécamat, 2018.

[P12] É. Kaeshammer, B. Erzar, S. Belon, F. Willot, P. Dokládal, J. Corbel, and L. Borne. "Étude expérimentale et numérique de la sensibilité de compositions énergétiques : influence de la microstructure et rôle de l'endommagement". In: Colloque Mécamat, Aussois, France, January 22-26, 2018. Online at https://hal.archives-ouvertes.fr/hal-01678704. Aussois: Mécamat, 2018.

[P13] L. Lacourt, S. Forest, F. N'Guyen, D. Ryckelynck, F. Willot, S. Flouriot, V. de Rancourt, and A. Thomas. "Étude numérique de la nocivité des défauts dans les soudures". In: Colloque Mécamat, Aussois, France, January 22-26, 2018. Online at https://hal.archives-ouvertes.fr/hal-01678669. Aussois: Mécamat, 2018.

[P14] M. Koishi, N. Kowatari, B. Figliuzzi, M. Faessel, F. Willot, and D. Jeulin. "Computational material design of filled rubbers using multi-objective design exploration". In: *Proceedings of the European Conference on Constitutive Models for Rubbers X (ECCMR), Munich, Germany (A. Lion, M. Johlitz eds)*. Vol. 10. ISBN 9781138030015. Online at https://hal.archives-ouvertes.fr/hal-01609886. CRC Press, 2017, pp. 467–472.

[P15] L. Lacourt, B. Figliuzzi, S. Forest, D. Ryckelynck, F. Willot, S. Flouriot, V. de Rancourt, and A. Thomas. "Étude de la nocivité des défauts dans les soudures et les pièces obtenues par fabrication additive". In: Colloque Mécamat, Aussois, France, January 23-27, 2017. https://hal.archives-ouvertes.fr/hal-01678663. Aussois: Mécamat, 2017.

[P16] V. Bortolussi, F. Borit, A. Chesnaud, M. Jeandin, M. Faessel, B. Figliuzzi, F. Willot, K. Roche, and G. Surdon. "Cold spray of metal-polymer composite coatings onto Carbon Fiber-Reinforced Polymer (CFRP)". In: vol. 324. Proceedings of the International Thermal Spray Conference (ITSC), Shangai, China, May 10-12, 2016. https://hal.archives-ouvertes.fr/hal-01337696. Shanghai: Deutscher Verlag für Schweisstechnik, 2016, p. 26.

[P17] J.-B. Gasnier, B. Figliuzzi, M. Faessel, F. Willot, D. Jeulin, and H. Trumel. "3D Morphological modeling of a polycrystaline microstructure with non-convex, anisotropic grains". In: *Acta Stereologica: Proceedings of the 14$^{\text{th}}$ International Congress for Stereology and Image Analysis (ICSIA), Liège, July 7-10*. Online at https://hal.archives-ouvertes.fr/hal-01184811, http://popups.ulg.ac.be/0351-580X/index.php?id=3533. 2015.

[P18] D. Masson, B. Abdallah, F. Willot, D. Jeulin, E. Mercadelli, A. Sanson, A. Chesnaud, and A. Thorel. "Morphological modeling of a metal foam SOFC configuration". In: *ECS Transactions*. Vol. 68. 1. Online at https://hal.archives-ouvertes.fr/hal-01142056. Conference on Electrochemical Energy Conversion & Storage with SOFC-XIV, Glasgow, Scotland, July 26-31, 2015. 2015, pp. 2951–2960. DOI: 10.1149/06801.2951ecst.

[P19] A. Ambos, H. Trumel, F. Willot, D. Jeulin, and M. Biessy. "A fast Fourier transform micromechanical upscaling method for the study of the thermal expansion of a TATB-based pressed explosive". In: *Proceedings of the 15$^{\text{th}}$ International Detonation Symposium, San Francisco, CA, July 13-18*. Online at https://hal.archives-ouvertes.fr/hal-01097110. 2014.

[P20] F. Willot. "Numerical homogenization of random media: the FFT method". In: Colloque Mécamat, Aussois, France, January 20-24, 2014. https://hal.archives-ouvertes.fr/hal-01940408. Aussois: Mécamat, 2014.

[P21] J. Escoda, D. Jeulin, and F. Willot. "Simulation of 3D granular media by multiscale random polyhedra". In: *Proceedings of the International Congress of Stereology (ICS11), Beijing*. Online pre-print: https://hal.archives-ouvertes.fr/hal-00879260. 2011.

[P22] J. Escoda, F. Willot, D. Jeulin, J. Sanahuja, and C. Toulemonde. "3D morphological analysis of local elastic fields in a cementitious material". In: *Advances in Structural Engineering and Mechanics (ASEM11), Seoul*. Online pre-print: https://hal.archives-ouvertes.fr/hal-00879268. 2011.

[P23] F. Willot, L. Gillibert, and D. Jeulin. "Étude numérique par FFT et analyse morphologique 3D des points chauds dans les milieux granulaires". In: *20ème Congrès Français de Mécanique, 28 août/2 sept. 2011-25044 Besançon, France (FR)*. Online at https://hal.archives-ouvertes.fr/hal-00878998. Association française de mécanique, PUF de Franche-Comté, 2011, pp. 574–579.

[P24] F. Willot and Y.-P. Pellegrini. "Fast Fourier Transform computations and build-up of plastic deformation in 2D, elastic-perfectly plastic, pixelwise-disordered porous media". In: *D. Jeulin, S. Forest (eds), "Continuum Models and Discrete Systems CMDS 11"*. Online at https://arxiv.org/abs/0802.2488. Paris: École des Mines, 2008, pp. 443–449.

[P25] F. Willot, Y.-P. Pellegrini, and M. Ponte Castañeda Idiart. "Localisation dans les milieux poreux linéaires fortement anisotropes". In: Colloque Mécamat – Approches multi-échelles en mécanique des matériaux, Aussois, France, January 21-25. Aussois: Mécamat, 2006.

3 Book chapters

[C1] H. Launay, F. Willot, D. Ryckelynck, and J. Besson. "Classification of defects in welded joints". In: *Manifold learning for model reduction in engineering*. Ed. by D. Ryckelynck, F. Casenave, and N. Akkari. Basel: Springer, 2023. Chap. 5.3, pp. 130–154. Hal: hal-04386052.

[C2] F. Willot. "Caractérisation et modélisation probabiliste de milieux hétérogènes". In: *Ingénierie mécanique en contexte incertain – Des approches classiques à quelques développements récents*. Ed. by C. Gogu. Online at https://people.cmm.minesparis.psl.eu/users/willot/publi2021a.pdf. London: ISTE Editions, 2021. Chap. 2, pp. 51–90. Hal: hal-03088263.

[C3] F. Willot. "Microstructure modeling and characterization". In: *Mechanical Engineering under Uncertainties – From Classical Approaches to Some Recent Developments*. Ed. by C. Gogu. Online at https://people.cmm.minesparis.psl.eu/users/willot/publi2021b.pdf. London: ISTE Editions, 2021. Chap. 2, pp. 43–82. Hal: hal-03088274.

[C4] A. Vannier-Moreau, F. Willot, and D. Jeulin. "Thermal and linear-elastic properties of lightweight concrete". In: *Physics & Mechanics of Random Media: from Morphology to Material Properties*. Ed. by S. Willot F. & Forest. Online at https://people.cmm.minesparis.psl.eu/users/willot/publi2018a.pdf. Paris: Presses des Mines (ISBN 978-2-35671-529-6), 2018. Chap. 20, pp. 169–176. Hal: hal-01856562.

[C5] F. Willot and S. Guessasma. "Linear-elastic response of starch-based materials: FFT results vs. experimental data". In: *Physics & Mechanics of Random Media: from Morphology to Material Properties*. Ed. by S. Willot F. & Forest. Online at https://people.cmm.minesparis.psl.eu/users/willot/publi2018b.pdf. Paris: Presses des Mines (ISBN 978-2-35671-529-6), 2018. Chap. 21, pp. 177–180. Hal: hal-01856564.

[C6] F. Willot and D. Jeulin. “The nonlinear response of Boolean models: elasticity and conductivity”. In: *Physics & Mechanics of Random Media: from Morphology to Material Properties*. Ed. by S. Willot F. & Forest. Online at https://people.cmm.minesparis.psl.eu/users/willot/publi2018c.pdf. Paris: Presses des Mines (ISBN 978-2-35671-529-6), 2018. Chap. 22, pp. 181–186. Hal: hal-01856565.

4 Book (as editor)

[B1] F. Willot and S. Forest. *Physics & Mechanics of Random Media: from Morphology to Material Properties. A tribute to Dominique Jeulin's contributions to science, research and teaching.* International Workshop in honor of D. Jeulin. Saint-Pierre d'Oléron, France, June 17–22. ISBN 2356715290. Online at https://www.pressesdesmines.com/produit/physics-mechanics-of-random-media-from-morphology-to-material-properties. Paris: Presses des Mines, 2018. Hal: hal-01976785.

5 PhD & habilitation thesis

[T1] F. Willot. “Localization in random media and its effect on the homogenized behavior of materials”. Habilitation thesis (French “Habilitation à Diriger des Recherches”). Online at https://hal.archives-ouvertes.fr/tel-00134643. PhD thesis. Sorbonne Université, 2019.

[T2] F. Willot. “Contribution à l'étude théorique de la localisation plastique dans les poreux”. Online at https://hal.archives-ouvertes.fr/tel-00134643. PhD thesis. École Polytechnique, 2007.

6 Miscellaneous

[M1] CMDS14. *Book of abstracts*. Online at https://people.cmm.minesparis.psl.eu/users/willot/cmds14-bookOfAbstracts.pdf. Retrieved Dec. 21, 2023.