

Marc Bernacki

March 31, 2022

PhD Students

1. **Under recruitment.** *Artificial Intelligence for abnormal and critical grain growth phenomena discrimination and avoidance - Application to Nickel base superalloys.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr E. Hachem, 2022-2025.
Project : [289]
2. **Camille Godinot.** *Etude du soudage par diffusion de l'alliage 800, application à la fabrication d'échangeurs de chaleur compacts.* PhD thesis, Université de Bourgogne - Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr F. Bernard and E. Rigal, 2021-2024
Project : [290]
3. **Romeo Kavege.** *Formation des macles dans les microstructures de superalliages base nickel : mécanismes et simulation numérique.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr N. Bozzolo.
Project : [291]
Communications : [109]
4. **Adrien Talazili.** *Simulation of Wave Propagation in Highly Heterogeneous Media.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2021-2024.
Project : [292]
5. **Elie Delplace.** *HPC and digital twins in metallurgy - 3D front-tracking modeling of evolving interface networks.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2021-2024.
Project : [292]
Communications : [226]
6. **Federico Orlacchio.** *Prédiction des évolutions de microstructure des alliages γ - γ' au cours de la mise en forme de disques de turbine de moteurs de nouvelle génération..* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr N. Bozzolo, 2021-2024.
Project : [291]
Communications : [110]
7. **Antonio Potenciano.** *Maîtrise de l'homogénéité de la taille de grains dans des barres et fils de superalliage base Fer A-286.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr N. Bozzolo, 2021-2024.
Project : [293]
8. **Nitish Chandrappa.** *Development of a global numerical full field framework in order to describe phase interfaces during hot metal forming.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2020-2023.
Project : [292]
Articles: [73]
Communications : [227], [111], [228]

9. **Franco German Jaime.** *Caractérisation et modélisation de la microstructure 3D des superalliages à base nickel.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr N. Bozzolo and Dr A. Nicolay, 2020-2023
Project : [291]
Communications : [112], [113], [114]
10. **Marion Roth.** *Improvement of a mean field model dedicated to the recrystallization simulation.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr N. Bozzolo, 2020-2023.
Project : [292]
Communications : [229]
11. **Victor Grand.** *Caractérisation et modélisation de l'influence de la microstructure initiale sur la recristallisation d'alliages de zirconium lors des procédés de mise en forme à chaud..* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2019-2022.
Project : [292]
Articles: [74], [1], [2]
Communications : [115], [116], [230]
12. **Yacine Nait Abdelaziz.** *Génération et homogénéisation de Volumes Elémentaires Représentatifs (VERs) pour composites à renforts discontinus : vers une meilleure compréhension des mécanismes locaux de déformation et d'endommagement.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Dr J.-L. Bouvard, 2018-2021.
Project : [294]
Communications : [117], [231]
13. **Saoussen Ouhiba.** *Etude de la recristallisation de tôles de nuance AA6005 pour automobiles.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr N. Bozzolo, 2018-2021.
Project : [292]
Communications : [118], [119], [120], [232]
Articles : [3]
14. **Brayan Murgas.** *Towards a precise description of the mobility and its numerical integration in finite element modeling of recrystallization mechanisms.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr N. Bozzolo, 2018-2021.
Project : [292]
Articles: [4], [5], [6], [7], [8], [9], [10], [1]
Communications : [120], [233], [232]
15. **Karen Alvarado.** *Influence of grain boundary pinning on recrystallized grain size homogeneity : multi-scale modelling and application to nickel based superalloys used in aeronautic industry.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Pr N. Bozzolo, 2018-2021.
Project : [292]
Articles: [11], [5], [6], [12], [9], [8], [13]
Communications : [120], [234], [121]
16. **Marco Panella.** *Prediction of the mechanical properties of nickel-based superalloys according to their microstructure.* PhD thesis, ISAE-ENSMA, co-directed with J. Cormier, L. Signor and P. Villechaise, 2017-2020.
Project : [295]
Articles: [75]
Communications : [122], [123], [124]
17. **Luc Védie.** *Experimental investigations and full field modeling of HIP-bonding process.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2017-2020.
Project : [296]
Communications : [125], [120]

18. **David Ruiz.** *Deal with high anisotropies of interface properties and crystal plasticity in context of the level-set method - Application to polycrystal microstructures.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Dr D. Pino Muñoz, 2017-2020.
Project : [292]
Articles: [14], [15], [16]
Communications : [126], [120]
19. **Sebastian Florez.** *Development of new meshing/remeshing capabilities to describe large 3D real or representative polycrystals and grain boundary motion in context of non-uniform finite element mesh.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2017-2020.
Project : [292]
Articles : [5], [6], [12], [7], [9], [8], [106], [13], [10], [17], [76]
Communications : [127], [120], [128], [129], [228], [130]
20. **Jean Furtoss.** *Du cristal à la limite de plaques : approche numérique de la cicatrisation des péridotites.* PhD thesis, UNSA, co-directed with Prof. C. Petit, Dr. C. Ganino and Dr. D. Pino Muñoz, 2017-2020.
Project : [297]
Articles: [14], [18], [19], [20]
Communications: [131], [132], [235],
21. **Julien Fausty.** *Full field FE modeling of annealing twins - Application to nickel-based superalloys.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. N. Bozzolo, 2016-2019.
Project : [295]
Articles : [6], [8], [7], [10], [106], [19], [21], [22], [23]
Post-conference articles : [77]
Communications: [133], [120], [134], [135], [136], [137], [77], [138], [139], [236]
22. **Fang Lu.** *Etude des mécanismes d'endommagement en fatigue multiaxiale des Composites à fibres courtes : Thermoplastiques (PA66) renforcés de fibres de verres .* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with S. Cantournet, J.-L. Bouvard and N. Billon, 2015-2018.
Project : [298]
Communications : [140], [141], [142], [237]
23. **Ludovic Maire.** *Development by homogenization of a new mean field dynamic recrystallization (DRX) model.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. N. Bozzolo and Dr. C. Moussa, 2015-2018.
Project : [299]
Articles : [15], [106], [24], [25], [23], [26], [27]
Post-conference articles : [78], [79], [80]
Communications : [133], [120], [143], [144], [136], [137], [138], [145], [238], [239], [240], [241], [242], [243]
24. **Anthony Seret.** *Forgeage des superalliages base nickel : impact de l'écrouissage résiduel sur la réponse au traitement thermique.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. N. Bozzolo and Dr. C. Moussa, 2015-2018.
Project : [295]
Articles: [28], [29], [30]
Communications : [244], [245], [246]
25. **Victor Manuel Trejo Navas.** *Understanding, Observation, Modeling and Simulation of Ductile Damage Mechanisms.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2015-2018.
Project : [300]
Articles : [31], [32], [33], [150], [35], [36]
Post-conference articles : [81], [82], [83]
Communications : [146], [147], [148], [149], [150], [151], [152], [153], [154], [247], [248], [249], [250], [251], [252]

-
26. **Danai Polychronopoulou.** *Globularization in titanium alloys: experimental analysis and numerical modeling.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. N. Bozzolo, 2014-2017.
Project : [301]
Articles : [37]
Post-conference articles : [84]
Communications : [155], [253], [254], [255]
27. **Romain Boulais-Sinou.** *Development of an efficient level-set framework for the CPFEM.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Dr. D. Pino Muñoz, 2014-2017.
Project : [302]
Articles: [38]
Post-conference articles : [85]
Communications : [156], [157], [256], [255]
28. **Benjamin Scholtes.** *Development of an efficient level-set framework for the numerical modelling of 3D recrystallization.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2013-2016.
Project : [303]
Articles : [25], [26], [27], [38], [39], [40]
Post-conference articles : [79], [78], [86], [80], [87], [85], [88], [89], [90]
Communications : [79], [143], [158], [157], [156], [159], [160], [161], [162], [163], [164], [165], [166], [241], [257], [256], [243], [258], [259], [260], [261], [255], [262]
29. **Modesar Shakoor.** *Numerical modelling of ductile damage at the microscale.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2013-2016.
Project : [304]
Articles : [17], [32], [150], [36], [41], [37], [42], [43], [44], [39], [45], [40], [46]
Post-conference articles : [81], [82], [84], [83], [91], [90]
Book chapter : [107]
Communications : [167], [168], [169], [170], [147], [150], [171], [151], [172], [152], [173], [155], [174], [154], [153], [175], [176], [177], [178], [165], [179], [180], [247], [248], [263], [264], [249], [265], [251], [250], [252], [266], [267], [268], [269], [270]
30. **Abdelouahed Chbihi.** *Understanding and tensorial modeling of void closure mechanisms during hot metal forming processes.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard and Dr. D. Pino Muñoz, 2013-2016.
Project : [305]
Articles : [47]
Post-conference articles : [92], [93]
Communications : [181], [182], [183], [184], [271], [272]
31. **Abbass Toufayli.** *Shot peening of heterogeneous microstructure: numerical modeling and influence on fatigue properties.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2012-2015.
Project : [306]
Communications : [185]
32. **Yuan Jin.** *Annealing twin formation mechanisms.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. N. Bozzolo and Prof. A.D. Rollett, 2011-2014.
Project : [307]
Articles : [48], [187], [50], [51], [52]
Post-conference articles : [94], [95]
Communications : [139], [186], [187], [188], [189], [190], [191], [192], [193], [194], [255], [273]
33. **Andrea Agnoli.** *Origin of inhomogeneous grain growth in inconel 718 forgings.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. N. Bozzolo, 2010-2013.
Project : [308]
-

Articles : [53], [54]

Post-conference articles : [96], [97]

Communications : [191], [192], [195], [196], [197], [198], [274]

34. **Michel Saby**. *Understanding and modeling of void closure mechanisms during hot metal forming processes*. PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2010-2013.
Project : [309]
Articles : [55], [56], [57]
Post-conference articles : [98], [99]
Communications : [199], [200], [201], [202], [203], [271], [272], [275]
35. **Ana-Laura Fabiano**. *Modelling of crystal plasticity and grain boundary motion of 304L steel at the mesoscopic scale*. PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. R. Logé, 2010-2013.
Project : [310]
Articles : [58]
Communications : [204], [205], [192], [206], [276], [277], [278], [274], [279]
36. **Ala Zouaghi**. *HIP of stainless steel 316L considered at the mesoscopic scale: numerical modelling and experimental characterization*. PhD thesis, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. M. Bellet and Prof. Y. Bienvenu, 2009-2012.
Project : [311]
Post-conference articles : [100], [101]
Communications : [207], [280], [281], [282]
37. **Karim Hitti**. *Direct numerical simulation of complex Representative Volume Elements (RVEs) : generation, resolution and homogenization*. PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2008-2011.
Project : [312]
Articles : [59],[60], [61], [62]
Communications : [208], [209], [283], [274], [284]

Postdoctoral Researchers

1. **Under recruitment**. *New insights in the reduced mobility description for the full-field modeling of grain growth*. Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, 2022.
Project : [292]
2. **Houssem Bousoura**. *Développement de matériaux numériques pour l'industrie 4.0: application aux mousses polymères*. Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. J.-L. Bouvard, 2022-2023.
Project : [313]
3. **Sebastian Florez**. *Deep neural network in computational metallurgy*. Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, 2021.
Project : [292] Articles: [5], [6], [12], [7]
4. **Baptiste Flipon**. *Multimaterial database for DIGIMU and optimized acquisition of parameters*. Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, 2019-2020.
Project : [292]
Articles: [106], [1]
5. **Andrew Ryan**. *Reconnaissance, Origin, & Characterization of Small bodies of our Solar System - Uncovering the nature of celestial bodies with methods of material sciences..* Postdoctoral Researcher,

-
- Lagrange-OCA & The University of Tennessee, Knoxville & NASA & CEMEF MINES ParisTech, 2018-2021.
Project : [314]
Articles : [63], [64], [210]
Communications: [210], [211], [212]
6. **Abdellatif Karch.** *DRX and SRX experimental investigations.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. N. Bozzolo and Dr. C. Moussa, 2016-2017.
Project : [301]
Post-conference articles : [80]
Communications : [213], [241]
7. **Lu Tuan Le.** *Dynamic recrystallization modeling by field dislocation mechanics and level-set approaches.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, 2015-2016.
Project : [315]
Articles : [66]
Communications : [214], [285]
8. **Dmitrii Ilin.** *Numerical Metallurgy.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, 2015-2016.
Project : [295]
Articles : [212], [68]
Post-conference articles : [88], [102]
Communications : [160], [215], [258], [255], [283]
9. **Alejandro Pachon.** *Improved modelling of multipass TMCP at the microstructure and process scales of Niobium microalloyed AHSS.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. R. Logé, 2012-2013.
Project : [316]
10. **Karim Hitti.** *Silicon substrates from an integrated automated process.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2012-2013.
Project : [317]
Articles : [69]
Post-conference articles : [103]
Communications : [216], [286]
11. **Stéphanie El Feghali.** *Silicon substrates from an integrated automated process.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2012-2013.
Project : [317]
Articles : [69]
Post-conference articles : [103]
Communications : [208], [286]
12. **Emile Roux.** *The prediction and avoidance of cracking in long product hot rolling – phase 2.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2010-2012.
Project : [318]
Articles : [46], [70], [57]
Post-conference articles : [104]
Book : [108]
Communications : [180], [217], [218], [219], [201], [220], [221], [222], [287]
13. **Zhidan Sun.** *Concerted Research for Analysis of CRACK phenomena during Solidification of steels.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. R. Logé, 2008-2010.
Project : [319]
Articles : [71], [72]
-

Post-conference articles : [105]

Communications : [223], [224]

Post Master's Degree Students

1. **Florent Alexis.** *Polymer foams REVs generation and homogenization: relation between microstructure and mechanical properties.* Post Master's Degree, Ecole Nationale Supérieure des Mines de Paris, co-directed with Dr. J.-L. Bouvard, 2018-2019.
Project: [294]
2. **Simon Delchambre.** *Prediction of void nucleation in High Modulus Fe-TiB2 steel during cold forming process via microscopic simulations.* Post Master's Degree, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2016-2017.
Project : [320]
3. **Ivan Coppo.** *Generation and homogenization of REVs for a polymer composite with discontinuous reinforcements.* Post Master's Degree, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. N. Billon and Dr. J.L. Bouvard, 2015-2016.
Project : [321]
Communications : [142], [237], [288]
4. **Victor Trejo.** *Microstructure of Annealed Tantalum - Modeling of recovery phenomenon.* Post Master's Degree, Ecole Nationale Supérieure des Mines de Paris, co-directed with Dr. C. Moussa, 2014-2015.
Project : [322]
Communications : [225]
5. **Abbass Toufayli.** *SlimCut process.* Post Master's Degree, Ecole Nationale Supérieure des Mines de Paris, co-directed with Prof. P.-O. Bouchard, 2011-2012.
Project : [317]

Articles

- [1] B. Flipon, V. Grand, B. Murgas, A. Nicolay, N. Bozzolo, A. Gaillac, and M. Bernacki. Grain size characterization in metals using different microscopy and post-processing techniques. *Metallurgical and Materials Transactions A*, 174:110977, 2021.
- [2] V. Grand, B. Flipon, A. Gaillac, and M. Bernacki. Characterization and modeling of the influence of initial microstructure on recrystallization of zircaloy-4 during hot forming. *ASTM International*, Submitted, 2022.
- [3] S. Ouhiba, A. Nicolay, L. Boissonnet, M. Bernacki, and N. Bozzolo. Formation of coarse recrystallized grains in 6016 aluminum alloy during holding after hot deformation. *Metallurgical and Materials Transactions A*, Submitted, 2022.
- [4] B. Murgas, B. Flipon, N. Bozzolo, and M. Bernacki. Level-set modeling of grain growth in 316L stainless steel under different assumptions regarding grain boundary properties. *Materials*, 15(7), 2022.
- [5] S. Florez, K. Alvarado, B. Murgas, N. Bozzolo, D. Chatain, C.E. Krill III, M. Wang, G.S. Rhorer, and M. Bernacki. Statistical behaviour of interfaces subjected to curvature flow and torque effects applied to microstructural evolutions. *Acta Materialia*, 222:117459, 2022.
- [6] S. Florez, J. Fausty, K. Alvarado, B. Murgas, and M. Bernacki. A 2D front-tracking lagrangian model for the modeling of anisotropic grain growth. *Materials*, 15(14), 2021.
- [7] B. Murgas, S. Florez, N. Bozzolo, J. Fausty, and M. Bernacki. Comparative study and limits of different level-set formulations for the modeling of anisotropic grain growth. *Materials*, 14(14), 2021.
- [8] S. Florez, J. Fausty, K. Alvarado, B. Murgas, and M. Bernacki. Parallelization of an efficient 2d-lagrangian model for massive multi-domain simulations. *Modelling and Simulation in Materials Science and Engineering*, 29(6):065005, 2021.
- [9] S. Florez, K. Alvarado, and M. Bernacki. A new front-tracking lagrangian model for the modeling of dynamic and post-dynamic recrystallization. *Modelling and Simulation in Materials Science and Engineering*, 29(3):035004, 2021.
- [10] J. Fausty, B. Murgas, S. Florez, N. Bozzolo, and M. Bernacki. A new analytical test case for anisotropic grain growth problems. *Applied Mathematical Modelling*, 93:28–52, 2021.
- [11] K. Alvarado, I. Janeiro, S. Florez, B. Flipon, J.-M. Franchet, D. Locq, C. Dumont, N. Bozzolo, and M. Bernacki. Dissolution of the primary γ' precipitates and grain growth during solution treatment of three nickel base superalloys. *Metals*, 11(12), 2021.
- [12] K. Alvarado, S. Florez, B. Flipon, N. Bozzolo, and M. Bernacki. A level set approach to simulate grain growth with an evolving population of second phase particles. *Modelling and Simulation in Materials Science and Engineering*, 29(3):035009, 2021.
- [13] S. Florez, K. Alvarado, D. Pino Muñoz, and M. Bernacki. A novel highly efficient lagrangian model for massively multidomain simulation applied to microstructural evolutions. *Computer Methods in Applied Mechanics and Engineering*, 367:113107, 2020.
- [14] J. Furstoss, D. Ruiz, M. Bernacki, and D. Pino Muñoz. Handling tensors using tensorial kelvin bases : application to olivine polycrystal deformation modeling using elastically anisotropic CPFEM. *Computational Mechanics*, 67(3):955–967, 2021.
- [15] D. Ruiz, N. Bozzolo, C. Moussa, L. Maire, D. Pino Muñoz, and M. Bernacki. Full field modeling of dynamic recrystallization in a cpfem context - application to 304l steel. *Computational Materials Science*, 184:109892, 2020.
- [16] D. Ruiz, D. Pino Muñoz, and M. Bernacki. A new numerical framework for the full field modeling of dynamic recrystallization in a cpfem context. *Computational Materials Science*, 179:109645, 2020.

-
- [17] S. Florez, M. Shakoor, T. Toulorge, and M. Bernacki. A new finite element strategy to simulate microstructural evolutions. *Computational Materials Science*, 172:109335, 2020.
- [18] J. Furstoss, C. Petit, A. Tommasi, C. Ganino, D. Pino Muñoz, and M. Bernacki. On the role of solute drag in reconciling laboratory and natural constraints on olivine grain growth kinetics. *Geophysical Journal International*, 224(2), 2021.
- [19] J. Furstoss, M. Bernacki, C. Petit, J. Fausty, D. Pino Muñoz, and C. Ganino. Full field and mean field modeling of grain growth in a multiphase material under dry conditions : application to peridotites. *Journal of Geophysical Research: Solid Earth*, 125(1):e2019JB018138, 2020.
- [20] J. Furstoss, M. Bernacki, C. Ganino, C. Petit, and D. Pino-Muñoz. 2D and 3D simulation of grain growth in olivine aggregates using a full field model based on the level set method. *Physics of the Earth and Planetary Interiors*, 283:98–109, 2018.
- [21] J. Fausty, N. Bozzolo, and M. Bernacki. A 2d level-set finite element grain coarsening study with heterogeneous grain boundary energies. *Applied Mathematical Modelling*, 78:505–518, 2020.
- [22] J. Fausty, N. Bozzolo, D. Pino Muñoz, and M. Bernacki. A novel level-set finite element formulation for grain growth with heterogeneous grain boundary energies. *Materials and Design*, 160:578–590, 2018.
- [23] L. Maire, J. Fausty, M. Bernacki, N. Bozzolo, P. De Micheli, and C. Moussa. A new topological approach for the mean field modeling of dynamic recrystallization. *Materials & Design*, 146:194–207, 2018.
- [24] F. Villaret, B. Hary, Y. de Carlan, T. Baudin, R. Logé, L. Maire, and M. Bernacki. Probabilistic and deterministic full field approaches to simulate recrystallization in ods steels. *Computational Materials Science*, 179(2020):109646, 2020.
- [25] A. Settefrati, P. De Micheli, L. Maire, B. Scholtes, N. Bozzolo, C. Moussa, E. Perchat, and M. Bernacki. Prediction of the grain size evolution during thermal treatments at the mesoscopic scale: a numerical framework and industrial examples. *Matériaux & Techniques*, 106(1):105, 2018.
- [26] L. Maire, B. Scholtes, C. Moussa, N. Bozzolo, D. Pino Muñoz, A. Settefrati, and M. Bernacki. Modeling of dynamic and post-dynamic recrystallization by coupling a full field approach to phenomenological laws. *Materials & Design*, 133:498–519, 2017.
- [27] L. Maire, B. Scholtes, C. Moussa, D. Pino Muñoz, N. Bozzolo, and M. Bernacki. Improvement of 3-D mean field models for pure grain growth based on full field simulations. *Journal of Materials Science*, 51(24):10970–10981, 2016. [Download](#).
- [28] A. Seret, C. Moussa, M. Bernacki, and N. Bozzolo. A mean field model of agglomeration as an extension to existing precipitation models. *Acta Materialia*, 192:40–51, 2020.
- [29] A. Seret, C. Moussa, M. Bernacki, J. Signorelli, and N. Bozzolo. Estimation of geometrically necessary dislocation density from filtered ebsd data by a local linear adaptation of smoothing splines (llass). *journal of applied crystallography*, 52:548–563, 2019.
- [30] A. Seret, C. Moussa, M. Bernacki, and N. Bozzolo. On the Coupling between Recrystallization and Precipitation Following Hot Deformation in a γ - γ' Nickel-Based Superalloy. *Metallurgical and Materials Transactions A*, 49(9):4199–4213, 2018.
- [31] V. Trejo, A. Buljac, M. Thilo, F. Hild, M. Bernacki, and P.-O. Bouchard. An examination of local strain fields evolution in ductile cast iron through micromechanical simulations based on 3d imaging. *Journal of Theoretical, Computational and Applied Mechanics*, Accepted 2022, 2021.
- [32] M. Shakoor, V. M. Trejo Navas, D. Pino Muñoz, M. Bernacki, and P.-O. Bouchard. Computational methods for ductile fracture modeling at the microscale. *Archives of Computational Methods in Engineering*, 26(4):1153–1192, 2018.
-

-
- [33] V. M. Trejo Navas, A. Buljac, F. Hild, T. Morgeneyer, L. Helfen, M. Bernacki, and P.-O. Bouchard. A comparative study of image segmentation methods for micromechanical simulations of ductile damage. *Computational Materials Science*, 159:43–65, 2019.
- [34] P.-O. Bouchard, V. M. Trejo Navas, M. Shakoor, T. F. Morgeneyer, A. Buljac, L. Helfen, F. Hild, and M. Bernacki. Recent advances in the finite element modelling of ductile fracture at mesoscale. *Procedia Manufacturing*, 15:39–45, 2018.
- [35] V. M. Trejo Navas, M. Bernacki, and P.-O. Bouchard. Void growth and coalescence in a three-dimensional non-periodic void cluster. *International Journal of Solids and Structures*, 139-140(65-78), 2018.
- [36] A. Buljac, V. M. Trejo Navas, M. Shakoor, A. Bouterf, J. Neggers, M. Bernacki, P.-O. Bouchard, T. F. Morgeneyer, and F. Hild. On the calibration of elastoplastic parameters at the microscale via x-ray microtomography and digital volume correlation for the simulation of ductile damage. *European Journal of Mechanics - A/Solids*, 72:287 – 297, 2018.
- [37] Danai Polychronopoulou, Nathalie Bozzolo, D Pino Muñoz, Julien Bruchon, Modesar Shakoor, Yvon Millet, Christian Dumont, I Freiherr von Thüngen, Rémy Besnard, and Marc Bernacki. Introduction to the level-set full field modeling of laths spheroidization phenomenon in α/β titanium alloys. *International Journal of Material Forming*, 12(2):173–183, 2019.
- [38] B. Scholtes, R. Boulais-Sinou, A. Settefrati, D. Pino Muñoz, I. Poitault, A. Montouchet, N. Bozzolo, and M. Bernacki. 3D level set modeling of static recrystallization considering stored energy fields. *Computational Materials Science*, 122:57–71, 2016. [Download](#).
- [39] B. Scholtes, M. Shakoor, A. Settefrati, P.-O. Bouchard, N. Bozzolo, and M. Bernacki. New finite element developments for the full field modeling of microstructural evolutions using the level-set method. *Computational Materials Science*, 109:388–398, 2015. [Download](#).
- [40] M. Shakoor, B. Scholtes, P.-O. Bouchard, and M. Bernacki. An efficient and parallel level set reinitialization method - application to micromechanics and microstructural evolutions. *Applied Mathematical Modelling*, 39(23-24):7291–7302, 2015. [Download](#).
- [41] M. Shakoor, M. Bernacki, and P.-O. Bouchard. Ductile fracture of a metal matrix composite studied using 3D numerical modeling of void nucleation and coalescence. *Engineering Fracture Mechanics*, 189:110–132, 2018.
- [42] M. Shakoor, A. Buljac, J. Neggers, F. Hild, T. Morgeneyer, L. Helfen, M. Bernacki, and P.-O. Bouchard. On the choice of boundary conditions for micromechanical simulations based on 3D imaging. *International Journal of Solids and Structures*, 112:83–96, 2017.
- [43] A. Buljac, M. Shakoor, J. Neggers, M. Bernacki, P.-O. Bouchard, L. Helfen, T. Morgeneyer, and F. Hild. Numerical validation framework for micromechanical simulations based on synchrotron 3D imaging. *Computational Mechanics*, 59(3):419–441, 2017.
- [44] M. Shakoor, P.-O. Bouchard, and M. Bernacki. An adaptive level-set method with enhanced volume conservation for simulations in multiphase domains. *International Journal for Numerical Methods in Engineering*, 109(4):555–576, 2017. [Download](#).
- [45] M. Shakoor, M. Bernacki, and P.-O. Bouchard. A new body-fitted immersed volume method for the modeling of ductile fracture at the microscale: analysis of void clusters and stress state effects on coalescence. *Engineering Fracture Mechanics*, 147:398–417, 2015. [Download](#).
- [46] E. Roux, M. Shakoor, M. Bernacki, and P.-O. Bouchard. A new finite element approach for modelling ductile damage void nucleation and growth—analysis of loading path effect on damage mechanisms. *Modelling and Simulation in Materials Science and Engineering*, 22(7):075001, 2014. [Download](#).
- [47] A. Chbihi, P.-O. Bouchard, M. Bernacki, and D. Pino Muñoz. Influence of lode angle on modelling of void closure in hot metal forming processes. *Finite Elements in Analysis and Design*, 126:13–25, 2017. [Download](#).
-

-
- [48] Y. Jin, M. Bernacki, A. Agnoli, B. Lin, G.S. Rohrer, A.D. Rollett, and N. Bozzolo. Evolution of the annealing twin density during δ -supersolvus grain growth in the nickel based superalloy inconel™ 718. *Metals*, 6(1):5, 2016. [Download](#).
- [49] B. Lin, Y. Jin, C.M. Hefferan, S.F. Li, J. Lind, R.M. Suter, M. Bernacki, N. Bozzolo, A.D. Rollett, and G.S. Rohrer. Observation of annealing twin nucleation at triple lines in nickel during grain growth. *Acta Materialia*, 99:63–68, 2015. [Download](#).
- [50] Y. Jin, B. Lin, A.D. Rollett, G.S. Rohrer, M. Bernacki, and N. Bozzolo. Thermo-mechanical factors influencing annealing twin development in nickel during recrystallization. *Journal of Materials Science*, 50(15):5191–5203, 2015. [Download](#).
- [51] Y. Jin, N. Bozzolo, A.D. Rollett, and M. Bernacki. 2D finite element modeling of anisotropic grain growth in polycrystalline materials: level set versus multi-phase-field method. *Computational Materials Science*, 104:108–123, 2015. [Download](#).
- [52] Y. Jin, B. Lin, M. Bernacki, G.S. Rohrer, A.D. Rollett, and N. Bozzolo. Annealing twin development during recrystallization and grain growth in pure nickel. *Materials Science and Engineering: A*, 597:295–303, 2014. [Download](#).
- [53] A. Agnoli, M. Bernacki, R. Logé, J.-M. Franchet, J. Laigo, and N. Bozzolo. Selective growth of low stored energy grains during δ sub-solvus annealing in the inconel 718 nickel base superalloy. *Metallurgical and Materials Transactions A*, 46(9):4405–4421, 2015. [Download](#).
- [54] A. Agnoli, N. Bozzolo, R. Logé, J.-M. Franchet, J. Laigo, and M. Bernacki. Development of a level set methodology to simulate grain growth in the presence of real secondary phase particles and stored energy—application to a nickel-base superalloy. *Computational Materials Science*, 89:233–241, 2014. [Download](#).
- [55] M. Saby, P.-O. Bouchard, and M. Bernacki. A geometry-dependent model for void closure in hot metal forming processes. *Finite Elements in Analysis and Design*, 105:63–78, 2015. [Download](#).
- [56] M. Saby, P.-O. Bouchard, and M. Bernacki. Void closure criteria for hot metal forming: a review. *Journal of Manufacturing Processes*, 19:239–250, 2015. [Download](#).
- [57] M. Saby, M. Bernacki, E. Roux, and P.-O. Bouchard. Three-dimensional analysis of real void closure at the meso-scale during hot metal forming processes. *Computational Materials Science*, 77:194–201, 2013. [Download](#).
- [58] A.-L. Cruz-Fabiano, R. Logé, and M. Bernacki. Assessment of simplified 2D grain growth models from numerical experiments based on a level set framework. *Computational Materials Science*, 92:305–312, 2014. [Download](#).
- [59] K. Hitti, S. El Feghali, and M. Bernacki. Permeability computation on a Representative Volume Element (RVE) of unidirectional disordered fiber arrays. *Journal of Computational Mathematics*, 34(3):246–264, 2016. [Download](#).
- [60] K. Hitti, T. Coupez, M. Bernacki, and L. Silva. Elastic foam compression in a finite element (FE) context. *European Journal of Computational Mechanics/Revue Européenne de Mécanique Numérique*, 22(1):30–58, 2013. [Download](#).
- [61] K. Hitti and M. Bernacki. Optimized Dropping and Rolling (ODR) method for packing of poly-disperse spheres. *Applied Mathematical Modelling*, 37(8):5715–5722, 2013. [Download](#).
- [62] K. Hitti, P. Laure, T. Coupez, L. Silva, and M. Bernacki. Precise generation of complex statistical representative volume elements (RVEs) in a finite element context. *Computational Materials Science*, 61:224–238, 2012. [Download](#).
- [63] A. J. Ryan, D. Pino Munoz, M. Bernacki, M. Delbo, N. Sakatani, J. Biele, J. P. Emery, and B. Rozitis. Full-field modeling of heat transfer in asteroid regolith 2: Effects of porosity. *Journal of Geophysical Research: Planets*, Submitted, 2022.
-

- [64] B. Rozitis, A. J. Ryan, J. P. Emery, P. R. Christensen, V. E. Hamilton, A. A. Simon, D. C. Reuter, M. Al Asad, R.-L. Ballouz, J. L. Bandfield, O. S. Barnouin, C. A. Bennett, M. Bernacki, K. N. Burke, S. Cambioni, B. E. Clark, M. G. Daly, M. Delbo, D. N. DellaGiustina, C. M. Elder, R. D. Hanna, C. W. Haberle, E. S. Howell, D. R. Golish, E. R. Jawin, H. H. Kaplan, L. F. Lim, J. L. Molaro, D. Pino Munoz, M. C. Nolan, B. Rizk, M. A. Siegler, H. C. M. Susorney, K. J. Walsh, and D. S. Lauretta. Asteroid (101955) bennu's weak boulders and thermally anomalous equator. *Science Advances*, 6(41):eabc3699, 2020.
- [65] A. Ryan, D. Pino Muñoz, M. Bernacki, and M. Delbo. Full-field modeling of heat transfer in asteroid regolith: Radiative thermal conductivity of polydisperse particulates. *Journal of Geophysical Research: Planets*, 125(2):e2019JE006100, 2020.
- [66] T. Richeton, L.T. Le, T. Chauve, M. Bernacki, S. Berbenni, and M. Montagnat. Modelling the transport of geometrically necessary dislocations on slip systems: application to single- and multi-crystals of ice. *Modelling and Simulation in Materials Science and Engineering*, 25:025010, 2017. [Download](#).
- [67] D. N. Ilin, N. Bozzolo, T. Toulorge, and M. Bernacki. Full field modeling of recrystallization: Effect of intragranular strain gradients on grain boundary shape and kinetics. *Computational Materials Science*, 150:149–161, 2018.
- [68] D. N. Ilin and M. Bernacki. Advancing layer algorithm of dense ellipse packing for generating statistically equivalent polygonal structures. *Granular Matter*, 18(43), 2016. [Download](#).
- [69] K. Hitti, S. Feghali, F. Rafeh, M. Bernacki, and Bouchard P.-O. A novel monolithic lagrangian approach for modelling crack propagation using anisotropic mesh adaptation. *Int. J. Adv. Appl. Math. and Mech.*, 5(3):53–65, 2018.
- [70] E. Roux, M. Bernacki, and P.-O. Bouchard. A level-set and anisotropic adaptive remeshing strategy for the modeling of void growth under large plastic strain. *Computational Materials Science*, 68:32–46, 2013. [Download](#).
- [71] Z. Sun, M. Bernacki, R. Logé, and G. Gu. Numerical simulation of mechanical deformation of semi-solid material using level-set based finite element method. *Modelling and Simulation in Materials Science and Engineering*, 25(6):065020, 2017.
- [72] Z. Sun, R. Logé, and M. Bernacki. 3D finite element model of semi-solid permeability in an equiaxed granular structure. *Computational Materials Science*, 49(1):158–170, 2010. [Download](#).

Postconference Articles

- [73] N. Chandrappa and M. Bernacki. A level-set numerical framework for the modeling of diffusive solid - solid phase transformation in the context of austenite decomposition. In *CSMA 2022-15eme Colloque National en Calcul des Structures, Giens, France, 2022*.
- [74] A. Gaillac, V. Grand, A. Arsen, Q. Gaillard, and M. Bernacki. Towards multi-scale modeling of zirconium alloys recrystallization and application to thermo-mechanical processes optimization. In *ESAFORM 2022 - 25th International Conference on Material Forming, 2022*.
- [75] M. Panella, L. Signor, J. Cormier, M. Bernacki, and P. Villechaise. Experimental and simulation study of the effect of precipitation distribution and grain size on the ad730 ni-based polycrystalline superalloy tensile behavior. *Superalloys 2020: Proceedings of the 14th International Symposium on Superalloys, 2020*.
- [76] S. Florez, M. Shakoor, T. Toulorge, and M. Bernacki. Body-fitted finite element discretizations for moving interfaces in context of microstructure evolutions. In *CSMA 2019-14eme Colloque National en Calcul des Structures, Giens, France, 2019*.
- [77] J. Fausty, M. Bernacki, and N. Bozzolo. Thermal twinning in nickel based superalloys - a review. In *Eurosuperalloys 2018: Proceedings of the 3rd European Symposium on Superalloys and their Applications, 2018*.

- [78] P. De Micheli, L. Maire, D. Cardinaux, C. Moussa, N. Bozzolo, and M. Bernacki. Digimu: full field recrystallization simulations for optimization of multi-pass processes. In *Proceedings of the 22nd International ESAFORM Conference on Material Forming (ESAFORM 2019)*, 2019.
- [79] P. De Micheli, L. Maire, C. Moussa, N. Bozzolo, and M. Bernacki. Digimu: 2d and 3d full field recrystallization simulations with coupled micro-macro approaches. In *Proceedings of the NEMU 2019 Conference*, 2019.
- [80] L. Maire, B. Scholtes, C. Moussa, N. Bozzolo, A. Settefrati, I. Poitroult, A. Karch, and M. Bernacki. 3D full field modelling of recrystallization in a finite element framework – application to 304L. In *CSMA 2017-13eme Colloque National en Calcul des Structures, Giens, France*, 2017.
- [81] P.-O. Bouchard, V. Trejo, M. Shakoor, M. Bernacki, T. Morgeneyer, A. Buljac, and F. Hild. Numerical modeling of ductile fracture at the microscale combined with x-ray laminography and digital volume correlation. In *Proceedings of the 20th International ESAFORM Conference on Material Forming (ESAFORM 2017)*, 2017.
- [82] V. Trejo, M. Shakoor, M. Bernacki, and P.-O. Bouchard. Influence of heterogeneous microstructure on the micromechanisms of ductile fracture. In *CSMA 2017-13eme Colloque National en Calcul des Structures*, 2017.
- [83] V. Trejo, M. Shakoor, M. Bernacki, and P.-O. Bouchard. Ductile fracture – influence of an heterogeneous microstructure on nucleation, growth and coalescence mechanisms. In *Proceedings of NUMIFORM 2016*, 2016.
- [84] D. Polychronopoulou, N. Bozzolo, D. Pino Muñoz, J. Bruchon, M. Shakoor, Y. Millet, C. Dumont, I. Freiherr von Thüngen, R. Besnard, and M. Bernacki. Introduction to the level-set full field modeling of laths spheroidization phenomenon in α/β titanium alloys. *MATEC Web of Conferences*, 80(02003), 2016.
- [85] R. Boulais-Sinou, B. Scholtes, D. Pino Muñoz, C. Moussa, I. Poitroult, I. Bobin, Montouchet A., and M. Bernacki. Full field modeling of dynamic recrystallization in a global level set framework, application to 304L stainless steel. *MATEC Web of Conferences*, 80(02005), 2016.
- [86] A. Settefrati, B. Scholtes, N. Bozzolo, E. Perchat, and M. Bernacki. Prediction of grain size evolution during thermal and thermomechanical treatments at the mesoscopic scale: numerical improvements and industrial examples. In *Proceedings of the 24th IFHTSE congress*, 2017.
- [87] B. Scholtes, A. Settefrati, N. Bozzolo, E. Perchat, J.-L. Chenot, and M. Bernacki. Large scale FE simulations of recrystallization and grain growth thanks to a level set approach, illustrations in context of industrial forming processes. In *Proceedings of NUMIFORM 2016*, 2016.
- [88] B. Scholtes, D. Ilin, A. Settefrati, N. Bozzolo, A. Agnoli, and M. Bernacki. Full field modeling of the Zener pinning phenomenon in a level set framework - discussion of classical limiting mean grain size equation. *Superalloys 2016: Proceedings of the 13th International Symposium on Superalloys*, pages 497–503, 2016. [Download](#).
- [89] P. De Micheli, A. Settefrati, S. Marie, J. Barlier, P. Lasne, B. Scholtes, M. Bernacki, and F. Bay. Towards the simulation of the whole manufacturing chain processes with forge®. In *NEMU 2015: New Developments in Forging Technology*, 2015. [Download](#).
- [90] B. Scholtes, M. Shakoor, N. Bozzolo, P.-O. Bouchard, A. Settefrati, and M. Bernacki. Advances in level-set modeling of recrystallization at the polycrystal scale - development of the digi- μ software. *Key Engineering Materials*, 651–653:617–623, 2015. [Download](#).
- [91] M. Shakoor, M. Bernacki, and P.-O. Bouchard. Une nouvelle méthode de volume immergé pour la modélisation numérique de l’endommagement ductile à l’échelle des microstructures. In *CSMA 2015-12ème colloque national en calcul des structures*, 2015. [Download](#).

- [92] P.-O. Bouchard, A. Chbihi, M. Bernacki, and D. Pino Muñoz. Understanding and modeling of void closure mechanisms in hot metal forming processes: a multiscale approach. *Proceedings of NUMIFORM 2016*, 2016.
- [93] A. Chbihi, M. Saby, M. Bernacki, and P.-O. Bouchard. Elaboration, par une approche sur VER, d'un modèle à champ moyen pour la prédiction de la refermeture de pores lors de la déformation à chaud de métaux. In *CSMA 2015-12ème colloque national en calcul des structures*, 2015. [Download](#).
- [94] Y. Jin, M. Bernacki, G.S. Rohrer, A.D. Rollett, B. Lin, and N. Bozzolo. Formation of annealing twins during recrystallization and grain growth in 304L austenitic stainless steel. *Materials Science Forum*, 753:113–116, 2013. [Download](#).
- [95] B. Lin, G.S. Rohrer, A.D. Rollett, Y. Jin, N. Bozzolo, and M. Bernacki. Evolution of microstructure in pure nickel during processing for grain boundary engineering. *Materials Science Forum*, 753:97–100, 2013. [Download](#).
- [96] N. Bozzolo, A. Agnoli, N. Souaï, M. Bernacki, and R. Logé. Strain induced abnormal grain growth in nickel base superalloys. *Materials Science Forum*, 753:321–324, 2013. [Download](#).
- [97] A. Agnoli, M. Bernacki, R. Logé, J.-M. Franchet, J. Laigo, and N. Bozzolo. Understanding and modeling of grain boundary pinning in Inconel718. *Proceedings of the 12th International Symposium on Superalloys*, pages 73–82, 2012. [Download](#).
- [98] M. Saby, M. Bernacki, and P.-O. Bouchard. Understanding and modeling of void closure mechanisms in hot metal forming processes: a multiscale approach. *Procedia Engineering*, 81:137–142, 2014. [Download](#).
- [99] M. Saby, M. Bernacki, and P.-O. Bouchard. Analyse multi-échelle de la refermeture de porosités, appliquée à la mise en forme des métaux à chaud. In *CSMA 2013-11ème colloque national en calcul des structures*, 2013. [Download](#).
- [100] A. Zouaghi, M. Bellet, Y. Bienvenu, G. Perrin, D. Cédât, and M. Bernacki. Modelling of the compaction phase during hot isostatic pressing process at the mesoscopic scale. *Proceedings of the 2012 International Conference on Powder Metallurgy and Particulate Materials, PowderMet 2012*, pages 3117–3125, 2012. [Download](#).
- [101] A. Zouaghi, M. Bellet, Y. Bienvenu, G. Perrin, D. Cédât, and M. Bernacki. Modélisation de la phase de compaction du procédé CIC à l'échelle mésoscopique. *Proceedings of the 20ème Congrès Français de Mécanique*, 2011. [Download](#).
- [102] D. Ilin and M. Bernacki. A new algorithm for dense ellipse packing and polygonal structures generation in context of FEM or DEM. *MATEC Web of Conferences*, 80(02004), 2016.
- [103] K. Hitti, M. Bernacki, S. El Feghali, and P.-O. Bouchard. A novel monolithic approach for modelling crack propagation. In *CSMA 2013-11ème colloque national en calcul des structures*, 2013. [Download](#).
- [104] E. Roux, M. Bernacki, and P.-O. Bouchard. Modélisation des micro mécanismes d'endommagement ductile par une approche couplant fonctions level-set et adaptation anisotrope de maillage. In *CSMA 2013-11ème colloque national en calcul des structures*, 2013. [Download](#).
- [105] R. Logé, H. Resk, Z. Sun, L. Delannay, and M. Bernacki. Modeling of plastic deformation and recrystallization of polycrystals using digital microstructures and adaptive meshing techniques. *Steel Research International*, 81(9):1420–1425, 2010.

Books or Book Chapters

- [106] M. Bernacki, N. Bozzolo, P. de Micheli, B. Flipon, J. Fausty, L. Maire, and S. Florez. *Recrystallization: Types, Techniques and Applications*, chapter Numerical Modeling of Recrystallization in a Level Set Finite Element Framework for Application to Industrial Processes. Nova Science Publishers, Inc., first edition edition, 2019.

- [107] Ante Buljac, Modesar Shakoor, Jan Neggers, Marc Bernacki, Pierre-Olivier Bouchard, Lukas Helfen, Thilo F. Morgeneyer, and François Hild. *Experimental-Numerical Validation Framework for Micromechanical Simulations*, pages 147–161. Springer International Publishing, Cham, 2018.
- [108] J. M. Rodriguez-Ibabe, M. C. Revilla, N. Gonzalez, P. M. Lardizabal, D. C. J. Farrugia, Z. Husain, G. Claxton, D. Wilcox, M. Whitwood, E. McGee, B. Cheong, M. Llanos, V. Santisteban, J. H. Bianchi, F. Macci, F. D. Vici, P.-O. Bouchard, M. Bernacki, and E. Roux. *The prediction and avoidance of cracking in long products hot rolling (PACROL Phase 2)*. Office for Official Publ. of the E.U., 2013. [Download](#).

Popularization Articles

International Conferences

- [109] R. Kavege, N. Bozzolo, and M. Bernacki. Nucleation criteria for the formation of annealing twins. In *4th European Symposium on Superalloys and their Applications*, Bamberg, Germany, September 18–22 2022.
- [110] F.V. Orlacchio, D. Pino Munoz, C.-T. Nguyen, M. Bernacki, and N. Bozzolo. Role of γ' precipitates in recrystallization during forging of γ - γ' superalloys. In *4th European Symposium on Superalloys and their Applications*, Bamberg, Germany, September 18–22 2022.
- [111] N. Chandrappa and M. Bernacki. A level-set numerical framework for the modeling of diffusive solid - solid phase transformation in the context of austenite decomposition. In *The 10th International Conference on Multiscale Materials Modeling*, Baltimore, USA, October 2–7 2022.
- [112] F. Jaime, A. Nicolay, M. Bernacki, and N. Bozzolo. How to reduce curtaining effect in plasma fib sections of nickel based superalloys. In *EMAS 2022 - 17th European Workshop on Modern Developments and Applications in Microbeam Analysis*, Krakow, Poland, May 07–11 2022.
- [113] F. Jaime, Collin C. Nicolay, A., J.-M. Franchet, N. Bozzolo, and M. Bernacki. 3d-ebstd characterization and anisotropic grain grow simulation of additive manufactured in718. In *4th European Symposium on Superalloys and their Applications*, Bamberg, Germany, September 18–22 2022.
- [114] F. Jaime, Collin C. Nicolay, A., N. Bozzolo, and M. Bernacki. 3d-ebstd characterization and anisotropic grain grow simulation of additive manufactured in718. In *6th International Congress on 3D Materials Science (3DMS 2022)*, Washington, D.C., USA, June 26–29 2022.
- [115] A. Gaillac, V. Grand, A. Arsen, Q. Gaillard, and M. Bernacki. Towards multi-scale modeling of zirconium alloys recrystallization and application to thermo-mechanical processes optimization. In *25th International Conference on Material Forming*, Braga, Portugal, April 27–29 2022.
- [116] V. Grand, A. Gaillac, B. Flipon, and M. Bernacki. Characterization and modeling of the influence of initial microstructure on recrystallization of zircaloy-4 during hot forming. In *20th International Symposium on Zirconium in the Nuclear Industry*, Ottawa, Canada, June 20–23 2022.
- [117] J.L. Bouvard, S. Feng, F. Alexis, M. Bernacki, D. Pino Munoz, A. Agazzi, R. Le Goff, and G. Drouel. Generation and homogenization of foamed polymer rves: Microstructure-mechanical properties relationship. In *24th International Conference on Material Forming*, Université de Liège, Belgium, April 14–16 2021.
- [118] S. Ouhiba, L. Boissonnet, M. Bernacki, and N. Bozzolo. Interaction between precipitation and recrystallization during hot deformation in 6016 aluminum alloy. In *17th International Conference on Aluminium Alloys ICAA17*, Grenoble, France, October 25–29 2020.
- [119] S. Ouhiba, N. Bozzolo, L. Boissonnet, and M. Bernacki. Recrystallization of 6xxx aluminium alloys during hot deformation. In *7th International Conference on Recrystallization and Grain Growth - ReX & GG 2019*, Ghent, Belgium, August 4–9 2019.

-
- [120] M. Bernacki, N. Bozzolo, C. Moussa, D. Pino Muñoz, P. de Micheli, L. Maire, J. Fausty, L. Védie, S. Florez, D. Ruiz Sarrazola, B. Murgas, K. Alvarado, S. Ouhiba, I. Poitroult, A. Montouchet, C. Dumont, J.-M. Franchet, J. Demurger, L. Boissonnet, V. de Rancourt, and E. Rigal. Towards the full field modeling of microstructure evolutions during metal forming industrial processes. In *7th International Conference on Recrystallization and Grain Growth - ReX & GG 2019*, Ghent, Belgium, August 4–9 2019. **Invited conference.**
- [121] K. Alvarado, I. Janeiro, J.-M. Franchet, C. Dumont, N. Bozzolo, and M. Bernacki. Modeling of the dissolution of the primary γ' precipitates and grain growth mechanism near the solvus temperature of two nickel base superalloys. In *4th European Symposium on Superalloys and their Applications*, Bamberg, Germany, September 18–22 2022.
- [122] M. Panella, L. Signor, J. Cormier, P. Villechaise, and M. Bernacki. Experimental and simulation study of the effect of precipitation structure and grain size on the behavior of ad730tm ni-based polycrystalline superalloy under tensile loading. In *EUROMAT 2019*, Stockholm, Sweden, September 1–5 2019.
- [123] M. Panella, L. Signor, J. Cormier, P. Villechaise, and M. Bernacki. Microstructure-sensitive modeling of the macroscopic behavior of ad730 nickel-based polycrystalline superalloy using crystal plasticity finite element simulations. In *COMPLAS 2019*, Barcelona, Spain, September 3–5 2019.
- [124] M. Panella, L. Signor, J. Cormier, M. Bernacki, and P. Villechaise. Experimental and simulation study of the effect of precipitation distribution and grain size on the ad730 ni-based polycrystalline superalloy tensile behavior. In *Superalloys 2021*, 2020.
- [125] L. Védie, E. Rigal, and M. Bernacki. Grain growth simulation applied to diffusion welding: interface crossing by grain boundaries. In *7th International Conference on Recrystallization and Grain Growth - ReX & GG 2019*, Ghent, Belgium, August 4–9 2019.
- [126] D. A. Ruiz Sarrazola, D. Pino Muñoz, and M. Bernacki. Full field modeling of dynamic recrystallization in a cpfem context. In *7th International Conference on Recrystallization and Grain Growth - ReX & GG 2019*, Ghent, Belgium, August 4–9 2019.
- [127] S. Florez, T. Toulorge, and M. Bernacki. A new full field framework to model grain growth in fe context. In *7th International Conference on Recrystallization and Grain Growth - ReX & GG 2019*, Ghent, Belgium, August 4–9 2019.
- [128] S. Florez, T. Toulorge, and M. Bernacki. Impact of body-fitted finite element discretizations for moving interfaces applied to microstructural evolutions. In *ADMOS 2019 - International Conference on Adaptive Modeling and Simulation*, Campello, Alicante, Spain, May 27–29 2019.
- [129] S. Florez, M. Shakoor, T. Toulorge, and M. Bernacki. Body-fitted finite element discretizations for moving interfaces in context of microstructure evolutions. In *CSMA 2019-14eme Colloque National en Calcul des Structures, Giens, France*, Giens, France, May 13-17 2019.
- [130] S. Florez, K. Alvarado, B. Murgas, D. Bozzolo, N. Chatain, and M. Bernacki. Is the $v = mp$ equation really to be abandoned for grain growth modeling at the polycrystal scale? In *4th European Symposium on Superalloys and their Applications*, Bamberg, Germany, September 18–22 2022.
- [131] D. Pino Muñoz, J. Furstoss, C. Petit, C. Ganino, and M. Bernacki. Full field modeling of grain growth in mantle rocks based on a level-set enhanced finite element framework. In *JpGU 2018*, Chiba, Japan, May 20 – 24 2018.
- [132] J. Furstoss, C. Petit, C. Ganino, M. Bernacki, and D. Pino Muñoz. Investigating grain growth in mantle rocks within a full field model based on the level-set method in a finite element context. In *EGU 2018*, Vienna, Austria, April 8 – 13 2018.
- [133] L. Maire, J. Fausty, M. Bernacki, N. Bozzolo, I. Poitroult, Montouchet A., and C. Moussa. Dynamic recrystallization in 304l steel: full field and mean field simulation results compared to experimental data. In *7th International Conference on Recrystallization and Grain Growth - ReX & GG 2019*, Ghent, Belgium, August 4–9 2019. **Invited conference.**
-

-
- [134] J. Fausty, M. Bernacki, and N. Bozzolo. Thermal twinning in nickel based superalloys - a review. In *Eurosuperalloys 2018*, Oxford, UK, September 9 – 13 2018.
- [135] J. Fausty, M. Bernacki, D. Pino Muñoz, and N. Bozzolo. A new level set finite element formulation for anisotropic grain growth. In *ECCM - ECFD 2018*, Glasgow, UK, June 11 – 15 2018.
- [136] L. Maire, J. Fausty, M. Bernacki, N. Bozzolo, P. de Micheli, and C. Moussa. A new topological model for the prediction of dynamic recrystallization. In *ECCM - ECFD 2018*, Glasgow, UK, June 11 – 15 2018.
- [137] M. Bernacki, L. Maire, J. Fausty, N. Bozzolo, D. Pino Muñoz, C. Moussa, and T. Toulorge. A 3d numerical framework for the full field modeling of recrystallization. In *THERMEC'2018*, Paris, France, July 8 – 13 2018. **Invited conference.**
- [138] D. Pino Muñoz, M. Bernacki, N. Bozzolo, T. Toulorge, C. Moussa, L. Maire, and J. Fausty. Recent advances in the full field modeling of recrystallization and grain growth using the level set approach. In *14th U.S. National Congress on Computational Mechanics (USNCCM14)*, Montreal, Canada, July 17 – 20 2017.
- [139] J. Fausty, Y. Jin, M. Bernacki, and N. Bozzolo. Modeling anisotropic grain growth in nickel superalloys. In *EUROMAT 2017*, Thessaloniki, GREECE, September 17 – 22 2017.
- [140] F. Lu, S. Cantournet, N. Billon, J.-L. Bouvard, M. Bernacki, and V. Fabre. A study of the multi-axial fatigue damage mechanisms for a glass fibre reinforced thermoplastics (pa66). In *FATIGUE 2018*, Poitiers, France, May 27 - June 1 2018.
- [141] F. Lu, S. Cantournet, N. Billon, J.-L. Bouvard, M. Bernacki, and V. Fabre. A study of the multi-axial fatigue damage mechanisms for a glass fibre reinforced thermoplastics (pa66). In *EUROMAT 2017*, Thessaloniki, GREECE, September 17 – 22 2017.
- [142] J.-L. Bouvard, I. Coppo, F. Lu, M. Shakoov, S. Cantournet, N. Billon, M. Bernacki, and V. Fabre. Generation and homogenization of rves for thermoplastics reinforced with discontinuous reinforcements. In *SEM Annual Conference*, Indianapolis, USA, June 12 – 15 2017.
- [143] P. De Micheli, L. Maire, D. Cardinaux, C. Moussa, N. Bozzolo, and M. Bernacki. Digimu®: Full field recrystallization simulations for optimization of multi-pass processes. In *ESAFORM 2019 Conference*, Vitoria-Gasteiz, Spain, May 08-10 2019.
- [144] P. De Micheli, L. Maire, C. Moussa, N. Bozzolo, and M. Bernacki. Digimu: 2d and 3d full field recrystallization simulations with coupled micro-macro approaches. In *NEMU 2019*, Stuttgart, Germany, May 14-15 2019.
- [145] L. Maire, C. Moussa, N. Bozzolo, and M. Bernacki. Modeling of dynamic recrystallization in austenitic stainless steel 304L by coupling a full field approach in a finite element framework with mean field laws. In *2017 MRS Spring Meeting & Exhibit*, Phoenix, USA, April 17 – 21 2017.
- [146] P.-O. Bouchard, V. Trejo, M. Bernacki, A. Buljac, T. Morgeneyer, and F. Hild. 3d analysis of void coalescence mechanisms in nodular cast iron based on finite element computation driven by digital volume correlation and laminography in-situ observations. In *Sixth International Conference on Computational Modeling of Fracture and Failure of Materials and Structures (CFRAC 2019)*, Braunschweig, Germany, June 12 – 14 2019.
- [147] P.-O. Bouchard, V. M. Trejo Navas, M. Shakoov, A. Buljac, M. Bernacki, T. Morgeneyer, and F. Hild. Analysis of local strain in nodular graphite cast iron at the onset of coalescence by means of 3d numerical modeling combined with X-Ray laminography and digital volume correlation. In *WCCM 2018*, New York, USA, July 22 – 27 2018.
- [148] V. M. Trejo Navas, M. Bernacki, and P.-O. Bouchard. A micromechanical study of void nucleation mechanisms in aluminium alloys. In *ECCM - ECFD 2018*, Glasgow, UK, June 11 – 15 2018.
-

-
- [149] V. M. Trejo Navas, M. Bernacki, and P.-O. Bouchard. Microscopic strain calculations at the onset of coalescence in nodular cast iron. In *22nd European Conference on Fracture - ECF22*, Belgrade, Serbia, August 26 – 31 2018.
- [150] P.-O. Bouchard, V. Trejo Navas, M. Shakoov, T. Morgenev, A. Buljac, L. Helfen, F. Hild, and M. Bernacki. Recent advances in the finite element modelling of ductile fracture at mesoscale. In *Metal Forming 2018*, Toyohashi, Japan, September 16 – 19 2018. **Plenary lecture.**
- [151] V. Trejo, M. Shakoov, M. Bernacki, and P.-O. Bouchard. A micromechanical study of ductile damage in a finite element framework with advanced meshing capabilities. In *14th International Conference on Fracture (ICF 14)*, Rhodes, Greece, June 18 – 23 2017. **Invited conference.**
- [152] P.-O. Bouchard, V. Trejo, M. Shakoov, M. Bernacki, T. Morgenev, A. Buljac, and F. Hild. Numerical modeling of ductile fracture at the microscale combined with x-ray laminography and digital volume correlation. In *20th International ESAFORM Conference on Material Forming (ESAFORM 2017)*, Dublin, Ireland, April 26 – 28 2017.
- [153] V. Trejo, M. Shakoov, M. Bernacki, and P.-O. Bouchard. Ductile fracture – influence of an heterogeneous microstructure on nucleation, growth and coalescence mechanisms. In *NUMIFORM 2016*, Troyes, France, July 04-07 2016.
- [154] P.-O. Bouchard, M. Shakoov, V. Trejo Navas, and M. Bernacki. Numerical modeling of failure mechanisms in complex heterogeneous microstructures. In *ECF 21*, Catania, Italy, June 20-24 2016.
- [155] D. Polychronopoulou, N. Bozzolo, D. Pino Muñoz, J. Bruchon, M. Shakoov, Y. Millet, C. Dumont, I. Freiherr von Thüngen, R. Besnard, and M. Bernacki. Introduction to the level-set full field modeling of laths spheroidization phenomenon in α/β titanium alloys. In *NUMIFORM 2016*, Troyes, France, July 04-07 2016.
- [156] B. Scholtes, R. Boulais-Sinou, A. Settefrati, N. Bozzolo, D. Pino Muñoz, C. Moussa, R. Besnard, J. Demurger, and M. Bernacki. Recrystallization and grain growth modeling at the mesoscopic scale thanks to a level-set/FE framework . In *ReX & GG 2016*, Pittsburgh, USA, July 17-21 2016.
- [157] R. Boulais-Sinou, B. Scholtes, D. Pino Muñoz, C. Moussa, I. Poitault, I. Bobin, Montouchet A., and M. Bernacki. Full field modeling of dynamic recrystallization in a global level set framework, application to 304L stainless steel. In *NUMIFORM 2016*, Troyes, France, July 04-07 2016.
- [158] A. Settefrati, B. Scholtes, N. Bozzolo, E. Perchat, and M. Bernacki. Prediction of grain size evolution during thermal and thermomechanical treatments at the mesoscopic scale: numerical improvements and industrial examples. In *24th IFHTSE congress*, Nice, France, June 26 – 29 2017.
- [159] M. Bernacki, D. Pino Muñoz, N. Bozzolo, B. Scholtes, and A. Settefrati. Recent advances in the full field modeling of recrystallization and grain growth using the level set approach. In *SIAM Conference on Mathematical Aspects of Materials Science*, Philadelphia, USA, May 8-12 2016. **Invited conference.**
- [160] B. Scholtes, D. Ilin, A. Settefrati, N. Bozzolo, A. Agnoli, and M. Bernacki. Full field modeling in a level set framework of Zener pinning phenomenon - discussion of classical limit mean grain size equation. In *superalloys 2016*, Seven Springs, USA, September 11-15 2016.
- [161] B. Scholtes, A. Settefrati, N. Bozzolo, E. Perchat, J.-L. Chenot, and M. Bernacki. Large scale FE simulations of recrystallization and grain growth thanks to a level set approach, illustrations in context of industrial forming processes. In *NUMIFORM 2016*, Troyes, France, July 04-07 2016.
- [162] P. De Micheli, A. Settefrati, S. Marie, J. Barlier, P. Lasne, B. Scholtes, M. Bernacki, and F. Bay. Towards the simulation of the whole manufacturing chain processes with FORGE. In *NEMU 2015*, Stuttgart, Germany, May 05-06 2015.
- [163] B. Scholtes, A. Settefrati, and M. Bernacki. Recent advances in the full field modeling of recrystallization and grain growth using the level set approach. In *EUROMAT 2015*, Warsaw, Poland, September 20-24 2015.
-

-
- [164] M. Bernacki and B. Scholtes. 3D Full field modeling, in a level set framework, of grain growth and zener pinning phenomenon. In *EUROMAT 2015*, Warsaw, Poland, September 20-24 2015. **Keynote, Invited Conference.**
- [165] B. Scholtes, M. Shakoor, N. Bozzolo, P.-O. Bouchard, A. Settefrati, and M. Bernacki. Advances in level-set modelling of recrystallization at the microscopic scale – development of the digi- μ software. In *ESAFORM 2015*, Graz, Austria, April 15-17 2015.
- [166] B. Scholtes, A. Settefrati, and M. Bernacki. Advances in level set modeling of recrystallization at the mesoscopic scale – development of the digi- μ software. In *CAE conference*, Verona, Italy, October 27-28 2014.
- [167] A. Buljac, M. Shakoor, M. Bernacki, P.-O. Bouchard, L. Helfen, F. Hild, and T. F. Morgeneyer. Effect of void arrangement on ductile damage mechanisms in nodular cast iron: in situ 3d measurements and micromechanical simulations. In *IUTAM Symposium on Size-Effects in Microstructure and Damage Evolution*, Kgs. Lyngby, Denmark, 27 May – 1 June 2018 2018.
- [168] A. Buljac, M. Shakoor, J. Negggers, M. Bernacki, P.-O. Bouchard, L. Helfen, T. Morgeneyer, and F. Hild. Numerical Validation Framework for Micromechanical Simulations Based on 3D Imaging. In *7th GACM Colloquium on Computational Mechanics*, Stuttgart, Germany, October 11 – 13 2017.
- [169] A. Buljac, M. Shakoor, J. Negggers, M. Bernacki, P.-O. Bouchard, L. Helfen, F. Hild, and T. Morgeneyer. Numerical Validation Framework for Micromechanical Simulations Based on Synchrotron Imaging. In *SEM conference*, Indianapolis, USA, June 12 – 15 2017.
- [170] A. Buljac, M. Shakoor, V. M. Trejo Navas, M. Bernacki, P.-O. Bouchard, A. Bouterf, L. Helfen, F. Hild, T. Morgeneyer, J. Negggers, and S. Roux. On the integration of measured data in numerical simulations at the microscale. In *iDICs 2017 Conference & Workshop*, Barcelona, Spain, November 6 – 9 2017.
- [171] M. Shakoor, M. Bernacki, and P.-O. Bouchard. Three-dimensional numerical modeling of ductile fracture mechanisms at the microscale. In *IV ECCOMAS Young Investigator Conference (YIC 2017)*, Milano, Italy, September 13 – 15 2017. **Invited conference.**
- [172] T. Toulorge, M. Shakoor, P.-O. Bouchard, M. Bernacki, Y. Mesri, and E. Hachem. A robust deformation method for unstructured meshes subject to large boundary movements. In *VII International Conference on Coupled Problems in Science and Engineering (COUPLED PROBLEMS 2017)*, Rhodes, Greece, June 12 – 14 2017.
- [173] M. Shakoor, M. Bernacki, and P.-O. Bouchard. An adaptive body-fitted monolithic method for modeling the fracture of heterogeneous microstructures. In *WCCM 2016*, Seoul, Korea, July 24-29 2016.
- [174] D. Pino Muñoz, M. Shakoor, M. Bernacki, and P.-O. Bouchard. Towards a mesh independent fracture modeling method using cohesive elements. In *ECF 21*, Catania, Italy, June 20-24 2016.
- [175] M. Shakoor, M. Bernacki, and P.-O. Bouchard. Modeling of ductile fracture mechanisms at the microscale using a new adaptive body-fitted monolithic method. In *COMPLAS 2015*, Barcelona, Spain, September 1-3 2015.
- [176] M. Shakoor, M. Bernacki, and P.-O. Bouchard. An adaptive body-fitted monolithic method for modeling the fracture of heterogeneous microstructures. In *CFRAC 2015*, Cachan, France, June 03-05 2015.
- [177] M. Shakoor, M. Bernacki, and P.-O. Bouchard. Micromechanical modelling of ductile fracture mechanisms using a new body-fitted immersed volume method. In *CFRAC 2015*, Cachan, France, June 03-05 2015.
- [178] M. Shakoor, M. Bernacki, and P.-O. Bouchard. Analysis of void clusters arrangements on coalescence using a new body-fitted immersed volume method for the modeling of ductile fracture at the microscale. In *IUTAM Symposium: Ductile Fracture and Localization*, Paris, France, March 17-20 2015.
- [179] M. Shakoor, M. Bernacki, and P.-O. Bouchard. Numerical modelling of ductile damage at the microscale in a level set framework. In *CAE conference*, Verona, Italy, October 27-28 2014.
-

- [180] M. Shakoor, M. Bernacki, E. Roux, and P.-O. Bouchard. Numerical modelling of the effect of non-proportional loading on ductile fracture at the microscale. In *20th European Conference on fracture (ECF20)*, Trondheim, Norway, 30th of June - 4th of July 2014.
- [181] P.-O. Bouchard, A. Chbihi, M. Bernacki, and D. Pino Muñoz. Modeling of void closure mechanisms in multi-stages hot metal forming processes: a multiscale approach. In *NUMIFORM 2019: the 13th International Conference on Numerical Methods in Industrial Forming Processes*, Portsmouth, New Hampshire, USA, June 23 – 27 2019.
- [182] A. Chbihi, P.-O. Bouchard, M. Bernacki, and D. Pino Muñoz. Influence of lode angle on modelling of micro voids closure in hot metal forming processes. In *ECCOMAS 2016*, Crete Island, Greece, June 5-10 2016.
- [183] A. Chbihi, P.-O. Bouchard, M. Bernacki, and D. Pino Muñoz. Influence of lode angle on modelling of void closure in hot metal forming processes. In *ICOMP'2016*, Liège, Belgium, May 18-20 2016.
- [184] P.-O. Bouchard, A. Chbihi, M. Bernacki, and D. Pino Muñoz. Understanding and modeling of void closure mechanisms in hot metal forming processes: a multiscale approach. In *NUMIFORM 2016*, Troyes, France, July 04-07 2016.
- [185] A. Toufayli, P.-O. Bouchard, and M. Bernacki. Shot peening of heterogeneous microstructure: numerical modeling and influence on fatigue properties. In *12th international conference on shot peening (ISCP12)*, Goslar, Germany, September 15-18 2014.
- [186] Y. Jin, B. Lin, M. Bernacki, G.S. Rohrer, A.D. Rollett, and N. Bozzolo. Why recrystallization generates more annealing twins in nickel than grain growth? In *ReX & GG 2016*, Pittsburgh, USA, July 17-21 2016.
- [187] B. Lin, Y. Jin, C.M. Hefferan, S.F. Li, J. Lind, R. Suter, M. Bernacki, N. Bozzolo, A.D. Rollett, and G.S. Rohrer. Annealing twins in nickel nucleate at triple lines during grain growth. In *Gordon Research Conference on Physical Metallurgy*, Biddeford, USA, July 19-24 2015.
- [188] N. Bozzolo, M. Bernacki, Y. Jin, G.S. Rohrer, and A.D. Rollett. Increasing twin density in polycrystalline nickel and anickel alloys by thermomechanical processing in view of grain boundary engineering. In *MS&T 2014*, Pittsburgh, USA, October 12-16 2014. **Invited conference.**
- [189] B. Lin, Y. Jin, N. Bozzolo, M. Bernacki, C.M. Hefferan, R. Suter, A.D. Rollett, and G.S. Rohrer. Formation of annealing twins during grain growth in nickel. In *MS&T 2014*, Pittsburgh, USA, October 12-16 2014.
- [190] B. Lin, Y. Jin, C.M. Hefferan, R. Suter, M. Bernacki, N. Bozzolo, A.D. Rollett, and G.S. Rohrer. The role of texture and twin nucleation during grain growth in fcc nickel. In *The 17th International Conference on Textures of Materials (ICOTOM 17)*, Dresden, Germany, August 24-29 2014.
- [191] Y. Jin, M. Bernacki, A. Agnoli, B. Lin, G.S. Rohrer, A.D. Rollett, and N. Bozzolo. the annealing twin density evolution during grain growth in inconel 718. In *Eurosuperalloys 2014*, Giens, France, May 13-16 2014.
- [192] M. Bernacki, N. Bozzolo, R. Logé, Y. Jin, A. Agnoli, A.-L. Fabiano, A.D. Rollett, G.S. Rohrer, J.-M. Franchet, and J. Laigo. Full field modelling of recrystallization in superalloys thanks to level-set method. In *Eurosuperalloys 2014*, Giens, France, May 13-16 2014.
- [193] B. Lin, Y. Jin, N. Bozzolo, M. Bernacki, G.S. Rohrer, and A.D. Rollett. Evolution of microstructure in pure nickel during processing for grain boundary engineering. In *ReX & GG 2013*, Sydney, Australia, May 5-10 2013.
- [194] Y. Jin, M. Bernacki, G.S. Rohrer, A.D. Rollett, and N. Bozzolo. Formation of annealing twins during recrystallization and grain growth in 304l austenitic stainless steel. In *ReX & GG 2013*, Sydney, Australia, May 5-10 2013.

-
- [195] N. Bozzolo, A. Agnoli, M. Bernacki, and R. Logé. Strain assisted abnormal grain growth in nickel base superalloys. In *ReX & GG 2013*, Sydney, Australia, May 5-10 2013.
- [196] A. Agnoli, N. Bozzolo, R. Logé, and M. Bernacki. A Zener pinning model based on a level set method. In *ReX & GG 2013*, Sydney, Australia, May 5-10 2013.
- [197] A. Agnoli, M. Bernacki, R. Logé, J.-M. Franchet, J. Laigo, and N. Bozzolo. Understanding and modeling of grain boundary pinning in Inconel 718. In *Superalloys 2012*, Champion, Pennsylvania, USA, September 9-13 2012.
- [198] M. Bernacki, A. Agnoli, N. Bozzolo, and R. Logé. Modelling Zener pinning with a full field method based on a level set framework. In *ECCOMAS 2012*, Vienna, Austria, September 10-14 2012.
- [199] M. Saby, M. Bernacki, and P.-O. Bouchard. Understanding and modeling of void closure mechanisms in hot metal forming processes: a multiscale approach. In *11th International Conference on Technology of Plasticity (ICTP 2014)*, Nagoya, Japan, October 19-24 2014.
- [200] M. Saby, G. Boi, J. Demurger, M. Bernacki, and P.-O. Bouchard. A new prediction model for void closure in hot metal forming. In *Join New European Steel Industry Conference (1st ESTAD & 31st JSI)*, Paris, France, April 7-8 2014.
- [201] P.-O. Bouchard, M. Saby, M. Bernacki, and E. Roux. A multiscale analysis of void closure during hot forming processes. In *Forging Industry Association 2012 (FIA 2012)*, Cleveland, USA, September 10-12 2012.
- [202] M. Saby, M. Bernacki, and P.-O. Bouchard. Sensitivity study for void closure relative to macroscopic mechanical loadings, using finite element simulations at a meso-scale. In *ECCOMAS 2012*, Vienna, Austria, September 10-14 2012.
- [203] M. Saby, M. Bernacki, and P.-O. Bouchard. Study for void closure relative to macroscopic mechanical loadings, using finite element simulations at a meso-scale. In *8th European Solid Mechanics Conference (ESMC8)*, Graz, Austria, July 9-13 2012.
- [204] R. Logé, A.-L. Fabiano, and M. Bernacki. Mesoscale modelling of plastic deformation and subsequent recrystallization. In *European Mechanics of Materials Conference (EMMC15)*, Brussels, Belgium, September 7-9 2016.
- [205] R. Logé, A.-L. Fabiano, N. Bozzolo, and M. Bernacki. Mesoscale modelling of plastic deformation and subsequent recrystallization : role of GNDs and capillarity effects. In *TMS 2015*, Orlando, USA, March 15-19 2015.
- [206] A.-L. Fabiano, R. Logé, and M. Bernacki. Comparison between different simplified grain growth models using “full field” modelling method results. In *ECCOMAS 2012*, Vienna, Austria, September 10-14 2012.
- [207] A. Zouaghi, M. Bellet, M. Bernacki, Y. Bienvenu, G. Perrin, and D. Cedat. Modelling of the compaction phase during hot isostatic pressure (HIP) process at the mesoscopic scale. In *PowderMet 2012*, Nashville, USA, June 10-13 2012.
- [208] K. Hitti, S. El Feghali, and M. Bernacki. Optimized vs. classical dropping and rolling methods. In *Lebanese Society for The Mathematical Sciences (LSMS-2014)*, Mathaf, Lebanon, June 6-7 2014.
- [209] K. Hitti, P. Laure, L. Silva, T. Coupez, and M. Bernacki. Fast generation of complexes REV. In *IV European Conference on Computational Mechanics (ECCM 2010)*, Paris, France, May 16-21 2010.
- [210] A. Ryan, D. Pino Muñoz, M. Bernacki, M. Delbo, J. Emery, P. Christensen, and D. S. Lauretta. Full-field modeling of heat transfer in asteroid regolith: thermal conductivity results for mono- and polydisperse particulates. In *50th Lunar and Planetary Science Conference - LPSC 2019*, The Woodlands, Texas, USA, March 18–22 2019.

-
- [211] A. Ryan, D. Pino Muñoz, M. Bernacki, M. Delbo, J. Emery, P. Christensen, and D. S. Lauretta. Regolith thermophysical properties: Experimental thermal conductivity results and a new full-field thermophysical model. In *THERMOPS III - Thermal Models for Planetary Science*, Budapest, Hungary, February 20 – 22 2019.
- [212] A. Ryan, M. Bernacki, M. Delbo, and D. Pino Muñoz. Full field modeling of heat transfer in regolith - A powerful tool to discuss thermophysical models. In *JpGU 2018*, Chiba, Japan, May 20 – 24 2018.
- [213] A. Karch, L. Maire, C. Moussa, N. Bozzolo, and M. Bernacki. Modelling of grain growth in polycrystalline microstructures with heterogeneous grain size. In *EUROMAT 2017*, Thessaloniki, GREECE, September 17 – 22 2017.
- [214] T. Richeton, L.T. Le, T. Chauve, M. Bernacki, S. Berbenni, and M. Montagnat. Modelling the transport of geometrically necessary dislocations on slip systems: application to single- and multi-crystals of ice. In *European Mechanics of Materials Conference (EMMC15)*, Brussels, Belgium, September 7-9 2016.
- [215] D. Ilin and M. Bernacki. A new algorithm for dense ellipse packing and polygonal structures generation in context of FEM or DEM. In *NUMIFORM 2016*, Troyes, France, July 04-07 2016.
- [216] K. Hitti, P.-O. Bouchard, and M. Bernacki. Anisotropic mesh adaptation dedicated to 2D/3D crack propagation. In *ECCOMAS 2012*, Vienna, Austria, September 10-14 2012.
- [217] P.-O. Bouchard, E. Roux, and M. Bernacki. Influence of loading conditions on ductile damage nucleation, growth and coalescence mechanisms. In *COMPLAS 2013*, Barcelona, Spain, September 3-5 2013.
- [218] P.-O. Bouchard, E. Roux, and M. Bernacki. Finite element modeling of void nucleation, growth and coalescence for large plastic strain and complex loading paths. In *CFRAC 2013*, Prague, Czech Republic, June 5-7 2013.
- [219] E. Roux, P.-O. Bouchard, and M. Bernacki. A new level-set framework for the modelling of nucleation, growth and coalescence of voids at the micro-scale. In *ECCOMAS 2012*, Vienna, Austria, September 10-14 2012.
- [220] P.-O. Bouchard, E. Roux, and M. Bernacki. Analysis of ductile damage mechanisms for different voids/particles configurations and under various loading conditions. In *ECCOMAS 2012*, Vienna, Austria, September 10-14 2012.
- [221] E. Roux, M. Bernacki, and P.-O. Bouchard. Numerical modeling of ductile damage voids growth mechanism using a level-set technique and anisotropic mesh adaptation. In *CFRAC 2011*, Barcelona, Spain, June 6-8 2011.
- [222] P.-O. Bouchard, E. Roux, El Khaoulani R., G. Lebret, and M. Bernacki. Anisotropic mesh adaptation for ductile damage and fracture modelling. In *CFRAC 2011*, Barcelona, Spain, June 6-8 2011.
- [223] R. Logé, H. Resk, Z. Sun, L. Delannay, and M. Bernacki. Modelling plastic deformation and recrystallization of polycrystals using digital microstructures and adaptive meshing techniques. In *The 13th International Conference on Metal Forming (Metal Forming 2010)*, Toyohashi, Japan, September 19-22 2010. **Keynote lecture.**
- [224] R. Logé, H. Resk, Z. Sun, L. Delannay, and M. Bernacki. Micromechanical analysis of virtual polycrystals in solid and semi-solid states, combining a level set framework with adaptive meshing techniques. In *The 10th US National Congress on Computational Mechanics (UNSCCM-10)*, Columbus, USA, July 16-19 2009. **Keynote lecture.**
- [225] C. Moussa, V. Trejo Navas, M. Bernacki, R. Besnard, and N. Bozzolo. Strategies for a quantitative description of deformation substructures in view of recrystallization nucleation modelling. In *ReX & GG 2016*, Pittsburgh, USA, July 17-21 2016.

Workshops/Seminars/National Conferences

- [226] E. Delplace, S. Florez, and M. Bernacki. A front-tracking method to simulate the evolution of polycrystalline material microstructure. In *Matériaux2022*, Lille, France, October 24–28 2022.
- [227] N. Chandrappa and M. Bernacki. A level-set numerical framework for the modeling of diffusive solid - solid phase transformation in the context of austenite decomposition. In *CSMA 2022-15eme Colloque National en Calcul des Structures, Giens, France*, Giens, France, May 16-20 2022.
- [228] M. Bernacki, S. Florez, and Chandrappa N. Some recent innovations in microstructure modeling. In *Transvalor European Microstructure Simulation Days 2022*, Frankfurt, Germany, March 23–24 2022.
- [229] M. Roth, B. Flipon, N. Bozzolo, and M. Bernacki. A mean-field metallurgical approach dedicated to the modeling of recrystallization and related phenomena in context of high strain rate conditions. In *Matériaux2022*, Lille, France, October 24–28 2022.
- [230] V. Grand, A. Gaillac, and M. Bernacki. Modeling zircaloy-4 recrystallization. In *Transvalor European Microstructure Simulation Days 2022*, Frankfurt, Germany, March 23–24 2022.
- [231] Y. Naït Abdelaziz, J.-L. Bouvard, , D. Pino Muñoz, M. Bernacki, and N. Saintier. Modélisation VER de composites thermoplastiques à renforts discontinus. Colloque national MECAMAT Aussois, 21-25 Janvier 2019.
- [232] M. Bernacki, S. Ouhiba, B. Murgas, L. Boissonnet, and N. Bozzolo. Full-field discussions concerning the prediction of anisotropic critical grain growth in 6016 aluminum alloy. In *Transvalor European Microstructure Simulation Days 2022*, Frankfurt, Germany, March 23–24 2022.
- [233] B. Murgas Portilla, N. Bozzolo, and M. Bernacki. Spatial heterogeneity of boundary mobility in recrystallization. analysis and full field simulations. In *La Métallurgie, Quel Avenir !*, Nancy, France, 8-12 avril 2019.
- [234] K. Alavarado, N. Bozzolo, and M. Bernacki. Influence of zener pinning phenomena on the size homogeneity after grain growth: multiscale approach and application to nickel-base superalloys. In *La Métallurgie, Quel Avenir !*, Nancy, France, 8-12 avril 2019.
- [235] J. Furstoss, M. Bernacki, C. Petit, D. Pino Muñoz, and C. Ganino. Simulation de la croissance de grains dans l'olivine par une approche champ complet de type level-set. Colloque national MECAMAT Aussois, 22-26 Janvier 2018.
- [236] J. Fausty, N. Bozzolo, Y. Jin, and M. Bernacki. Simulation élément finis de la croissance de grains anisotrope dans les métaux. Journées annuelles SF2M, Lyon, France, 23 - 25 octobre 2017.
- [237] I. Coppo, F. Lu, M. Shakoore, S. Cantournet, N. Billon, V. Fabre, M. Bernacki, and J.-L. Bouvard. Génération et homogénéisation de vers pour composites thermoplastiques à renforts discontinus. 3ème Journées Matériaux Numériques, Tours, France, 30 Janvier - 02 Février 2017.
- [238] L. Maire, N. Bozzolo, C. Moussa, and M. Bernacki. Modélisation des transformations microstructurales lors des procédés de forgeage à chaud. Journées CEA DAM des matériaux métalliques, 30 Mai 2018.
- [239] P. de Micheli, L. Maire, N. Bozzolo, and M. Bernacki. DIGIMU V3.0 : première solution commerciale pour la modélisation physique des évolutions d'un polycristal durant les procédés thermomécaniques de mise en forme des matériaux métalliques. Colloque national MECAMAT Aussois, 22-26 Janvier 2018. **Conférence invitée.**
- [240] L. Maire, C. Moussa, N. Bozzolo, D. Pino Muñoz, and M. Bernacki. Full field simulation of dynamic and post-dynamic recrystallization in 304L steel. Journées annuelles SF2M, Lyon, France, 23 - 25 octobre 2017.
- [241] L. Maire, B. Scholtes, C. Moussa, N. Bozzolo, A. Settefrati, I. Poitroult, A. Karch, and M. Bernacki. 3D full field modelling of recrystallization in a finite element framework – application to 304L. 13eme Colloque National en Calcul des Structures, Giens, France, 15-19 Mai 2017.

- [242] L. Maire, C. Moussa, N. Bozzolo, and M. Bernacki. Modeling of dynamic recrystallization in austenitic stainless steel 304L by coupling a full field approach in a finite element framework with mean field laws. 3ème Journées Matériaux Numériques, Tours, France, 30 Janvier - 02 Février 2017.
- [243] L. Maire, B. Scholtes, C. Moussa, , D. Pino Muñoz, N. Bozzolo, and M. Bernacki. Simulation of static recrystallization and grain growth phenomena by mean field and full field modeling. Colloque "Métallurgie, quel avenir!" Saint-Etienne, France, 27 Juin - 01 Juillet 2016.
- [244] A. Seret, A. Nicolaÿ, J.-M. Franchet, C. Moussa, M. Bernacki, and N. Bozzolo. Smoothing of EBSD datasets to quantify the geometrically necessary dislocation density: application to the discrimination of dynamically vs. post-dynamically recrystallized grains in forged nickel-based superalloys. In *La Métallurgie, Quel Avenir !*, Nancy, France, 8-12 avril 2019.
- [245] A. Seret, C. Moussa, M. Bernacki, J. Cormier, and N. Bozzolo. Influence of the dislocation density on hardening precipitation in Inconel® 625. Journées annuelles SF2M, Lyon, France, 23 - 25 octobre 2017.
- [246] A. Seret, C. Moussa, M. Bernacki, and N. Bozzolo. Quantification of the density of dislocations in nickel-based superalloys. Colloque "Métallurgie, quel avenir!" Saint-Etienne, France, 27 Juin - 01 Juillet 2016.
- [247] D. Pino Muñoz, V. M. Trejo Navas, M. Shakoov, D. Uribe, M. Bernacki, and P.-O. Bouchard. Modélisation de la rupture pour des microstructures hétérogènes par approches level-set et adaptation de maillage. Colloque national MECAMAT Aussois, 21-25 Janvier 2019. **Conférence invitée.**
- [248] D. Pino Muñoz, M. Bernacki, V. M. Trejo Navas, M. Shakoov, and P.-O. Bouchard. Numerical modeling of ductile failure of heterogeneous microstructures based on mesh adaption within a level-set framework. In *International Symposium: Nano and Micro Scale Damage in Metals*, Utrecht, The Netherlands, February 7 - 9 2018.
- [249] T. Morgeneyer, A. Buljac, M. Shakoov, V. Trejo, J. Neggers, M. Bernacki, P.-O. Bouchard, L. Helfen, and F. Hild. Endommagement ductile : mesures volumiques et simulations micromécaniques. 3ème Journées Matériaux Numériques, Tours, France, 30 Janvier - 02 Février 2017.
- [250] V. Trejo, M. Shakoov, M. Bernacki, and P.-O. Bouchard. Influence of heterogeneous microstructure on the micromechanisms of ductile fracture. 13eme Colloque National en Calcul des Structures, Giens, France, 15-19 Mai 2017.
- [251] V. Trejo, M. Shakoov, M. Bernacki, and P.-O. Bouchard. A study of the effect of microstructural heterogeneities on ductile damage. 3ème Journées Matériaux Numériques, Tours, France, 30 Janvier - 02 Février 2017.
- [252] V. Trejo, M. Shakoov, M. Bernacki, and P.-O. Bouchard. Ductile fracture – influence of heterogeneous microstructure on nucleation, growth and coalescence mechanisms. In *Analyses in situ : expériences/modélisations, Workshop SF2M/MECAMAT, commissions Matériaux et Grands Instruments & Matériau Numérique*, Mines ParisTech, Paris, France, September 15-16 2016.
- [253] M. Bernacki, D. Polychronopoulou, and N. Bozzolo. Full-field modeling of spheroidization phenomenon in α/β titanium alloys after deformation and during the annealing stage at a given temperature. Journées Technologiques Titane, 30 - 31 Mai 2017. **Conférence invitée.**
- [254] D. Polychronopoulou, N. Bozzolo, D. Pino Muñoz, and M. Bernacki. Full field modelling of lamella splitting and lath spheroidization in α/β titanium alloys. Colloque "Métallurgie, quel avenir!" Saint-Etienne, France, 27 Juin - 01 Juillet 2016.
- [255] M. Bernacki, N. Bozzolo, Y. Jin, B. Scholtes, R. Boulais-Sinou, D. Polychronopoulou, and D. Ilin. Advances in level set modeling of recrystallization at the mesoscopic scale. 2ème Journées Matériaux Numériques, St-Aignan-sur-Cher, France, 03-05 Février 2015. **Conférence invitée.**
- [256] R. Boulais-Sinou, B. Scholtes, D. Pino Muñoz, C. Moussa, N. Bozzolo, and M. Bernacki. Full field modeling of dynamic recrystallization in a level-set framework. Colloque "Métallurgie, quel avenir!" Saint-Etienne, France, 27 Juin - 01 Juillet 2016.

- [257] A. Settefrati, B. Scholtes, and M. Bernacki. Microstructural evolution prediction during forming processes: towards a modelling by industry. Colloque "Métallurgie, quel avenir!" Saint-Etienne, France, 27 Juin - 01 Juillet 2016.
- [258] D. Ilin, B. Scholtes, N. Bozzolo, D. Pino Muñoz, and M. Bernacki. Effect of intragranular strain heterogeneity on recrystallization kinetics assessed by numerical simulation at the mesoscopic scale. Colloque "Métallurgie, quel avenir!" Saint-Etienne, France, 27 Juin - 01 Juillet 2016.
- [259] M. Bernacki, B. Scholtes, A. Settefrati, A. Agnoli, and N. Bozzolo. Full field modeling of grain growth and zener pinning phenomenon in a level set framework. In *Workshop SF2M/MECAMAT*, Mines ParisTech, Paris, France, November 30 - December 1 2015.
- [260] B. Scholtes, A. Settefrati, and M. Bernacki. Level-set modelling of recrystallization and grain growth. In *Workshop SF2M/MECAMAT*, Mines ParisTech, Paris, France, November 30 - December 1 2015.
- [261] B. Scholtes, A. Settefrati, and M. Bernacki. Simulation en champ complet de la recrystallisation et la croissance de grains par une approche level-set avec remaillage local. 2ème Journées Matériaux Numériques, St-Aignan-sur-Cher, France, 03-05 Février 2015.
- [262] B. Scholtes, A. Settefrati, and M. Bernacki. Simulation en champ complet de la recrystallisation et de la croissance de grains par une approche Level-Set avec remaillage local. Matériaux 2014, Montpellier, France, 24-28 Novembre 2014.
- [263] T. F. Morgeneyer, A. Buljac, M. Shakoor, J. Neggers, M. Bernacki, P.-O. Bouchard, L. Helfen, and F. Hild. Micromechanical simulations and analyses based on synchrotron 3D imaging for nodular cast iron tested under different stress states. Journées annuelles SF2M, Lyon, France, 23 - 25 octobre 2017.
- [264] M. Shakoor. Influence of heterogeneous microstructure on the micromechanisms of ductile fracture. In *Three-dimensional numerical modeling of ductile fracture mechanisms at the microscale*, 13eme Colloque National en Calcul des Structures, Giens, France, 15-19 Mai 2017. **Conférence invitée.**
- [265] M. Shakoor, P.-O. Bouchard, D. Pino Muñoz, T. Toulorge, and M. Bernacki. An adaptive level-set method with enhanced volume conservation for simulations in multiphase domains. 3ème Journées Matériaux Numériques, Tours, France, 30 Janvier - 02 Février 2017.
- [266] A. Buljac, M. Shakoor, J. Neggers, M. Bernacki, P.-O. Bouchard, L. Helfen, T. Morgeneyer, and F. Hild. Micromechanical simulations based on laminography 3D imaging: Experimental/numerical framework. In *Analyses in situ : expériences/modélisations, Workshop SF2M/MECAMAT, commissions Matériaux et Grands Instruments & Matériau Numérique*, Mines ParisTech, Paris, France, September 15-16 2016.
- [267] P.-O. Bouchard, M. Shakoor, and M. Bernacki. 3D modeling of ductile acture at the microscale using a new body-fitted mesh adaptation technique. In *Workshop SF2M/MECAMAT*, Mines ParisTech, Paris, France, November 30 - December 1 2015.
- [268] M. Shakoor, M. Bernacki, and P.-O. Bouchard. Une nouvelle méthode de volume immergé pour la modélisation numérique de l'endommagement ductile à l'échelle des microstructures. 12eme Colloque National en Calcul des Structures, Giens, France, 18-22 Mai 2015.
- [269] M. Shakoor, P.-O. Bouchard, and M. Bernacki. Modélisation numérique de l'endommagement ductile à l'échelle des microstructures. 2ème Journées Matériaux Numériques, St-Aignan-sur-Cher, France, 03-05 Février 2015.
- [270] P.-O. Bouchard, E. Roux, M. Shakoor, and M. Bernacki. Micromechanical modelling of ductile damage mechanisms using a level-set approach and anisotropic mesh adaptation. Université Catholique de Louvain la Neuve, Belgique, 9 Octobre 2014.
- [271] A. Chbihi, M. Saby, M. Bernacki, and P.-O. Bouchard. Elaboration, par une approche sur VER, d'un modèle à champ moyen pour la prédiction de la refermeture de pores lors de la déformation à chaud de métaux. 12eme Colloque National en Calcul des Structures, Giens, France, 18-22 Mai 2015.

- [272] A. Chbihi, M. Saby, M. Bernacki, and P.-O. Bouchard. Elaboration, par une approche sur VER, d'un modèle à champ moyen pour la prédiction de la refermeture de pores lors de la déformation à chaud de métaux. 2ème Journées Matériaux Numériques, St-Aignan-sur-Cher, France, 03-05 Février 2015.
- [273] Y. Jin, N. Bozzolo, A.D. Rollett, and M. Bernacki. Phase field model in grain growth simulation - A state of arts of the two main versions of Phase Field model: Continuum Field model (CF) and Multiphase Field model (MPF). Journée Workshop GDR Rex, Paris, France, 13-14 Février 2013.
- [274] M. Bernacki, K. Hitti, A.-L. Fabiano, A. Agnoli, and R. Logé. Génération statistique de VERs et modélisation EF d'évolutions microstructurales. Journées thématiques MECAMAT, Cemef, Sophia-Antipolis, 10-11 Mai 2011.
- [275] M. Saby, M. Bernacki, and P.-O. Bouchard. Etude de sensibilité pour la refermeture de porosités soumises à un chargement mécanique macroscopique grâce à une approche éléments finis à l'échelle de la microstructure. 11eme Colloque National en Calcul des Structures, Giens, France, 13-17 Mai 2013.
- [276] R. Logé, A.-L. Fabiano, and M. Bernacki. Mesoscale modelling of plastic deformation and subsequent recrystallization : capillarity, GNDs and microtexture effects. Matériaux 2014, Montpellier, France, 24-28 Novembre 2014.
- [277] R. Logé, A.-L. Fabiano, and M. Bernacki. Mesoscale modelling of plastic deformation and subsequent recrystallization : role of gnds and capillarity effects. 4th International Symposium on Computational Mechanics of Polycrystals, Max-Planck-Institut, 40237 Düsseldorf, Germany, July 14-15 2014.
- [278] A.-L. Fabiano, R. Logé, M. Bernacki, I. Poitroult, M. Teaca, A. Gingell, F. Perdriset, and E. Guyot. Modèles de recristallisation et de croissance de grains de l'acier inoxydable 304L et applications industrielles. Journée "Aciers inoxydables et Industrie Nucléaire, dernières avancées", SF2M, Saint Etienne, France, 16 Mai 2013.
- [279] A.-L. Fabiano, R. Logé, and M. Bernacki. Modelling of static and dynamic recrystallization processes at the mesoscopic scale in 304L stainless steel. Journées thématiques MECAMAT, Cemef, Sophia-Antipolis, 10-11 Mai 2011.
- [280] Y. Bienvenu, A. Zouaghi, M. Bellet, M. Bernacki, G. Roux, G. Perrin, and D. Cedat. HIP of stainless steel 316L considered at the mesoscopic scale: numerical modelling and experimental characterization. Journée HIP, SF2M, Paris, France, 18 Avril 2013.
- [281] A. Zouaghi, M. Bellet, Y. Bienvenu, G. Perrin, D. Cedat, and M. Bernacki. Modélisation de la phase de compaction du procédé CIC à l'échelle mésoscopique. Journées thématiques MECAMAT, Cemef, Sophia-Antipolis, 10-11 Mai 2011.
- [282] A. Zouaghi, M. Bellet, and M. Bernacki. Modélisation de la phase de compaction du procédé CIC à l'échelle mésoscopique. CFM 2011, Besançon, France, 28 Août- 2 Septembre 2011.
- [283] D. Ilin, K. Hitti, and M. Bernacki. Statistical generation of polycrystalline microstructures in a level-set context. 2ème Journées Matériaux Numériques, St-Aignan-sur-Cher, France, 03-05 Février 2015.
- [284] K. Hitti, P. Laure, T. Coupeze, L. Silva, and M. Bernacki. Generation of cellular representative elementary volumes (REVs) in a finite element (FE) context - application to foam compression. CFM 2011, Besançon, France, 28 Août- 2 Septembre 2011.
- [285] L.T. Le, T. Chauve, M. Bernacki, S. Berbenni, M. Montagnat, and T. Richeton. Un modèle de plasticité cristalline considérant le transport des dislocations géométriquement nécessaires sur les systèmes de glissement : application aux mono- et multi-cristaux de glace. In *Plasticité 2016*, Poitiers, France, 11-13 Avril 2016.
- [286] K. Hitti, S. El Feghali, M. Bernacki, and P.-O. Bouchard. Adaptation de maillage anisotrope dédiée à la propagation de fissures en 2D et 3D. 11eme Colloque National en Calcul des Structures, Giens, France, 13-17 Mai 2013.

- [287] P.-O. Bouchard, E. Roux, and M. Bernacki. Modélisation des micro mécanismes d'endommagement ductile par une approche couplant fonctions level-set et adaptation anisotrope de maillage. 11eme Colloque National en Calcul des Structures, Giens, France, 13-17 Mai 2013.
- [288] I. Coppo, D. Pino Muñoz, M. Bernacki, and J.-L. Bouvard. Génération de vers et calcul d'homogénéisation : application aux composites thermoplastiques à renforts discontinus. CFM, Lille, France, 28 Août - 01 Septembre 2017.

Projects

- [289] AI4theSciences project. *Artificial Intelligence for abnormal and critical grain growth phenomena discrimination and avoidance - Application to Nickel base superalloys*. Eu horizon 2020-marie skłodowska-curie project, PI, 2022-2025.
- [290] CALHIPSO project. *Compaction et Assemblage d'alliages métalliques par HIP, une solution Innovante*. Equipex + project, coordinated by Pr. F. Bernard, partners: Univeristé de Bourgogne, CEA, Framatome, Cemef Mines ParisTech, CNRS, 2021-2029.
- [291] TOPAZE project. *Microstructure et propriétés mécaniques des superalliages base nickel polycristallins pour les moteurs d'avion de nouvelle génération*. Industrial ANR Chair, Chair holder : Prof. N. Bozzolo - CEMEF Mines ParisTech, partners: Cemef Mines ParisTech, Safran, Institut P', 2019-2023.
- [292] DIGIMU project. *Development of an innovative and global numerical framework for the modeling of microstructure evolutions during metal forming industrial processes*. Industrial Chair, Chair holder, partners: Cemef Mines ParisTech, Aubert & Duval, AREVA, ArcelorMittal, CEA Valduc, Ascometal, Safran, Transvalor, 2017-2024.
- [293] APERAM project. *Maîtrise de l'homogénéité de la taille de grains dans des barres et fils de superalliage base Fer A-286*. Industrial project, coordinated by Prof. N. Bozzolo - CEMEF Mines ParisTech, partners: Cemef Mines ParisTech, APERAM, 2020-2023.
- [294] ThermoFip project. *Génération et homogénéisation de Volumes Élémentaires Représentatifs (VERs) pour composites à renforts discontinus : vers une meilleure compréhension des mécanismes locaux de déformation et d'endommagement*. Internal project, coordinated by Dr J.-L. Bouvard, 2018-2021.
- [295] OPALE project. *Control of the microstructure resulting from thermomechanical processing, and impact on properties*. Industrial ANR Chair, Chair holder : Prof. N. Bozzolo - CEMEF Mines ParisTech, partners: Cemef Mines ParisTech, Safran, Institut P', 2015-2019.
- [296] HIP bonding project. *Experimental investigations and full field modeling of HIP-bonding process*. Industrial project, coordinator with E. Rigal, partners: Cemef Mines ParisTech, CEA Liten, 2017-2020.
- [297] GEOAZUR project. *Du cristal à la limite de plaques : approche numérique de la cicatrisation des péridotites*. Academic project, coordinator with Prof. C. Petit, Dr. C. Ganino and Dr. D. Pino Muñoz, partners: Geoazur-OCA, Cemef Mines ParisTech, 2017-2020.
- [298] HUTCHINSON project. *Etude des mécanismes d'endommagement en fatigue multiaxiale des Composites à fibres courtes : Thermoplastiques (PA66) renforcés de fibres de verres*. Industrial project, coordinated by S. Cantournet (CDM), CDM Mines ParisTech, Cemef Mines ParisTech, Hutchinson, 2015-2018.
- [299] CMC² project. *Development by homogenization of a new mean field dynamic recrystallization (DRX) model*. Industrial Consortium project, coordinator with Prof. N. Bozzolo and Dr. C. Moussa, partners: Cemef Mines ParisTech, Aubert & Duval, AREVA, ArcelorMittal, CEA Valduc, Safran, Transvalor, 2015-2018.
- [300] COMINSIDE project. *Understanding, Observation, Modeling and Simulation of Ductile Damage Mechanisms*. ANR project, coordinated by Prof. P.-O. Bouchard - CEMEF Mines ParisTech, partners: Cemef Mines ParisTech, Centre des Matériaux Mines ParisTech, LMT ENS Cachan, 2015-2018.

-
- [301] SPATIALES project. *Globularization in titanium alloys: experimental analysis and numerical modeling*. Industrial Consortium project, coordinator with Prof. N. Bozzolo, partners: Cemef Mines ParisTech, Aubert & Duval, CEA Valduc, Safran, Timet, Transvalor, 2014-2017.
- [302] MICROPRO2 project. *Development of an efficient level-set framework for the CPFEM*. Industrial Consortium project, coordinator with Dr. D. Pino Muñoz, partners: Cemef Mines ParisTech, Aubert & Duval, AREVA, ArcelorMittal, CEA Valduc, Ascometal, Safran, Transvalor, 2014-2017.
- [303] DIGI μ project. *Development of an efficient level-set framework for the numerical modelling of 3D recrystallization*. Industrial project, coordinator, partners: Cemef Mines ParisTech, Transvalor, 2013-2016.
- [304] CORTEX project. *Numerical modelling of ductile damage at the microscale*. CARNOT MINES project, coordinated by Prof. P.-O. Bouchard - CEMEF Mines ParisTech, 2013-2016.
- [305] CICAPORO2 project. *Understanding and tensorial modeling of void closure mechanisms during hot metal forming processes*. Industrial Consortium project, coordinator with Prof. P.-O. Bouchard and Dr. D. Pino Muñoz, partners: Cemef Mines ParisTech, Timet, Aubert & Duval, AREVA, Ascometal, ArcelorMittal, Constellium, Transvalor, 2013-2016.
- [306] DEFISURF project. *Shot peening of heterogeneous microstructure: numerical modeling and influence on fatigue properties*. ANR project, coordinated by Prof F. Morel - ENSAM Angers, partners: ENSAM Angers, Cemef Mines ParisTech, INSA Lyon, MIC, Transvalor, CETIM, Ateliers des Janves, Renault SA, Gevelot, 2012-2015.
- [307] FORMATING project. *Annealing twin formation mechanisms*. International ANR project, coordinated by Prof. N. Bozzolo - CEMEF Mines ParisTech, partners: Cemef Mines ParisTech, Carnegie Mellon University, 2011-2014.
- [308] K-GRAINS project. *Origin of inhomogeneous grain growth in inconel 718 forgings*. Industrial project, coordinator with Prof. N. Bozzolo, partners: Cemef Mines ParisTech, Snecma, 2010-2013.
- [309] CICAPORO project. *Understanding and modeling of void closure mechanisms during hot metal forming processes*. Industrial Consortium project, coordinator with Prof. P.-O. Bouchard, partners: Cemef Mines ParisTech, Timet, Aubert & Duval, AREVA, Ascometal, ArcelorMittal, Constellium, 2010-2013.
- [310] MICROPRO project. *Modelling of crystal plasticity and grain boundary motion of 304L steel at the mesoscopic scale*. Industrial Consortium project, coordinator with Prof. R. Logé, partners: Cemef Mines ParisTech, Aubert & Duval, AREVA, ArcelorMittal, CEA Valduc, Ascometal, 2010-2013.
- [311] MOCOPO project. *HIP of stainless steel 316L considered at the mesoscopic scale: numerical modelling and experimental characterization*. Industrial Chair, coordinator with Prof. M. Bellet and Prof. Y. Bienvenu, partners: Cemef Mines ParisTech, Centre des Matériaux Mines ParisTech, AREVA, 2009-2012.
- [312] μ CIM project. *Direct numerical simulation of complex Representative Volume Elements (RVEs) : Generation, resolution and Homogenization*. Internal project, coordinator, 2008-2011.
- [313] OPENFOAM project. *Développement de matériaux numériques pour l'industrie 4.0: application aux mousses polymères*. Plan France Relance, coordinated by Pr. J.-L. Bouvard, partners: Cemef Mines ParisTech, IPC, 2022-2023.
- [314] C4PO UCA/UTK/NASA project. *Reconnaissance, Origin, & Characterization of Small bodies of our Solar System - Uncovering the nature of celestial bodies with methods of material sciences*. Academic project, coordinated by Prof. M. Delbo, Prof. J.P. Emery and Prof. M. Bernacki, partners: Lagrange-OCA, The University of Tennessee - Knoxville, NASA, Cemef Mines ParisTech, 2018-2021.
- [315] DREAM project. *Modeling of dynamic ReX in anisotropic materials*. ANR project, coordinated by M. Montagnat - LGGE, partners: LGGE, Cemef Mines ParisTech, Géosciences Montpellier, LEM3, 2013-2016.
-

-
- [316] AM project. *Improved modelling of multipass TMCP at the microstructure*. Industrial project, coordinator with Prof. R. Logé, partners: Cemef Mines ParisTech, ArcelorMittal, 2012-2013.
- [317] SUGAR project. *Silicon substrates from an integrated automated process*. EU project, coordinated by IMEC, partners: IMEC, Cemef Mines ParisTech, Bosch-Rexroth, Fraunhofer IPA, Ferro, Dow Corning, Applied Materials Baccini, FCUL - University of Lisbon, Semilab, 4PICO, 2010-2013.
- [318] PACROLPII project. *The prediction and avoidance of cracking in long product hot rolling – phase 2*. RFCS project, coordinated by Prof J.-M. Rodriguez-Ibabe - CEIT, partners: Cemef Mines ParisTech, CEIT, TATA Steel, CSM, Gerdau Sidenor, 2009-2012.
- [319] CRACKRACKS project. *Concerted Research for Analysis of CRACK phenomena during Solidification of steels*. ANR project, coordinated by Prof. M. Bellet - CEMEF Mines ParisTech, partners: Cemef Mines ParisTech, Ascometal, Industeel, ArcelorMittal, CTIF, Transvalor, ENSAM, 2008-2012.
- [320] AM² project. *Prediction of void nucleation in High Modulus Fe-TiB₂ steel during cold forming process via microscopic simulations*. Industrial project, coordinator with Prof. P.-O. Bouchard, partners: Cemef Mines ParisTech, ArcelorMittal, 2016-2017.
- [321] HOVERCOME project. *Generation and homogenization of REVs for a polymer composite with discontinuous reinforcements*. Internal project, coordinator with Prof. N. Billon and Dr J.L. Bouvard, 2015-2016.
- [322] MATMAX project. *Microstructure of annealed Tantalum - Modeling and analysis of recrystallization phenomena*. Industrial project, coordinator with Prof. N. Bozzolo, partners: Cemef Mines ParisTech, CEA Valduc, 2014-2016.