Marc Bernacki

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Articles

[1] 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.

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PhD Students

1. **Under recruitment**. *Artificial Intelligence for abnormal and critical grain growth phenomena discremination 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 : [431]

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 : [432]

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 : [433]
   Communications : [159]

4. **Adrien Talazili**. *Simulation of Wave Propagation in Highly Heterogeneous Media.* PhD thesis, Ecole Nationale Supérieure des Mines de Paris, 2021-2024.
   Project : [434]

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 : [434]
   Communications : [333]

6. **Federico Orlacchio**. *Prédiction des évolutions de microstructure des alliages γ-gamma$'$ 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 : [433]
   Communications : [158]

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 : [435]

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 : [434]
   Articles: [100]
   Communications : [334], [167], [336]

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 : [433]
   Communications : [162], [160], [161]

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 : [434]
    Communications : [331]

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 a chaud.*. PhD thesis, Ecole

Nationale Supérieure des Mines de Paris, 2019-2022.
Project : [434]
Articles: [99], [13], [4]
Communications : [164], [163], [332]

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 : [436]
Communications : [171], [343]

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 : [434]
Communications : [175], [185], [195], [335]
Articles : [2]

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 : [434]
Articles: [3], [5], [10], [7], [11], [12], [14], [13]
Communications : [195], [344]

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 : [434]
Articles: [15], [5], [10], [16], [12], [11], [25]
Communications : [195], [352], [168]

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 : [437]
Articles: [101]
Communications : [341], [183], [174]

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 : [438]
Communications : [178], [195]

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 : [434]
Articles: [8], [21], [20]
Communications : [182], [195]

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 : [434]
Articles : [5], [10], [16], [7], [12], [11], [146], [25], [14], [24], [102]
Communications : [187], [195], [188], [189], [336], [165]

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 : [439]
Articles: [8], [9], [23], [47]
Communications: [202], [205], [356],

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 : [437]
Articles : [10], [11], [7], [14], [146], [23], [26], [48], [44]
Post-conference articles : [105]
Communications: [186], [195], [207], [206], [203], [213], [105], [219], [223], [372]

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 : [440]
Communications : [204], [221], [228], [375]

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 : [441]
Articles : [146], [17], [42], [44], [56], [60]
Post-conference articles : [104], [103], [108]
Communications : [186], [195], [190], [191], [203], [213], [219], [220], [355], [354], [370], [369], [371], [384]

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 : [437]
Articles: [18], [30], [43]
Communications : [338], [364], [382]

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 : [442]
Articles : [6], [40], [29], [212], [39], [49]
Post-conference articles : [109], [106], [110]
Communications : [192], [211], [197], [198], [212], [214], [229], [231], [250], [340], [353], [368], [360], [361], [380]

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 : [443]
Articles : [32]
Post-conference articles : [113]
Communications : [239], [376], [383], [403]

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 : [444]
Articles: [59]
Post-conference articles : [115]
Communications : [237], [249], [388], [403]

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 : [445]
Articles : [42], [56], [60], [59], [66], [64]
Post-conference articles : [103], [104], [107], [108], [111], [115], [112], [120], [118]
Communications : [103],[190], [217], [249], [237], [252], [236], [235],[263], [258], [266], [257], [270], [369], [381], [388], [384], [386], [402], [394], [395], [403], [404]

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 : [446]
Articles : [24], [40], [212], [49], [41], [32], [52], [58], [53], [66], [65], [64], [75]
Post-conference articles : [109], [106], [113], [110], [117], [118]
Book chapter : [147]
Communications : [208], [225], [224], [226], [211], [212], [216], [214], [215], [229], [233], [239], [240], [250], [231], [253], [254], [255], [256], [257], [268], [269], [340], [353], [367], [363], [368], [362], [361], [360], [380], [387], [401], [393], [392], [408]

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 : [447]
Articles : [57]
Post-conference articles : [116], [121]
Communications : [193], [248], [247], [251], [400], [399]

31. **Abbass Toufayli**. *Shot peening of heteregeneous 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 : [448]
Communications : [267]

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 : [449]
Articles : [61], [262], [70], [71], [76]
Post-conference articles : [131], [130]
Communications : [223], [245], [262], [281], [275], [276], [277], [282], [283], [284], [403], [413]

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 : [450]
Articles : [74], [78]
Post-conference articles : [133], [136]
Communications : [277], [282], [285], [288], [299], [298], [424]

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 : [451]
Articles : [67], [68], [79]
Post-conference articles : [125], [128]
Communications : [272], [271], [296], [291], [290], [400], [399], [411]

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 : [452]
Articles : [77]
Communications : [243], [260], [282], [295], [405], [406], [415], [424], [423]

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 : [453]
Post-conference articles : [134], [137]
Communications : [289], [417], [421], [420]

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 : [454]
Articles : [63],[82], [83], [85]
Communications : [278], [307], [398], [424], [422]

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 : [434]

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 : [455]

3. **Sebastian Florez**. *Deep neural network in computational metallurgy.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, 2021.
Project : [434] Articles: [**?**], [10], [16], [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 : [434]
Articles: [146], [13]

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 : [456]
Articles: [1], [22], [179]
Communications: [179], [180], [201]

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 : [443]
Post-conference articles : [108]
Communications : [222], [369]

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 : [457]
Articles : [54]
Communications : [238], [385]

8. **Dmitrii Ilin**. *Numerical Metallurgy.* Postdoctoral Researcher, Ecole Nationale Supérieure des Mines de Paris, 2015-2016.
Project : [437]
Articles : [201], [62]
Post-conference articles : [112], [114]
Communications : [236], [246], [386], [403], [398]

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 : [458]

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 : [459]
Articles : [46]
Post-conference articles : [132]
Communications : [294], [414]

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 : [459]
Articles : [46]
Post-conference articles : [132]
Communications : [278], [414]

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 : [460]
Articles : [75], [80], [79]
Post-conference articles : [129]
Book : [148]
Communications : [269], [287], [286], [292], [296], [297], [300], [303], [416]

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 : [461]
Articles : [51], [88]
Post-conference articles : [139]
Communications : [305], [312]

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: [436]

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 : [462]

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 : [463]
Communications : [228], [375], [374]

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 : [464]
Communications : [242]

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 : [459]

Project Involvement

[431] AI4theSciences project. *Artificial Intelligence for abnormal and critical grain growth phenomena discremination and avoidance - Application to Nickel base superalloys.* Eu horizon 2020-marie skłodowska-curie project, PI, 2022-2025.

[432] 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.

[433] 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.

[434] 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.

[435] 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.

[436] ThermoFip project. *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.* Internal project, coordinated by Dr J.-L. Bouvard, 2018-2021.

[437] 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.

[438] 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.

[439] 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.

[440] 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.

[441] CMC^2 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.

[442] 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.

[443] 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.

[444] 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.

[445] DIGIμ 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.

[446] CORTEX project. *Numerical modelling of ductile damage at the microscale.* CARNOT MINES project, coordinated by Prof. P.-O. Bouchard - CEMEF Mines ParisTech, 2013-2016.

[447] 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.

[448] DEFISURF project. *Shot peening of heteregeneous 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.

[449] 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.

[450] 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.

[451] 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.

[452] 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.

[453] 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.

[454] μCIM project. *Direct numerical simulation of complex Representative Volume Elements (RVEs) : Generation, resolution and Homogenization.* Internal project, coordinator, 2008-2011.

[455] 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.

[456] 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.

[457] 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.

[458] AM project. *Improved modelling of multipass TMCP at the microstructure.* Industrial project, coordinator with Prof. R. Logé, partners: Cemef Mines ParisTech, ArcelorMittal, 2012-2013.

[459] 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.

[460] PACROLP-II 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.

[461] CRACRACKS 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.

[462] AM^2 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.

[463] 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.

[464] MATMAX project. *Microstructure of annealed Tantalum - Modeling and analysis of recristallization phenomena.* Industrial project, coordinator with Prof. N. Bozzolo, partners: Cemef Mines ParisTech, CEA Valduc, 2014-2016.

[465] DIGIMAT project. *Multiscale modelling of recrystallization in metals based on a digital material framework.* EU project, coordinated by Prof. R. Logé - CEMEF Mines ParisTech, partners: Cemef Mines ParisTech, Imperial College, Centre des Matériaux Mines ParisTech, Eötvös University, Carnegie Mellon University, Princeton University, 2005-2009.

Juries

[466] Saoussen Ouhiba. *Recrystallization of 6016 aluminium alloy during and after hot-rolling.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, February, 22nd 2022.

[467] Brayan Murgas. *Towars a precise description of the grain boundary mobility and energy for their numerical integration in finite element modeling of recrystallization and grain growth mechanisms.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, April, 7th 2022.

[468] Karen Alvarado. *Croissance des grains sous l'influence du phénomène d'ancrage de Smith-Zener avec évolution des particules de seconde phase : approche multi-échelle et application aux superalliages à base de nickel.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, January, 20th 2022.

[469] Julen Agirre. *Development of a thermomechanical tester for intermediate strain rates and phenomenological modelling of microstructural evolution: application to hot forging of Inconel 625.* PhD Thesis - president, Mondragon University, March, 31st 2022.

[470] Mingyan Wang. *Reverse engineering the kinetics of grain growth in Al-based polycrystals by microstructural mapping in 4D.* PhD Thesis - referee, Ulm university, Germany, June, 17th 2021.

[471] Juhi Sharma. *Microstructural evolution during hot forging of VDM Alloy 780: Mechanisms kinetics and mean filed modelling.* PhD Thesis - president, PSL Research University - MINES ParisTech, October, 22nd 2021.

[472] Marco Panella. *Prévision des propriétés mécaniques de superalliages base nickel en fonction de leur microstructure.* PhD Thesis - examiner, Université de Poitiers, June, 04th 2021.

[473] Nicola Stefani. *Novel experimental methodology for the investigation of recrystallization during industrial hot forging of Inconel 718.* PhD Thesis - referee, University of Strathclyde, Glasgow UK, May, 25th 2020.

[474] Sofia Sakout. *Modèle mésoscopique rapide de croissance de grain par mise à jour de tesselations orientées et homogénéisation probabiliste.* PhD Thesis - president, Université Paris Est, October, 22nd 2020.

[475] David Ruiz. *Full field modeling of discontinuous dynamic recrystallization in a CPFEM context.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, December, 7th 2020.

[476] Sebastian Florez. *Towards highly efficient massive-multidomain simulations in the context of microstructural evolutions.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, November, 30th 2020.

[477] Julien Fausty. *full field modeling and simulation of annealing twins using a Finite Element Level Set method - applications to polycrystalline nickel based superalloys.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, January 23rd 2020.

[478] Anthony Seret. *Influence de la mise en forme sur les cinétiques de précipitation durcissante dans les superalliages base nickel Inconel 625 et AD730.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, October 14th 2019.

[479] Suzanne Vernier. *Evolution de la microstructure du superalliage base nickel AD730 au cours des opérations de forgeage industrielles.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, December 17th 2018.

[480] Danai Polychronopoulou. *Spheroidization in α/β titanium alloys: numerical modeling and experimental analysis.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, July 19th 2018.

[481] Matthieu Maunay. *Echangeurs de chaleur obtenus par soudage-diffusion : simulation des déformées et prédiction de la tenue mécanique des interfaces.* PhD Thesis - president, Université Grenoble Alpes, April 6th 2018.

[482] Ludovic Maire. *Full field and mean field modeling of dynamic and postdynamic recrystallization in 3D - Application to 304L steel.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, November 23rd 2018.

[483] Abbass Toufaily. *Modélisation du grenaillage et de son impact sur l'état de surface final des pièces forgées.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, May 22nd 2017.

[484] Guillaume Smagghe. *Modélisation de la recristallisation lors du forgeage à chaud de l'acier 304L – Une approche semi-topologique pour les modèles en champs moyens.* PhD Thesis - examiner, Ecole des Mines de Saint-Etienne, February 7th 2017.

[485] Benjamin Hary. *Compréhension et modeélisation de l'influence du taux de renforts et de la texture de déformation sur la recristallisation des aciers ODS ferritiques.* PhD Thesis - examiner, Université Paris-Saclay, November 16th 2017.

[486] Modesar Shakoor. *Three-dimensional numerical modeling of ductile fracture mechanisms at the microscale.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, November 4th 2016.

[487] Benjamin Scholtes. *Development of an efficient level set framework for the full field modeling of recrystallization in 3D.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, December 5th 2016.

[488] Davide Colombo. *Modeling the macroscopic mechanical behavior of filled elastomers from the local polymer dynamics.* PhD Thesis - examiner, PSL Research University - MINES ParisTech, December 12th 2016.

[489] Takayuki Otsuka. *Micromechanical modelling of transformation plasticity in steels based on fast Fourier transform numerical scheme.* PhD Thesis - referee, Paris XIII University, January 27th 2014.

[490] Yuan Jin. *Annealing twin formation mechanisms.* PhD Thesis - examiner, Ecole Nationale Supérieure des Mines de Paris, December 10th 2014.

[491] Nicolas Bouquet. *Etude de la formation des joints soudés par diffusion : Application aux échangeurs de chaleur compacts.* PhD Thesis - examiner, Université de Bourgogne, November 7th 2014.

[492] Ala Zouaghi. *HIP of stainless steel 316L considered at the mesoscopic scale: numerical modelling and experimental characterization.* PhD Thesis - examiner, Ecole Nationale Supérieure des Mines de Paris, January 29th 2013.

[493] Howatchinou Tossoukpé. *Modélisation et simulation du frittage de matériaux dopés et de multimatériaux à l'échelle de la microstructure.* PhD Thesis - referee, Ecole des Mines de Saint-Etienne, December 6th 2013.

[494] Michel Saby. *Understanding and modeling of void closure mechanisms during hot metal forming processes.* PhD Thesis - examiner, Ecole Nationale Supérieure des Mines de Paris, December 11th 2013.

[495] Ana-Laura Fabiano. *Modelling of crystal plasticity and grain boundary motion of 304L steel at the mesoscopic scale.* PhD Thesis - examiner, Ecole Nationale Supérieure des Mines de Paris, December 10th 2013.

[496] Andrea Agnoli. *Origin of inhomogeneous grain growth in inconel 718 forgings.* PhD Thesis - examiner, Ecole Nationale Supérieure des Mines de Paris, December 19th 2013.

[497] Karim Hitti. *Direct numerical simulation of complex Representative Volume Elements (RVEs) : generation, resolution and homogenization.* PhD Thesis - examiner, Ecole Nationale Supérieure des Mines de Paris, December 7th 2011.

[498] Heba Resk. *Finite element modeling of grain-scale heterogeneities in polycrystalline aggregates.* PhD Thesis - examiner, Ecole Nationale Supérieure des Mines de Paris, December 3rd 2010.

Prizes

[499] TERATEC pôle européen de compétence en simulation numérique haute performance. Trophée de la simulation numérique avec transvalor pour la solution DIGIMU, 2017.

[500] Esaform Scientific Prize. Jury special prize, 2013.

[501] Ecole Nationale des Ponts et Chaussées. Nominated to the best Applied Mathematics PhD thesis award, 2005.

Responsabilities/Organization

[502] WCCM 2020 – co-organizer with T. Burczynski, A. Huespe and M. Pietrzyk of the mini-symposium "Computational multiscale modeling and design of new engineering materials", 2020.

[503] EMMC17 – co-organizer with C. Krill, L. Madej, Y. Mellbin and H. Hallberg of the mini-symposium "Mechanics of interfaces and solid state transformations", 2020.

[504] ECCOMAS 5th Young Investigators Conference - YIC 2019 - member of the scientific committee.

[505] KomPlasTech 2019 conference - member of the scientific committee.

[506] THERMEC'2018 conference - member of the national committee.

[507] Conference MATERIAUX 2018 – co-organizer of the "digital engineering for materials" colloquium .

[508] ECCM - ECFD 2018 conference – co-organizer with L. Madej, W. Kus and G. Laschet of the mini-symposium "Numerical methods for multiscale materials modelling", 2018.

[509] Conference Aussois 2018 – co-organizer.

[510] KomPlasTech 2017 conference - member of the scientific committee.

[511] WCCM 2016 – co-organizer with P.-O. Bouchard, T. Toulorge, A. D. Rollett, H. Hallberg and C. Martin of the mini-symposium "Numerical methods for front tracking problems at the microscale", 2016.

[512] Member of the UCA Scientific Board (Academy 1), 2016-2019.

[513] workshop SF2M/MECAMAT commission "Matériau Numérique" et "Grands Instruments et Matériaux"– co-organizer, 15-16 Septembre 2015.

[514] SF2M workshop "Métallurgie, quel avenir !" – co-organizer with F. Montheillet of the "Numerical Metallurgy" session, 2016.

[515] NUMIFORM 2016 – co-organizer with R. Logé, A. D. Rollett, L. Madej, I. Steinbach, A. Jacot and L. Delannay of the mini-symposium "Microstructure modeling in forming processes", 2016.

[516] Recrystallization GDR CNRS 3436 – automn school – lecturer (10h), november 2016.

[517] workshop SF2M/MECAMAT "Matériau Numérique" – co-organizer, 30 Novembre - 01 Décembre 2015.

[518] Elected member of the PSL* Academic Board, 2015-2019.

[519] "Journées Matériaux Numériques" - member of the scientific committee, since 2015.

[520] Founder (2014), president (2014-2018), board member (since 2014) of the "Numerical Material" SF2M commission, since June 2014.

[521] Head of the MultiScale Modeling "MSM" Research Team, 2014-2018.

[522] MATERIAUX 2014 – co-organizer of the symposium "Metallic materials : processes, microstructures, properties", 2014.

[523] Recrystallization GDR CNRS 3436 – co-responsible with D. Piot of the "Numerical modeling" work group, since 2014.

[524] Recrystallization GDR CNRS 3436 – workshop organization, 13-14/02 2013.

[525] ECCM 2010 – co-organizer of the symposium "Numerical modeling of microstructure evolution in metal forming conditions", 2010.

[526] The 10th US National Congress on Computational Mechanics (UNSCCM-10) – co-organizer of the "Short Course: Digital Representations of Microstructures", 2009.

[527] Elected member of the Mines ParisTech Research committee, 2009-2015.

[528] Elected member of the Mines ParisTech Board, 2012-2015.