CAILLETAUD Georges
Professor of Mechanical Engineering, Mines ParisTech
PSL Research University – UMR CNRS 7633

Centre des Matériaux
Mines ParisTech
10, rue Henri-Auguste Desbruères
BP 87, 91003 Evry Cedex, France

Tel : +33.1.60.76.30.56
Fax : +33.1.60.76.31.50
Email : Georges.Cailletaud@mines-paristech.fr
Web Page : http://matperso.mines-paristech.fr/Personnel/georges.cailletaud/&?lang=en

Personal data

Address : 8 avenue Fontenelle, 92330 SCEAUX, France
Cell phone : +33676885834
Born : 21.03.1953, French, Male

Education

Doctor of Science (DSc), University of Paris VI, Prof. P. Germain, J.-L. Chaboche, D. François, J. Lemaitre, A. Pineau, A. Zaoui (1987)
PhD in Mechanics of Materials (Mécanique Appliquée à la Construction), University of Paris VI, Prof. J. Lemaitre, J.-L. Chaboche (1979)
DEA en Mécanique Appliquée à la Construction, Université de Paris VI, Prof. Paul Germain (1976)
Civil Engineering Degree, Ecole Centrale de Paris (1975)
Ecole Centrale de Paris (rank 5th/330) (1972)

Professional Experience :

12/2010 – present : Exceptional Class Professor, Ecole des Mines de Paris
01/2007 – 12/2011 : Director, CNRS UMR 7633, Centre des Matériaux
01/2008 – 12/2011 : Deputy Director, Mechanics and Materials Department, MINES ParisTech
10/1994 – 12/2009 : 1st Class Professor, Ecole des Mines de Paris
04/1984 – 10/1994 : 2nd Class Professor, Ecole des Mines de Paris
09/1978 – 04/1984 : Research Engineer, ONERA, Direction des Structures

Professional Service :

Member of MecaMat (French group of Mecanics of Materials), SF2M (French Society of Metallurgy and Material, AFM (French Society of Mechanical Science), Euromech (European Mechanics Society)
Editorial Board member of *Mécanique et Industrie* (1995-2012)
Editorial Board member and Guest Editor of the *International Journal of Plasticity*
Associate Editor of *ASME Journal of Engineering Material and Technology* (2009-2015)
International Advisory Board member, Network of Excellence KMM (Knowledge Base Multicomponents Material for Durable and Safe Performance) (2004–2008)
Scientific Committee member, Research Training Network WEMESURF (Characterisation of WEear MEchanisms and SURFace functionalities with regard to life time prediction and quality criteria - from micro to the nano range)
Head of FIRTECH (a laboratory network at the origin of the Fédération Francilienne de Mécanique) (1995-2000) and organizer of meetings linking the academic network to industrial partners during the same period

Scientific Committee member at ONERA (Office National d'Etudes et Recherches Aérospatiales) (2004-2010)
Member of Board of the LaBEX excellence network "Laboratoire Systèmes et Ingénierie de Paris–Saclay" (2010–2013)
Member of the national selection committee of the French National Agency for Research Funding (ANR) (2010–2012)
Member of the selection committee for Advanced Grants of the European Research Council Executive Agency (2011–present)
Member of the scientific committee of LaBEX excellence network Damas (University of Lorrain) (2014–present)
Expert for the government agency of National Science Centre, Poland (2015)
Expert for the Research Council of Norway for the Petromaks II program (2013–present)
Expert for the Ministry of Education, Youth and Sports of the Czech Republic for the Operational Programme Research and Development for Innovation (2014)
Expert of the National Agency for the Evaluation of Universities and Research Institutes, Italy (2015–2016)
Expert for JSC, "The National Centre of Science and Technology Evaluation" of Kazakhstan (2017)
Expert of the Latvian Council for the call on Fundamental and Applied Research (2018)

Workshop and Conference Organisation (Last Ten Years) :
Session coordinator on "Additive fabrication", at CSMA (Structural Calculation and Modeling Association), 14th Conf on structural calculations, Giens (France), 13–17 May 2019

Scientific Commitee of CAM2015, (Congrès algérien de Mécanique) El Oued (Algérie) October 25–29, 2015.
Scientific Commitee of ICOMP, (Int. Conf. on Computational Methods in Manufacturing), Saint-Etienne (France), September 2–4, 2014.
Organizer of the session on *Viscoplasticity*, ICMM3, Warsaw (Poland), September 8–11, 2011 ;
ICMM2, Paris (France), August 31–September 2, 2011, ICMM1, Dortmundt (Germany), September 15–17, 2009
Co-chair, Workshop S21 on *Mechanical Behaviour* at Conférence Française de Mécanique, CFM 2011, Besançon, (France), August 28–September 2, 2011
Co-chair, Mini-Symposium on *Macro-micro-nano approaches in material mechanics*, ESMC 2009, Lisboa (Portugal), September 7–11, 2009
Co-chair, Workshop S5 on *Intensive Computations* at Conférence Française de Mécanique, CFM 2009, Marseille, (France), August 24–28, 2007
Co-chair, 7th International Conference of Assesment of reliability of materials and structures, Saint-Petersburg, June 17–20, 2008
Co-chair, Workshop S3 on *Intensive Computations* at Conférence Française de Mécanique, CFM 2007, Grenoble, (France), August 23–31, 2007
Co-chair, IWCMM17 (17th International Workshop on Computational Mechanics of Materials), Paris, France, August 22–24, 2007
Co-chair, Workshop on *Multiaxial Fatigue* at International Symposium on Plasticity, June 2006, Halifax, Canada
European chair, EU-India Workshop on Computational Materials Sciences, Bangalore, India, February 22-24, 2006

Invited Researcher Positions :
Far Eastern Federal University, Vladivostok (1 month, 2013)
EPFL, ENAC , (2 months, 2012)
University of Trondheim (NTNU), SimLab (4 months, 2012)
MIT, Dept of Mechanical Engineering (9 months, 2000-2001)
NASA Cleveland (2 months, 1993)

Most recent invited keynotes or plenary lectures in Conferences :

International Congress of Theoretical and Applied Mechanics, ICTAM 2016, Montreal (Quebec), 21–26 August 2017, "Polycrystal Homogenization"
Mecamat conference 2016, Aussois (France), 22–27 January 2016 "Conference synthesis"
Plasticity 2016, Kona (USA), 2–9 January 2016, "Crystal plasticity"
Journées de printemps de la SF2M, 27–29 May 2015, "Multi-scale approach of the fatigue of metallic alloys"
CSMA 2015 (Structural Calculation and Modeling Association), 12th Conf on structural calculations, Giens (France), 18–22 May 2015, "Numerical modeling of the additive fabrication"
Plasticity 2015, Montego (Jamaica), 2–9 January 2015, "Crystal plasticity"
Euromech 577, Stuttgart (Germany), 2–5 March 2015, "Crystal plasticity in fatigue"
WCCM 2014, Barcelona (Spain), 20–25 July 2014, "Anisotropic multiscale models applied to oligo-granular components"
CSMA 2013 (Structural Calculation and Modeling Association), 11th Conf on structural calculations, Giens (France), 13–17 May 2013, "Precipitation in structures"

Invited Academic Lectures (Last ten Years) :
Fürth (Germany) Single crystal behaviour (May 12, 2016)
Hämeenlinna (Finland) Fatigue life prediction (January 26, 2016)
Santa Barbara (USA) Crystal plasticity (October 16, 2015)
Georgia Tech (USA) A multiscale strategy for the modeling of directionally solidified ni-base superalloys. (October 19, 2015)
Ann Arbor, MI (USA) A few models accounting for precipitation effect on behaviour and crack initiation in materials and structures. (October 19, 2015)
Montreal, (Canada) Crystal plasticity in fatigue. (October 23, 2015)
Far Eastern Federal University, Vladivostok (Russia), 6 lectures (October 2013)
EPFL Lausanne (Switzerland), 1 lecture June 2012.
NTNU Trondheim (Norway), 4 lectures in January, February, March, April 2012.
Shanghai Jiao Tong University (China), 2 lectures, May 23 2011.
Mechanics and Acoustic Lab, Marseille University (France), 1 lecture, March 22, 2011.
IIT Bangalore (India), 3 lectures, October 15–17, 2008.
Idea-League Summer School *Multiscale Modelling in Materials Science and Engineering*, Eifel Mountains (Germany), 3 lectures, July 23–28, 2007
CNRS Workshop *PlastOx (Mécanismes et Mécanique des Interactions Plasticité - Environnement)*, Argelès-sur-Mer (France), 3 lectures, May 19–25, 2007
CEA–EDF–INRIA Summer School *Méthodes multiéchelles en science des matériaux*, Port-Royal (France), 1 lecture, June 25–july 5, 2007

Background :

Dr. Georges Cailletaud was educated as a civil engineer in a french “Grande Ecole”, where he received a general background in all the domains of engineering, from mechanics, physics and chemistry to computer science. He joined ONERA (the French Aerospace Lab) for doing his PhD, in connection with University of Paris VI (1977–1979). The PhD work was supposed to characterize the anisothermal behaviour of a Nickel Base alloy at variable temperature. The first tests results were very far from the prediction of the classical mechanical model. After having found the reason through discussions with metallurgists (instable precipitates), this observation was the source of a will for creating physically supported mechanical models. At ONERA, Dr. Cailletaud becames the referent “metallurgist” in a mechanical engineer research group. He was then naturally a mechanics of materials person in a metallurgical lab when he joined Centre des Matériaux de l'Ecole des Mines in 1984.

The history of his developments in mechanics of materials includes a series of models, the purpose of which is to have a better representation of the material microstructure. In the same time, there is a need for engineers to have in hand manageable models for structural computations, and the phenomenological approach must not be abandoned. On the one hand, the original models proposed by Georges Cailletaud are extensions of the classical approaches involving isotropic and kinematic hardening (multipotential approaches, an original formulation for fading memory term in kinematic hardening, modeling of phase transformation by means of multiphase approaches). On the other hand, crystal plasticity has been a domain where papers deal with the development of new models (with an original approach on the beginning of the 90's) and with Finite Element Crystal Plasticity (FECP). FECP has been intensively used to characterize the local fields in aggregates, and, recently to derive damage models (for brittle failure and fatigue) from variables taken on the microstructure level.

After a 20 year experience on classical crystal plasticity, limitations appear, due to the average that is made on dislocation fields in this type of approach. Georges Cailletaud has then developed a close cooperation with Samuel Forest, his former PhD student, in the field of new approaches. He shared a few papers on generalized continua, and more recently on phase fields.

All these developments have been made possible thanks to the finite element code ZéBuLoN. Georges Cailletaud began developing this code in 1984. After the fortran version, a renewed version has been developed since 1994. The code is now all written in C++, and contains a robust algorithm for massive parallel processing. Georges Cailletaud is still associated with the development of the code, that is used by a number of academics, who can download it for free, and also by industry, in Europe, US and India.

Together with these research subjects, Georges Cailletaud has devoted a large part of his working time to teaching, and to the development of numerical resources in the field of mechanics of materials. He served also as the Director of the CNRS team at Centre des Matériaux for six years.

Teaching Interest :

Creation of the web site http://mms2.ensmp.fr
In charge of the course *Mechanics of Solid Materials* , MINES ParisTech (1993–2011).
In charge of the course *Finite elements*, MINES ParisTech (2003–2006).
In charge of the course *Non Linear Computational Mechanics*, MINES ParisTech (2008–2015).

Research Interest :

Model development : Plasticity and viscoplasticity theories, thermomechanical fatigue, crystal plasticity, brittle failure, creep–fatigue failure. Development of new model classes, at the macroscale (multipotential models), and in the micro-macro framework (self-consistent approach for polycrystals). Tribology, mechanics of materials for contact problems.
Numerical studies : FE code, integration procedures for highly non linear models, development of a

FE code. management of ZébuLoN project, and code development. Contact problems.
Experimental studies : Multiaxial fatigue, cyclic tests.

Georges Cailletaud has been the supervisor for 67 PhD theses (50 at Centre des Matériaux of MINES-ParisTech and 17 in other laboratories) and for 13 Post-Doctoral researchers between 1988 and 2018.

Bibliometry :

Author and co-author of :

- 162 scientific papers in peer review journals
- 239 communications
- Two books :
  - with J. Besson, S. Forest, J.-L. Chaboche : *Mécanique non linéaire des Matériaux*, Hermès, 2001 – *Nonlinear Materials Mechanics*, Springer Verlag, 2009 – In russian, Saint-Petersburg University Press, 2009
  - with K. Saï, L. Taleb : *Multi-mechanism modeling of inelastic material behavior*, ISTE–Wiley, 2018

Web of Science data (May 15, 2018) :

- H-index : 35
- Number of citations : 3916
- Times cited without self-citations : 3521
- Nine papers with 99 citations or more
- Number of citations per item : 23.04

Awards :

Georges Cailletaud has got the Young Researcher's Award, DRET (1988) and the Khan International medal (Journal of Plasticity) (2015) for *Outstanding Life-Long Contribution to the Field of Plasticity*. He is also "Chevalier des Palmes Académiques" for his contribution to the development of teaching methods for mechanics and materials.

Recently, several of his PhD students got awards for their PhD work :

- Michael Fischlschweiger : Best PhD price by the Austrian Ministery of Research and Higher Education (2012)
- Guylaine Boittin : Best paper in the Int. Conf. *Superalloy 2012* (Boittin *et al*)
- V. Yastrebov's PhD has got two major prices in France in 2012, the CSMA price and Cazaud's price of the Academy of Technology. A book has been edited by Wiley (V. Yastrebov, *Numerical Methods in Contact Mechanics* (2013))
- Guillaume Martin : Nominated for the price of the French Titanium association (2013)

Ten most cited papers (2018/05/15) :

(269 citations) *A new view on transformation induced plasticity (TRIP)*, By : Fischer, FD ; Reisner, G ; Werner, E ; Tanaka, K ; Cailletaud, G ; Antretter, T ; INTERNATIONAL JOURNAL OF PLASTICITY Volume : 16 Issue : 7-8 Pages : 723-748 Published : 2000

(218 citations) *Intergranular and intragranular behavior of polycrystalline aggregates. Part 1 : FE model*, By : Barbe, F ; Decker, L ; Jeulin, D ; Cailletaud, G ; INTERNATIONAL JOURNAL OF PLASTICITY Volume : 17 Issue : 4 Pages : 513-536 Published : 2001

(186 citations) *Evaluation of finite element based analysis of 3D multicrystalline aggregates plasticity - Application to crystal plasticity model identification and the study of stress and strain*

fields near grain boundaries, By : Diard, O ; Leclereq, S ; Rousselier, G ; Cailletaud, G ; INTERNATIONAL JOURNAL OF PLASTICITY Volume : 21 Issue : 4 Pages : 691-722 Published : 2005

(161 citations) *Intergranular and intragranular behavior of polycrystalline aggregates. Part 2 : Results*, By : Barbe, F ; Forest, S ; Cailletaud, G INTERNATIONAL JOURNAL OF PLASTICITY Volume : 17 Issue : 4 Pages : 537-563 Published : 2001

(157 citations) *Single-crystal modeling for structural calculations .1. Model presentation*, By : MERIC, L ; POUBANNE, P ; CAILLETAUD, G ; JOURNAL OF ENGINEERING MATERIALS AND TECHNOLOGY-TRANSACTIONS OF THE ASME Volume : 113 Issue : 1 Pages : 162-170 Published : JAN 1991

(154 citations) *Cosserat modelling of size effects in the mechanical behaviour of polycrystals and multi-phase materials*, By : Forest, S ; Barbe, F ; Cailletaud, G ; INTERNATIONAL JOURNAL OF SOLIDS AND STRUCTURES Volume : 37 Issue : 46-47 Pages : 7105-7126 Published : NOV 2000

(119 citations) *Some elements of microstructural mechanics*, By : Cailletaud, G ; Forest, S ; Jeulin, D ; et al. COMPUTATIONAL MATERIALS SCIENCE Volume : 27 Issue : 3 Pages : 351-374 Published : MAY 2003

(119 citations) *A micromechanical approach to inelastic behavior of metals*, By : CAILLETAUD, G INTERNATIONAL JOURNAL OF PLASTICITY Volume : 8 Issue : 1 Pages : 55-73 Published : 1992

(99 citations) *Three-dimensional finite element simulation of a polycrystalline copper specimen*, By : Musienko, A. ; Tatschl, A. ; Schmidegg, K. ; Kolednik, 0 ; Pippan, R ; Cailletaud, G ; ACTA MATERIALIA Volume : 55 Issue : 12 Pages : 4121-4136 Published : JUL 2007

(88 citations) *Modelling of the mechanical behavior of the metal-oxide system during Zr alloy oxidation* , By : Parise, M ; Sicardy, O ; Cailletaud, G. ; JOURNAL OF NUCLEAR MATERIALS Volume : 256 Issue : 1 Pages : 35-46 Published : JUL 1998

Articles in Referenced Journals

[1] Y. Guilhem, S. Basseville, F. Curtit, J.-M. Stéphan, and G. Cailletaud. Numerical analysis of the effect of surface roughness on mechanical fields in polycrystalline aggregates. *Modelling Simul. Mater. Sci. Eng.*, 26 :0045004, 2018.

[2] A. Laukkanen, G. Cailletaud, and V.L. Kuokkala. Microstructure based modeling of the strain rate history effect in wear resistant hadfield steels. *Wear*, 396 :55–66, 2018.

[3] D. Tkalich, V.A Yastrebov, G. Cailletaud, and A. Kane. Multiscale modeling of cemented tungsten carbide in hard rock drilling. *Int. J. Solids Structures*, accepted, 2017.

[4] M. Lindroos, A. Laukkanen, G. Cailletaud, and Veli-Tapani Kuokkala. Microstructure based modeling of the strain rate history effect in wear resistant hadfield steels. *Wear*, accepted, 2017.

[5] M. Lindroos, A. Laukkanen, G. Cailletaud, and Veli-Tapani Kuokkala. Crystal plasticity modeling and characterization of the deformation twinning and strain hardening in hadfield steels. *Mech. of Materials*, submitted, 2017.

[6] M. Lindroos, A. Laukkanen, G. Cailletaud, and Veli-Tapani Kuokkala. On the effect of deformation twinning and microstructure to strain hardening of high manganese austenitic steel 3D microstructure aggregates at large strains. *Int. J. Solids Structures*, submitted :68–76, 2017.

[7] H. Bargaoui, F. Azzouz, D. Thibault, and G. Cailletaud. Thermomechanical behavior of resin bonded foundry sand cores during casting. *J. of Materials Processing Technology*, 246 :30–41, 2017.

[8] L. Mataveli Suave, J. Cormier, P. Villechaise, D. Bertheau, G. Benoit, G. Cailletaud, and L. Marcin. Anisotropy in creep properties of DS200+Hf alloy. *Materials at High Temperatures*, 33 :361–371, 2016.

[9] M. Khadyko, S. Dumoulin, G. Cailletaud, and 0.S. Hopperstad. Latent hardening and plastic anisotropy evolution in AA6060 aluminium alloy. *Int. J. of Plasticity*, 76 :51–74, 2016.

[10] I. Ben Naceur, K. Saï, T. Hassan, and G. Cailletaud. Micromechanical Modeling of the Ratcheting Behavior of 304 Stainless Steel. *J. of Engng. Mat. Technol.*, 138(2) :021005, 2016.

[11] D. Tkalich, M. Fourmeau, A. Kane, C.C. Li, and G. Cailletaud. Experimental and numerical study of kuru granite under confined compression and indentation. *Int. J. of Rock Mechanics and Mining Sciences*, 87 :55–68, 2016.

[12] S. Forest, G. Cailletaud, and D. Ryckelynck. Le calcul intensif au service de la mécanique. *Industry and Technology*, 981 :57–64, 2015.

[13] G. Cailletaud, S. Quilici, F. Azzouz, and J.-L. Chaboche. A dangerous use of the fading memory term for non linear kinematic models at variable temperature. *Eur. J. Mech., A/Solids*, 54 :24–29, 2015.

[14] R. Martinez, D. Larouche, G. Cailletaud, I. Guillot, and D. Massinon. Simulation of the concomitant process of nucleation-growth-coarsening of Al2Cu particles in a 319 foundry aluminum alloy. *Modelling Simul. Mater. Sci. Eng.*, 23, 2015.

[15] S. Basseville and G. Cailletaud. An evaluation of the competition between wear and crack initiation in fretting conditions for Ti-6Al-4V alloy. *Wear*, 328–329 :443–455, 2015.

[16] L. Taleb, G. Cailletaud, and K. Saï. Experimental and numerical analysis about the cyclic behavior of the 304l and 316l stainless steels at 350 degrees c. *Int. J. of Plasticity*, 61 :32–48, 2014.

[17] M. Chouman, A. Gaubert, J.-L. Chaboche, P. Kanouté, G. Cailletaud, and S. Quilici. Elastic-viscoplastic notch correction methods. *Int. J. Solids Structures*, 51 :3025–3041, 2014.

[18] K. Saï, L. Taleb, F. Guesmi, and G. Cailletaud. Multi-mechanism modeling of proportional and non-proportional ratchetting of stainless steel 304. *Acta Mech.*, 225 :3265–3283, 2014.

[19] H. Proudhon, J. Savkova, S. Basseville, V. Guipont, M. Jeandin, and G. Cailletaud. Experimental and numerical wear studies of porous Reactive Plasma Sprayed Ti-6Al-4V/TiN composite coating. *Wear*, 311 :159–166, 2014.

[20] G. Martin, N. Ochoa, K. Saï, E. Hervé-Luanco, and G. Cailletaud. A multiscale model for the elastoviscoplastic behavior of directionally solidified alloys : Application to FE structural computations. *Int. J. Solids Structures*, 51 :1175–1187, 2014.

[21] V.A. Yastrebov, M. Fischlschweiger, T. Antretter, and G. Cailletaud. The role of phase interface energy in martensitic transformations a lattice monte-carlo simulation. *Mechanics Research Communication*, 56 :37–41, 2014.

[22] S. Basseville, H. Proudhon, E. Héripré, and G. Cailletaud. Etude numérique des paramètres affectant les profils d'usure en fretting. *Matériaux et Techniques*, 101 :213–220, 2013.

[23] Y. Guilhem, S. Basseville, F. Curtit, J.-M. Stéphan, and G. Cailletaud. Numerical investigations of the free surface effect in three-dimensional polycrystalline aggregates. *Computational Materials Science*, 70 :150–162, 2013.

[24] C. Gérard, G. Cailletaud, and B. Bacroix. Modeling of latent hardening produced by complex loading paths in FCC alloys. *Int. J. of Plasticity*, 42 :194–212, 2013.

[25] R. Martinez, V. Russier, J.P. Couzinié, I. Guillot, and G. Cailletaud. Modeling of the influence of coarsening on viscoplastic behaviour of a 319 foundry aluminum alloy. *Material Science and Engineering A*, 559 :40–48, 2013.

[26] M. Fischlschweiger, T. Antretter, and G. Cailletaud. Transformation hardening and kinetics for stress assisted and temperature driven martensitic transformations in shape memory alloys and steels. *Mechanics Research Communication*, 47 :84–88, 2013.

[27] C. Guillemer, M. Clavel, and G. Cailletaud. Modélisation du glissement cristallographique et du maclage dans le magnésium extrudé sous chargement cyclique. *Revue de Métallurgie*, 109 :423–426, 2012.

[28] K. Saï, L. Taleb, and G. Cailletaud. Numerical simulation of the anisotropic behavior of 2017 aluminum alloy. *Computational Materials Science*, 65 :48–57, 2012.

[29] J. Ghighi, J. Cormier, E. Ostoja-Kuczynski, J. Mendez, G. Cailletaud, and F. Azzouz. A microstructure sensitive approach for the prediction of the creep behaviour and life under complex loading paths. *Technische Mechanik*, 32 :205–220, 2012.

[30] M. Fischlschweiger, T. Antretter, and G. Cailletaud. A mean-field model for transformation induced plasticity including back stress effects for non-proportional loadings. *Int. J. of Plasticity*, 37 :53–71, 2012.

[31] N.C. N'Guyen, F. Barbe, N. Osipov, G. Cailletaud, B. Marini, and C. Petry. Micromechanical local approach of brittle failure in bainite high resolution polycrystals : a short presentation. *Computational Materials Science*, 2012.

[32] I. Gueye, S. El Arem, F. Feyel, F.-X. Roux, and G. Cailletaud. A new parallel sparse direct solver : Presentation and numerical experiments in large-scale structural mechanics parallel computing. *Int. J. Numer. Meth. Engng*, 88 :370–384, 2011.

[33] L. Taleb and G. Cailletaud. Cyclic accumulation of the inelastic strain in the 304L SS under stress control at room temperature : Ratcheting or creep ? *Int. J. of Plasticity*, 27 :1936–1958, 2011.

[34] L. Fleitout, J.-D. Garaud, G. Cailletaud, C. Vigny, W. Simons, B. Ambrosius, I. Trisirisatayawong, and C. Satirapod. Modeling the post-seismic deformations of the aceh, nias and benkulu earthquakes. *Geophysical Research Abstracts*, EGU :6503, 2011.

[35] C. Guillemer, M. Clavel, and G. Cailletaud. Cyclic behavior of extruded magnesium : experimental, microstructural and numerical approach. *Int. J. of Plasticity*, 27 :2068–2084, 2011.

[36] V. Yastrebov, J. Durand, H. Proudhon, and G. Cailletaud. Simulation of the contact between metallic rough surfaces : full finite element analysis and reduced model. *Comptes Rendus de Mécanique*, 339 :473–490, 2011.

[37] S. Basseville, E. Héripré, and G. Cailletaud. Numerical simulation of the third body in fretting problems. *Wear*, 270 :876–887, 2011.

[38] K. Ammar, B. Appolaire, G. Cailletaud, and S. Forest. Phase field modeling of elasto-plastic deformation induced by diffusion controlled growth of a misfitting spherical precipitate. *Philosophical Magazine Letters*, 91 :164–172, 2011.

[39] N. Saintier, G. Cailletaud, and R. Piques. Cyclic loadings and crystallization of natural rubber : an explanation of fatigue crack propagation reinforcement under a positive loading ratio. *Material Science and Engineering A*, 528 :1078–1086, 2011.

[40] K. Saï, L. Laiarinandrasana, I. Ben Naceur, J. Besson, M. Jeridi, and G. Cailletaud. Multi-mechanism damage-plasticity model for semi-crystalline polymer : Creep damage of notched specimen of PA6. *Material Science and Engineering A*, 528 :1087–1093, 2011.

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[42] G. Boittin, F. Gallerneau, D. Locq, P. Kanouté, and G. Cailletaud. Numerical modelling of the microstructure effect on fatigue behaviour of Ni-base superalloys for turbine disk. *Technische Mechanik*, 30 :15–28, 2010.

[43] J. Cormier and G. Cailletaud. Constitutive modeling of the creep behavior of single crystal superalloys under non-isothermal conditions inducing phase transformations. *Technische Mechanik*, 30 :56–73, 2010.

[44] J. Cormier and G. Cailletaud. Constitutive modeling of the creep behavior of single crystal superalloys under non-isothermal conditions inducing phase transformations. *Material Science and Engineering A*, 527 :6300–6312, 2010.

[45] L. Taleb and G. Cailletaud. An updated version of the multimechanism model for cyclic plasticity. *Int. J. of Plasticity*, 26 :859–874, 2010.

[46] D. Ryckelynck, D. Missoum Benziane, A. Musienko, and G. Cailletaud. Toward "green" mechanical simulations in materials science. *Eur. J. Comput. Mech.*, 19 :365–388, 2010.

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[48] K. Ammar, B. Appolaire, G. Cailletaud, and S. S. Forest. Combining phase field approach and homogenization methods for modelling phase transformation in elastoplastic media. *Eur. J. Comput. Mech.*, 18 :485–523, 2009.

[49] G. Cailletaud. An Overview of the Anatomy of Crystal Plasticity Models. *Adv. Eng. Mater.*, 11 :710–716, 2009.

[50] A. Longuet, Y. Robert, E. Aeby-Gautier, B. Appolaire, J.-F. Mariage, C. Colin, and G. Cailletaud. A multiphase mechanical model for Ti6Al4V : Application to the modeling of laser assisted processing. *Computational Materials Science*, 46 :761–766, 2009. doi :10.1016/j.commatsci.2009.05.012.

[51] D. Abdeljaoued, I. Ben Naceur, K. Saï, and G. Cailletaud. A new polycrystalline plasticity model to improve ratchetting strain prediction. *Mechanics Research Communication*, 36 :309–315, 2009.

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