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January 2015: Head, together with Prof. F. Dell’Isola, of the CNRS International Associate Lab Coss&Vita on *Mechanics of generalized continua and their applications to engineering materials and structures*, between Paris F2M (France) and Rome MEMOCS (Italy)

October 2013: First class Research Director at CNRS (DR1)

January 2009: Director of the CNRS Fédération Francilienne de Mécanique des Matériaux, Structures et Procédés (F2M) CNRS UMR 2609 (2009-2018)

January 2007: Associate Director of the CNRS Fédération Francilienne de Mécanique des Matériaux, Structures et Procédés, which coordinates research activities of 14 laboratories in mechanics and materials in the Paris region (Director: André Zaoui).

October 2006: Research Director at CNRS

October 2004: Continuum Mechanics Professor at Ecole des Mines de Paris. The course is part of a general e-learning project in Mechanics of Materials and Structures mms2.ensmp.fr (module MMC Paris).

November 2004: Habilitation delivered by the University Pierre et Marie Curie, (jury : D. Leguillon, P. Ponte-Castaneda, P. Suquet, E. Busso, G. Cailletaud, G. Maugin, F. Sidoroff).

June–July 2003 / February 2004 : Stays at the Institut für Theoretische Physik, TU Berlin, and at the Weierstrass Institut für Angewandte Analysis und Stochastik (WIAS), with Prof. W. Dreyer, Berlin (RFA).

October 1996: Chargé de Recherches at CNRS UMR 7633; research program :
*“Modelling the behaviour of heterogeneous materials
within the framework of the mechanics of generalized continua”.*

January 1996: Doctor of l’Ecole des Mines de Paris and Doctor Communitatis Europae, in Materials Sciences and Engineering, with distinction (mention Très Honorable et Félicitations du Jury). Jury: A. Bertram, R. de Borst, G. Cailletaud, P. Pilvin, P. Rougée, F. Sidoroff, E. Stein, C. Teodosiu, A. Zaoui; Thesis advisor : G. Cailletaud (Centre des Matériaux). Title of the doctoral thesis :
“Mechanical modelling of heterogeneous deformation of single crystals”

1994-1995: One-year stay at Bundesanstalt für Materialforschung und Prüfung (BAM, Berlin, RFA) within the framework of BRITE-EURAM Project BRE2-CT92-0176 on *Development of Microstructure Based Viscoplastic Models for an Advanced Design of Single Crystal Hot Section Components*

June 1993: Diplôme d'Études Approfondies “*Materials Mechanics*” (post-graduate studies).

June 1992: Diplôme d'Ingénieur Civil des Mines de Paris, (with distinction).

1989-1992: Student at l'Ecole des Mines de Paris (ENSMP), with a major in “*Materials Sciences and Engineering*”.

1986-1989: Preparatory Classes intended for a path of study at the Grandes Ecoles (Mathematics, Physics), in Lyons.

June 1986: Baccalaureat C in Villefranche/Saône

Awards

CNRS Silver Medal, 2012.

Jean Morlet Prize 2008 of the Société Française de Métallurgie et Matériaux (given every two years).

Plumey prize of the Académie des Sciences for the year 2007.

Jean Mandel Prize for the year 2001.

The study “Mechanical behaviour of nickel foams” by Xavier Badiche, M. Croset, S. Forest and Y. Bienvenu has received the price Jules Garnier of Société Française de Métallurgie for 1999.

CNRS Bronze Medal for 1998.

Editorships

Member of the editorial board of *International Journal of Solids and Structures* (since 2013)

Member of the editorial board of *Technische Mechanik* (since 2012)

Member of the editorial committee of *Continuum Mechanics and Thermodynamics* (since 2010)

Member of the editorial committee of *Archives of Applied Mechanics* (since 2008)

Associate Editor of *Philosophical Magazine* (since 2007)

List of Publications and Research/Teaching Activities

1 Publications

Journals

- [1] A. Villani, E.P. Busso, and S. Forest. Field theory and diffusion creep predictions in polycrystalline aggregates. *Modelling and Simulation in Materials Science and Engineering*, 23:055006 (24pp), 2015.
- [2] A. Marais, M. Mazière, S. Forest, A. Parrot, and P. Le Delliou. Influence of static strain aging on the cleavage fracture of a C–Mn steel. *Engineering Fracture Mechanics*, 141:95–110, 2015.
- [3] S. Wulfinghoff, S. Forest, and T. Böhlke. Logarithmic and rank-one defect energies in gradient crystal plasticity analytical and numerical 1d solutions. *Journal of the Mechanics and Physics of Solids*, 79:1–20, 2015.
- [4] I. Iltchev, V. Marcadon, S. Kruch, and S. Forest. Computational homogenisation of periodic cellular materials: Application to structural modelling. *International Journal of Mechanical Sciences*, 93:240–255, 2015.
- [5] S.D. Mesarovic, S. Forest, and J.P. Jaric. Size-dependent energy in crystal plasticity and continuum dislocation models. *Proc. R. Soc. A*, 471:20140868, 2015.
- [6] M. Mazière and S. Forest. Strain gradient plasticity modeling and finite element simulation of lüders band formation and propagation. *Continuum Mechanics and Thermodynamics*, 27:83–104, 2015.
- [7] A. Burteau, J.D. Bartout, Y. Bienvenu, and S. Forest. On the creep deformation of nickel foams under compression. *Comptes Rendus Physique*, 15:705–718, 2014.
- [8] D. Colas, E. Finot, S. Forest, S. Flouriot, M. Mazière, and T. Paris. Investigation and modelling of the anomalous yield point phenomenon in pure tantalum. *Materials Science and Engineering*, A615:283–295, 2014.
- [9] K. Ammar, B. Appolaire, S. Forest, M. Cottura, Y. Le Bouar, and A. Finel. Modelling inheritance of plastic deformation during migration of phase boundaries using a phase field method. *Meccanica*, 49:2699–2717, 2014.
- [10] M.G.D. Geers, M. Cottura, B. Appolaire, E.P. Busso, S. Forest, and A. Villani. Coupled glide-climb diffusion-enhanced crystal plasticity. *Journal of the Mechanics and Physics of Solids*, 70:136–153, 2014.
- [11] A. Villani, E.P. Busso, K. Ammar, S. Forest, and M.G.D. Geers. A fully coupled diffusional-mechanical formulation: numerical implementation, analytical validation, and effects of plasticity on equilibrium. *Archive of Applied Mechanics*, 84:1647–1664, 2014.
- [12] J. Li, H. Proudhon, A. Roos, V. Chiaruttini, and S. Forest. Crystal plasticity finite element simulation of crack growth in single crystals. *Computational Materials Science*, 90:191–197, 2014.
- [13] J. Dirrenberger, S. Forest, and D. Jeulin. Towards gigantic RVE sizes for 3D stochastic fibrous networks. *International Journal of Solids and Structures*, 51:359–376, 2014.
- [14] A. Bertram and S. Forest. The thermodynamics of gradient elastoplasticity. *Continuum Mechanics and Thermodynamics*, 26:269–286, 2014.
- [15] S. Forest and N. Guéninchault. Inspection of free energy functions in gradient crystal plasticity. *Acta Mechanica Sinica*, 29:763–772, 2013.

- [16] S. Forest. Questioning size effects as predicted by strain gradient plasticity. *Journal of the Mechanical Behavior of Materials*, 22:101–110, 2013.
- [17] N.M. Cordero, S. Forest, and E. P. Busso. Micromorphic modelling of grain size effects in metal polycrystals. *GAMM–Mitteilungen*, 36:182–202, 2013.
- [18] P. A. Sabnis, S. Forest, N. K. Arakere, and V.A. Yastrebov. Crystal plasticity analysis of cylindrical indentation on a ni-base single crystal superalloy. *International Journal of Plasticity*, 51:200–213, 2013.
- [19] K Madi, S. Gaillière, M. Boussuge, S. Forest, M. Gaubil, E. Boller, and J.Y. Buffière. Multiscale creep characterization and modeling of a zirconia-rich fused-cast refractory. *Philosophical Magazine*, 93:2701–2728, 2013.
- [20] X. Han, J. Besson, S. Forest, B. Tanguy, and S. Bugat. A yield function for single crystals containing voids. *International Journal of Solids and Structures*, 50:2115–2131, 2013.
- [21] J. Dirrenberger, S. Forest, and D. Jeulin. Effective elastic properties of auxetic microstructures: anisotropy and structural applications. *International Journal of Mechanics and Materials in Design*, 9:21–33, 2013.
- [22] F. Fritzen, S. Forest, D. Kondo, and T. Böhlke. Computational homogenization of porous materials of Green type. *Computational Mechanics*, 52:121–134, 2013.
- [23] G. Abrivard, E.P. Busso, S. Forest, and B. Appolaire. Phase field modelling of grain boundary motion driven by curvature and stored energy gradients. part ii: Application to recrystallisation. *Philosophical Magazine*, 92:3643–3664, 2012.
- [24] G. Abrivard, E.P. Busso, S. Forest, and B. Appolaire. Phase field modelling of grain boundary motion driven by curvature and stored energy gradients. part i: theory and numerical implementation. *Philosophical Magazine*, 92:3618–3642, 2012.
- [25] D. K. Trinh, R. Jänicke, N. Auffray, S. Diebels, and S. Forest. Evaluation of generalized continuum substitution models for heterogeneous materials. *International Journal of Multiscale Computational Engineering*, 10:527–549, 2012.
- [26] A. Marais, M. Mazière, S. Forest, A. Parrot, and P. Le Delliou. Identification of a strain-aging model accounting for Lüders behavior in a C-Mn steel. *Philosophical Magazine*, 28–30:3589–3617, 2012.
- [27] A. Burtreau, F. NGuyen, J.D. Bartout, S. Forest, Y. Bienvenu, S. Saberi, and D. Naumann. Impact of material processing and deformation on cell morphology and mechanical behavior of polyurethane and nickel foams. *International Journal of Solids and Structures*, 49:2714–2732, 2012.
- [28] M. Cottura, Y. Le Bouar, A. Finel, B. Appolaire, K. Ammar, and S. Forest. A phase field model incorporating strain gradient viscoplasticity: application to rafting in Ni-base superalloys. *Journal of the Mechanics and Physics of Solids*, 60:1243–1256, 2012.
- [29] H.D. Wang, C. Berdin, M. Mazière, S. Forest, C. Prioul, A. Parrot, and P. Le-Delliou. Experimental and numerical study of dynamic strain ageing and its relation to ductile fracture of a C-Mn steel. *Materials Science and Engineering A*, A 547:19–31, 2012.
- [30] J. Dirrenberger, S. Forest, and D. Jeulin. Elastoplasticity of auxetic materials. *Computational Materials Science*, 64:57–61, 2012.
- [31] N. M. Cordero, S. Forest, and E. P. Busso. Generalised continuum modelling of grain size effects in polycrystals. *Comptes Rendus Mécanique*, 340:261–274, 2012.

- [32] S. Forest and K. Sab. Continuum stress gradient theory. *Mechanics Research Communications*, 40:16–25, 2012.
- [33] F. Fritzen, S. Forest, T. Böhlke, D. Kondo, and T. Kanit. Computational homogenization of elasto-plastic porous metals. *International Journal of Plasticity*, 29:102–119, 2012.
- [34] P. A. Sabnis, M. Mazière, S. Forest, N. K. Arakere, and F. Ebrahimi. Effect of secondary orientation on notch–tip plasticity in superalloy single crystals. *International Journal of Plasticity*, 28:102–123, 2012.
- [35] N. M. Cordero, S. Forest, E. P. Busso, S. Berbenni, and M. Cherkaoui. Grain size effects on plastic strain and dislocation density tensor fields in metal polycrystals. *Computational Materials Science*, 52:7–13, 2012.
- [36] H. J. Chang, A. Gaubert, M. Fivel, S. Berbenni, O. Bouaziz, and S. Forest. Analysis of particle induced dislocation structures using three-dimensional dislocation dynamics and strain gradient plasticity. *Computational Materials Science*, 52:33–39, 2012.
- [37] O. Aslan, N. M. Cordero, A. Gaubert, and S. Forest. Micromorphic approach to single crystal plasticity and damage. *International Journal of Engineering Science*, 49:1311–1325, 2011.
- [38] A. Jean, F. Willot, S. Cantournet, S. Forest, and D. Jeulin. Large scale computations of effective elastic properties of rubber with carbon black fillers. *International Journal of Computational Multiscale Engineering*, 9:271–303, 2011.
- [39] O. Aslan, S. Quilici, and S. Forest. Numerical modeling of fatigue crack growth in single crystals based on microdamage theory. *International Journal of Damage Mechanics*, 20:681–705, 2011.
- [40] T. Kanit, S. Forest, D. Jeulin, F. N’Guyen, and S. Singleton. Virtual improvement of ice cream properties by computational homogenization of microstructures. *Mechanics Research Communications*, 38:136–140, 2011.
- [41] H. Wang, C. Berdin, M. Mazière, S. Forest, C. Prioul, A. Parrot, and P. Le-Delliou. Portevin-Le Chatelier (PLC) instabilities and slant fracture in C-Mn steel round tensile specimens. *Scripta Materialia*, 64:430–433, 2011.
- [42] 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.
- [43] A. Jean, D. Jeulin, S. Forest, S. Cantournet, and F. NGuyen. A multiscale microstructure model of carbon black distribution in rubber. *Journal of Microscopy*, 241:243–260, 2011.
- [44] S. Forest and D. K. Trinh. Generalized continua and non–homogeneous boundary conditions in homogenization methods. *ZAMM*, 91:90–109, 2011.
- [45] S. Forest, N.M. Cordero, and E.P. Busso. First vs. second gradient of strain theory for capillarity effects in an elastic fluid at small length scales. *Computational Materials Science*, 50:1299–1304, 2011.
- [46] S. Forest and E. C. Aifantis. Some links between recent gradient thermo-elasto-plasticity theories and the thermomechanics of generalized continua. *International Journal of Solids and Structures*, 47:3367–3376, 2010.
- [47] N. M. Cordero, A. Gaubert, S. Forest, E. Busso, F. Gallerneau, and S. Kruch. Size effects in generalised continuum crystal plasticity for two–phase laminates. *Journal of the Mechanics and Physics of Solids*, 58:1963–1994, 2010.

- [48] H. Proudhon, V. Vaxelaire, S. Labat, S. Forest, and O. Thomas. Finite element simulations of coherent diffraction in elastoplastic polycrystalline aggregates. *Comptes Rendus Physique*, 11:293–303, 2010.
- [49] V. Vaxelaire, H. Proudhon, S. Labat, C. Kirchlechner, J. Keckes, V. Jacques, S. Ravy, S. Forest, and O. Thomas. Methodology for studying strain inhomogeneities in polycrystalline thin films during in situ thermal loading using coherent x-ray diffraction. *New Journal of Physics*, 12:035018, 2010.
- [50] K.E. Aifantis, A. Konstantinidis, and S. Forest. Modeling strain localization bands in metal foams. *Journal of Computational and Theoretical Nanoscience*, 7:360–366, 2010.
- [51] M. Mazière, J. Besson, S. Forest, B. Tanguy, H. Chalons, and F. Vogel. Numerical aspects in the finite element simulation of the portevin-le chatelier effect. *Computer Methods in Applied Mechanics and Engineering*, 199:734–754, 2010.
- [52] K. Ammar, B. Appolaire, G. Cailletaud, and S. Forest. Combining phase field approach and homogenization methods for modelling phase transformation in elastoplastic media. *European Journal of Computational Mechanics*, 18:485–523, 2009.
- [53] W. Ludwig, A. King, P. Reischig, M. Herbig, E.M. Lauridsen, S. Schmidt, H. Proudhon, S. Forest, P. Cloetens, S. Rolland du Roscoat, J.Y. Buffière, T.J. Marrow, and H.F. Poulsen. New opportunities for 3D materials science of polycrystalline materials at the micrometre lengthscale by combined use of X-ray diffraction and X-ray imaging. *Materials Science and Engineering A*, 524:69–76, 2009.
- [54] V. Ballarin, A. Perlade, X. Lemoine, O. Bouaziz, and S. Forest. Mechanisms and modeling of bake-hardening steels: Part II. complex loading paths. *Metallurgical and Materials Transactions A*, 40:1375–1384, 2009.
- [55] V. Ballarin, M. Soler, A. Perlade, X. Lemoine, and S. Forest. Mechanisms and modeling of bake-hardening steels: Part I. uniaxial tension. *Metallurgical and Materials Transactions A*, 40:1367–1374, 2009.
- [56] K. Ammar, B. Appolaire, G. Cailletaud, F. Feyel, and S. Forest. Finite element formulation of a phase field model based on the concept of generalized stresses. *Computational Materials Science*, 45:800–805, 2009.
- [57] O. Aslan and S. Forest. Crack growth modelling in single crystals based on higher order continua. *Computational Materials Science*, 45:756–761, 2009.
- [58] O. Casals and S. Forest. Finite element crystal plasticity analysis of spherical indentation in bulk single crystals and coatings. *Computational Materials Science*, 45:774–782, 2009.
- [59] F. Šiška, D. Weygand, S. Forest, and P. Gumbsch. Comparison of mechanical behaviour of thin film simulated by discrete dislocation dynamics and continuum crystal plasticity. *Computational Materials Science*, 45:793–799, 2009.
- [60] J. Belotteau, C. Berdin, S. Forest, A. Parrot, and C. Prioul. Mechanical behavior and crack tip plasticity of a strain aging sensitive steel. *Materials Science and Engineering A*, 526:156–165, 2009.
- [61] S. Forest. The micromorphic approach for gradient elasticity, viscoplasticity and damage. *ASCE Journal of Engineering Mechanics*, 135:117–131, 2009.
- [62] M. Mazière, J. Besson, S. Forest, B. Tanguy, H. Chalons, and F. Vogel. Overspeed burst of elastoviscoplastic rotating disks Part I: Analytical and numerical stability analyses. *European Journal of Mechanics A/Solids*, 28:36–44, 2009.

- [63] M. Mazière, J. Besson, S. Forest, B. Tanguy, H. Chalons, and F. Vogel. Overspeed burst of elastoviscoplastic rotating disks Part II: Burst of a superalloy turbine disk. *European Journal of Mechanics A/Solids*, 28:428–432, 2009.
- [64] S. Forest. Some links between Cosserat, strain gradient crystal plasticity and the statistical theory of dislocations. *Philosophical Magazine*, 88:3549–3563, 2008.
- [65] S. Graff, H. Dierke, S. Forest, H. Neuhäuser, and J.L. Strudel. Finite element simulations of the Portevin–Le Chatelier effect in metal–matrix composites. *Philosophical Magazine*, 88:3389–3414, 2008.
- [66] S. Forest and M. Amestoy. Hypertemperature in thermoelastic solids. *Comptes Rendus Mécanique*, 336:347–353, 2008.
- [67] M. Mazière, J. Besson, S. Forest, B. Tanguy, H. Chalons, and F. Vogel. Numerical modelling of the Portevin–Le Chatelier effect. *European Journal of Computational Mechanics*, 17:761–772, 2008.
- [68] P. Neff and S. Forest. A geometrically exact micromorphic model for elastic metallic foams accounting for affine microstructure. modelling, existence of minimizers, identification of moduli and computational results. *Journal of Elasticity*, 87:239–276, 2007.
- [69] A. Bertram and S. Forest. Mechanics based on an objective power functional. *Technische Mechanik*, 27:1–17, 2007.
- [70] A. Zeghadi, F. Nguyen, S. Forest, A.-F. Gourgues, and O. Bouaziz. Ensemble averaging stress–strain fields in polycrystalline aggregates with a constrained surface microstructure–Part 1: Anisotropic elastic behaviour. *Philosophical Magazine*, 87:1401–1424, 2007.
- [71] A. Zeghadi, S. Forest, A.-F. Gourgues, and O. Bouaziz. Ensemble averaging stress–strain fields in polycrystalline aggregates with a constrained surface microstructure–Part 2: Crystal plasticity. *Philosophical Magazine*, 87:1425–1446, 2007.
- [72] F. Šiška, S. Forest, P. Gumbsch, and D. Weygand. Finite element simulations of the cyclic elastoplastic behavior of copper thin films. *Modelling and Simulation in Materials Science and Engineering*, 15:S217–S238, 2007.
- [73] H. Dierke, F. Krawehl, S. Graff, S. Forest, J. Šachl, and H. Neuhäuser. Portevin–Le Chatelier effect in AlMg alloys: Influence of obstacles, experiments and modelling. *Computational Materials Science*, 39:106–112, 2007.
- [74] K. Madi, S. Forest, M. Boussuge, S. Galliègue, E. Lataste, J.-I. Buffière, D. Bernard, and D. Jeulin. Finite element simulations of the deformation of fused–cast refractories based on X–ray computed tomography. *Computational Materials Science*, 39:224–229, 2007.
- [75] F. Šiška, S. Forest, and P. Gumbsch. Simulation of stress–strain heterogeneities in copper thin films: Texture and substrate effects. *Computational Materials Science*, 39:137–141, 2007.
- [76] C. Papenfuss and S. Forest. Thermodynamical frameworks for higher grade material theories with internal variables or additional degrees of freedom. *Journal of Non-Equilibrium Thermodynamics*, 31:319–353, 2006.
- [77] S. Forest and R. Sievert. Nonlinear microstrain theories. *International Journal of Solids and Structures*, 43:7224–7245, 2006.
- [78] N. Marchal, S. Flouriou, S. Forest, and L. Remy. Crack–tip stress–strain fields in single crystal nickel–base superalloys at high temperature under cyclic loading. *Computational Materials Science*, 37:42–50, 2006.

- [79] T. Dillard, S. Forest, and P. Ienny. Micromorphic continuum modelling of the deformation and fracture behaviour of nickel foams. *European Journal of Mechanics A/Solids*, 25:526–549, 2006.
- [80] T. Kanit, F. Nguyen, S. Forest, D. Jeulin, M. Reed, and S. Singleton. Apparent and effective physical properties of heterogeneous materials: representativity of samples of two materials from food industry. *Computer Methods in Applied Mechanics and Engineering*, 195:3960–3982, 2006.
- [81] K. Sai, G. Cailletaud, and S. Forest. Micro–mechanical modeling of the inelastic behavior of directionally solidified materials. *Mechanics of Materials*, 38:203–217, 2006.
- [82] S. Forest, J.S. Blazy, Y. Chastel, and F. Moussy. Continuum modelling of strain localization phenomena in metallic foams. *Journal of Materials Science*, 40:5903–5910, 2005.
- [83] K. Madi, S. Forest, P. Cordier, and M. Boussuge. Numerical study of creep in two–phase aggregates with a large rheology contrast: Implications for the lower mantle. *Earth and Planetary Science Letters*, 237:223–238, 2005.
- [84] T. Dillard, F. Nguyen, E. Maire, S. Forest, Y. Bienvenu, J.-D. Bartout, M. Croset, L. Salvo, R. Dendievel, and P. Cloetens. 3D quantitative image analysis of open–cell nickel foams under tension and compression loading using X–ray microtomography. *Philosophical Magazine*, 85:2147–2175, 2005.
- [85] A. H. Benouali, L. Froyen, T. Dillard, S. Forest, and F. Nguyen. Investigation on the influence of cell shape anisotropy on the mechanical performance of closed cell aluminium foams using micro–computed tomography. *Journal of Materials Science*, 40:5801–5811, 2005.
- [86] S. Graff, S. Forest, J.-L. Strudel, C. Prioul, P. Pilvin, and J.-L. Béchade. Finite element simulations of dynamic strain ageing effects at V–notches and crack tips. *Scripta Materialia*, 52:1181–1186, 2005.
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- [88] V. Goussery, Y. Bienvenu, S. Forest, A.-F. Gourgues, C. Colin, and J.-D. Bartout. Grain size effect on the mechanical behavior of open–cell nickel foams. *Advanced Engineering Materials*, 6:432–439, 2004.
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- [91] R. Parisot, S. Forest, A. Pineau, F. Grillon, X. Démonet, and J.-M. Mategne. Deformation and Damage Mechanisms of Zinc Coatings on Galvanized Steel Sheets, Part I : Deformation Modes. *Metallurgical and Materials Transactions*, 35A:797–811, 2004.
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- [95] G. Cailletaud, J.-L. Chaboche, S. Forest, and L. Rémy. On the design of single crystal blades. *La Revue de Métallurgie*, 101:165–172, 2003.
- [96] T. Kanit, S. Forest, I. Galliet, V. Mounoury, and D. Jeulin. Determination of the size of the representative volume element for random composites : statistical and numerical approach. *International Journal of Solids and Structures*, 40:3647–3679, 2003.
- [97] G. Cailletaud, S. Forest, D. Jeulin, F. Feyel, I. Galliet, V. Mounoury, and S. Quilici. Some elements of microstructural mechanics. *Computational Materials Science*, 27:351–374, 2003.
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- [99] S. Forest and R. Sedláček. Plastic slip distribution in two-phase laminate microstructures: Dislocation-based vs. generalized-continuum approaches. *Philosophical Magazine A*, 83:245–276, 2003.
- [100] S. Forest and R. Sievert. Elastoviscoplastic constitutive frameworks for generalized continua. *Acta Mechanica*, 160:71–111, 2003.
- [101] S. Forest. Homogenization methods and the mechanics of generalized continua–Part 2. *Theoretical and Applied Mechanics*, 28–29:113–143, 2002.
- [102] F. Eberl, S. Forest, T. Wroblewski, G. Cailletaud, and J.-L. Lebrun. Finite element calculations of the lattice rotation field of a tensile loaded nickel base alloy multicrystal and comparison to topographical X-ray diffraction measurements. *Metallurgical and Materials Transactions*, 33A:2825–2833, 2002.
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Books and chapters of books

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2 Organisation of international conferences

Co-organiser with C. Miehe and C. Linder of a mini-symposium dedicated to *Microstructural Based Constitutive Models in Hard and Soft Matter Materials* within the 11th. World Congress on Computational Mechanics (WCCM XI), Barcelona, 20–25 July 2014.

Co-organiser with F. dell’Isola of the Euromech Colloquium 563 on *Generalized continua and their application to the design of composites and metamaterials*, M&MOCS, Research Center on Mathematics and Mechanics of Complex Systems, Università degli Studi dell’Aquila, Cisterna di Latina, Italy, March 17–21 2014.

Co-organizer with H. Altenbach and A. Krivtsov of the second trilateral Russian–German–French seminar on *Generalized continua as models for materials with multi-scale effects or under multi-field actions*, sponsored by CNRS–DFG–FRRF agencies, Leucorea, Lutherstadt–Wittenberg, Germany, 26–30th September, 2012.

Co-organizer with K. Sab of the Mini-Symposium, *Numerical simulation of microstructures* at ECCOMAS 2012, 6th European Congress of Computational Methods in Applied Sciences and Engineering, organized by J. Eberhardsteiner, H.J. Böhm, F.G. Rammerstorfer, Vienna, Austria, September 10–14, 2012.

Co-organizer with B. Markert of the Symposium, *Trends in phase field modeling* at the 8th European Solid Mechanics Conference, Graz, Austria, Juli 9–13, 2012.

Organizer of the Symposium, *New perspectives in numerical modeling of mechanical behaviour of materials* at the International Conference on the Mechanical Behavior of Materials, Como, Italy, June 5–9 2011.

Co-organizer of the CNRS Summer School on *Archimat, Architected materials*, with R. Dendievel and Y. Bréchet, Autrans, 22–28 May, 2011.

Co-organizer of the CNRS Summer School on *Mechanics of Nano-Objects*, Autrans, March 14–19, 2010, emanating from the CNRS GDR Mécano.

17th International Workshop on Computational Mechanics of Materials, IWCMM17, organized by G. Cailletaud, S. Forest and S. Schmauder, Paris, 22–24th august 2007.

11th International Symposium on Continuum Models and Discrete Systems, CMDS11, organized by D. Jeulin, member of the organizing and scientific committees, Paris, 30 july–3 august 2007.

Scale transitions from atomistics to continuum plasticity, 5th Euromech–Mécamat European Mechanics of Materials Conference, EMMC5, Delft, The Netherlands, 5–8 march 2001, *J. Phys. IV*, Vol. 11, Pr. 5, 2001.

Heterogeneous materials and generalized continua : mini-symposium of ESMC4 (Fourth Euromech Solid Mechanics Conference), organized with Dr. R. Sievert (BAM - Berlin) : 10 oral presentations + 15 posters, Metz, june 2000.

Porous materials and foams : material processing, structure and properties, symposium organized by Y. Bienvenu, P. Bompard and S. Forest at Journées d’Automne de la SF2M, Paris, 1998.

Member of Organization committee of the 2nd European Mechanics of Materials Conference on Mechanics of Materials with Intrinsic Length Scale, EMMC2, Magdeburg, Germany, 23-26 february 1998, *J. Phys. IV*, Vol. 8, Pr. 8, 1998.

Local strain and temperature measurements in non-uniform fields at elevated temperatures, Proceedings of the International Symposium held at Berlin, Germany, 14-15 March 1996, edited by J. Ziebs, J. Bressers, H. Frenz, D.R. Hayhurst, H. Klingelhöffer and S. Forest, Woodhead Publishing Limited, 1996.

3 Visits and stays in other institutions

Three weeks stay at the Institut fuer Mechanik of the Otto-von-Guericke Universitaet Magdeburg (Germany) with Prof. Albrecht Bertram, April 2012.

Two weeks at the International Research Center for Mathematics and Mechanics of Complex Systems (M&MOCS) de l'Univeristé La Sapienza, Rome, with Prof. F. Dell'Isola, April 2011.

One week at the Budapest University of Technology and Economics, wit Prof. Laszlo Szabo, Applied Mechanics Department, June 2008.

Two-week stay at the Weierstrass Institut für Angewandte Analysis und Stochastik (WIAS), with Prof. W. Dreyer, Berlin, february 2004.

Six-week stay at the Institut für Theoretische Physik (TU Berlin, FRG), with Prof. W. Muschik, june-july 2003.

One-week stay at Aristotle Technical University, Thessaloniki, Greece, in the group of Professor E.C. Aifantis, january 2001.

3-day stay at Partielle Differentialgleichungen und anwendbare Analysis of Technical University Darmstadt, invitation of Professor Hans-Dieter Alber (Fachbereich Mathematik), november 1999.

1-week stay at Mechanics Institue of Otto-von-Guericke University in Magdeburg (RFA, Décembre 1997) as invited scientist.

One-year stay at Bundesanstalt für Materialprüfung und Forschung (BAM - Berlin), within the framework of BRITE EURAM Project "Development of Microstructure Based Viscoplastic Models for an Advanced Design of Single Crystal Hot Section Components", 1994-1995.

4 Teaching Activities

PhD students

1998 Marie-Dominique Dupuits (coadvisor M. Boussuge, june 14th) : *Experimental characterization and simulation of the elastoviscoplastic behaviour of a cylinder head gasket : from mechanical testing to structural computations*, in collaboration with (**RENAULT**).

2000 Jean-Marc Cardona (coadvisor G. Cailletaud, december 20th) : *Behaviour and lifetime of multiperforated components : application to turbine blades* (in collaboration with **SNECMA**).

2000 Fabrice Barbe (coadvisor G. Cailletaud, december 22th) : *Modelling the mechanical behaviour of polycrystalline aggregates*.

2000 Pascal Boubidi (coadvisor G. Cailletaud, december 18th) : *Experimental characterization and numerical modelling of low cycle fatigue in a nickel base single crystal superalloy under multiaxial loading*, thesis Communitatis Europae in collaboration with BAM-Berlin (**BRITE-EURAM PROJECT**).

2001 Rodolphe Parisot (coadvisor A. Pineau, defended, april 5th) : *Microstructure, deformation and damage of a zinc coating on a steel sheet*, in collaboration with (**SOLLAC**).

2003 Jean-Sébastien Blazy (coadvisor Y. Chastel (Cemef), april 25th), *Mechanical Behaviour of Aluminium Foams : Experimental Testing under Complex Loading Conditions and Numerical Simulations within the Framework of compressible Elastoplasticity*, industrial partner **RENAULT**.

- 2003 Toufik Kanit** (coadvisor D. Jeulin (Mathematical Morphology), may 12th), *Notion of Representative Volume Element for Heterogeneous Materials : Statistical and Numerical Approach*, industrial partner **UNILEVER**.
- 2004 Virginie Goussery** (coadvisor Y. Bienvenu, march 2nd), *Microstructural and mechanical characterization of open-cell nickel foams for battery applications in hybrid vehicles*, in collaboration with **NITECH, INCO**.
- 2004 Thierry Dillard** (coadvisor Y. Bienvenu, march 4th), *Mechanical behaviour of nickel foams : 3D morphology, non-linear models and fracture*, in collaboration with **NITECH**.
- 2004 Sylvain Flouriot** (coadvisor L. Rémy, june 4th), *Simulation of fatigue crack propagation in nickel-base single crystal superalloys*, in collaboration with **SNECMA**.
- 2005 Asmahana Zeghadi** (december 8th), *Effect of 3D grain morphology and grain size on the mechanical behaviour of polycrystalline aggregates*, (industrial partner **ARCELOR**).
- 2006 Stéphanie Graff** (octobre 13th, coadvisors J.-L. Strudel et C. Prioul, Ecole Centrale de Paris) : *Simulation of Portevin-Le Chatelier instabilities with application to the anamalous viscoplastic behaviour of zirconium alloys* (partner **CEA-CNRS, CPR SMIRN**).
- 2006 Nicolas Marchal** (coadvisor L. Rémy, june 9th), *High temperature fatigue crack propagation in single crystals nickel-based superalloys* (European project **SOCRAX**).
- 2006 Kamel Madi** (coadvisor M. Boussuge, december 21st), *Simulation of the viscoplastic behaviour of fused-cast refractories from their 3D microstructure*, (industrial partner **SAINT-GOBAIN**).
- 2007 Matthieu Mazière** (coencadrement J. Besson, B. Tanguy, 21st november 2007), **Burst of turboengine disks** (industrial partner **SNECMA-TURBOMECA PRC DDV**).
- 2007 Filip Siska** (coadviser P. Gumbsch, IWM Freiburg (RFA), 26th november 2007), *Continuum vs. Discrete models for the plasticity of thin metal films* (Marie Curie European Network **SizeDepEn**).
- 2007 Aurélie Jean** (coadviser D. Jeulin, Mines ParisTech, 19th February 2009), *Rubber with carbon black fillers, from the nanoscopic structure to the macroscopic behaviour* (industrial partner Michelin).
- 2009 Guillaume Abrivard** (coencadrement E. Busso, 20 novembre 2009), *A coupled crystal plasticity-phase field formulation to describe microstructural evolution in polycrystalline aggregates* (projet européen DIGIMAT).
- 2009 Anaïs Gaubert** (coencadrement F. Gallerneau, 30 novembre 2009), *Modélisation des effets de l'évolution microstructurale sur le comportement mécanique du superalliage monocristallin AM1* (thèse ONERA, DGA).
- 2010 Kais Ammar** (co-advisors G. Cailletaud, B. Appolaire, January 20th 2010), *Modelling and simulation of phase transformation-mechanics coupling using a phase field method*, (pôle de compétitivité **System@tic**).
- 2010 Ozgur Aslan** (March 29th 2010), *Microdamage modeling of fatigue crack growth in single crystal nickel-base superalloys* (projet européen STREP **Rolls Royce, RRD, SNECMA, Avio, MTU, Volvo, Siemens, Turboméca...**).
- 2011 Huaidong Wang** (co-advisors C. Berdin-Méric, M. Mazière, May 18th 2011), *Mechanical behaviour and fracture of C-Mn steels undergoing dynamic strain ageing*, (PhD thesis Centrale Paris, **EDF**).

- 2011 Nicolas Cordero** (co-advisor E. Busso, September 30th 2011), *A Strain Gradient Approach to the Mechanics of Micro and Nanocrystals*, (project **ANR Nanocrystals**).
- 2011 Duy Khan Trinh** (November 18th 2011), *Gradient and micromorphic homogenization methods for architected materials*, (CPR CNRS Multifunctional Architected Materials).
- 2011 Gwenael Trego** (co-advisor A.F. Gourgues, December 20th 2011), *High temperature creep behaviour in the two-phase ($\alpha + \beta$) temperature domain of the M5 alloy* (with **CEA Saclay**).
- 2012 Yang Ding** (co-advisor M. Boussuge, March 28th 2012), *Analyse morphologique de la microstructure 3D de réfractaires électrofondus à très haute teneur en zircon : relations avec les propriétés mécaniques, chimiques et le comportement pendant la transformation quadratique-monoclinique* (with **Saint-Gobain**).
- 2012 Prajwal Sabnis** (November 16th 2012), *Modelling the propagation and bifurcation of plasticity induced cracks in Nickel base single crystal superalloys* (PRC Structures Chaudes, with **ONERA, SNECMA**).
- 2012 Anthony Marais** (November 26th 2012, co-advisor M. Mazière), *Impact of static strain ageing on the ductile-to-brittle transition of a C-Mn steel* (with **EDF**).
- 2012 Antonin Steckmeyer** (November 28th 2012, co-advisors B. Fournier and S. Vincent), *Characterization and modelling of the high temperature mechanical behaviour of Oxid Dispersion Strengthened ferritic steels* (with **CEA Saclay**).
- 2012 Justin Dirrenberger** (December 10th 2012, co-advisor D. Jeulin), *Effective properties of architected materials* (project **ANR Mansart**).
- 2012 Xu Han** (December 14th 2012, co-advisors J. Besson and B. Tanguy), *Modelling the embrittlement induced by swelling in stainless austenitic steels* (with **CEA Saclay**).
- 2013 Damien Colas** (November 8th 2013), *Multiscale approach of the ageing and cyclic behaviour of Tantalum* (with **CEA-DAM** Valduc).
- 2014 Alexandre Ilchev** (16 décembre 2014, co-advisors V. Marcadon and S. Kruch), *Periodic homogenisation of a cellular material in elastoplasticity and application to structural modelling : from small to large deformations*, (partenaire **ONERA**).
- 2015 Aurélien Villani** (12 février 2015, co-advisor E.P. Busso), *A multi-physics modelling framework to describe the behaviour of nano-scale multilayer systems undergoing irradiation damage*, (projet européen **RADINTERFACE**).

Post-docs

- 2002–2004 Fouad El Houdaigui** : Simulating the mechanical behaviour of a multi-crystalline component in a MEMS (industrial partner **SAGEM**)
- 2003–2005 Hakim Benouali** : Microstructure of metallic foams (Marie Curie European Network **DEFINO**)
- 2006–2007 Ovidi Casals** : Indentation of metal thin films (Marie Curie European Network **SizeDepEn**)
- 2009–2010 Hyung-Jun Chang** : Comparing DDD and gradient plasticity models (**ANR Cat-Size**)
- 2009–2011 Kais Ammar** : Phase field and gradient plasticity models (**ANR COUPHIN**)

2013–2014 Abderrahim El Khabbaz : Design of an architected material for the tubes of vapor generators in nuclear power plants (**AREVA chair**)

2015–2016 Marti Horak : Order reduction methods for generalized continua (**ANR Micromorfing**)

Teaching activities

Course on *Continuum Mechanics* at Ecole des Mines de Paris (35 hours including magistral courses and training sessions). The course is available at mms2.ensmp.fr (2004–...).

Master course MAGIS *Internal lengths in metal deformation*, (9h), 2009–....

Master course DMSE *Multiscale plasticity of metals and alloys*, (9h), 2010–....

Exercises of the course on *Mechanics of Solid Materials* with Prof. G. Cailletaud first year student at Ecole des Mines de Paris, 1996–2001 (16h).

Major on *Mechanics of inelastic solids* (1997, 1999,2001) : course on *Nonlinear constitutive equations at finite strain* (3h) and small project on the finite element method for nonlinear solids.

Summer schools and training sessions for researchers, doctoral students and engineers

Second Summer School of Theoretical Mechanics on *Mechanics of Generalized Continua*, courses by G. Del Piero, S. Forest and P. Sepecher, Quiberon (France, June 3–8 2013).

GAMM *Multiscale Material Modeling* Summer School 2012, organized by T. Böhlke, S. Diebels and B. Svendsen, Bad Herrenalb, Germany, September 2-7, 2012.

CISM Advanced School on *Generalized continua: From the theory to engineering applications*, coordinated by Holm Altenbach and Victo Eremeyev, lectures by H. Altenbach, R. De Borst, V. Eremeyev, S. Forest, G. Maugin, P. Steinmann, Udine September 19–23 2011.

CISM Advanced School on *Plasticity and beyond: Microstructures, crystal plasticity and phase transitions*, coordinated by Joerg Schroeder and Klaus Hackl, lectures by S. Forest, K. Hackl, J. Kratochvil, M. Kuroda, V. Levitas and J. Schroeder, Udine June 27–July 1 2011.

CNRS Advanced School, *ARCHIMAT, Matériaux architecturés multifonctionnels*, Autrans, 22–28 May 2011.

CNRS Advanced School, *Scale transitions in the mechanics of materials*, CE2M10, Briançon, August 23–Septembre 3 2010.

CNRS Advanced School, *Mechanics of Nano–Objects*, Autrans, March 14–19, 2010.

French–German Advanced School, *Vom Modell zum Experiment*, Bad Herrenalb, RFA, 6-12 septembre 2009.

CISM Advanced School on *Generalized continua and dislocation theory: Theoretical concepts, computational methods and experimental verification*, coordinated by Carlo Sansour, lectures by M. Fivel, S. Forest, K. Hemker, G. Maugin, C. Sansour and H. Zbib, Udine, 9–13th July 2007.

European master in Computational Mechanics of Materials and Structures (COMMAS), 3 lectures on Micromechanics of single and polycrystals, 10–11 oct. 2006, Universität Stuttgart, organized by Prof. Miehe.

Short Course in Mathematical Modelling in Solid Mechanics, organized by the Fakultät für Mathematik Universität Karlsruhe, Institut für praktische Mathematik, C. Wieners, teachers: S. Forest, P. Neff and C. Wieners, 5–7 october 2005.

Mécanique non linéaire des matériaux : comportement, endommagement et méthodes numériques, J. Besson, G. Cailletaud, J.L. Chaboche et S. Forest, formation IPSI, 16-19 septembre, Paris, 1997.

Participation in Summer Schools as a student

Size-dependent mechanical properties of materials, Lorentz Center, Leiden (Holland), February 28th, March 4th, 2005.

Mechanics of random and multiscale microstructures, organized by D. Jeulin and M. Ostija-Starzewski, CISM, Udine, 25-29 september 2000.

Méthodes d'homogénéisation en mécanique des matériaux, Ecole thématique du CNRS, Lalonde-les-Maures, 25 août-4 septembre 1998.

5 Contracts with industry and state

All PhD works are associated with an industrial financing contract with the partners mentioned earlier : SNECMA, RENAULT, ARCELOR-MITTAL, SAINT-GOBAIN, EDF, CEA, INCO Special Products, SAGEM, UNILEVER... These contracts are not listed here for brevity.

Contract ANR-14-CE07-0035-03 MICROMORFING (Défi “Stimuler le renouveau industriel”), Milieux Micromorphes: Modélisation multiphysique et Simulation Numérique Avancées de Procédés de Mise en Forme: UTT (coordinateur), UTC, Mines ParisTech, 2014–2019.

Contract ANR METAFORES (Programme blanc 2012), Matériaux à architecture élémentaire sur mesure pour réponse fonctionnelle optimisée : de l’expérience à la simulation, partenaires : PPRIME (coordinateur), CNRS UP Poitiers, PIMM ENSAM, CdM Mines ParisTech, 2012-2016.

PRC Structures chaudes, cas de la fissuration des aubes de turbines monocristallines, ONERA et SNECMA, 2009-2012.

Simulation de l’oxydation de l’acier 316L par la méthode des champs de phase, chaire EDF (2011-2014)

Fatigue of tantalum, Contrat CEA DAM (2010-2013)

CPR CNRS MAM, Matériaux Architecturés Multifonctionnels, partenaires : SIMAP (coordinateur), INSA Lyon, Arcelor Research, EDF Renardières, 2008–2011.

Contract ANR MANSART (Programme Matériaux et Procédés 2008), Matériaux sANdwiches ARchiTecturés, partenaires : ONERA (coordinateur), MATEIS Lyon, Arcelor Research, ENSAIT toulouse, SIMAP Grenoble, AIRBUS, ATEAA, 2008-2012.

Contract ANR COUPHIN (Programme blanc 2008), Couplage entre champ de phases et plasticité cristalline continue, partenaires : Institut Jean Lamour (coordinateur), ONERA–LEM Paris, 2008-2012.

Contract ANR NANOCRYSTALS (Programme blanc 2007), Modélisation multiéchelles du comportement mécanique des nanocristaux métalliques, partenaires : GeorgiaTech Lorraine (coordinateur), LPMM Metz, 2007-2011.

Contract ANR CAT-SIZE (Programme Matériaux et Procédés 2007), Développement, application et validation d’une approche Multi-échelles incluant les effets de longueurs internes, partenaires : Arcelor Research (coordinateur), SIMAP Grenoble, LPMM Metz, 2008-2011.

Contract CEA–Saclay, Comportement mécanique des aciers ODS, 2009–2012.

Contract SNECMA, Simulation de la bifurcation de fissure par fatigue dans les monocristaux de superalliage, 2009–2012.

Contract EDF, Vieillissement statique et dynamique d'un acier C-Mn, 2008–2011.

Contract Michelin, Calcul de microstructures pour les élastomères chargés : influence du mélangeage, 2006–2009.

F. El Houdaigui, S. Forest, A.-F. Gourgues, *Propriétés effectives élastoplastiques d'une charnière multicristalline*, convention SAGEM-Armines, 2002–2004.

Programme Matériaux CNRS 2001, Approches multiéchelles des propriétés macroscopiques des matériaux de structure. Projet : *Comportement mécanique de composites à nano-renforts flexibles* (UMR 5010, 5510, 5301, 7633).

T. Kanit, S. Forest, V. Mounoury, D. Jeulin, *Determination of a representative volume element for random microstructures : application to waterice products*, convention Unilever-Armines, No. SRA1.3/PS00085, june 2000.

J. Olschewski, R. Sievert (Berlin), B. Svendsen (Dortmund), S. Forest (Evry), projet DFG (Deutsche Forschungsgemeinschaft) : Beschreibung des Verfestigungsverhaltens metallischer Werkstoffe unter dem Einfluss stark inhomogener Verformung zur Berechnung des Fortschritts makroskopisch grosser Risse unter zyklischer Belastung, 1999–2001.

6 European contracts

FP7 European Project RADINTERFACES, *Multiscale Modelling and Materials by Design of interface-controlled Radiation Damage in Crystalline Materials*, Collaborative project Small or medium-scale focused Research Project, UMI-CNRS Georgia Tech Lorraine (coordinator, France-USA), University of Oviedo (Spain), Universidad Politecnica de Madrid (Spain), Ecole des Mines de Paris, ARMINES, Czech Technical University in Prague, Università degli Studi di Cagliari (Italy), University of Tartu (Estonia), Uppsala University (Sweden), Instituto madrilenio de estudios avanzados (Spain), Los Alamos National Laboratory (USA), 2011–2014.

Predictive methods for combined cycle fatigue in Gas Turbine Blades (6th RTD framework program), PREMECCY; Partners: Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Ecole Centrale de Paris, Mines ParisTech, Technische Universität Dresden, MTU Aero Engines GmbH, Rolls-Royce Deutschland Ltd & Co KG, Avio S.P.A. (Italy), Politecnico di Milano Fundacion Inasmet, Industria de Turbo Propulsores, S.A. (Spain), Volvo Aero Corporation (Sweden) Siemens Industrial Turbomachinery Ltdh (UK). Coordination: Rolls-Royce PLC, Turbine Systems - Engineering (UK), 2006–2011.

Marie-Curie Research Training Network (RTN) entitled *SizeDepEn - Engineering mechanics based on size-dependent materials properties*, partners : Universität Karlsruhe (FRG), University of Edinburgh (UK), Rijksuniversiteit Groningen, Fraunhofer Institut für Werkstoffmechanik Freiburg (FRG), Eötvös University Budapest, contract No. MRTN-CT-2003-504634, 2004–2008.

Research Training Network (RTN) entitled *DEFINO – Deformation and fracture instabilities in novel materials and processes*, partners : Aristotle University Thessaloniki (Greece), University Cambridge (UK), Technical University Delft (The Netherlands), Technical University Braunschweig (FRG), University Libre Brussels (Belgique), Eötvös University Budapest, University Kaiserslautern (FRG), 2003–2007.

Competitive and Sustainable Growth Programme, European Project SOCRAx entitled *Expanding the limits of single crystal superalloys through short crack fracture mechanics analysis*, partners : ONERA (France),

National Technical University of Athens (Greece), SNECMA Moteurs (France), Siemens Power Generation (FRG), MTU Aero Engines GmbH (FRG), Imperial College of Science, Technology and Medicine (UK), Bundesanstalt für Materialforschung und -prüfung (FRG), Consiglio Nazionale delle Ricerche (Italy), Institute of Mechanics of Materials and Geostrutures S.A. (Greece), contract No. G5RD–CT–2002–00819, 2002–2006.

7 Committees

CNFM Member (Comité National Français de Mécanique) interfacing IUTAM and French Mechanics Community (2013–...).

Member of the EMMC committee (European Mechanics of Materials Conference) of the Euromech society (2010–...).

Member of the organizing committee IMMC (International Material Modeling Conference) lead by Prof. A. Bertram: ICMM1, Dortmund (2009); ICMM2, Paris (2011), Varsaw (2013), Berkeley (2015).

Member of the research committee “Multiscale Material Modelling” of the German Society of Applied Mathematics and Mechanics (GAMM), 2006–2009.

Member of the Board of Directors of the association MECAMAT for the development of the mechanics of materials 1998–2006.

8 Review of articles in international journals

Acta Materialia	7
Acta Mechanica	9
Aerospace Science and Technology	1
Archive of Applied Mechanics	25
Archives of Mechanics	1
ASCE Journal of Engineering Mechanics	2
ASME Journal of Engineering Materials and Technology	1
Biomechanics and Modeling in Mechanobiology	1
Comptes Rendus à l’Académie des Sciences	14
Composite Structures	1
Composites Science and Technology	2
Computational Materials Science	25
Computational Mechanics	3
Computer Methods in Applied Mechanics and Engineering	9
Continuum Mechanics and Thermodynamics	13
European Journal of Mechanics A/ Solids	28
Engineering Fracture Mechanics	2
Experimental Mechanics	1
The European Physical Journal Applied Physics	2
International Journal of Engineering Science	5
International Journal of Forming Processes	1
International Journal of Fracture	2
International Journal for Multi–scale Computational Engineering	2
International Journal of Non–Linear Mechanics	4

International Journal for Numerical Methods in Engineering	7
International Journal of Plasticity	23
International Journal of Solids and Structures	46
International Journal of Vehicle Design	1
Journal of Alloys and Compounds	2
Journal of Applied Mechanics	4
Journal of Elasticity	2
Journal of Engineering Manufacture	2
Journal of Materials Research	2
Journal of Materials Science	5
Journal of the Mechanics and Physics of Solids	20
Journal of the Mechanics of Materials and Structures	3
Journal of Micromechanics and Microengineering	3
Journal of Multiscale Computational Engineering	1
Journal of Physics A: Mathematical and General	2
Journal de Physique IV	6
Materials Science and Engineering A	4
Mathematics and Mechanics of Solids	1
Meccanica	6
Mechanics of Materials	7
Mechanics Research Communications	2
Metallurgical and Materials Transactions A	1
Mécanique et Industries	4
Modelling and Simulation in Materials Science and Engineering	15
Nuclear Engineering and Design	1
Philosophical Magazine	14
Philosophical Magazine Letters	4
Polymer	1
Probabilistic Engineering Mechanics	2
Proceedings A of the Royal Society	7
Revue de Métallurgie	2
Scripta Materialia	9
Strain	1
Technische Mechanik	7
Zentralblatt Mathematik	5
Zeitschrift fuer Angewandte Mathematik und Mechanik	3