Curriculum Vitae

Dr. Luisa SILVA
Born December 16th 975
Married, three children
Portuguese nationality

Ecole Centrale de Nantes
High Performance Computing Institute
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Expertise fields

- Development of numerical methods based on finite elements and eulerian approachs to solve thermomechanical multiphase problems in a multiscale context
- Parallel multiphase computational fluid dynamics of highly viscous to inviscid fluid flows and their phase changes
- Direct 3D image based numerical simulations
- Development of software applications for urban environments, material forming processes and material structure development simulations
- Advanced numerical techniques developed: stable/stabilized mixed finite element methods, interface capturing through modified level-set set or phase-field methods, anisotropic mesh adaptation, developments in a massively parallel context

Career

- **09/2014 - today: Associate Professor, "Chargée de Recherche"** (Ecole Centrale de Nantes, Institut du Calcul Intensif)
- **08/2007 - 08/2014:** Associate Professor, "Chargée de Recherche" (MINES ParisTech, Centre de Mise en Forme des Matériaux, Team Calcul Intensif en Mécanique)
- **06/2005 - 12/2010:** Invited Assistant Professor (Faculdade de Engenharia da Universidade do Porto, Departamento de Engenharia Mecânica)
- **03/2004 - 07/2007:** Assistant Professor, "Attachée de Recherche" (MINES ParisTech, Centre de Mise en Forme des Matériaux, Team Calcul Intensif en Mécanique)
- **11/1998 - 02/2004:** Assistant Lecturer (Faculdade de Engenharia da Universidade do Porto, Departamento de Engenharia Mecânica)

- **02/2001 - 12/2004:** PhD in Computational Mechanics (MINES ParisTech, Centre de Mise en Forme des Matériaux, Teams Calcul Intensif en Mécanique and Ecoulements Viscoélastiques)
  - Defended on December 20th 2004, with the mention "Très Honorable Avec les Félicitations du Jury" (highest mark), under the direction of Prof. Thierry Coupez and Prof. Jean-François Agassant
  - Title of the thesis: "Viscoelastic Compressible Flows and Applications in 3D Injection Moulding Simulation."
- **10/1998 - 09/2000:** MSc in Mechanical Engineering (Faculdade de Engenharia da Universidade do Porto, Departamento de Engenharia Mecânica)
  - Defended on September 3rd 2001, with the mention "Muito Bom" (highest mark), under the direction of Prof. José César de S'a and Prof. Ant'onio Torres Marques
  - Title of the thesis: "Modeling of Newtonian and Generalised Newtonian Transport Flow. Applications in Polymer Injection Moulding."
- **10/1993 - 09/1998:** Degree of Engineer in Mechanical Engineering (Faculdade de Engenharia da Universidade do Porto, Departamento de Engenharia Mecânica)
  - Final mark of 17/20 (ranked 1st/100)
  - Option: Structural Mechanics

Responsabilities

- Deputy team leader (since 01/2005)
- Head of the development of the REM3D software (**http://www.transvalor.com/rem3d.php**), from 01/2005 to 09/2014
- Referee on different comittees (post-graduations, recruitment, ...)

Teaching

- **2004 - 2014:** Advanced Numerical Methods (18h/y, Doctoral program in Computational Mechanics and Master P3M, UNSA and MINES ParisTech)
- **2009 - 2014:** Complements on Numerical Analysis (60h/y, Master P3M, UNSA and MINES ParisTech)
- **2012 - 2014:** Digital Materials (15 h/y, MAPMOD Postgraduate program, MINES ParisTech)
- **2012 - 2014:** Advanced Numerical Analysis (15 h/y, MAPMOD Postgraduate program, MINES ParisTech)
- **2004 - 2014:** REM3D (15 h/y, MAPMOD Postgraduate program, previously MATMEF and COMPUMECH postgraduate programs, MINES ParisTech)
- **1998 - 2001:** Technical Drawing, Industrial Drawing and Computer Assisted Conception (200 h/y, Faculdade de Engenharia da Universidade do Porto)

Organisation of conferences, symposiums and seminars

International conferences

Scientific commitee

2013-2016 ESAFORM conferences

2010 Advances in Materials and Processing Technologies (Paris, France)

2008 International Conference on Mathematics and Continuum Mechanics (Porto, Portugal)

2007 Eccomas Thematic Conference on the Mechanical Response of Composites (Porto, Portugal)

Symposium organiser

2016 Direct Image or Real Data Based Numerical Simulation, WCCM XII & APCOM VI (Seoul, South Korea)

2011-2016 Structures, properties and processing of polymers, ESAFORM conferences

2008 Modelling of Industrial Processes, International Conference on Mathematics and Continuum Mechanics (Porto, Portugal)

2007 Numerical Methods in Polymer Processing, Numiform 2007: International Conference on Numerical Methods in Industrial Forming Processes (Porto, Portugal)

Workshops

2008 Organising Commitee, Ecole Thématique CNRS "Calcul Intensif en Mise en Forme" (La Colle-sur-Loup, France)

2008 Workshop organiser, Ecole Thématique CNRS "Interaction Fluide-Structure" (Lille, France)

2007 Organising Commitee, EU Winter School "Injection Moulding" (Aussois, France)

2002 Workshop organiser, Ecole Thématique CNRS "Injection de Polymères" (Agay, France)

Distinctions

- "Highly Commended Award Winner" of the Literati Network Awards for Excellence 2008, journal Engineering Computations, with the paper entitled "Identification of crystallization kinetics parameters by genetic algorithm in non-isothermal conditions" (2008)
- Prize "Fundação Engenheiro António de Almeida" for having been ranked 1st/100 on a Mechanical Engineering Diploma (1998)

Research advisoring

PhD students: 7 defended, 4 on-going

On-going

[PhD1] **Yhaya Khoder** - *Mesh generation/adaptation from satellite images. Application to the study of air flow of coastal towns*. Ecole Centrale de Nantes and Université Saint Joseph (Liban), in collaboration with Thierry Coupez and Tony Nicolas. Start: 10/2015. Advisor rate: 75%.

[PhD2] **Simon Santoso** - *Numerical simulation and urba environments from real data.* Ecole Centrale de Nantes, in collaboration with Thierry Coupez. Start: 10/2014. Advisor rate: 75%.

[PhD3] **Jia-Xin Zhao** - *Development of numerical tools for mesh generation/adaptation applied to imaging*. MINES ParisTech, in collaboration with Thierry Coupez and Etienne Decencière. Started: 12/2012. Advisor rate: 50%.

[PhD4] **Carole Sarkis** - *Numerical model for microstructure development during solidification.* MINES ParisTech, in collaboration with Charles-André Gandin. Started: 10/2012. Advisor rate: 75%.

Defended

[PhD5] **Pamela Mondalek** - *Numerical modeling of the spark plasma sintering process*. MINES ParisTech, in collaboration with Michel Bellet. Defense date: 07/12/2012. Advisor rate: 50%.

[PhD6] **Jean-François Zaragoci** - *Direct and multiphase numerical simulation of the Al-Cu alloy deformation in the mushy state. Comparison with in situ and real-time X-ray tomography observations*. MINES ParisTech, in collaboration with Charles-André Gandin and Michel Bellet. Defense date: 09/07/2012. Advisor rate: 75%.

[PhD7] **Vu-Thu Pham** - *Mixed Velocity-Displacement Formulation for Modeling of Complex Behavior of Polymer*. MINES ParisTech, in collaboration with Thierry Coupez and Noelle Billon. Defense date: 17/02/2012. Advisor rate: 50%.

[PhD8] **Grégory Puaux** - *Numerical simulation of flows at microscopic scale and mesoscopic scale in the RTM process*. MINES ParisTech, in collaboration with Patrice Laure and Michel Vincent. Defense date: 08/12/2011. Advisor rate: 50%.

[PhD9] **Laurence Ville** - *Multiphase modelling and interface determination in propegorl forming processes*. MINES ParisTech, in collaboration with Thierry Coupez. Defense date: 06/12/2011. Advisor rate: 50%.

[PhD10] **Walid Zerguine** - *Numerical simulation of water assisted injection.* MINES ParisTech, in collaboration with Thierry Coupez. Defense date: 14/12/2010. Advisor rate: 75%.

[PhD11] **Houssem Eddine Miled** - *Modelling of flow induced fiber orientation and anisotropic elastic behaviour at the solid state.* MINES ParisTech, in collaboration with Thierry Coupez and Jean-François Agassant. Defense date: 09/12/2010. Advisor rate: 75%.

Other advisoring

[PhD12] **Luis Salazar Bettancourt** - *Numerical modelling of High-Performance SMC (Sheet Moulding Compounds) compression moulding*. MINES ParisTech, in collaboration with Patrice Laure. Started: 10/2013. Advisor rate: 75%.

[PhD13] **Tanguy Laurencin** - *3D Micro Rheology of Concentrated Fiber Suspensions with Non Newtonian Suspending Fluids*. INP Grenoble, Université Joseph Fourier, in collaboration with Laurent Orgéas and Patrice Laure. Started: 10/2013. Advisor rate: 30%.

[PhD14] **Nadine El Kosseifi** - *Numerical simulation of boiling for industrial quenching processes.* MINES ParisTech, advisored by Thierry Coupez and Elisabeth Massoni. Defense date: 27/06/2012

[PhD15] **Karim Hitti** - *Direct numerical simulation of complex Representative Volume Elements (RVEs): Generation, Resolution and Homogenization.* MINES ParisTech, advisored by Thierry Coupez and Marc Bernacki. Defense date: 07/12/2011.

[PhD16] **Abla Redjeb** - *Numerical simulation of fiber orientation in injection of reinforced thermoplastics*. MINES ParisTech, advisored by Patrice Laure and Michel Vincent. Defense date: 04/12/2007.

[PhD17] **Julia Smirnova** - *Numerical and experimental characterisation of polymer crystallization in injection molding.* MINES ParisTech, advisored by Jean-Loup Chenot and Jean-Marc Haudin. Defense date: 22/09/2006.

Post-doctoral fellows: 5

[PoD1] **Nadine El Kosseifi** - *Improvement of pressure computation in Ximex.* Started: 09/2013. Duration: 6 months. Advisor rate: 100%.

[PoD2] **Nadine El Kosseifi** - *Automatic mesh construction from 3D images for finite element computations. Application to powder metallurgy.* In collaboration with Julien Bruchon, Ecole des Mines de Saint-Etienne. Started: 08/2012. Duration: 18 months. Advisor rate: 50%.

[PoD3] **Alexandros Giavaras** - *Prediction of permeability and mechanical properties of a thermoplastic matrix based composite by a monolithic approach at the mesoscopic scale*. In collaboration with Patrice Laure. Started: 03/2011. Duration: 12 months. Advisor rate: 50%.

[PoD4] **Andri Andryiana** - *Modelling of the mechanical behavior of fiber reinforced thermoplastics.* In collaboration with Noelle Billon. Started: 10/2007. Duration: 18 months. Advisor rate: 50%.

[PoD5] **Emmanuel Foudrinier** - *Compression and injection compression moulding modelling using REM3D.* Started: 01/2007. Duration: 12 months. Advisor rate: 100%.

Post-graduate internships ("Mastère Spécialisé"): 7

[Mast1] **Mazen Ayoub** - *Thermo-mechanical modelling of a transmission belt moulding process.*In collaboration with Michel Vincent. MAPMOD, 2012/2013. Advisor rate: 50%.

[Mast2] **José Luis Alves Zapata** - *Micromechanical modelling of a STAMAX material.* In collaboration with Noelle Billon. COMPUMECH, 2011/2012. Advisor rate: 50%.

[Mast3] **Jean-François Zaragoci** - *Modelling of dendritic microstructure with a level-set technique.*In collaboration with Charles-André Gandin. MATMEF, 2007/2008. Advisor rate: 50%.

[Mast4] **Mounia Gicquel** - *Prediction of crystalline morphology sizes in injected parts.* In collaboration with Séverine Boyer and Jean-Marc Haudin. MATMEF, 2006/2007. Advisor rate: 50%.

[Mast5] **Nazih Marzouqy** - *Study of gravitational flows of yield-stress fluids* .In collaboration with Patrice Laure. COMPUMECH, 2005/2006. Advisor rate: 50%.

[Mast6] **Manuel Baret** - *Benchmarking and correlation experience-simulation in injection moulding.*In collaboration with Michel Vincent. COMPUMECH, 2004/2005. Advisor rate: 50%.

Undergraduate internships: 24

[Sta1] **Yhaya Khoder** - *3D reconstruction and flow simulations on GIS data.* Final project for an Engineer degree (Université Saint Joseph, Liban), 2015. Advisor rate: 100%.

[Sta2] **Valentin Rougier**- *Temperature distribution computation in glass tubes during spinning.* M1 intership (UNSA), 2014. Advisor rate: 100%.

[Sta3] **Christophe Berto** - *Evolution of fluid-air interface in complex flows.* M1 intership (UNSA), 2014. Advisor rate: 100%. .

[Sta4] **Maud Pfleger** - *Simulation of compression moulding of sheet moulding compounds. Comparison between two softwares and experimental results.* Final project for an Engineer degree (ISITV), 2013. Advisor rate: 100%.

[Sta5] **Alois Bissuel** - *Numerical simulation of HP-RTM and C-RTM using Rem3D.* Final project for an Engineer degree (MINES ParisTech), 2013. Advisor rate: 100%.

[Sta6] **Bastien Anfossi** - *Growth of a spherulitic structure: Theory, modeling and simulation.* M2R intership (UNSA), 2013. In collaboration with Séverine Boyer and Jean-Marc Haudin. Advisor rate: 75%.

[Sta7] **Jules Proust** - *From the image to the mesh.* Final project for an Engineer degree (INP Grenoble), 2012. In collaboration with Thierry Coupez. Advisor rate: 75%.

[Sta8] **Damir Hukic** - *Exact and statistical reconstruction of numerical microstructures from experimental images in a level-set context.* M2R intership (UNSA), 2011. In collaboration with Marc Bernacki. Advisor rate: 50%.

[Sta9] **Rebecca Nakhoul** - *Mesh adaptation in injection and co-injection moulding using REM3D.* M2R intership (Lebanese University), 2010. Advisor rate: 100%.

[Sta10] **Bastien Anfossi** - *Permeability computations in regular and irregular cells.* M1 intership (UNSA), 2010. Advisor rate: 100%.

[Sta11] **Hichem Abdelssalam** - *Simulation of thermoforming using CimLib.* Final project for an Engineer degree (EPT, Tunisie), 2009. In collaboration with Noelle Billon. Advisor rate: 75%.

[Sta12] **Mohamed Ali Mzoughi** - *Error estimation based adaptation of a finite element mesh applied to the dendritic growth.* Final project for an Engineer degree (EPT, Tunisie), 2009. In collaboration with Charles-André Gandin. Advisor rate: 50%.

[Sta13] **Hong-Chau Nguyen** - *Glass material forming modelling.* Final project for an Engineer degree (MINES ParisTech), 2009. In collaboration with Thierry Coupez. Advisor rate: 50%.

[Sta14] **Karim Hitti** - *Fluid-structure interaction.* M2R intership (Lebanese University), 2008. Advisor rate: 100%.

[Sta15] **Mathieu Payet** - *Composites compression moulding simulation.* M2R intership (Université Montpellier II), 2008. Advisor rate: 100%.

[Sta16] **Thai-Son Vu** - *Modelling of microstructures and microsegregations in dendritic solidification of metallic alloys.* Final project for an Engineer degree (ENPC), 2007. In collaboration with Charles-André Gandin. Advisor rate: 50%.

[Sta17] **Jean-François Zaragoci** - *Modelling of the behaviour of a solid particle in a viscoelastic fluid under shear flow.* M2R intership (Université Montpellier II), 2007. In collaboration with Patrice Laure and Edith Peuvrel-Didier. Advisor rate: 30%.

[Sta18] **Ricardo Correia** - *Warpage and deformation prediction in thermoplastic injection moulding.* Final project for an Engineer degree (University of Porto), 2006. Advisor rate: 100%.

[Sta19] **Pedro Barboza** - *Thermoset njection moulding: simulation and experiments.* Final project for an Engineer degree (University of Porto), 2006. Advisor rate: 100%.

[Sta20] **Harona Diarra** - *Determination of the viscosity of a polymer using direct simulation.* M2R intership (Université Paris VI), 2005. In collaboration with Jean-Loup Chenot and Jean-Marc Haudin. Advisor rate: 75%.

[Sta21] **Stéphane Tchouanmo** - *Thermique ++.* M1 intership (Université Paris XI), 2005. Advisor rate: 100%.

[Sta22] **Patrick Penven** - *Study on the paraffin cooling on tubular device.* Final project for an Engineer degree (ISITV), 2004. Advisor rate: 100%.

[Sta23] **Guillaume Jacquet** - *Modelling of seat foaming in polyurethanne: rheological coupling.* Final project for an Engineer degree (INSA Toulouse), 2004. In collaboration with Jérôme Bikard. Advisor rate: 50%.

[Sta24] **Sébastien Salvignol** - *Modelling of seat foaming in polyurethanne: expansion phase.* 2nd year project for an Engineer degree (MATMECA Bordeaux), 2003. Advisor rate: 100%.

Research projects

Public national

[Proj1] **ANR MATETPRO TOPOINJECTION** - *Multiscale texturation of polymer surface by laser structuring of the injection moulds: application of this technology to the polymer systems of drug delivery.* 2013/2016.

[Proj2] **FUI QUICKMOULD**- *QUICK manufacturing of an alveolar MOld by Laser sintering Device.* 2013/2016.

[Proj3] **LABEX TEC21** - *3D micro rheology of fiber suspensions in non-newtonian fluids.* 2013/2016

[Proj4] **ANR BLANC INTERNATIONAL MIMOSA** - *Microstructural modelling of rapidly solidified droplets and spray formed strips of aluminium-copper-scandium alloys.* 2012/2015.

[Proj5] **IMT DE L IMAGE AU MAILLAGE** - *Automatic mesh generation from 3D imaging and applications.* 2012/2015.

[Proj6] **ANR MATETPRO IRIS** - *Innovative manufacturing route for intermetallic alloys by spark plasma net shaping.* 2009/2013.

[Proj7] **ANR BLANC SIMUZAL** - *Numerical simulation of the mushy zone behaviour in aluminium alloys.* 2008/2012.

[Proj8] **ANR MATETPRO LCM3M** - *Innovative LCM processes. Multi-scale analysis;* 2008/2012.

Public international

[Proj9] **EU CA PIAM** - *Polymer Injection Advanced Moulding.* 2004/2008.

Private (industrial)

[Proj10] **REM3D SMC** - *Compression moulding simulation og high performance SMCs (Sheet Moulding Compounds).* 2013/2016.

[Proj11] μCIM - *Generation, resolution and homogeneisation of complex Representative Elementary Volumes.* 2008/2011.

[Proj12] **REM3D CONSORTIUM** - *Development of REM3D software.* 2001/2011.

[Proj13] **WAI CONSORTIUM** - *Water assisted injection.* 2005/2008.

Research groups

[Proj13] **GDR CNRS MIC** - *Mise en forme des composites.* 2009-2012 and 2014-2018.

[Proj14] **GDR CNRS 3MF** - *Milieux fibreux.* 2011/2015.

Publications and communications of the last 5 years (2010-2015)

Book chapters

[1] Patrice Laure, Luisa Silva, and Michel Vincent. Modelling short fibre polymer reinforcements for composites. In Edited by P. Boisse, editor, *Composite reinforcements for optimum performance*, pages Part 4 – Characterising and Modelling Reinforcements in Composites, Pages 619–650. Woodhead Publishing Limited, 2011.

[2] Thierry Coupez, Hugues Digonnet, Elie Hachem, Patrice Laure, Luisa Silva, and Rudy Valette. Multidomain Finite Element Computations: Application to Multiphasic Problems. In David J Benson by M'hamed Souli, editor, *Arbitrary Lagrangian Eulerian and Fluid-Structure Interaction: Numerical Simulation*, pages 221–289. Wiley, 2010.

Journal articles

[3] Thierry Coupez, Luisa Silva, and Elie Hachem. Implicit boundary and adaptive anisotropic meshing. In *New Challenges in Grid Generation and Adaptivity for Scientific Computing*, pages 1–18. Springer International Publishing, 2015.

[4] Luisa Silva, Jia-Xin Zhao, Hugues Digonnet, and Thierry Coupez. Flow simulations on 3d segmented images using reinitialization and anisotropic mesh adaptation. In *Computational Modeling of Objects Presented in Images. Fundamentals, Methods, and Applications*, pages 339–350. Springer International Publishing, 2014.

[5] Karim Hitti, Marc Bernacki, Thierry Coupez, and Luisa Silva. Elastic foam compression in a finite element (FE) context. *European Journal of Computational Mechanics*, 2013.

[6] Karim Hitti, Patrice Laure, Thierry Coupez, Luisa Silva, and Marc Bernacki. Precise generation of complex statistical Representative Volume Elements (RVEs) in a finite element context. *Computational Materials Science*, 61:224–238, 2012.

[7] Luisa Silva, Rudy Valette, Patrice Laure, and Thierry Coupez. A new three-dimensional mixed finite element for direct numerical simulation of compressible viscoelastic flows with moving free surfaces. *International Journal of Material Forming*, 5(1):55–72, 2012.

[8] Houssem Miled, Luisa Silva, Thierry Coupez, and Jean-François Agassant. Injection Molding of Fibre Reinforced Thermoplastics: Integration of Fibre Orientation and Mechanical Properties Computations. *International Polymer Processing*, 27(5):547–556, November 2012.

[9] Laurence Ville, Luisa Silva, and Thierry Coupez. Convected level set method for the numerical simulation of fluid buckling. *International Journal for Numerical Methods in Fluids*, 66(3):324–344, 2011.

[10] Luisa Silva, Rudy Valette, Patrice Laure, and Thierry Coupez. A new three-dimensional mixed finite element for direct numerical simulation of compressible viscoelastic flows with moving free surfaces. *International Journal of Material Forming*, 5(1):55–72, February 2011.

[11] Pamela Mondalek, Luisa Silva, and Michel Bellet. A Numerical Model for Powder Densification by SPS Technique. *Advanced Engineering Materials*, 13(7):587–593, July 2011.

[12] Luisa Silva, Grégory Puaux, Michel Vincent, and Patrice Laure. A monolithic finite element approach to compute permeability at microscopic and mesoscopic scales in LCM processes. *International Journal of Material Forming*, 3:619–612, 2010.

[13] Andri Andriyana, Noelle Billon, and Luisa Silva. Mechanical response of a short fiber-reinforced thermoplastic: Experimental investigation and continuum mechanical modeling. *European Journal of Mechanics A/Solids*, 29(6):1065–1077, 2010.

[14] Andri Andriyana, Noelle Billon, and Luisa Silva. Viscoelastic Characterization of Short Fibres Reinforced Thermoplastic in Tension and Shearing; Applied Mechanics and Materials. *Applied Mechanics and Materials*, 24-25:419–423, 2010.

Submitted/in preparation

[15] Luisa Silva, Thierry Coupez, Hugues Digonnet, and Patrice Laure. 3D numerical simulation of thermal exchanges in composites. In Edited by N. Boyard, editor, *Thermal processes in composites - TCOP*. ISTE-Wiley, 2015.

[16] Luisa Silva. Polymer Injection Molding: 3D Modeling. In Edited by S. Hashmi, editor, *Encyclopedia of Materials: Science and Technology*. Elsevier, 2015.

[17] Luisa Silva, Hugues Digonnet, Jia-Xin Zhao, and Thierry Coupez. Computations on urban environments using anisotropic adaptation and implicit functions. *Journal of Computational Physics*, 2015.

[18] Jia-Xin Zhao, Thierry Coupez, Etienne Decencière, and Luisa Silva. Multiphase mesh generation from 3d image by anisotropic mesh adaptation and redistancing equation. *Journal of Computational Physics*, 2015.

[19] Hugues Digonnet, Thierry Coupez, Patrice Laure, and Luisa Silva. Massively parallel mesh adaptation. *International Journal of High Performance Computing Applications*, 2015.

[20] Luisa Silva, Thierry Coupez, and Hugues Digonnet. Massively parallel flow computations using anisotropic adaptive meshing and multigrid solvers. *International Journal of Advances in Engineering Software*, 2015.

[21] Minh-Quan Thai, Fabrice Schmidt, Gilles Dusserre, Arthur Cantarel, and Luisa Silva. 3d bem-based models to simulate free surface flow at microscale in lcm processes. *Polymer Composites*, 2015.

[22] Patrice Laure, Edith Peuvrel-Disdier, Rudy Valette, and Luisa Silva. Direct numerical computation of fiber orientation in a shear flow for non-newtonian fluids. *Composites Part A*, 2015.

International conferences

Invited and keynotes

[23] Houssem Miled, Luisa Silva, Thierry Coupez et Jean-François Agassant : Injection moulding of fibre reinforced thermoplastics: integration of fibre orientation and mechanical properties computations. *In Polymer Processing Society 27*, Marrakech, 2011.

[24] Luisa Silva, Grégory Puaux, Michel Vincent et Patrice Laure : A monolithic finite element approach to compute permeability at microscopic and mesoscopic scales in LCM processes. *In ESAFORM 13*, Brescia, 2010.

[25] Séverine Boyer, Luisa Silva, Mounia Gicquel, Samuel Devisme et Jean-Marc Chenot, Jean-Loup Haudin : The determination of the relevant parameters of polymer crystallization for process modelling. *In Polymer Processing Society 24*, Salerno, 2008.

[26] Julia Smirnova, Luisa Silva, Bernard Monasse, Jean-Marc Haudin et Jean-Loup Chenot : Modeling of anisothermal dynamic crystallization in injection molding. *In ESAFORM 8*, Cluj-Napoca, 2005.

[27] Luisa Silva, Cyril Gruau, Jean-François Agassant, Thierry Coupez et Andrès Rodriguez Villa : Advanced finite element modelling for 3D injection moulding. *In Polymer Processing Society 20*, Akron, 2004.

[28] Julia Smirnova, Luisa Silva, Bernard Monasse, Jean-Marc Haudin et Jean-Loup Chenot : Modelling of cristallization in injection moulding. A 3D approach with a general formulation of the kinetic law. *In ESAFORM 7*, Trondheim, 2004.

[29] Luisa Silva, Rudy Valette et Thierry Coupez : Viscoelastic compressible modeling of 3D filling and post-filling of complex industrial parts. *In ESAFORM 6*, Salerno, 2003.

Oral

[30] Luis Fernando Salazar Betancourt, Patrice Laure, Luisa Silva, and Mustafa Sager. Numerical implementation of a rheology model for fiber-reinforced composite and viscous layer approach for friction study. In *Key Engineering Materials*, volume 651, pages 848–854, 2015.

[31] Thierry Coupez, Luisa Silva, and Hugues Digonnet. Massively parallel mesh adaptation for multiphase flows. In *27th International Conference on Parallel Computational Fluid Dynamics, ParCFD 2015*, 2015.

[32] Hugues Digonnet, Thierry Coupez, and Luisa Silva. Using full tier0 supercomputers for fem computations with adaptive meshing. In *The Fourth International Conference on Parallel, Distributed, Grid and Cloud Computing for Engineering, ParENG 2015*, 2015.

[33] Jérôme Claracq, Guillaume François, Laurence Ville, and Luisa Silva. Advanced simulation of pu mould filling. In *ICMCSF: International Conference on Mechanics of Complex Solids and Fluids, ICMCSF 2015*, 2015.

[34] Luisa Silva, Hugues Digonnet, and Thierry Coupez. Flow computations on urban environments using anisotropic adaptation and implicit functions. In *7th International Conference on Adaptive Modeling and Simulation, ADMOS 2015*. International Center for Numerical Methods in Engineering, 2015.

[35] Hugues Digonnet, Luisa Silva, and Thierry Coupez. Prace project results : Performing calculations on full tier0 supercomputers with mesh adaptation and fem very large linear systems. In *7th International Conference on Adaptive Modeling and Simulation, ADMOS 2015*. International Center for Numerical Methods in Engineering, 2015.

[36] Jia-Xin Zhao, Thierry Coupez, and Luisa Silva. Numerical simulation on multiphase microstructures obtained from 3d imaging. In *7th International Conference on Adaptive Modeling and Simulation, ADMOS 2015*. International Center for Numerical Methods in Engineering, 2015.

[37] Thierry Coupez, Luisa Silva, and Hugues Digonnet. Adaptive anisotropic meshing and implicit boundary for general multiphase computation. In *FEF 2015*, 2015.

[38] L Silva, JX Zhao, P Laure, and T Coupez. Direct generation of finite element meshes of composite micro and mesostructure from 3d imaging: Application to flow computation. In *FPCM-12*, 2014.

[39] P Laure, L Silva, R Valette, and E Peuvrel-Disdier. Direct numerical orientation of fiber in shear flow for complex fluids. In *FPCM-12*, 2014.

[40] C Sarkis[1], L Silva, and Ch-A Gandin. 2d and 3d thermal dendritic solidification modeling using the phase-field method and automatic adaptive meshing. 2014.

[41] Guillaume François, Laurence Ville, Luisa Silva, and Michel Vincent. Multi criteria adaptive meshing for polymers processing in rem3d®. In *Key Engineering Materials*, volume 554, pages 1649–1657, 2013.

[42] Hugues Digonnet, Luisa Silva, and Thierry Coupez. Massively parallel computation on anisotropic meshes. In *6th International Conference on Adaptive Modeling and Simulation, ADMOS 2013*, pages Pages–199. International Center for Numerical Methods in Engineering, 2013.

[43] Jean-François Zaragoci, Luisa Silva, Michel Bellet, and Charles-André Gandin. Numerical tensile test on a mushy zone sample. *IOP Conference Series: Materials Science and Engineering*, 33(1):012054, 2012.

[44] Vu-Thu Pham, Luisa Silva, Hugues Digonnet, Christelle Combeaud, Noelle Billon, and Thierry Coupez. Modelling viscoelastic behaviour of polymer by a mixed velocity, displacement formulationŮnumerical and experimental results. In *THE 14TH INTERNATIONAL ESAFORM CONFERENCE ON MATERIAL FORMING: ESAFORM 2011*, volume 1353, pages 785–790. AIP Publishing, 2011.

[45] Nadine KOSSEIFI, Elie HACHEM, Luisa SILVA, Elisabeth MASSONI, and Thierry COUPEZ. 3d numerical solution for quenching process using an adaptative multiphase flows. *20ème Congrès Français de Mécanique, 28 août/2 sept. 2011-25044 Besançon, France (FR)*, 2011.

[46] Patrice Laure, Grégory Puaux, Luisa Silva, and Michel Vincent. Permeability computation on a rev with an immersed finite element method. In *THE 14TH INTERNATIONAL ESAFORM CONFERENCE ON MATERIAL FORMING: ESAFORM 2011*, volume 1353, pages 978–983. AIP Publishing, 2011.

[47] Karim HITTI, Thierry COUPEZ, Luisa SILVA, and Marc BERNACKI. Generation of cellular representative elementary volumes (revs) in a finite element (fe) context-application to foam compression. *20ème Congrès Français de Mécanique, 28 août/2 sept. 2011-25044 Besançon, France (FR)*, 2011.

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