► CURRICULUM VITAE

GUY COURBEBAISSE
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► *Current position*

- **Senior Project Leader - Scientific Researcher**
- Domains of expertise : **Signal Processing, Image Processing, Physics, Modelling**
- INSA Lyon – CREATIS Laboratory - **http://www.creatis.insa-lyon.fr/~courbebaisse**

► *Academic degrees and qualification*

- **Qualification for supervising Research - HDR** of Saint-Étienne University - 2002.
- **Ph.D. 'Signal Processing'** of Grenoble Institute of Technology – INPG - 1994.
- **Master Engineer 'Physics & Electronics'** ICPI - ESCPE** - Lyon - 1990.

► *Key events*

- 2011-2014: **PI, Coordinator, Project Leader of the ICT VPH EU Project 'Thrombus'.**
- 2007, 2011 & 2016**: Qualification in functions of Professor of University** (ICT)
- June 2010**: Visiting Professor at the University of Los Andes - Bogota (ICT).**
- Since 2008: **Scientific Expert (French NRA, FNRS, H2020, COST, Eureka, NIH, NSF, BMBF).**
- 2006**: Expert for the domain committee of the European Project 'COST MPNS*'.**
- 2006-2016: **Membership of the jury for the recruitment of Research Engineers.**
- May 2006: **Visiting Professor at the Polytechnic University of Bucharest.**
- 2005-2010: **COST P19 MC's member:** 'Multiscale Modelling of Materials'.
- June-December 2005: **Visiting Professor at EPFL** – Laboratory of Numerical Engineering
- 1997-2004**: Founding Membership of the Laboratory R2P-ERT 10** (ESP-PEP*)**.**
- 1994: **Qualification in functions of Associate Professor** (Math, Data processing).
- 1984-2016: **Teaching more than 5000 hours courses** (Informatics, math, signal, physics…).

►*Ph.D. and HDR topics*

- **11th June 2002: HDR :** Signal Processing and Image Processing dedicated to the analysis and modelling of complex phenomena, **HDR**, **University Jean Monnet St-Etienne, (Jury** : Pr. J.L.Lacoume '61', Pr. B.Torrésani '61', Pr. M.Deville '60', Pr. Y.Meyer '25', Pr.P.Bourgin '60', Pr.D.Jeulin '61', Pr. M.Jourlin '61', Pr. G.Flouzat '61').
- **30th June 1994: Ph.D. Thesis:** Time-Frequency Distributions and Time-Scale Distributions - Contributions to the field of thermal machines**, Grenobble Institute of Technology (INPG), (Jury:** J.L.Lacoume '61', B. Torrésani '61', A.Grossmann 'Physics', Y.Meyer '25', B.Escudié '61', A.Haupais '60').

► *Membership of scientific organizations*

- **ELyT Lab (LIA CNRS), GDR ICT Health**, **ICS (2014), SFNR (2014).**

►*Journals review*

- **EMBC IEEE**, **JME**, **CAF** (Elsevier), **IMACS** 2000, **EUSIPCO** 2008, **TI** 2009…

ESP* : High Graduate Polymer Processing Eng. School, PEP* : European Polymer Processing Institute, ESCPE** : High Graduate Eng. School

► EMPLOYMENT HISTORY

Since 2005: INSA Lyon–CREATIS [CNRS/INSERM/UCBL/INSA] Lyon.

Domain: Medical Imaging – Signal Processing and Image Processing - Modelling of life.

Research focus : Intracranial Aneurysms Segmentation, inverse problem for the estimation of the mechanical properties of blood vessels (Matlab), Numerical Simulation 'Lattice Boltzmann Method' (C++, HPC, GPU), Time-Frequency distributions, Wavelet transform.

Position: PI and Scientific Coordinator of European Projects such as Thrombus (FP7-ICT STREP) with a funding of 3 M€, head of transfer (SNCF, Michelin…), member of the project of the French National Research Agency (ANR - LBSMI) and of the MSCA-ITN projects.

Management: Ph.D. students, Post-Doc, School Engineers and Engineer.

Expert/Teaching: Industrial and academic expert, lecturer (Signal Processing and Image Processing, Optics, statistics and informatics).

June 1995 - Dec. 2004: ESP [Ecole Supérieure de Plasturgie] Oyonnax.

Domain: Polymer Processing - Optimization of injection moulding process.

Research focus: By mathematical morphology and geodesic distance implementation, modelling of a free surface propagation process, Numerical Simulation (C++, Matlab, real time computation), instrumentation (Instantaneous Thermal Flow sensors) for moulds, and the associated Signal Processing (Assembly language, HP VEE, Labview).

Position : Computer Science Project Manager, Designer of the informatics network and computer centre at ESP, ESP PI of the RNTL project 'OPENPLAST' «Grid Computing for Polymer Processing» - Optimization-Numerical Simulation of the injection moulding process.

Management: 1 Associate Professor, 2 Ph.D. and 4 Master Engineers.

Expert/Teaching: Industrial expert and master & high graduate engineer school vacations at ESP, ISTASE and Saint-Etienne University: Signal Processing, Applied Mathematics…

▫ 1990-1995: CRMT [Centre de Recherche en Machine Thermique] SA Lyon.

Domain: Thermal engines, spark ignition engines, gasoil motors, Combustion, Injection.

Research focus : By optical system, Signal Processing and Image Processing characterization of the turbulence within gasoil motors and associated injection pumps (Laser Doppler Anemometry, High Speed Cinematography, Schieleren system, Light-Speed-C, embedded system for cars) - Collaboration : Renault SA.

Position: Project Leader for car manufacturer's projects.

Management: 4 masters engineers.

Expert & transfer: Industrial expertise on Sensors and Signal Processing (Renault, PSA, Aluteam St-Jean), member of the European Polymer Processing Centre (Pôle Européen de Plasturgie - 1992), PI of the GIE 'MOTUS' [RVI, METRAVIB, CRMT] (1994).

▫ 1981-1989: THOMSON-CSF-BEA –'Counter-Measure' domain - Paris

Domain: Electronic airborne systems (Super High frequency, antennas, microprocessors and assembling language (Intel, Motorola,).

Research focus: Design of prototypes: real time large bandwidth electronic receiver.

Position: Coordinator of 'Flight Tests', Teaching (in English language) 'Jammers of Radars'.

Expert: Supervisor for Technical Assistance for Thomson CSF in the Middle East - Jammers (Mirage F1D and Mirage 2000).

► TEACHING

Years	Institutes	Domains	Cycle	Number of hours
1984-1986	Thomson CSF– BEA Company (Paris).	Electronics and Microprocessors, Assembly- language, Microwaves Radar, counter-measure	Undergraduate Graduate courses **(In English).**	**1800 hours**.
1992-1995	ESP of Oyonnax High Graduate Engineer School.	Signal Processing Applied Mathematics /MATLAB	Graduate courses	**556 hours.**
1995-2004	ESP of Oyonnax High Graduate Engineer School.	Signal Processing Applied Mathematics Numerical Simulation Statistics, Optics, Electronics, Physics. /C++, MATLAB	Graduate courses	**1540 hours.**
2001-2005	University of Saint Etienne	Signal Processing-Time-Frequency Distributions	Postgraduate courses	**220 hours.**
2001-2005	ISTASE High Graduate Engineer School	Signal Processing Image Processing.	Graduate courses	**380 hours.**
2005-2009	University of Saint Etienne University of Lyon INSACAST - INSAVALOR IUT B Villeurbanne ESCPE Lyon High Graduate Engineer School	Signal Processing Image Processing Optics Applied Mathematics Physics Statistics	Undergraduate Graduate Postgraduate courses Continuous training	**294 hours**
2009-2016	INSACAST - INSAVALOR IUT B Villeurbanne High Graduate Engineer Schools: ESCPE Lyon and INSA Lyon	Signal Processing Image Processing Electronics Applied Mathematics Numerical simulation Physics	Undergraduate Graduate courses Postgraduate courses Continuous training	**360 hours**
Total : 33 years				**Total: + 5000 hours.**

► RESEARCH INTERESTS

◘ *Domains:*

1. **Signal Processing:** Time-Frequency Distributions and Time-Scale Distributions (Choï-Willams, Unterberger, Phase and Frequency Spectrogram, Frequency Scalogram, Symmetric LIP model – Logarithmic Wavelet).
2. **Image Processing:** Propagation of distances (modified Borgefors), Logarithmic Wavelets Transform (Logarithmic Image Processing), Lattice Boltzmann Method and Segmentation.
3. **Modelling and Numerical Simulation:** Optimization of process and system, Lattice Boltzmann Method (BGK, MTR, Chen) for the Numerical Simulation of complex physical phenomena through a multiscale approach intrinsically matched to the parallel computing and real time computation.

◘ *Successive Domains of Applications*

1. **Thermal engines**

   Analysis and modelling of the turbulence within the injection system of gasoil motors (CRMT-ECL-Renault-SA) by high speed cinematography, Signal Processing and Image Processing dedicated to the optimisation of the combustion.

2. **Polymer processing**

   a. Optimisation of Polymer Injection Moulding Process (ESP-PEP-LTSI-CUI Geneva).

   b. Design of new instantaneous heat flux sensors (CRMT, Soleau envelop 1992): real time algorithm for the computation of heat flux density.

3. **Biomedical - Bioengineering**

   a. Estimation (inverse problem) of the mechanical properties of the blood vessels (non-invasive method) and modelling of the behaviour of blood vessels (EPFL LIN-CUI-CREATIS/Ultrasound imaging) when studying arteriosclerosis.

   b. Analysis of signals obtained by Doppler Ultrasonography technics for the detection of micro embolies (EPFL LTS-ESP).

   c. Prediction of rupture of aneurysms by medical imaging, Image Processing and Numerical Simulation (EPFL, University of Geneva, University of Amsterdam, INSA Lyon).

4. **Turbulence**

   The research on blood vessels and aneurysm behaviours leads to get back on the analysis of the turbulence in particular cases. The collaboration with the LIN lab in EPFL, which performs the modelling of the turbulence in fluid mechanics by the spectral elements method and by LES (Large Eddy Simulation), allows the recording of data and their analysis with advanced signal processing methods.

   By using technics based on the Wavelet transform, the regime is determined and the turbulence is quantified (coefficient of Hölder, spectrum of singularities). All the results are validated by the K41 and KO62 theories.

◘ *Breakthroughs:*

1. **Signal Processing :**
    a. Design of a prototype of large bandwidth receiver adapted to a counter measure system / Assembly-language 6800, 6809, 68000.
    b. Design of an original version of the passive Unterberger Time-Scale distribution / Pascal & C++.
    c. Characterization of the turbulence with the implementation of the Wigner Ville distribution / Light Speed C.
    d. Design of an instantaneous thermal flux sensor adapted for the polymer processing for the detection of the molten polymer progression in a mould and to quantization the thermal flux density in the cavity of a mould / BASIC.
    e. Design of the 3D Phase Spectrogram /parallel computation / C++.
    f. Validation of the model of turbulence and characterization of the turbulence dedicated to the LES numerical simulation by implementing ad hoc Wavelet Transform / MATLAB & C++.

2. **Image Processing:**
    a. Simulation of the propagation of a molten polymer by using concepts of distance propagation in part linked to the results published by Gunnar Aronsson (Maths – Model of Hele Shaw and p-Laplace equation) / C++.
    b. Development of methods for the automatic classification of complex images (Quad tree, Wavelet, Mathematical Morphology…) / MATLAB & C++.
    c. Logarithmic Wavelet for the Industrial and Medical Image Processing / MATLAB & C++.

3. **Modelling and Numerical Simulation:**
    a. Modelling of the propagation of a molten polymer within a mould cavity by implementing a particular version of the Lattice Boltzmann Method: the Chen method / Linux Cpp.
    b. Modelling of blood flow within giant intracranial aneurysms in the framework of a scientific collaboration concerning the numerical simulation of the thrombosis / Lattice Boltzmann method, High Parallel Computing /Linux Cpp.

◘ *Involving in EU research:*

1. EC COST P3 action: Active researcher WP'Simulation of materials' (2002-2004).
2. EC COST P19 action (Materials, Physical and Nanosciences): member of the MC, WP leader for the 'Multi-scale Simulation of Materials' project (2006-2010).
3. PI, Project Leader and Scientific Coordinator of the FP7 ICT STREP project 'THROMBUS' (2011-2014) – http://www.thrombus-vph.eu :
    - Consortium: 12 partners (Europe, US and Japan) I have managed.
    - Budget: funding of 3 million Euros.
    - CNRS team: 16 persons I have recruited.
    - International network in growing (Europe, USA, Colombia, Japan …).
    - 1 patent, transfer of software.
    - Co-organisation of ICS 2014 (Zurich) and SFNR 2014 (SFNR) congresses, scientific publications.

◘ *Involving in French National Research Agency project:*

ANR 2015 - Challenge: Life, health and well-being: LBSMI: *Lattice Boltzmann Simulation from Medical Images* (PI L.Navarro /ENSMSE-CIS): Active researcher on the Lattice Boltzmann method as CREATIS partner (2015-2018).

► EVALUATION EXPERT

Type of Expert

1. FP7 - H2020 – Eureka Eurostars, BMBF and FNRS Scientific Expert (since 2008).
2. Expert for the transatlantic projects ‘neuro-computing’ – NIH-NSF-ANR since 2013.
3. COST P19 European Action - Management Committee member and Expert - Materials, Physical and Nanosciences COST Action.
4. EC COST MPNS (Materials, Physical and Nanosciences) – French Representative at the Domain Committee and Expert (2006 - 2010).
5. ANR Expert (French National Research Agency) projects (2006-2015).
6. Evaluation of Scientific and Industrial projects (since 1991) as ICT expert.
7. Evaluation of Transfer projects (since 2005) as ICT expert.
8. Editorial Board and Reviewer for International Journals (IEEE, Elsevier Journal...).
9. Research engineers evaluation (2006 - 2015).

Specialist Field

1. H2020 → Science → NATURAL SCIENCES → Mathematics → Pure mathematics, Applied mathematics → Numerical analysis and scientific computing.
2. H2020 → Science → NATURAL SCIENCES → Mathematics->Pure mathematics, Applied mathematics → Application of mathematics in sciences.
3. H2020 → Science → NATURAL SCIENCES → Mathematics → Pure mathematics, Applied mathematics → Signal processing.
4. H2020 → Science → NATURAL SCIENCES → Computer and information sciences → Computer sciences, information science and bioinformatics.
5. H2020 → Science → ENGINEERING AND TECHNOLOGY → Materials engineering → Materials engineering.
6. H2020 → Science → ENGINEERING AND TECHNOLOGY → Medical engineering → Medical engineering.
7. H2020- → Science → ENGINEERING AND TECHNOLOGY → Aeronautics → Aeronautics technology domain → Aircraft Avionics, Systems & Equipment AVS.
8. H2020 → Science → MEDICAL AND HEALTH SCIENCES → Medical biotechnology → Biomaterials (as related to medical implants, devices, sensors).
9. H2020 → Business and Innovation → BUSINESS → IPR management → Patents.
10. H2020 → Business and Innovation → INNOVATION → Innovation management → Innovation Management Assessment.

► ADMINISTRATIVE EXPERIENCES

1. 2012-2015: Member of the CREATIS's Unit Council.
2. 2006-2016: Member of the national jury for the recruitment of Research Engineers within the Numerical Engineering domain.
3. Since January 2005: Head of the industrial transfer of CREATIS.
4. 2003-2007: Member of the ISTASE's Executive Committee.
5. 2002-2004: RSSI (Head of Computer Security Systems of the ESP*).
6. 2002-2004: Member of the tender committee of ESP*.
7. 1995-2003: Member of the jury of the contest Engineer of ESP*.
8. 1999-2004: Member of the Scientific Council of ESP*.
9. 1995-1997: Member of the Board of Supervisors of ESP*.
10. 2000-2003: Mounting and submission of research projects RNTL (http://www.telecom.gouv.fr/rntl/).

*ESP: Ecole Supérieure de Plasturgie – High Graduate Polymer Processing Engineer School.

► INTERNATIONAL SCIENTIFIC RECOGNITIONS

1. 2012-2016: Member of the LIA ELyT Lab (International Laboratory) and scientific collaborations with the Tohoku University (Sendai, Japan) - Bioengineering domain.
2. December 2010: Visiting Professor at the Moulay Ismail University (Meknes, Maroc) – Signal Processing lecturer.
3. June 2010: Visiting Professor at the Los Andes University – ECOS program (Bogota, Colombia): FP7 European Project vacations and scientific vacations on the Lattice Boltzmann Method.
4. April 2009: Scientific mission (STSM - COST P19) EPFL (Lausanne, Switzerland) - Laboratory of Numerical Engineering: numerical simulation performed on Pleiades 2 cluster and Blue Gene/L / supercomputer - Blood flow simulation within intracranial aneurysms.
5. July 2009: Scientific mission (STSM - COST P19) EPFL (Lausanne, Switzerland) - Laboratory of Numerical Engineering: numerical simulation performed on Pleiades 2 cluster and Blue Gene/L / supercomputer – Phase and Frequency Spectrograms.
6. December 2009: Short Time Scientific mission 'STSM'- COST P19 – (Geneva, Switzerland) – CUI – Scientific and Parallel Computing Group: numerical simulation on cluster.
7. September 2008: Visiting Professor at the Polytechnic School of Hanoi (Vietnam)- AUF Agence Universitaire de la Francophonie: FP7 European Project vacations and scientific vacations in signal processing.
8. May 2006: Visiting Professor at the Polytechnic University of Bucharest (Romania): Signal Processing and Numerical Simulation vacations.
9. June to December 2005: Visiting Professor EPFL (Lausanne, Switzerland) - Laboratory of Numerical Engineering: Lattice Boltzmann Method and generalized Newtonian Fluids.

► PUBLICATIONS

-1- Refereed journals

1. B.Chopard, D.Ribeiro de Sousa, J.Lätt, L.Mountrakis, F.Dubois, C.Yourassowsky, P. Van Antwerpen, O.Eker, L.Vanamme, D.Perez-Morga, G.Courbebaisse, E.Lorenz, A.Hoekstra, K.Zouaoui Boudjeltia., *A physical description of the adhesion and aggregation of platelets*, Royal Society Open Science, submitted in 2016, 2nd review. IF: 2.89.
2. Y.Wang, L.Navarro, Y.Zhang, E.Kao, Y. Zhu, G. Courbebaisse, "Application of a LBGK-Based 4D Image Segmentation Method to a 4D-CTA Acquisition of an Intracranial Aneurysm Phantom", Computing in Science and Engineering (JCR: COMPUT SCI ENG),, CiSE, IEEE Computer Society, vol. 19, no. 4, accepted, to appear in 2017 (July/August). IF: 1.361
3. O.Malaspinas, A.Turjman, D.Ribeiro de Sousa, G.Garcia-Cardena, M.Raes, T.Nguyen P.-T., Y.Zhang, G.Courbebaisse, C.Lelubre, K.Zouaoui Boudjeltia, B.Chopard, *A spatio-temporal model for spontaneous thrombus formation in cerebral aneurysms*, J. of Theoretical Biology (JCR: J THEOR BIOL), vol. 394, pp. 68-76, 04/2016. IF: 2.116.
4. K.Zouaoui Boudjeltia, D.Ribeiro de Sousa, P.Uzureau, C.Yourassowsky, D.Perez-Morga, G.Courbebaisse, B.Chopard, and F.Dubois, *Quantitative analysis of platelets aggregates in 3D by Digital Holographic Microscopy*, Biomedical Optics Express (JCR: BIOMED OPT EXPRESS), American Society of Optics, vol. 6(9), pp. 3556-3563, 08/2015. IF: 3.65.
5. K.J.Chodzynski, K.Zouaoui Boudjeltia, J.Lalmand, A.Aminian, L.Vanhamme, D.Ribeiro de Sousa, S.Gremmo, L.Bricteux, C.Renotte, G.Courbebaisse, et al., *An in vitro test bench reproducing coronary blood flow signals*, BioMedical Engineering OnLine (JCR: BIOMED ENG ONLINE), vol. 14(1):77, 26 p., 08/2015, IF: 1.43.
6. O.Eker, K.Zouaoui Boudjeltia, R.A.Corredor Jerez, E.Lebars, M.Sanchez, A.Bonafé, V.Costalat, and G.Courbebaisse, *MR derived volumetric flow rate waveforms of internal carotid artery in patients treated for unruptured intracranial aneurysms by flow diversion technique*, Journal of Cerebral Blood Flow & Metabolism (JCR: J CEREBR BLOOD F MET), doi:10.1038/jcbfm.2015.176, 08/2015, IF: 5.41.
7. D.Ribeiro de Sousa, C.Vallecilla, K.J.Chodzynski, R.A.Corredor Jerez, O.Malaspinas, O.Eker, R.Ouared, L.Vanhamme, A.Legrand, B.Chopard, G.Courbebaisse and K.Zouaoui Boudjeltia, *Determination of a shear rate threshold for thrombus formation in intracranial aneurysms*, JNIS 'J. of NeuroInterventional Surgery' (JCR: J NEUROINTERV SURG), doi:10.1136/neurintsurg-2015-011737, 07/2015,.IF: 2.77.
8. B.Gory, M.Sigovan, C.Vallecilla, G.Courbebaisse, and F. Turjman, *High-Resolution MRI Visualization of Aneurysmal Thrombosis after Flow Diverter Stent Placement*, Journal of neuroimaging (JCR: J NEUROIMAGING): official journal of the American Society of Neuroimaging, vol. 25(2), pp. 310–311, 04/2015, IF: 3.36.
9. J.Daher, M.Martin, A.Rousseau, V.Nuyens, H.Fayyad-Kazan, P.Van Antwerpen, G.Courbebaisse, Ph.Martinet, B.Badran, F.Dequiedt, K.Zouaoui Boudjeltia and L.Vanhamme, *Myeloperoxidase oxidized LDL interferes with endothelial cell motility through miR-22 and Heme Oxygenase 1 induction: possible involvement in re-endothelialisation of vascular injuries*, Mediators of Inflammation Journal (JCR: MEDIAT INFLAMM), vol. 2014, ID 134635, 14 p., doi:10.1155/2014/134635, 11/2014, IF: 2.4.
10. Y.Chen, L.Navarro, Y.Wang, and G.Courbebaisse, *Segmentation of the Thrombus of Giant Intracranial Aneurysms from CT Angiography Scans with Lattice Boltzmann*

Method, Medical Image Analysis (JCR: MED IMAGE ANAL), Elsevier Ed., vol. 18(1), pp. 1-8, 01/2014, IF: 4.78.

11. L.Navarro, G.Deng, and G.Courbebaisse, The symmetric logarithmic image processing model, Digital Signal Processing (JCR: DIGIT SIGNAL PROCESS), vol. 23(5), pp. 1337–1343, 09/2013, IF: 1.92.
12. Y.Wang, Y.M.Zhu, G.Courbebaisse, and L.Diing, Detection and Extraction of Feature Points in Robot Vision Using Lattice Boltzmann Method, Science Technology and Engineering, vol. 11(32), pp. 8045-8048, 2011.
13. G.Courbebaisse, R.Bouffanais, L.Navarro, E.Leriche, and M.O.Deville, Time-Scale *joint representation of DNS and LES numerical data*, Computers & Fluids (JCR: COMPUT FLUIDS), 43(1), pp.38-45, 04/2011, IF: 1.27.
14. L.Navarro, G.Courbebaisse and J.C.Pinoli, *Continuous frequency and phase spectrograms: A study of their 2D and 3D capabilities – Application to musical signal analysis*, Journal of Zhejiang University Science A, 9(2), pp.199-206, 2008, IF: 0.882.
15. R.Ouared, B.Chopard, B.Stahl, D.A.Rüfenacht, H.Yilmaz and G.Courbebaisse, *Thrombosis Modelling in Intracranial Aneurysms: a Lattice Boltzmann Numerical Algorithm*, Computer Physics Communications Elsevier Journal, vol. 179, no. 1-3, pp.128-131, 2008. IF: 2.12.
16. O.Malaspinas, G.Courbebaisse and M.Deville, *Simulation of a generalized Newtonian fluid by the Lattice Boltzmann Method*, Modern Physics C, vol. 18, no. 12, pp.1939-1949, 2007. IF: 1.22.
17. S.Balocco, O.Basset, G.Courbebaisse, E.Boni, P.Tortoli and C.Cachard, *Non-invasive arterial Young modulus evaluation by ultrasound Doppler measurement*, IEEE transactions on Ultrasonics, ferroelectrics, and frequency control, 54(6), pp.1265-1271, 2007. IF: 1.8.
18. S.Balocco, O.Basset, G.Courbebaisse, P.Delachartre, P.Tortoli and C.Cachard, *3D dynamical ultrasonic model of pulsating vessel walls*, Ultrasonics Journal, Elsevier Ed., 44: S.1, pp.e179-e183, May 2006. IF: 1.223.
19. G.Courbebaisse, *Numerical simulation of injection moulding process and the pre-modelling concept*, Computational Material Sciences Journal, Elsevier Ed., Vol. 34, Issue 4, pp.397-405, 2005. IF: 1.522.
20. G.Courbebaisse and D.Garcia, *Shape analysis and injection moulding optimization*, Computational Materials Sciences J., Elsevier Ed., V. 25, Issue 4, pp.547-553, 2002. IF: 1.522.
21. D.Garcia, G.Courbebaisse and M.Jourlin, *Image analysis dedicated to polymer injection moulding*, Image Analysis and Stereology J., vol. 20, pp.1-6, 2001. IF: 0.971.
22. F.Trunde, G.Courbebaisse and M.Jourlin, *Logarithmic wavelet transforms*, Image Analysis and Stereology Journal, vol. 20, pp.42-47, 2001. IF: 0.971.
23. M.Jourlin, G.Courbebaisse and D.Garcia, *Polymer Moulding Simulation: A Mathematical Imaging Approach Based on Propagation of Discrete Distances*, Computational Materials Sciences Journal, Elsevier Ed., Vol.18, Issue 1, pp.19-23, 2000. IF: 1.522.
24. G.Courbebaisse, *Study of heterogeneity in a combustion chamber for a spark ignition engine*, Entropy Journal, CNRS Ed., N°222, pp.62-67, 1999.
25. F.Darsonville, P.Michoud, G.Courbebaisse, M.Jourlin, R.Favier and J.C.Charpentier, *Polymer Moulding Simulation: A Morphological Based 2D and 3D Model*, Entropy Journal, CNRS Ed., N°206, pp.61-64, 1997.

26. G.Courbebaisse, *Determination of the law of jet penetration of an injector by Time-Frequency Analysis*, French revue of Signal Processing, GRETSI/CNRS Ed., vol. 12 (5), pp.509-518, 1995. IF: 0.103.
27. G.Courbebaisse, B.Escudié and Th.Paul, *Time-Scale energetic distribution*, Wavelets: Theory, Algorithms and Applications, Academic Press Ed., pp.311-318, 1994.
28. G.Courbebaisse, B.Escudié, Ph.Guillemain, R.Kronland Martinet, *Signal Modelisation by time-frequency distributions and time-scale distributions*, Journal of Physics IV, vol.4, pp.C5-1315 _C5-1318, 1994.
29. G.Courbebaisse, B.Escudié and J.Blanc, *Contribution of the Wigner-Ville time-frequency representation to estimate the mechanical and the thermic engine parameters on a vehicle*, Entropy Journal, CNRS Ed., N°183, pp.23-31, 1994.
30. G.Courbebaisse, *Time-Frequency distribution and image processing - An application to the combustion field*, Acta Stereologica Journal, N°13/1, pp.221-226, 1994.

-2- Book chapters

1. L.Navarro, G.Courbebaisse, and M.Jourlin, *Logarithmic Wavelets*, Advances in Imaging and Electron Physics (JCR: ADV IMAG ELECT PHYS), Academic Press, vol. 183, pp.41-98, doi:10.1016/B978-0-12-800265-0.00002-3, 2014.
2. G.Courbebaisse and M.Jourlin, *Contribution of mathematical morphology to the modelling of injection moulding*, ASME Press, Advance in Polymer Processing and Rheology, Ch.12, D.Siginers Ed., 50 pg., 2006.
3. G.Courbebaisse, Livre Blanc de l'optique française, Chapitre: *Procédés de fabrication – Composants optiques et polymères*, Supervisor: Prof. JP.Goure (TSI UMR CNRS 5516), 25 pg. 2004.
4. J.Y.Charmeau, G.Courbebaisse et al, *Influence des paramètres de transformation: analyse des structures par microscopie optique et analyse d'images par opérateurs morphologiques*, Imagerie des polymères, G'Sell & B.Monasse Ed., 8 pg. 2003.

-3- Peer reviewed conference proceedings:

1. L.Navarro, G.Courbebaisse, and Ch.Roux, *Une redéfinition des conditions aux limites de la méthode Lattice Boltzmann pour le débruitage d'images*, GRETSI 2015, Lyon (France), September 2015.
2. L.Navarro, M.Jourlin, and G.Courbebaisse, *Logarithmic Multiresolution Wavelet Transform*, ICIP 2015, IEEE International Conference on Image Processing, Quebec City (Canada), September 2015.
3. L.Navarro, G.Courbebaisse, and Ch.Roux, *La méthode Lattice Boltzmann en traitement d'image*, TAIMA 2015, Traitement et Analyse de l'Information - Méthodes et Applications, Hammamet (Tunisia), May 2015.
4. Y.Zhang, O.Malaspinas, J.Latt, K.Zouaoui Boudjeltia, B.Chopard, and G.Courbebaisse, *A New Thrombosis Formation Model*, ESMC 2015, European Solid Mechanics Conference, Modelling and Simulation of Aneurysms Mechanisms, Madrid (Spain) European Mechanics Society, July 2015.
5. Y.Zhang, O.Malaspinas, J.Latt, B.Chopard, and G.Courbebaisse, *Study of the correlation between the porosity configuration and the flow diverter efficiency using lattice Boltzmann method*, DSFD 2015, 24th International Conference on Discrete Simulation of Fluid Dynamics, Edinburgh (Scotland), July 2015.

6. F.Galluzzo, N.Speciale, G.Courbebaisse, and O.Bernard, *A rigorous and efficient GPU implementation of level-set sparse field algorithm*, IEEE International Conference on Image Processing, Orlando (Florida), pp.1705-1708 , September 2012.
7. L.Flórez-Valencia, E.E.Dávila Serrano, J.G. Riveros Reyes, O.Bernard, J.Latt, O.Malaspinas, B.Chopard, G.Courbebaisse, and M.Orkisz, *Virtual deployment of pipeline flow diverters in cerebral vessels with aneurysms to understand thrombosis*, MICCAI-Workshop on Computer Assisted Stenting, Nice (France), pp.49-56 (electronic proc.), October 2012.
8. Y.Wang, G.Courbebaisse, and Y.M.Zhu, *Segmentation of Giant Cerebral Aneurysm Using a Multilevel Object Detection Scheme Based on Lattice Boltzmann Method*, IEEE International Conference on Signal Processing, Communications and Computing, vol. 3799, XI'AN (China), IEEE, September 2011.
9. G.Courbebaisse, R.Bouffanais, L.Navarro and M.O.Deville, *Multiscale comparison of the turbulent DNS data and LES data of the lid-driven cavity flow*, High Accuracy Flow Simulations, EPFL Lausanne (Switzerland), October 2010.
10. R.Bouffanais, G.Courbebaisse, L.Navarro and M.O.Deville, *Continuous wavelet transform of LES data*, Turbulence and Interactions TI 2009, Fort de France, Martinique (France), 2009.
11. L.Navarro, G.Courbebaisse, and J.C.Pinoli, *Reassigned Three Dimentional Phase Spectrogram and Ground Reaction Forces*, European Signal Processing Conference (EUSIPCO 2008), Lausanne (Switzerland), 2008.
12. S.Balocco, O.Basset, G. Courbebaisse, E.Boni, A.Frangi, P.Tortoli, and C.Cachard, *Estimation of visco-elastic properties of the vascular wall using simultaneous velocity and displacement measurements with Doppler Ultrasound: in vitro evaluation*. In International Congress on Ultrasonics, Vienna (Austria), April 2007.
13. S.Balocco, O.Basset, G.Courbebaisse, Ph.Delachartre, P.Tortoli, and Ch.Cachard, *3D dynamical ultrasonic model of pulsating wall vessels*, Ultrasonics International (UI'05) and World Congress on Ultrasonics (WCU) , Beijing (China), 2005.
14. S.Balocco, O.Basset, G.Courbebaisse, E.Boni, P.Tortoli and Ch.Cachard, *Non invasive arterial Young modulus evaluationt*, IEEE International Ultrasonics Symposium, IEEE International Ultrasonics Symposium, Vancouver (Canada), pp.1337-1340, Oct. 2006.
15. G.Courbebaisse, O.Malaspinas and M.O.Deville, *An emergent technique towards the numerical simulation of complex phenomena*, 15th Discrete Simulation of Fluid Dynamics (DSFD2006), University of Geneva (Switzerland), August 2006.
16. G.Courbebaisse, *Contribution to the Measurement of Turbulent Structures in Internal Combustion Chamber*, International Conference on Turbulences and Interactions (TI2006), Porquerolles (France), May 2006.
17. S.Balocco, O.Basset, G.Courbebaisse, Ph.Delachartre, P.Tortoli, Ch.Cachard, *3D dynamical ultrasonic model of pulsating wall vessels* WCU/UI'05, Beijing (China), MoPpm1-01, 2005.
18. S.Balocco, O.Basset, G.Bambi, G.Courbebaisse, P.Tortoli, and Ch.Cachard, *Fluid-dynamic model of blood vessels with stenosis. Influence of flow variation and elasticity of obstacles*, FluVisu 11, Lyon (France), 2005.
19. J.Latt, G.Courbebaisse, B.Chopard, J.L.Falcone, *Lattice Boltzmann modeling of injection molding process*, Cellular Automata for Research and Industry 2004, LNCS 3305, Springer-Verlag Ed., Amsterdam (Nederland), pp.345-354, 2004.

20. G.Courbebaisse, D.Garcia, P.Bourgin, *A way towards optimization of injection molding*, 4th ASME (American Society of Mechanical Engineer), JSME Joint Fluid Engineering Conference, Hawaii (USA), FEDSM2003-45763, 2003.
21. G.Courbebaisse, D.Garcia, P.Bourgin and M.Jourlin, *A first step towards optimisation of injection molding*, PPS (Polymer Processing Society), Guimarães (Portugal), Injection Moulding and Moulds, 109, 16 pg., 2002.
22. F.Trunde, G.Courbebaisse and M.Jourlin, *Logarithmic Wavelet Transform*, Proc. 8th ECS (Electronics Computer System) and Image Analysis and Stereology, Bordeaux (France), pp.293-298, 2001.
23. D.Garcia, G.Courbebaisse and M.Jourlin, *Image analysis dedicated to polymer injection molding*, Proc. 8th ECS (Electronics Computer System) and Image Analysis and Stereology, Bordeaux (France), pp.42-47, 2001.
24. G.Courbebaisse, *Wigner-Ville distribution as a tool for extracting pertinent information from complex phenomena*, in Proc. ACFD (Applied Computational Fluid Dynamic), Beijing (China), pp.690-697, 2000.
25. D.Garcia, G.Courbebaisse and M.Jourlin, *An investigation of mathematical imaging toward simulation of polymer injection molding*, in proc. 16th IMACS 2000 World Cong., Session:"Mathematical Imaging as a Tool for Modeling and Simulation", Lausanne (Switzerland), IMACS (International Association for Mathematics and Computers in Simulation), 2000.
26. G.Courbebaisse and J.Balcaen, *Dust Shells Analysis of the Comet Hale Bopp by Bi-orthogonal Wavelet Transform*, IASTED SIP, New Orleans (USA), pp.359-362, 1997.
27. G.Courbebaisse and Ch.Ducottet, *Time Frequency and Time Scale Distributions Applied to the Measurement of Turbulent Structures*, ASME (American Society of Mechanical Engineer) -FED, San Diego (USA), FED-vol.239, no.4, pp.181-188, 1996.
28. G.Courbebaisse, *Time frequency distribution and turbulence*, in proc. IEEE Non-linear Signal and Image processing, Halkidiki (Greece), Vol. 1, pp.424-427, 1995.
29. G.Courbebaisse, *Time-Frequency and Time-Scale Analysis - Application to the polymer processing*, Contribution to Measurement, PEP-SFIP, Bellignat (France), 1995, pp.30-37, 1995.
30. G.Courbebaisse and Ch.Roche, *Thermal flux sensors and Polymer processing*, proc. Contribution to measurement, PEP-SFIP, Bellignat (France), pp.15-22, 1995.
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33. G.Courbebaisse, B.Escudié, *Asymptotic Signals and Bilinear Time-Scale Representation, Application to Acoustic Waves Radiated by High Speed Train*, COST#229 WG 1 & 2 second workshops, Vigo (Spain), pp.318-325, 1993.
34. B.Escudié, G.Courbebaisse and A.Grossmann, *Physical interpretation of bilinear time-frequency representations and bilinear time-scale representations*, 14th Coll. GRETSI on the Signal Processing and Image Processing, Juan les Pins (France), pp.37-40, 1993.

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-4- Conferences with abstract:

1. G.Courbebaisse, Y.Zhang, B.Chopard, M.Ohta, L.Florez, Investigation of Porosity Effect on Stent Flow Diverter Efficiency in Intracranial Aneurysms, ICFD 2016, Thirteenth International Conference on Flow Dynamics Sendai (Japan), October 2016.
2. G.Courbebaisse, Y.Zhang, K.Zouaoui Boudjeltia, and B.Chopard, *Blood Velocity Impact on the Modelling of Thrombus within an Intracranial Aneurysm*, ICFD 2015, Twelfth International Conference on Flow Dynamics, Sendai (Japan), Nov. 2015.
3. G.Courbebaisse, *Virtual Interactive Stent Flow Diverter Deployement*, Paris (France), SFNR 2015, 42th Congress of the French Society of Neuroradiology, April 2015.
4. J.G.Riveros Reyes, L.Flórez-Valencia, R.A.Corredor Jerez and G.Courbebaisse, *Virtual Stent Deployment*, ICFD 2014 (Eleventh International Conference on Flow Dynamics), Sendai (Japan), 8–10 October 2014.
5. C.Vallecilla, Y.Chen, M.Kuze, M.Ohta and G.Courbebaisse, *Flow Analysis for Coiled Intracranial Aneurysms*, ICFD 2013 (Tenth International Conference on Flow Dynamics), Sendai (Japan), 25–27 November 2013.
6. G.Courbebaisse, *3D Phase Spectrogram*, 31th ISS (International Society of Stereology), Ecole des Mines de Paris (France), February 2008.
7. G.Courbebaisse, *Quad-Tree and automatic ROI computation*, 30th ISS' day (International Society of Stereology), Ecole des Mines de Paris (France), Feb. 2007.
8. G.Courbebaisse, *Entre Squelette et distance géodésique*, 28th ISS' day (International Society of Stereology), Ecole des Mines de Paris (France), February 2005.
9. G.Courbebaisse, *Sensors for Molds*, Scientific and Technical Day: The breakthrough in the polymer processing, CFP, Lyon (France), June 2004.
10. G.Courbebaisse, *Time-Frequency representation of solid and gaseous emboles*, 27th ISS (International Society of Stereology), Ecole des Mines de Paris (France), Feb. 2004.
11. G.Courbebaisse, *Modeling of the polymer injection molding*, Entretiens J. Cartier, Saint Etienne (France), 1st December 2003.
12. G.Courbebaisse, *Time-Frequency images and Interference terms*, 26th ISS (International Society of Stereology), Ecole des Mines de Paris (France), Feb. 2003.
13. G.Courbebaisse, *Radar and Jammer (Counter-measure systems)*, Conf. ISTASE, St-Etienne (France), February 2002.
14. G.Courbebaisse, *Optimisation of the injection molding process*, 25th ISS (International Society of Stereology), Ecole des Mines de Paris (France), 7th Feb. 2002.
15. G.Courbebaisse, *Time-Frequency distribution and Image processing in the time-frequency space*, 24th ISS day, Ecole des Mines de Paris (France), 8th February 2001.
16. G.Courbebaisse and D.Garcia, *Stereological transformations dedicated to the optimisation of polymer injection molding*, COST P3, General Meeting, Madrid (Spain), 26th September, 2001.

17. G.Courbebaisse and D.Garcia, *An Investigation of Mathematical Imaging toward Simulation of the Polymer Injection Molding process: new advances*, COST P3, WG5: Continuum Structure Properties, Krakow (Poland), 15th March 2001.
18. G.Courbebaisse, *Competitive Intelligence Management*, Medirama'00 conference, EPFL, Lausanne (Switzerland), 27th June 2000.
19. G.Courbebaisse, *An Investigation of Mathematical Imaging towards Simulation of Polymer Injection Molding: new advances*, COST P3, Working Group 5: Continuum Structure Properties, Brussels (Belgium), 31th March 2000.
20. G.Courbebaisse, *Polymer Molding Simulation: Mathematical Imaging Approach*, COST P3-VTT, Working Group 5: Continuum Structure Properties, Helsinki (Finland), 10th September 1999.
21. G.Courbebaisse, *Thermal flow sensors and Polymer processing*, Plastirama'98, Yverdon (Switzerland), 2nd December 1998.
22. G.Courbebaisse, *Image Processing: A tool for the plastic engineer*, Plastirama'97, Yverdon (Switzerland), 9th October 1997.
23. G.Courbebaisse, *Image analysis: A tool for the polymer processing – Infrared Thermography - Photoelasticimetry – Simulation of the mold filling*, International Forum for Polymer Processing, Oyonnax (France), 18th June 1997.
24. G.Courbebaisse, *Hölder exponent and Turbulence*, International Conferences of CNRS 'Wavelets', Luminy (France), July 1997.
25. G.Courbebaisse, *Time-Frequency and Time-Scale representations*, 11th thematic day of CREMIS: Wavelets and Signal Processing, Marseille (France), January 1996.
26. G.Courbebaisse, *Caracterisation of the turbulence within combustion room by Time-Frequency analysis*, 6th national coll. on visualisation and image processing dedicated to fluid mechanics, Saint-Etienne (France), June 1995.
27. G.Courbebaisse, *Time-Frequency and Time-Scale analysis - Application to the polymer processing*, P.E.P. - S.F.I.P. - Contribution of measurement to the Polymer Processing, Bellignat (France), January 1995.
28. G.Courbebaisse, *Thermal Flow sensors - Polymer Processing*, P.E.P/S.F.I.P.- Contribution to the measurement – Polymer Processing, Bellignat (France), Jan. 1995.

-5- Chairman of session of congress:

1. 13th ICFD 2016, *OS4 session: Novel diagnosis and evaluation methods for metastatic lympth*, Sendai (Japan), October 2016
2. ICIP 2015, IEEE International Conference on Image Processing, Image Processing session, Quebec City (Canada), September 2015.
3. ICS 14 Interdisciplinary Cerebrovascular Symposium, *Intracranial Stent Meeting*, Thrombus session, Zurich (Switzerland), June 2014.
4. 41th SFNR (French National Society of Neuroradiology), *Thrombus session*, Paris (France), April 2014.
5. 9th ICFD 2012, *Blood Flow in Medical Equipment session*, Sendai (Japan), Oct. 2012.
6. 31th ISS, *Image Processing session*, Ecole des Mines de Paris (France), February 2008.
7. CPP 2007, *Lattice Boltzmann Method session*, U.L. Brussels (Belgium), Sep. 2007.

8. 30th ISS, *Image Processing*, Ecole des Mines de Paris (France), February 2007.
9. 27th ISS, *Image Processing*, Ecole des Mines de Paris (France), February 2004.
10. IMACS'2000, *Math Imaging-Tool for Modelling and Simulation*, EPFL (Switzerland), August 2000.
11. Sensorama'99, *Numerical Simulation*, Yverdon (Switzerland), 28th October 1999.
12. Plastirama'98, *Thermal flow sensors & polymer processing*, Yverdon (Switzerland), December 1998.
13. Plastirama'97, *Image Processing-Polymer Processing*, Yverdon (Switzerland), 9th October 1997.

-6- Invited Keynote Speaker:

1. G.Courbebaisse, *Déploiement virtuel interactif d'un stent à dérivation de flux*, Paris, (France), SFNR 2015 (42th Congrès de la Société Française de Neuroradiologie), April 2015.
2. G.Courbebaisse, R. A. Corredor Jerez, and L. Flórez-Valencia, *Modelling of flow diverter & CFD*, Zurich (Switzerland), ICS 14 (Interdisciplinary Cerebrovascular Symposium - Intracranial Stent Meeting), July 2014.
3. G.Courbebaisse, *European Project THROMBUS*, Paris (France), SFNR 2014 (41th Congress of the French Society of Neuroradiology, April 2014
4. G.Courbebaisse, *Blood flow simulation within Stented Intracranial Aneurysm*, ICFD 2012, 9th International Conference on Flow Dynamics, Sendai (Japan), September 19-21, 2012
5. G.Courbebaisse, *Multiscale Numerical Simulation-Lattice Boltzmann method*, European COST P19 project, Imperial College – London (UK), Jan.2011.
6. G.Courbebaisse, *Multiscale comparison of the turbulent DNS data and LES data of the lid-driven cavity flow*, International HAFS 'High Accuracy for Fluid Simulation' symposium, Lausanne, EPFL (Switzerland), February 2010.
7. G.Courbebaisse, *Hemodynamic Simulation*, International 'SIB-SIPAIN 2009' Biomedical Engineering, Bogota, Los Andes University (Colombia), 27th Nov. 2009.
8. G.Courbebaisse, *Industrial Transfer and International Collaborations*, International 'SIB-SIPAIN 2009' Biomedical Engineering, Plenary session, Bogota, Los Andes University (Colombia), 26th November 2009.
9. G.Courbebaisse, *Lattice Boltzmann Method and Specific Patient Aneurysm*, European COST P19 project, MC on Multiscale Modelling of Materials, Oulu, University of Oulu (Finland), May 2009.
10. G.Courbebaisse, *A comparison between the software COMSOL(C) and a lattice Boltzmann code when simulating behaviour of viscous material*, In European COST P19 project, Conf. on Multiscale Modelling of Materials, Brno, Academy of Sciences - Masaryk University (Czech Republic), June 2008.
11. G.Courbebaisse, *Lattice Boltzmann flows*, In Workshop COST P19, Summer school, Lappeenranta (Finland), June 2007.

12. G.Courbebaisse, *Lattice Boltzmann method and simulation of complex physical phenomena*, CCP2007-COST P19, Conf. on Computational Physics, Brussels (Belgium), September 2007.
13. G.Courbebaisse, O.Malaspinas, and M.O.Deville, *Lattice Boltzmann method and numerical simulation of complex fluids*, In Workshop Psi-k C - COST P19, Multiscale modelling of extended defects at materials interfaces, Wroclaw, Poland, Sept. 2006.

-7- Scientific & technical reports:

1. G.Courbebaisse & P.Clarysse, *Study of deformation of tyres by FFD technics (Free Form Deformation*, Report Michelin – Center of Ladoux, 2010-2012, 152 pages.
2. G.Courbebaisse, *Acquisition of ultrasonic waves and optimization system by signal processing - calculation of time flight for the estimation of residual stress levels within long welded rails*, Report SNCF, 2010, 32 pages.
3. G.Courbebaisse, *Classification of rail defaults by Image Processing-Quad tree*, Report SNCF, 2007, 32 pages.
4. G.Courbebaisse, *Classification of roads according to the snow states-Quad tree, Statisitics, Image Processing*, Report Michelin-CREATIS-LRMN, 2007, 40 pages.
5. G.Courbebaisse et al, *Analysis of deformations of tyres*, Report Michelin-CREATIS-LRMN, 2006, 45 pages.
6. G.Courbebaisse et al, *Tribological analysis of rails*, Report SNCF-LAMCOS-CREATIS-LRMN 2005, 65 pages.
7. G.Courbebaisse et al, *Project RNTL Openplast-Grid Computing Projet and database of polymers*, Report, 2005, 47 pages.
8. G.Courbebaisse, *White paper of the French domain of Optics: Optics and materials*, Rapport: Plastic optical components (MJENR – MRNT), 2004, 25 pages.
9. G.Courbebaisse et al, *Infrared Thermography dedicated to the Polymer Processing Process*, Report PEP-ESP, Oyonnax, 2000, 32 pages.
10. G.Courbebaisse et al, *Transposition of a photoelasticimetry method from Metal/Resine compound to Polymer/Resine case*, PEP, Oyonnax, 1997, 22 pages.
11. G.Courbebaisse et al, *Thermal flow sensors dedicated to the sequential injection moulding process*, Rapport PEP/ Interreg, Oyonnax, 1997, 50 pages.
12. G.Courbebaisse, *Study of Canister system*, PEP, Oyonnax, 1996, 42 pages.
13. G.Courbebaisse et al, *Combustion noise-Coherence analysis-Time-Frequency analysis*, GIE Motus (CRMT, METRAVIB, RVI), n°101189, Ecully, 1995, 55 pages.
14. G.Courbebaisse, *Thermal chock test bench - New concept and faisability*, CRMT C10900336 (PSA), Dardilly, 1994, 35 pages.
15. G.Courbebaisse et al, *Prototypes of thermal flow sensors for driving a squeeze casting process*, CRMT C10800366 (Alu team St-Jean), Dardilly, 1993, 14 pages.
16. B.Escudié, G.Courbebaisse, *Bilinear Time-Scale representations - Properties of the fringes terms*, ICPI/LTS (URA 346 CNRS).LTS9301, Lyon, 1993, 34 pages.
17. G.Courbebaisse et al, *Visualisation technics applied to the study of the heterogeneities within the combustion chanber of a direct combuston engine*, CRMT C10300369 (Renault, CORIA), Dardilly, 1992, 76 pages.
18. G.Courbebaisse et al, "Analysis of the combustion within a spark plug ignition engine", CRMT C07000319 (Renault), Dardilly, 1991, 45 pages.

19. G.Courbebaisse, "Detection of rotating radars between two reception gates, with a 500 MHz instantaneous bandwidth", report BAREM-10, Malakoff, 1988, 65 pages.
20. G.Courbebaisse, *Implementation of the software of PFP test set used for the pre-flight configuration of jammers taking in consideration the relevant strategy of the electronic warfare*, report REMORA-26, Malakoff, 1987, 58 pages.

-8- Scientific Seminars:

1. G.Courbebaisse, *The medical imaging and biological processes for multi-scale modelling of Thrombosis*, RIKEN-INSA Lyon Workshop (France), 13th May 2013.
2. G.Courbebaisse, *Thrombus - Endovascular Prosthesis and Medical Imaging*, INSA Lyon (France), Laboratory MATEIS seminar, 2013.
3. G.Courbebaisse, *Towards a more realistic model of the thrombosis is the goal of the Thrombus project - A multidisciplinary approach*, Innovative Care Workshop - Cluster I-Care, Saint-Etienne (France), June 2012.
4. G.Courbebaisse, *Thrombus - Endovascular Prosthesis and Medical Imaging*, CHU Montpellier (France) – Department of Neuroradiology, 2011.
5. G.Courbebaisse, *4D Simulation of blood flow within an intracranial aneurysm with the Lattice Boltzmann Method*, ENS Science Lyon seminar (France), 28th Jan. 2010.
6. G.Courbebaisse, *Generalized Newtonian Fluid and the Lattice Boltzmann Method*, University of Saint-Etienne (France) -Seminar on Numerical Analysis, October 2009.
7. G.Courbebaisse, *Numerical Simulation without the Finite Element Method!*, ISTIL, Lyon (France), 27th march 2008.
8. L.Navarro, G.Courbebaisse, "Phase Spectrogram", INSA/CREATIS, Lyon (France), June 2007.
9. G.Courbebaisse, *Lattice Boltzmann Method*, INSA/CREATIS-LRMN, Lyon (France), March 2007.
10. G.Courbebaisse, "Time-Frequency and Time-Scale Distributions", ENSMSE (Ecole des Mines de Saint-Etienne, France)), 21th November 2006.
11. G.Courbebaisse, *Lattice Boltzmann method and polymer injection moulding process simulation*, Polytechnic University of Bucharest (Politechnica), Romania, 15th May 2006 – Invited Professor.
12. G.Courbebaisse, *Concept of distance propagation dedicated to the injection moulding process*, Polytechnic University of Bucharest (Politechnica), Romania, 15th May 2006 – Invited Professor.
13. G.Courbebaisse, *Lattice Boltzmann Method and 4-1 geometry*, CUI Genève, LBM meeting – WG4 COST P19, Geneva (Switzerland), 28th April 2006.
14. G.Courbebaisse, *Generalized Newtonian Fluids and Lattice Boltzmann Method*, INSA/CREATIS-LRMN, Lyon (France), 17th March 2006.
15. G.Courbebaisse, *Power law and Lattice Boltzmann Method*, LBM meeting, ETH Zürich, Zürich (Switzerland) 21th December, 2005.
16. G.Courbebaisse, *Time-Frequency Distributions and Turbulence*, EPFL/LIN, Lausanne (Switzerland), 15th December 2005.
17. G.Courbebaisse, *The Lattice Boltzmann Method - An emergent technic for the numerical simulation*, EPFL/STI, Lausanne (Switzerland), 7th December 2005.
18. G.Courbebaisse, *Optimisation of the Injection Moulding Process*, EPFL/LIN, Lausanne (Switzerland), 20th October 2005.

19. G.Courbebaisse, *Lattice Boltzmann Method*, INSA/CREATIS-LRMN, Lyon (France), 21th January 2005.
20. G.Courbebaisse, *Image Processing and Signal Processing*, INSA/CREATIS-LRMN, Lyon (France), 6th February 2004.
21. G.Courbebaisse, *Mathematical Morphology and SMC process*, University of. Savoie/LMOPS, Aix Les Bains (France), 29th January 2004.
22. G.Courbebaisse, *Lattice Boltzmann Method and Injection Moulding Process*, Univ.Genève/CUI, Geneva (Switzerland), 18th March 2004.
23. G.Courbebaisse, *Mathematical Morphology and Injection Moulding Process*, University of Saint-Etienne/LTSI, Saint-Etienne (France), 17th December 2002.
24. G.Courbebaisse, *Quadratic time-frequency representations and cross-term interference - Theory and industrial applications*, EPFL/LTS, Lausanne (Switzerland), 8th March 2000.
25. G.Courbebaisse, *Time-Frequency and Time-Scale distributions - Theory and Applications*, EPFL/LTS, Lausanne (Switzerland), 26th January 1999.

-9- Doctoral Thesis Solely or Jointly Supervised, Current Advanced PhD Students:

1. Title: *Classification of images by fractal and multi fractal analysis.*
    a. F.Mayet - Co Supervisor: M.Jourlin (70%) and G.Courbebaisse (30%)
    b. Thesis of the University of Saint-Etienne – Defence: 4th Oct. 2001.
2. Title: *Contribution to the optimisation of the Polymer Injection Moulding Process.*
    a. D.Garcia – Co Supervisor: G.Courbebaisse (80%) and M.Jourlin (20%).
    b. Thesis of the University of Saint-Etienne – Defence: 12th Nov. 2002.
3. Title: *Image Processing applied the characterisation of gasoil injection.*
    a. Cécile Petit – Co-Supervisor: G.Courbebaisse (50%) and M.Jourlin (50%).
    b. Thesis of the University of Saint-Etienne – Defence: 10th February 2006.
4. Title: *Analysis and modelling of the mechanical and vibrational behaviour of a bone structure - 3D Phase Spectrogram.*
    a. L.Navarro - Co Supervisor: G.Courbebaisse (100%).
    b. Thesis 'Ecole des Mines de Saint-Etienne (France) - Defence: 14th Dec. 2007.
5. Title: *Lattice Boltzmann Method for the Simulation of Viscoelastic Fluid Flows.*
    a. O.Malaspinas - Co Supervisor: M.Deville (50%), G.Courbebaisse (50%).
    b. Thesis EPFL (Switzerland) - Defence: 23th Oct. 2009.
6. Title: *Lattice Boltzmann Method and Segmentation of intracranial aneurysms.*
    a. Yan Wang – Co-Supervisor: G.Courbebaisse (50%), Y. Zhu (50%).
    b. Thesis EEA – INSA Lyon-NPU - Thrombus - Defence: 25th July 2014.
7. Title: *Lattice Boltzmann method and hemodynamic within aneurysms.*
    a. Yue Zhang - Supervisor: G.Courbebaisse CREATIS (100%).
    b. Thesis EEA – INSA Lyon-NPU - Thrombus - Defence: 25th September 2015.
8. Title: *Modelling of patient-specific intracranial aneurysm wall and its environment based on functional and anatomic imaging.*
    a. Omer Eker - Co Supervisor: G.Courbebaisse (50%), V.Costalat (50%).
    b. Thesis UCBL– Lyon 1 - Thrombus - - Defence: 29th March 2016.
9. Title: The Lattice Boltzmann method (LBM) dedicated both to medical image processing and to living tissue modelling.

   a. Fei Ge - Supervisor: G.Courbebaisse (100%).
   b. Thesis INSA - EEA (2016-2019).

10. Title: Lattice Boltzmann simulation for soft tissues.
   a. Romain - Co Supervisors: G.Courbebaisse (50%), S.Avril (EMSE-CIS) (50%).
   b. Thesis EMSE - ED SIS 488 (2016-2019).

-10- Member of board of examiners of doctoral thesis and HDR:

1. **Montaine Bernard, Thesis Univ. Poitiers, Fac. of fundamental & applied sciences**
   a. Title: *Methodology of neuronal synchronization study in EEG signals with the use of time-frequency information graphs*.
   b. Jury:
      i. S. Canu (President of the Jury, INSA Rouen, PSI),
      ii. C. Marque (Examiner, Univ. de Technologie de Compiègne, BMGBM)
      iii. G. Courbebaisse (Examiner, INSA Lyon, CREATIS)
      iv. P. Derambure (Examiner, UFR Médecine-Pharmacie, Univ. Lille II)
      v. C. Barillot (Examiner, University of Rennes I, VisAGeS)
      vi. N. Richard (Co-Supervisor, UFR SFA, University of Poitiers, SIC)
      vii. J. Paquereau (Co-Supervisor, UFR of Medicine, Univ. Poitiers)
      viii. C. Fernandez-Maloigne (Supervisor, UFR SFA, Univ. of Poitiers, SIC).
   c. Examiner and member of the jury (30th Nov. 2006) at the Faculty of Sciences.

2. **Marthe Lagarrigue, Thesis of Ecole des Mines of Saint-Etienne**
   a. Title: *Optical and geometrical multiscale characterization of very spherical particles diffusing submicron aggregates*.
   b. Jury:
      i. Claude TRICOT (President of the Jury, Univ. of Clermont-Ferrand)
      ii. Jose-Marie Lopez-Cuesta (Examiner, ENMA)
      iii. Guy Courbebaisse (Examiner, CREATIS – INSA Lyon)
      iv. Jean-Charles Pinoli (Supervisor, ENSMSE)
      v. Yan Debayle (Co-supervisor, ENSMSE).
   c. Examiner and member of the jury (18th April 2011) – ENSMSE.

3. **Vincent Costalat, HDR of the University of Montpellier**
   a. Title: *Management of ischemic and hemorrhagic stroke – Early detection of risk and therapy optimization*.
   b. Jury:
      i. Henry DUFOUR (President of the Jury, AP-HM – La Timone)
      ii. Francis Turjman (Examiner, HCL – Hôpital of Neuroradiology)
      iii. Michel Rochette (Examiner, ANSYS France)
      iv. Alain Bonafé (Supervisor, CHU Montpellier)
      v. Guy Courbebaisse (Examiner, INSA Lyon – CREATIS.
   c. Examiner and member of the jury (21th Nov. 2012) Faculty of Medicine of Montpellier.

4. **Kamil Chodzynski, Thesis in Science, Faculty of engineering of Mons.**
   a. Title: *Study and development of an in vitro technology for testing vascular tissues submitted to physiological pulsatile flow conditions*.
   b. Jury:
      i. Christine Renotte (President of the Jury – University of Mons, FPMs)
      ii. Grégory Coussement (Supervisor - University of Mons, FPMs)
      iii. Laurent Bricteux (University of Mons, FPMs)
      iv. Olivier Verlinden, (Examiner – University of Mons, FPMs)

v. Gérard Degrez, (Examiner – ULB)
vi. Karim Zouaoui Boudjeltia, (Co-upervisor, Lab. Exp. Medicine – ULB)
vii. Guy Courbebaisse, (Examiner, CREATIS - INSA Lyon)
viii. Jean-Philippe Thiran (Examiner, EPFL – LTS5).

c. Examiner and member of the jury of the private defense (14th Nov. 2013) and of the public defence (13th Dec. 2013) at the Polytechnic Faculty of Mons (B).

5. Diermer Anda Ondo, Thesis EEA of the University of Grenoble

a. Title: *A discrete controllability of distributed parameters systems using lattice Boltzmann models: an application to shallow water equations.*
b. Jury:
i. Samira El Yacoubi (Examiner, University of Perpignan)
ii. Gilles Roussel (Examiner, University Littorale Côte d'Opale)
iii. Guy Courbebaisse (Examiner, INSA Lyon)
iv. Eduardo Mendes (University of Grenoble)
v. Nicolas Gratiot (President of the Jury, LTHE)
vi. Bastien Chopard (Supervisor, University of Geneva – CH)
vii. Laurent Lefèvre (Supervisor, University of Grenoble).
c. Examiner and member of the Jury (9th July 2013) at LCIS in Valence (France).

6. M. Inam Ul Haq, Thèse Engineering of Health-Image Processing at Univ. Saint-Etienne

a. Title: *Texture Analysis with the Logarithmic Image Processing (LIP) Framework.*
b. Jury:
i. Jacques Demongeot (President of the Jury, CHU Health of Grenoble)
ii. Frank Marzani (Examiner, University of Bourgogne)
iii. Guy Courbebaisse (Examiner, INSA Lyon)
iv. Thierry Fournel (Examiner, University of Saint-Etienne)
v. Michel Jourlin (Supervisor, University of Saint-Etienne).
c. Examiner and member of the Jury (27th June 2013) at LTSI in Saint-Etienne (France).

7. Jean-François Vendrell, Thesis in Medical Imaging and Radiodiagnostic

a. Title: *Interventional neuroradiology – Clinico-Radiological experience and interest in the detection of Endothelial Cells*.
b. Jury:
i. Jean Raymond (President of the Jury, University of Montréal)
ii. Francis Turjman (Examiner, HCL – Hospital of Neuroradiology)
iii. Catherine Panabière (Examiner, LCCRH – CHRU Montpellier)
iv. Jean-François Schved (CHU Montpellier–Hematology)
v. Alain Bonafé (Supervisor, CHU Montpellier - Neuroradiology)
vi. Guy Courbebaisse (Examiner, INSA Lyon – CREATIS.
c. Examiner and member of the jury (10th January 2013) - Faculty of Medicine.