

# Curriculum Vitae

## 1 Personal data

*Last Name:* **DAZEL**

*First Name:* **Olivier**

*Date of birth:* July 9, 1975

*Email:* olivier.dazel@univ-lemans.fr

*Family:* Married to Claire DAZEL-SALONNE; Three sons: Marius (2007), Antonin (2009) and Julien (2012).

## 2 Education, Awards and position

**Professor** at University Le Mans (France) 2013-now.

**HDR in Acoustics** (Research Supervision Accreditation) from University Le Mans (France) in 2011. Dissertation: *Numerical methods for the Biot theory*. President: C. Depollier (LAUM, Le Mans - France). Referees: J.-F. Deü (CNAM, Paris - France), N. Atalla (University of Sherbrooke, Canada) & P. Göransson (KTH, Sweden), Committee: M.-A. Galland (LMFA, Lyon - France), J.-P. Coyette (UCL-FFT, Belgium), F. Sgard (IRSST, Canada) & C.-H. Lamarque (ENTPE, Lyon-France).

**Prime d'Excellence Scientifique/Prime d'Encadrement Doctoral et de Recherche** 2011-2018.

**Yves Rocard Prize** (Young researcher prize) of the French Acoustical Society in 2005.

**Assistant Professor** at University of Le Mans (France) 2004-2013.

**Assistant Professor qualification** National University Council in Mechanics (section 60) and Applied Mathematics (section 26) in 2004.

**PhD in Acoustics** at Institut National des Sciences Appliquées de Lyon (France) in 2003. Dissertation: *Synthèse modale pour les matériaux poreux (Modal synthesis for porous materials)*. Supervisors: C.H. Lamarque & F. Sgard. President: L. Jezequel (LTDS-ECL, Lyon - France). Referees: R. Ohayon (CNAM, Paris - France) & N. Atalla (University of Sherbrooke, Canada). Examiner: J.-L. Guyader (LVA, Lyon - France)

**National Service** Subdivision of joint Public Works Administration and French Air Force. Ventiseri-Solenzara, Corsica. Jan-Nov 2000.

**Master of Sciences** (Diplôme d'Etudes Approfondies) in Acoustics from Ecole Centrale de Lyon in 1999.

**Graduation from ENTPE** (French National School for Public Works). Major in Informatics in 1999.

## 3 Research interest

**Acoustics of poroelastic materials**

- Physics of sound absorbing materials
- Numerical modeling of porous media/metamaterials
- Reduced models for sound packages/Discontinuous Galerkin Methods

## Vibroacoustics

- Reduced Order Models in Vibroacoustics
- Discontinuous Galerkin Methods with Plane waves
- Modelling of fluid-structure interaction in wood construction

## 4 Publications

### 4.1 Articles in international peer reviewed journals

[A31] G. Gabard and **OD** *A discontinuous Galerkin method with plane waves for sound-absorbing materials* Int. J. Numer. Meth. Engng.. doi: 10.1002/nme.4961 (2015)

[A30] J.-P. Groby, C. Lagarrigue, B. Brouard, **OD**, V. Tournat and B. Nennig. *Enhancing the absorption properties of acoustic porous plates by periodically embedding Helmholtz resonators* Journal of the Acoustical Society of America. 137 273-280 (2015)

[A29] J.-P. Groby, C. Lagarrigue, B. Brouard, **OD**, V. Tournat and B. Nennig. *Using simple shape three-dimensional rigid inclusions to enhance porous layer absorption* Journal of the Acoustical Society of America. 136 1139-1148 (2014)

[A28] C. Lagarrigue, J.-P. Groby, V. Tournat, **OD** and O. Umnova *Absorption of sound by porous layers with embedded periodic array of resonant inclusions* Journal of the Acoustical Society of America. 134 4670-4680 (2013)

[A27] **OD**, B. Brouard, J.-P. Groby and P. GÅransson *A normal modes technique to reduce the order of poroelastic models: application to 2D and coupled 3D models* Int. J. Numer. Meth. Engng.. doi: 10.1002/nme.4551 (2013)

[A26] E. Lind Nordgren, P. GÅransson, J.-F. DeÅij and **OD**. *Vibroacoustic response sensitivity due to relative alignment of two anisotropic poro-elastic layers* model the acoustic response of multilayered structures JASA Express Letters. 133 EL426-430 (2013)

[A25] **OD**, J.-P. Groby, B. Brouard and C.Potel. *A stable method to model the acoustic response of multilayered structures* Journal of Applied Physics. 113, 083506 (2013)

[A24] J.-P. Groby, B. Brouard, **OD**, B. Nennig and L. Kelders. *Enhancing the absorption of a rigid frame porous layer by use of a rigid backing with three-dimensional periodic multi-irregularities* Journal of the Acoustical Society of America. 133 821-831 (2013)

[A23] J.-P. Groby, **OD**, C. Depollier, E. Ogam and L. Kelders. *Scattering of acoustic waves by macroscopically inhomogeneous poroelastic tubes* Journal of the Acoustical Society of America. 132(1) 477-486 (2012)

- [A22] A. Geslain, J.-P. Groby, **OD**, S. Mahasaranon, K. V. Horoshenkov, and A. Khan. *An application of the Peano series expansion to predict sound propagation in materials with continuous pore stratification*. Journal of the Acoustical Society of America. 132(1) 208-215 (2012)
- [A21] **OD**, F.-X. Bécot and L. Jaouen, *Biot effects for sound absorbing double porosity materials*, Acta Acustica United with Acustica. 98(4) 567-576 (2012)
- [A20] J.-B. Legland, V. Tournat, **OD**, A. Novak and V. Gusev , *Linear and nonlinear Biot waves in a noncohesive granular medium slab: Transfer function, self-action, second harmonic generation*. Journal of the Acoustical Society of America. 131(6) 4292-4303 (2012)
- [A19] J.-P. Groby, **OD**, A. Duclos, L. Boeckx, and L. Kelders , *Enhancing the absorption coefficient of a backed rigid frame porous layer by embedding circular periodic inclusions*. Journal of the Acoustical Society of America. 130(6) 3771-3780 (2011)
- [A18] A. Geslain, **OD**, J.-P. Groby, S. Sahraoui and W. Lauriks, *Influence of static compression on mechanical parameters of acoustic foams*, Journal of the Acoustical Society of America. 130(2) 818-825 (2011)
- [A17] J.-P. Groby, A. Duclos, **OD**, L. Boeckx, and L. Kelders , *Quasi-total absorption peak by use of a backed rigid frame porous layer with circular periodic inclusions embedded*. Journal of the Acoustical Society of America. 129(2) 818-825 (2011)
- [A16] G. Gautier, J.P. Groby, **OD**, L. Kelders, L. De Ryck et P. Leclaire, *Propagation of acoustic waves in a one-dimensional macroscopically inhomogeneous poroelastic material*, Journal of the Acoustical Society of America. 130(3) 1390-1398 (2011)
- [A15] J.-P. Groby, A. Duclos, **OD**, L. Boeckx, et W. Lauriks , *Absorption of a rigid frame porous layer with periodic circular inclusions embedded backed by a rigid multi-irregularities grating* Journal of the Acoustical Society of America. 129(5) 3035-3046 (2011)
- [A14] J.-F. Allard, **OD**, G. Gautier, J.-P. Groby and W. Lauriks. *Prediction of sound reflection by corrugated porous surfaces* Journal of the Acoustical Society of America. 129(4) 1696-1706 (2011)
- [A13] **OD**, B. Brouard, N. Dauchez, A. Geslain and C.-H. Lamarque. *A Free Interface CMS Technique to the Resolution of Coupled Problem Involving Porous Materials, Application to a Monodimensional Problem*. Acta Acustica United with Acustica. 96 247-257 (2010)
- [A12] **OD** and V. Tournat. *Nonlinear Biot waves in porous media with application to unconsolidated granular media* Journal of the Acoustical Society of America. 127 692-703 (2010)
- [A11] J.F. Allard, **OD**, J. Descheemaker, N. Geebelen, L. Boeckx and W. Lauriks. *Rayleigh waves in air saturated axisymmetrical soft poro-elastic media*. Journal of Applied Physics. 106 014905 (2009)
- [A10] **OD**, B. Brouard, N. Dauchez and A. Geslain. *Enhanced Biot's finite element displacement formulation for porous materials and original resolution methods based on normal modes*. Acta Acustica United with Acustica. 95 (3) 527-538 (2009)
- [A9] O. Doutres, N. Dauchez, J.M. Genevaux and **OD**. *A Frequency Independent Criterion for Describing*

*Sound Absorbing Materials by a Limp Frame Model* Acta Acustica United with Acustica. 95 (1) 178–181 (2009)

[A8] P. Khurana, L. Boeckx, W. Lauriks, P. Leclaire, **OD**, and J. F. Allard *A description of transversely isotropic sound absorbing porous materials by transfer matrices*. Journal of the Acoustical Society of America. 125 (2) 915–921 (2009)

[A7] **OD**, F. Sgard, F-X. BÃcote and N. Atalla. *Expressions of dissipated powers and stored energies in poroelastic media modeled by  $\{u, U\}$  and  $\{u, P\}$  formulations*. Journal of the Acoustical Society of America. 123 (4) 2054–2063 (2008)

[A6] N. Geebelen, L. Boeckx, G. Wermeir, W. Lauriks, J.-F. Allard and **OD**. *Near Field Rayleigh wave on soft porous layers*. Journal of the Acoustical Society of America. 123 (3) 1241–1247 (2008)

[A5] N. Geebelen, L. Boeckx, G. Wermeir, W. Lauriks, J.-F. Allard and **OD**. *Measurement of the rigidity coefficients of a melamine foam*. Acta Acustica United with Acustica. 93 (5) 738–788 (2007)

[A4] O. Doutres, N. Dauchez, J.M. Genevaux and **OD**. *Validity of the limp model for porous materials: A criterion based on the Biot theory*. Journal of the Acoustical Society of America. 122 (4) 2038–2048 (2007)

[A3] **OD**, B. Brouard, C. Depollier and S. Griffiths. *An alternative Biot’s displacement formulation for porous materials*. Journal of the Acoustical Society of America. 121 (6) 3509–3516 (2007)

[A2] **OD**, F. Sgard and C.-H. Lamarque *Application of generalized complex modes to the calculation of the forced response of three dimensional poroelastic problems*. Journal of Sound and Vibration 268(3) 555–580 (2003)

[A1] **OD**, F. Sgard, C.-H. Lamarque and N. Atalla *An extension of complex modes for the resolution of finite-element poroelastic problems* Journal of Sound and Vibration 253(2) 421–445 (2002)

## 4.2 Articles in national peer reviewed journals

[A’1] O. Doutres, N. Dauchez, J.M. Genevaux and **OD**. *Validity of the one-dimensional limp model for porous media* Acta Polytechnica. 48 (3) 61–65 (2008)

## 4.3 Chapters in books

[B2] **OD** and Nicolas Dauchez. *Finite-element methods for poroelastic materials* in Materials and Acoustic Handbook. Wiley M. Bruneau et C. Potel coordinators, (2009). (Translation of [B1])

[B1] **OD** and Nicolas Dauchez. *La mÃ©thode des Ã©lÃ©ments finis pour les matÃ©riaux poroÃ©lastiques*. in MatÃ©riaux et Acoustique: volume 1, Hermès M. Bruneau et C. Potel coordinators, (2006). (In french)

## 4.4 Invited talks in international conferences with proceedings

[I7] **OD** and G. Gabard. *Discontinuous Galerkin Methods for poroelastic materials.*, 21<sup>st</sup> International Congress on Acoustics, 165<sup>th</sup> ASA Meeting, Nov. 2010, J. Acoust. Soc. Am., 133 : 3242, Montreal, Canada.

[I6] J.P. Groby, **OD**, C. Lagarrigue, K. Horoshenkov, S. Mahasaranon, et A. Khan, Propagation of acoustic waves in a one dimensional macroscopically inhomogeneous porous material under the rigid frame approximation, Internoise 2012, AoÅžt 2012, New-York City.

[I5] J.-P. Groby, **OD**, T.E. Vigran, and W. Lauriks. *Total absorption peak by use of a rigid frame porous layer backed by a rigid grating.*, 2<sup>nd</sup> Pan-American/Iberian Meeting on Acoustics, 161<sup>th</sup> ASA Meeting, Nov. 2010, J. Acoust. Soc. Am., 128 : 2392, Cancun, Mexique.

[I4] **OD**. *Reduced models for poroelastic materials*. Proceedings of Internoise'10 (August 23 -26 2010) Ottawa, Canada.

[I3] **OD**, J.-F. Allard, L. Boeckx, N. Geebeelen, P. Khurana and W. Lauriks. *Anisotropy effects on the acoustical properties of porous materials*. Acoustics'08. 2<sup>nd</sup> Joint congress Acoustical Society of America and European Acoustics Association. (June 29 - July 4 2008) Paris.

[I2] **OD**. *Education software for numerical acoustics*. Acoustics'08. 2<sup>nd</sup> Joint congress Acoustical Society of America and European Acoustics Association. (June 29 - July 4 2008) Paris.

[I1] J.-F. Allard, **OD**, L. Boeckx, N. Geebeelen and W. Lauriks *Deduction of porous material properties using a point source* . Acoustics'08. 2<sup>nd</sup> Joint congress Acoustical Society of America and European Acoustics Association. (June 29 - July 4 2008) Paris.

## 4.5 Workshops and Summer schools

[W5] **OD**. *Finite-element methods and other numerical techniques for porous media*. Training session June 2013. (LMS International September 10 2013) Gresimo. EU FP7 Marie Curie Initial Training Network (ITN)

[W4] **O. Dazel**. *Numerics II-b: other numerical approaches*. Winter School on the Acoustics of Porous Materials. (Lyon February 12-14 2013) in the framework of Labex Celya.

[W3] **O. Dazel**. *Acoustics of Porous media*. Training session October 2012. (University Le Mans October 22-26 2012) FlowAirS. EU FP7 Marie Curie Initial Training Network (ITN)

[W2] **O. Dazel**. *Reduced models for Poroelastic Materials Transition to the mid-frequency range*. Third public tutorial course Workshop. (ISVR Southampton March 22-23 2012) Mid-frequency CAE Methodologies for Mid-Frequency Analysis in Vibration and Acoustics. EU FP7 Marie Curie Initial Training Network (ITN) Grant Agreement 214909

[W1] **OD**. *La Methode des El'ements-Finis*. 2 lectures of 90 minutes Ain-Chock University Casablanca, Maroc. (July 24-28 2007)

[W0] Lab seminars KTH (2007-2010), KUL(2006-2012), Nottingham (2004), Bradford (2004).

## 5 Courses and lecture talks

### 5.1 Main topics

- Mathematics (L-M)

- Numerical analysis (L-M)
- Structural dynamics (L-M)
- Acoustics of poroelastic materials (M)

## 5.2 Lectures outside from University Le Mans

[L7] **OD. Finite-Element Methods for poroelastic media.** 1 day lecture in english for engineers. LMS International, (March 27 2012) Leuven - Belgium

[L6] **OD. Acoustics of poroelastic media.** 20 hours lecture in english for doctoral students. Royal Institute of Technology (KTH), (February 13 - 18 2012) Stockholm - Sweden (Erasmus mobility)

[L5] **OD. The Finite Element Method.** 24 hours lecture in french for master students. Ecole Supérieure de Génie Civil Verechaguine A.K. (October 3 - 9 2010) Cotonou - Benin

[L4] **OD. Numerical modelling of poroelastic media.** 8 hours lecture in english for doctoral students. Royal Institute of Technology (KTH), (March 22 - 26 2010) Stockholm - Sweden (Erasmus mobility)

[L3] **OD. Structural Dynamics and Finite Element.** 20 hours lecture in french for master students. Faculté des Sciences, Université de Sfax (March 17 - 21 2008) Sfax - Tunisia

[L2] **OD. Building acoustics.** 12 hours lecture in english for doctoral students. Ceske Vysoke Uceni Technicke (April 15 - 22 2007) Praha Czech Republic (Erasmus mobility)

[L1] **OD. Building acoustics.** 12 hours lecture in english for doctoral students. Ceske Vysoke Uceni Technicke (May 29 - June 2 2006) Praha Czech Republic (Erasmus mobility)

## 6 Professional activities

### 6.1 Main responsibilities

**Vice chairman of the Physics department** (since October 2012)

**Member of the executive council of the European Acoustics Association, Product manager of Fenestra** (since February 2010)

**Responsible for the first year of the Master Acoustics and Mechanics** (since September 2007)

**Elected member of Technical Parity Committee of Université du Maine** (since July 2008)

**Elected member of the selection Committee, section 60 of Université du Maine** (since March 2007)

**Elected member of the LAUM council** (2007-2011)

### 6.2 PhD supervision

[PhD6] **R. Bouete.** (2013-2016) *Numerical methods for hydraulic pumps.* Research contract with Continental SAS.

[PhD5] **J.-P. Parra-Martinez.** (2013-2016) *Global thermal-acoustics optimization of tailored structures.* 50% with Pr P. Göransson (KTH-Sweden) International Cotutelle agreement.

[PhD4] **D. Blon.** (2013-2016) *Modélisation des bâtiments à ossature bois.* **40% with Pr J.-M. Gálneaux and Dr B. Brouard (LAUM)**

[PhD3] **A. Tribaleau.** (2010-September 24<sup>th</sup> 2013) *Etude expérimentale et numérique des propriétés acoustiques des planchers ossature bois.* **30% with Pr J.-M. Gálneaux and Dr B. Brouard (LAUM)**

[PhD2] **M. Idriss.** (2008-March 9<sup>th</sup> 2013) *Etude expérimentale et numérique de l'endommagement des matériaux composites.* **15% with Pr A. El Mahi and Pr R. El Guerjouna (LAUM)** *Alan is now Assistant Professor at University of Ndjamena (Tchad)*

[PhD1] **A. Geslain.** (2008-December 9<sup>th</sup> 2011) *Modélisation des matériaux poreux anisotropes.* **60% with Pr S. Sahraoui (LAUM).** *Alan is now Assistant Professor at ISAT (Nevers)*

### 6.3 Referee for International peer reviewed journals

- Journal of Geophysical Research - Solid Earth (Ass. Ed *Pr R. Nowack*)
- Acta Acustica United with Acustica (Ass. Ed. *Pr S. Marburg*)
- International Journal for Numerical Methods in Engineering (Ass. Ed. *Pr D. Peric; Pr I. Harari; Pr J. Fish*)
- Journal of the Acoustical Society of America (Ass. Ed. *Pr K. Attenborough; Pr J. Mac Daniel; Pr J. Turner; Pr N. Xiang*)
- Journal of Sound and Vibration (Ass. Ed. *Pr C. Morfey*)
- Geophysical Journal International (Ass. Ed. *Pr J. Virieux*)
- Computer Methods in Applied Mechanical Engineering (Ass. Ed. *Pr M Papadrakakis*)
- Noise Control Engineering Journal (Ass. Ed. *Pr C.B. Burrough*)

### 6.4 Member of examination committee of PhD defense

- **Elke Deckers** *A wave based approach for steady-state Biot models of poroelastic materials* (Katholieke Universiteit Leuven, Belgium, 2012) **International Examiner**
- **Eleonora Lind Nordgren** *A study of tailoring acoustic porous material properties when designing lightweight multilayered vehicle panels* (Cotutelle Kungliga Tekniska Högskolan, Sweden et Conservatoire National des Arts et Metiers 2012) **Rapporteur** and **Opponent** (Swedish system of PhD defense)
- **Martin Årstberg** *Modelling tools for quieter vehicles: Waves in poro and visco elastic continua* (Cotutelle Kungliga Tekniska Högskolan, Sweden et Conservatoire National des Arts et Metiers 2012) **Rapporteur**
- **Georges Freiha** *Propagation d'ondes acoustiques dans les milieux à forte porosité: application à la caractérisation des matrices poreuses* (Université de Valenciennes, 2010)
- **Remi Guastavino** *Elastic and acoustic characterisation of anisotropic porous materials* (Kungliga Tekniska Högskolan, Sweden, 2008)

- **Reinhilde Lanhoye** *Assessment of the absorption performance of sound absorbing materials- Use of Trefftz's method and of a new dual particle velocity-pressure sensor* (Katholieke Universiteit Leuven, Belgium, 2007)
- **Olivier Doutres** *Caractérisation mécanique de matériaux fibreux en vibroacoustique* (Université du Maine, 2007)
- **Stéphane Griffiths** *Contribution à la caractérisation ultrasonore de matériaux poreux par variation de pression statique* (Université du Maine, 2007)