

## CURRICULUM VITAE CHRIST GLORIEUX

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### Education and current position

- July 1987: 'Licentiaat' (Master) degree in Physics, with distinction, at the Katholieke Universiteit Leuven
- December 1994: PhD degree in Physics, with the greatest distinction, at the Katholieke Universiteit Leuven
- Postdoctoral researcher FWO-V
- Associate professor K.U. Leuven (full-time since 1-10-2005)

### Career

- October 1987 - July 1989 : teaching assistant at Katholieke Universiteit Leuven
- August 1989 - July 1990 : military service
- August 1990 - September 1994 : teaching assistant at Katholieke Universiteit Leuven
- October 1994 - September 1995 : R&D engineer in BARCO, Kortrijk
- October 1995 - September 1996 : postdoctoral researcher for Onderzoeksraad Katholieke Universiteit Leuven
- October 1996 – September 2005 : postdoctoral researcher for Fonds voor Wetenschappelijk Onderzoek Vlaanderen (FWO-V) at the Laboratorium voor Akoestiek en Thermische Fysica, Departement Natuurkunde en Sterrenkunde, Katholieke Universiteit Leuven
- Oktober 1998 – Oktober 2000: visiting scientist in Department of Chemistry, Massachusetts Institute of Technology, Cambridge, USA
- Oktober 2000 – September 2002: part-time assistant-professor Departement Natuurkunde en Sterrenkunde, Katholieke Universiteit Leuven
- Oktober 2002-now: associate-professor (hoofddocent-hoogleraar) Departement Natuurkunde en Sterrenkunde, Katholieke Universiteit Leuven

### Research interests

- Photoacoustic and photothermal investigation of thermal and elastic properties of soft condensed matter
- Development of photothermal, photoacoustic and related techniques for material characterization
- Structural and phase transitions in complex soft matter
- Physical acoustics
- Room and perception acoustics
- Heat transport and heat storage
- Linear and nonlinear acoustic wave-matter interactions and laser ultrasonics
- Non-destructive testing
- Development of intra-ocular electro-optic bionic eye lens

## **A. Research**

### ***Publications***

- 130 publications in international peer reviewed journals
- 85 proceedings at international conferences

### ***Promoter PhD students***

- 13 PhD's with degree obtained and currently promotor of 5 PhD students

### ***Jury member PhD thesis and habilitation commission***

- 34 times jury member PhD theses, 2 times jury member habilitation.

### ***Prizes***

- Prize for the best presentation "All-optical investigation of the elastic response of materials: from glassy liquids to steel", MIT Spectroscopy Laboratory Annual Meeting, 26 januari 2000, Cambridge, USA

### ***Patents***

- "Adiabatic scanning calorimeter"  
J. Thoen, C. Glorieux, J. Leys  
publication number WO/2012/003553, international application number PCT/BE2011/000042  
(filed 07.07.2011, published 12.01.2012)
- "Differential adiabatic scanning calorimeter"  
J. Thoen, C. Glorieux, J. Leys  
publication number WO/2012/103601, International application number PCT/BE2012/000002  
(filed 27.01.2011, published 09.08.2012)
- "Bionic eye lens"  
J. Blanckaert, C. Glorieux, R. Puers  
publication number WO/2012/006691, international application number PCT/BE2011/000045  
(filed 12.07.2011, published 19.01.2012)

### ***International stays abroad***

- Research stay at 2nd University of Rome 'Tor Vergata', Dipartimento di Ingegneria Meccanica, 27 juni tot 15 juli 1988, Rome, Italy
- Research stay University van Québec, 30 March tot 13 April 1991, Trois-Rivières, Québec, Canada
- Research stay Iowa State University, Institute for Physical Research and Technology, Center for Nondestructive Evaluation, 16 Juni - 20 Juni 1992, Ames, Iowa, USA
- Research stay 2nd University of Rome 'Tor Vergata', Dipartimento di Ingegneria Meccanica, 14 February tot 25 February 1994, Rome, Italy
- Research stay IBM Research Center at Almaden, 27 July - 1 August 1997, San Jose, USA
- Research stay Institut de Recherche sur l'hydrogène, Université de Québec à Trois-Rivières, 9-10 August 1997, Trois-Rivières, Québec, Canada
- Research stay Department of Chemistry, Massachusetts Institute of Technology, 11-12 August 1997, Cambridge, Boston, USA
- Research stay Eddy Current Group, Center for Non Destructive Evaluation, 12-17 August 1997, Iowa State University, Ames, USA

- Research stay Department of Materials Engineering, Technion University of Israel, 18-28 April 1998, Haifa, Israel
- Seminar and research stay Università degli studi di Roma "La Sapienza", Dipartimento di Energetica, 28 Augustus tot 8 September 1999, Rome, Italy
- Research stay Department of Chemistry van het Massachusetts Institute of Technology, Cambridge, USA, 6 October 1998 - 31 July 1999 and 1 November 1999 - 31 October 2000
- Research stay Department of Chemistry van het Massachusetts Institute of Technology, Cambridge, Verenigde Staten, 18 November 2001 - 13 December 2001
- Research stay and presentation "Depth profiling and characterisation of material properties by photothermal, photoacoustic, ellipsometric, eddy current and x-ray diffraction methods", 11 December 2001, Philips Analytical, Natick, Massachusetts, USA
- Invited professor at University of Rome, 'La Sapienza', Italy, 11-15 November, 9-13 December 2011

#### **Organization conferences and workshops**

- Journées des Ultrasons Laser, Leuven, 16-17 March 2005 (35 participants)
- 15th International Conference on Photoacoustic and Photothermal Phenomena, 19-23 July 2009, Leuven (250 participants)

#### **Editor functions**

- Editor of Proceedings of 15th International Conference on Photoacoustic and Photothermal Phenomena (ICPPP15)
- Associate Editor "Photoacoustics" journal, Elsevier

#### **Invited talks**

- "Photoacoustic investigation of the nematic depth profile near the free surface of an inhomogeneously aligned liquid crystal", 1-5 April 1996, Forum Acousticum, Antwerpen.
- "Photothermal non-destructive evaluation of the hardness depth profile of surface hardened steel", 29th International Symposium on Automotive Technology and Automation, 3-6 Juni 1996, Firenze, Italy
- "Information on the magnetic equation of state of gadolinium from a magnetocalorically induced acoustic signal", Proceedings van de 9th International conference on Photoacoustic and Photothermal Phenomena, 27-30 June 1996, Nanjing, China.
- "A neural network based method for the in depth reconstruction of material properties: theory and application", Proceedings van de IIIde International Workshop on Advances in Signal Processing for Non Destructive Evaluation of Materials, 5-8 August 1997, Québec City, Canada.
- "Neural network recognition of subsurface material properties: applications of photothermal, ellipsometric, eddy current and x-ray depth profiling", voordracht in het Fraunhofer Institut Zerstörungsfreie Prüfverfahren, Universität Saarbrücken, 29-30 September 1997, Saarbrücken, Germany
- "Depth profiling of several subsurface physical properties by neural network recognition of signal spectra", voordracht in Department of Physics, Worcester Polytechnic Institute, 8 Februari 1999, Worcester, USA
- "Properties of acoustic waves at liquid-solid interfaces", La Jolla Advanced Topics Research School 99 on Laser Optoacoustics and Photothermal Phenomena, 22-26 Februari 1999, La Jolla, USA.
- **Plenary lecture** " Recent developments in photothermal depth profiling", Gordon Research Conference on Photoacoustic and Photothermal Phenomena, 27 June - 2 July 1999, New London, New Hampshire.

- " Mises en oeuvre de "réseaux de neurones" en profilométrie : du millimètre au nanomètre; applications photothermiques, ellipsométriques, courant de foucault et diffusion des ondes X", seminar in UTAP/LEO, UFR Sciences, 2 March 2000, Reims, France
- "Relaxation properties of elastic and thermal parameters of glass-forming liquids by photothermal and photoacoustic techniques", 4th International Discussion Meeting on Relaxations in Complex Systems, 17-23 June 2001, Hersonissos, Heraklion, Kreta, Greece
- "Depth profiling and characterisation of material properties by photothermal, photoacoustic, ellipsometric, eddy current and x-ray diffraction methods", Philips Analytical, 11 December 2001, Natick, Massachusetts, USA
- "Acoustic waves at interfaces studied by laser ultrasonics", 12th International Conference on Photoacoustic and Photothermal Phenomena, 24-27 June 2002, Toronto, Canada
- "Laser ultrasonic characterisation of complex liquids and solids", Gordon Research Conference on Photoacoustic and Photothermal Phenomena, 8-13 June 2003, New London, New Hampshire, USA
- "Photothermal characterisation of thermophysical properties of liquids and solids", 15th Symposium on thermophysical properties on Photoacoustic and Photothermal Phenomena, 22-27 June 2003, Boulder, Colorado, USA
- "Photothermal characterization of subsurface structures and defects", 13de International Conference on Photoacoustic and Photothermal Phenomena, 5-8 July 2004, Rio de Janeiro, Brazil
- **Plenary lecture** "Photothermal characterization of subsurface structures and defects", XXIV National Congress of the Mexican Society of Surface and Vacuum Sciences, 27-30 September 2004, Cancun, Mexico
- Seminar "Laser ultrasonic material and defect characterization", 3-4 March Nottingham University, Great-Britain
- "Photopyroelectric and related photothermal methods for determination of thermal material properties", Congrès de la Société Française Thermique, 30 May – 2 June 2005, Reims, France
- "Photothermal depth profiling", Workshop on "Methodologies in applied photothermal science", Gordon Research Conference on Photoacoustic and Photothermal Phenomena, 26 June– 1 July 2005, Triëste, Italy
- SPIE International Congress on Optics and Optoelectronics – Acousto-optics and photoacoustics (AOPA), 28 August – 2 September 2005, Warsaw, Poland
- "Photothermal material characterization", 17th European Conference on Thermophysical Properties 5 - 8 September 2005, Bratislava, Slovakia
- "Foto-akoestiek en akoesto-optica: luisteren naar licht en kijken naar geluid", Symposium Nederlands Akoestisch Genootschap, 23 November 2005, Utrecht, Nederland
- "Self-regularizing neural network for photothermal and photoacoustic depth profiling", 16th Symposium on Thermophysical Properties, Boulder, USA, 30 July - 4 August 2006
- **Plenary lecture** "Laser ultrasonic imaging", 15th National Symposium on Ultrasonics, 1-3 November 2006, Allahabad, India
- "Fourier- en Gaboranalyse voor analyse van tijd-ruimte karakteristieken van geleide akoestische golven en neurale netwerkanalyse voor akoestische signaalherkenning", NAG-dag (Nederlands Akoestisch Genootschap), Utrecht, Nederland, 21 mei 2008
- "Recent developments in laser ultrasonic techniques for material characterization" University of Jena, Germany, 26 May 2008
- "Material characterization and defect detection by analysis of 1D and 2D guided acoustic waves using laser ultrasonic techniques", Laser Ultrasonic Symposium, Montreal, Québec, Canada, 16-18 juli 2008
- "Non-destructive testing of materials by linear and nonlinear classical ultrasonics and laser ultrasonics", 21 januari 2010, Laboratory for Ultrasonic Nondestructive Evaluation, University of Metz, France

- “Dynamics of specific heat and other relaxation processes in supercooled liquids from impulsive stimulated scattering data” and “Photothermal and photoacoustic characterization of material structures in transient and periodic mode: from mm to sub-micrometer Resolution in 3D”, First Mediterranean International Workshop on Photoacoustic & Photothermal Phenomena, Center Ettore Majorana in Erice (Sicily, Italy), July 11-18, 2010
- “All-optical thermoelastic spectroscopy of complex soft matter”, Advanced Laser Technologies, Egmond aan Zee (the Netherlands) September 11-16, 2010
- “Photothermal and photoacoustic phenomena: from soft matter physics to non-destructive testing applications”, CICATA Symposium, Mexico City, Mexico, August 8, 2011
- “Photothermal and photoacoustic phenomena: from soft matter physics to non-destructive testing applications”, invited seminar, University of Roma La Sapienza, Rome, Italy, 15 November 2011
- “High accuracy photopyroelectric measurements for the determination of thermal conductivity and thermal effusivity of silica nanoparticle suspensions in water”, 16<sup>th</sup> International Conference on Photoacoustic and Photothermal Phenomena (ICPPP16), Merida, Mexico, 27 November – 1 December 2011
- “Determination of the thermal diffusivity of paint and the thickness of a paint layer by photothermal IR thermography”, Annual meeting of the Thermophysical Society and Working Group of the Slovak Physical Society, 31 October - 2 November 2012
- “Determination of the sound reflection index of noise barriers: guidelines to improve the measurement accuracy”, Internoise 2012, New York, USA, 19-22 August 2012
- “Thermal characterization of materials using frequency domain techniques”, Slovak Academy of Science, Bratislava, Slovakia, 18 May 2012
- “Acoustic phenomena and applications of acoustics”, Overtoon, IMAL, Brussels, 25 April 2013 “Thermal and elastic characterization of sub-micron layers by laser ultrasonics”, Podkylava, Slovakia, 13th International Symposium on Nondestructive Characterization of Materials (ISNDCM-XIII), Palais des Congrès de la Culture, Le Mans, France, 20-25 May, 2013
- “Frequency selective vibrometry with photorefractive interferometer”, 17th International Conference on Photoacoustic and Photothermal Phenomena (ICPPP17), Suzhou, China, 20-24 October 2013

## **B. Teaching**

### ***Bachelor-Master***

- “Geluid en Golven” E09B9A in 1st Bachelor Logopedie en audiologie
- “Elektriciteit, magnetisme en golven” H0M72A in transition year industrial to civil engineer
- “Experimentele basistechnieken in de Natuurkunde” G0P32A in 2<sup>e</sup> Bachelor Science
- “Projectwerk Natuurkunde” G0P40A in 3<sup>e</sup> Bachelor Science
- “Onderzoekswerk Akoestiek en Thermische Fysica” G0736A in Master Science
- “Introductie voor fysica van spraak en gehoor”, E04F0A, Logopedie en audiologie
- “Advanced experimental techniques in Physics”, Master Physics
- “Fundamentals of Acoustics”, KVIV course ‘Cursus Hogere Akoestiek” for engineers, Antwerp
- “Physical Acoustics”, Master Physics
- “Optics, Lasers and Acoustics”, Bioengineering Science

### ***Development didactical tools***

- OOI-project LAP-TOP (Logopedisch-Audiologische Perceptievaardigheden Training en Optimalisering), September 2001 - August 2003
- Labview software tool for learning the relation between sounds, time signals and spectra.
- Experiment for determining spectral response and impulse response of systems via sound card.
- Labview software tool for learning the effects of windowing on Fourier transforms
- Labview software tool for learning the effects of filtering on Fourier transforms and sound perception
- Labview software tool for learning the principles of Fourier series synthesis and sound perception

### **Promotor project educational development**

- Development of online platform for learning the association between time signals, frequency spectra and sound perception in the framework of an educational project for students in Bachelor Logopedie en Audiologie. 2010-2012