CURRÍCULUM VÍTAE NORMALIZADO

Jerome Noailly

Generated from: Editor CVN de FECYT

Date of document: 06/06/2016

v 1.4.0

ec1cfd09d7d9462bdfe17720cef367ee

Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

I hold a Bachelor degree in Physical Chemistry physicist, an Engineer and a Master degree in Material Science, and a Master degree in Acoustics. In 2002, I started a PhD on spine computational biomechanics at the Universitat Politècnica de Catalunya, Barcelona (UPC), Spain. In 2006 I was awarded a Marie Skłodowska-Curie fellowship, and worked in computational mechanobiology and hydrogel mechanics for cartilage tissue engineering at the AO Foundation (Davos, Switzerland) and at the Eindhoven University of Technology (The Netherlands). In 2009, I went back to Barcelona with a Marie Skłodowska-Curie reintegration grant, and retook spine modelling activities at the Institute for Bioengineering of Catalonia (IBEC), Barcelona, Spain. The same year, I won the Best PhD Thesis award in engineering from the UPC. From 2012 to 2015, I was the head of the Biomechanics and Mechanobiology group at IBEC, being responsible for four to five contracted researchers, before I relocated my team at the Universitat Pompeu Fabra (UPF), where I am the principal investigator of the Multiscale and Computational Biomechanics and Mechanobiology (MBIOMM) research team. I have been supervising three PhD theses (two have been defended) and more than 13 master theses/final year projects. In 2014 one of my PhD students won the best PhD Thesis award in Engineering from the UPC. I have more than 90 contributions to congresses, two chapters in book series, and have published 24 articles in international journals, including high-ranking journals such as MRS Bulletin, Lab on a Chip, Journal of the Mechanics and Physics of Solids, PLoS Computational Biology, Journal of the Mechanical Behavior of Biomedical Materials, Biomechanics and Modeling in Mechanobiology, or Osteoarthritis and Cartilage. In 2014 and 2015, I was selected to give a total of six invited, keynote, and plenary talks at the World Congress of Biomechanics, the World Congress on Computational Mechanics, the VPH Conference, the EMI Conference, and the Congress of the European Society of Biomechanics, about my work in spine modelling. My 5-years mean research impact in 2015 was at least 40% higher than the mean international impacts in the fields related to my research, i.e. Engineering, Materials Science, Clinical Medicine, and Biology & Biochemistry. I have taught materials technology and mechanics at the UPC, and continuum mechanics, Biomaterials and musculoskeletal system modelling at the UPF, Barcelona, Spain. I am an active member of the European Society of Biomechanics (ESB), president of the National Spanish Chapter of the ESB, and co-chair of the PhD Committee at the Virtual Physiological Human Institute (VPHI). From 2012 to 2014, I have also been the legal representative of IBEC at the VPHI. I was Principal Investigator (PI) for the FP7 European project MySpine, and I have participated to a total of six European projects. From 2013 to 2015, I have been the promoter and the PI of three research contracts with both hospitals and companies.

General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

SCIENTIFIC PRODUCTION:

- Number of journal articles: 24
- Number of publications in Q1 (including D1): 14 (58,3%) - 4 publications (16,7%) in D1
- Number of book chapters: 2 (Editorial: Woodhead Publishing-Elsevier)

IMPACT:

- ISI Web: h Index = 9, 207 citations
- Scopus: h Index = 9, 289 citations
- Google Scholar: h Index = 11, 456 citations
- ResearchGate: h Index = 11, 356 citations
- Essential Science Indicator SM: 12.94

INTERNATIONAL RECOGNITION:

- Number of invited, keynote, plenary lectures at international conferences: 6 between 2014 and 2015

ACADEMIC LEADERSHIP AND QUALITY:

- Number of PhD theses supervised: 2 (dates of defenses: 26/07/2012 and 18/07/2015)
- Number of PhD theses being supervised: 1
- Principal Investigator of the research group Multiscale and Computational Biomechanics and Mechanobiology (MBIOMM), which obtained the Emerging Group distinction of the Generalitat de Catalunya (2014 SGR 1616)
- Accreditation (11/2014) of Advanced Research from AQU (L'Agència per a la Qualitat del Sistema Universitari de Catalunya) – Associate Professor level

Jerome Noailly

Surname(s): **Noailly**
Name: **Jerome**
Land line phone: **935421579**
Email: **jerome.noailly@upf.edu**

Current professional situation

Employing entity: Universidad Pompeu Fabra **Type of entity:** University
Department: Department of Information and Communication Technologies (DTIC)
Professional category: Senior Researcher / Principal Investigator and Lecturer **Educational Management (Yes/No):** Yes
City employing entity: Barcelona, Catalonia, Spain
Phone: (0034) 935421579 **Email:** jerome.noailly@upf.edu
Start date: 01/02/2015
Type of contract: Temporary employment contract **Dedication regime:** Full time
Primary (UNESCO code): 220501 - Analytical mechanics; 220502 - Continuous mechanics; 220503 - Elasticity; 220510 - Solid mechanics; 221102 - Composites; 221119 - Mechanical properties; 240604 - Bio-mechanics
Secondary (UNESCO code): 120316 - Hybrid computing; 120326 - Simulation; 120600 - Numerical analysis
Tertiary (UNESCO code): 331208 - Máterial properties; 331402 - Prosthetic devices
Performed tasks: Principal Investigator of the group of Multiscale and Computational Biomechanics and Mechanobiology (MBIOMM) which obtained the Emerging Group distinction of the Generalitat de Catalunya (2014 SGR 1616) - Topics: Biomechanics, Mechanobiology, Finite element modelling, Stochastic and complex modelling, Tissue mechanics, Tissue multiphysics, Soft tissue biophysics, Multiscale analysis, Technology transfer. Professor/coordinator of Biomechanics, Biomaterials, and Musculoskeletal System Computational Modelling for the 1st, 2nd, and 3rd courses of the Biomedical Engineering graduate studies.
Identify key words: Numeric methods, finite elements; Physics - Structure of materials; Physics - Complex systems; Physical aplications to problems and biological systems
Field of management activity: University
Applicability in teaching and/or research: Supervision of final year graduate projects, master theses, and PhD theses

Employing entity: Universidad Pompeu Fabra

Previous positions and activities

	Employing entity	Professional category	Start date
1	FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA	Senior Research Associate / Principal Investigator Biomechanics and Mechanobiology	01/02/2012

	Employing entity	Professional category	Start date
2	Universidad Pompeu Fabra	Teaching Professor	22/09/2014
3	Universitat Politècnica de Catalunya	Teaching Professor	01/09/2010
4	FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA	Senior Researcher	01/10/2011
5	FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA	Postdoctoral Researcher	01/07/2010
6	AO Research Institute (AO Foundation)	Postdoctoral Researcher	15/01/2007
7	Universitat Politècnica de Catalunya	PhD Fellow	01/01/2002

1 **Employing entity:** FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City employing entity: Barcelona, Catalonia, Spain
Professional category: Senior Research Associate / Principal Investigator Biomechanics and Mechanobiology **Educational Management (Yes/No):** Yes
Start-End date: 01/02/2012 - 31/01/2015 **Duration:** 3 years
Type of contract: Permanent employment contract
Dedication regime: Full time
Primary (UNESCO code): 220501 - Analytical mechanics; 220502 - Continuous mechanics; 220503 - Elasticity; 220510 - Solid mechanics; 221102 - Composites; 221119 - Mechanical properties; 240604 - Bio-mechanics
Secondary (UNESCO code): 120326 - Simulation; 120600 - Numerical analysis
Tertiary (UNESCO code): 331208 - Máterial properties; 331402 - Prosthetic devices
Performed tasks: Responsible for the group of Biomechanics and Mechanobiology (5-6 full time persons). Topics: Biomechanics, Mechanobiology, Finite element modelling, Stochastic and complex modelling, Tissue mechanics, Tissue multiphysics, Soft tissue biophysics, Multiscale analysis, Technology transfer
Identify key words: Numeric methods, finite elements; Physics - Structure of materials; Physical aplications to problems and biological systems
Field of management activity: Private Foundation
Applicability in teaching and/or research: Supervision of master and PhD theses

2 **Employing entity:** Universidad Pompeu Fabra **Type of entity:** University
Department: Department of Information and Communication Technologies (DTIC)
City employing entity: Barcelona, Catalonia, Spain
Professional category: Teaching Professor
Start-End date: 22/09/2014 - 07/01/2015 **Duration:** 3 months - 16 days
Type of contract: Temporary
Dedication regime: Part time
Primary (UNESCO code): 220502 - Continuous mechanics; 240604 - Bio-mechanics
Performed tasks: Professor of Biomechanics (Continuum mechanics) for the 2nd course of the Biomedical Engineering graduate studies
Applicability in teaching and/or research: University Teaching

3 **Employing entity:** Universitat Politècnica de Catalunya **Type of entity:** University
Department: Departamento de Ciencia de los Materiales e Ingeniería Metalúrgica (UCM), Escuela Técnica Superior de Ingeniería Industrial de Barcelona
City employing entity: Barcelona, Catalonia, Spain
Professional category: Teaching Professor **Educational Management (Yes/No):** Yes
Start-End date: 01/09/2010 - 31/08/2013 **Duration:** 3 years
Type of contract: Temporary employment contract

Dedication regime: Part time
Primary (UNESCO code): 220502 - Continuous mechanics; 220507 - Measurement of mechanical properties; 220508 - Plasticity; 220509 - Solid Mechanics; 331200 - Materials technology
Performed tasks: Professor of practical works and theory in Materials Mechanics and Materials Technology at the Department of Material Science and Metallurgical Engineering (CMEM) of the Industrial Engineering Faculty (ETSEIB) of the UPC – 12 ECTS / year
Field of management activity: University

4 **Employing entity:** FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
Department: Biomechanics and Mechanobiology
City employing entity: Barcelona, Spain
Professional category: Senior Researcher
Start-End date: 01/10/2011 - 31/01/2012
Type of contract: Temporary employment contract
Dedication regime: Part time
Performed tasks: Coordination of the research program in Computational Modelling for In Vivo Biomechanics and Mechanobiology within the group of Biomechanics and Mechanobiology at IBEC.

5 **Employing entity:** FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
Department: Biomechanics and Mechanobiology
City employing entity: Barceona, Spain
Professional category: Postdoctoral Researcher
Start-End date: 01/07/2010 - 30/09/2011 **Duration:** 1 year
Type of contract: Temporary employment contract
Dedication regime: Part time
Performed tasks: Development of the research in Spine biomechanics and mechanobiology within the group of Biomechanics and Mechanobiology at IBEC, including student mentoring and grant writing.

6 **Employing entity:** AO Research Institute (AO Foundation) **Type of entity:** Foundation
City employing entity: Davos, Switzerland
Professional category: Postdoctoral Researcher
Start-End date: 15/01/2007 - 14/01/2009 **Duration:** 2 years
Type of contract: Temporary employment contract
Dedication regime: Full time
Primary (UNESCO code): 220502 - Continuous mechanics; 220507 - Measurement of mechanical properties; 221199 - Other
Secondary (UNESCO code): 220501 - Analytical mechanics; 339900 - Other Technological specialities
Performed tasks: Numerical and experimental developments for cell mechano-regulation modelling in 3D hydrogels
Identify key words: Numeric methods, finite elements; Elastic materials; Optimization; Mechanical engineering

7 **Employing entity:** Universitat Politècnica de Catalunya **Type of entity:** University
Department: Departamento de Ciencia de los Materiales e Ingeniería Metalúrgica, Escuela Técnica Superior de Ingeniería Industrial de Barcelona
City employing entity: Barcelona, Spain
Professional category: PhD Fellow
Start-End date: 01/01/2002 - 31/12/2006 **Duration:** 4 years

Type of contract: Grant-assisted student (pre or post-doctoral, others)
Dedication regime: Full time
Primary (UNESCO code): 220502 - Continuous mechanics; 240604 - Bio-mechanics
Secondary (UNESCO code): 220508 - Plasticity
Performed tasks: Numerical modelling for the in silico analysis of the lumbar spine biomechanics.
Identify key words: Mechanical properties; Mechanical engineering

Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

1 **University degree:** Higher degree
Name of qualification: European Material Engineer, MSc in Materials Science
City degree awarding entity: Nancy, France
Degree awarding entity: Ecole Européenne d'Ingénieurs en Génie des Matériaux (EEIGM) - Institut National Polytechnique de Lorraine (INPL) **Type of entity:** University
Date of qualification: 07/09/2001
Standardised degree: No
Foreign qualification: Ingenieur diplômé de l'Ecole Européenne d'Ingénieurs en Génie des Matériaux de l'Institut National Polytechnique de Lorraine - Grade de Mastaire (Master Degree)

2 **University degree:** Higher degree
Name of qualification: MSc in Acoustics
City degree awarding entity: Lyon, France
Degree awarding entity: Ecole doctorale MEGA - Institut National des Sciences Appliquées (INSA) de Lyon **Type of entity:** University
Date of qualification: 04/09/2001
Average mark: Good
Standardised degree: No
Foreign qualification: Diplôme d'Etudes Approfondies d'Acoustique

3 **University degree:** Middle degree
Name of qualification: BSc in Physical Chemistry
City degree awarding entity: Paris, France
Degree awarding entity: Université Pierre et Marie Curie (UPMC - Paris VI) **Type of entity:** University
Date of qualification: 30/06/1998
Average mark: Good
Standardised degree: No
Foreign qualification: Maîtrise de Chimie-Physique

Doctorates

Doctorate programme: Materials Science
Degree awarding entity: Universitat Politècnica de Catalunya **Type of entity:** University
City degree awarding entity: Barcelona, Catalonia, Spain
Date of degree: 10/07/2009
European doctorate: Yes **Date of certificate:** 10/07/2009

Thesis title: Model Developments for In Silico Studies of the Lumbar Spine Biomechanics
Thesis director: Damien Lacroix
Thesis co-director: Josep Anton Planell Estany
Obtained qualification: Excellent Cum Laude
Recognition of quality: Yes
Special doctorate award: Yes **Date of award:** 13/07/2011

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
German		B1	C1	C1	B1
Catalan		C1	C1	C1	C1
Spanish		C1	C1	C1	C1
French		C1	C1	C1	C1
English		C1	C1	C1	C1

Teaching experience

General teaching experience

1 **Type of teaching:** Official teaching
Name of the course: Materials Technology
Professional category: Contracted professorship with doctorate
Type of programme: Engineering **Type of teaching:** In person theory
Type of subject: Core
University degree: Graduate in Industrial Engineering
Course given: 4th **Frequency of the activity:** 4
Start date: 12/09/2012 **End date:** 28/06/2013
End date: 28/06/2013 **Type of hours/ ECTS credits:** Hours
Hours/ECTS credits: 18
Entity: Universitat Politècnica de Catalunya **Type of entity:** University
Faculty, institute or centre: Escuela Técnica Superior de Ingeniería Industrial de Barcelona
Department: Department of Materials Science and Metallurgy (CMEM)
City of entity: Barcelona, Catalonia, Spain
Subject language: Catalan

2 **Type of teaching:** Official teaching
Name of the course: Tecnología de Materiales
Professional category: Contracted professor with doctorate
Type of programme: Engineering **Type of teaching:** Laboratory work
Type of subject: Core
University degree: Graduate in Industrial Engineering
Course given: 4th **Frequency of the activity:** 5
Start date: 13/09/2010 **End date:** 28/06/2013
End date: 28/06/2013 **Type of hours/ ECTS credits:** Hours
Hours/ECTS credits: 85
Entity: Universitat Politècnica de Catalunya **Type of entity:** University

Faculty, institute or centre: Escuela Técnica Superior de Ingeniería Industrial de Barcelona
Department: Department of Materials Science and Metallurgy (CMEM)
City of entity: Barcelona, Catalonia, Spain
Subject language: Catalan

3 **Type of teaching:** Official teaching
Name of the course: Materials Mechanics
Professional category: Contracted Professor with Doctorate
Type of programme: Engineering
Type of teaching: Practical work: exercises and laboratory
Type of subject: Core
University degree: Graduate in Materials Engineering
Course given: 4th
Frequency of the activity: 3
Start date: 13/09/2010
End date: 31/01/2013
End date: 31/01/2013
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 36
Entity: Universitat Politècnica de Catalunya
Type of entity: University
Faculty, institute or centre: Escuela Técnica Superior de Ingeniería Industrial de Barcelona
Department: Department of Materials Science and Metallurgy (CMEM)
City of entity: Barcelona, Catalonia, Spain
Subject language: Spanish

4 **Type of teaching:** Official teaching
Name of the course: Materials Mechanics
Professional category: Contracted professorship with doctorate
Type of programme: Master's degree
Type of teaching: Practical work: exercices and laboratory
Type of subject: Obligatory
University degree: Master in Materials Science and Engineering
Course given: Master
Frequency of the activity: 4
Start date: 13/09/2010
End date: 31/01/2013
End date: 31/01/2013
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 36
Entity: Universitat Politècnica de Catalunya
Type of entity: University
Faculty, institute or centre: Escuela Técnica Superior de Ingeniería Industrial de Barcelona
Department: Department of Materials Science and Metallurgy (CMEM)
City of entity: Barcelona, Catalonia, Spain
Subject language: Spanish

5 **Type of teaching:** Official teaching
Name of the course: Materials
Professional category: Contracted professorship with doctorate
Type of programme: Engineering
Type of teaching: Laboratory work
Type of subject: Core
University degree: Graduate in Industrial Engineering
Course given: 2nd
Frequency of the activity: 2
Start date: 13/09/2010
End date: 29/06/2012
End date: 29/06/2012
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 36
Entity: Universitat Politècnica de Catalunya
Type of entity: University
Faculty, institute or centre: Escuela Técnica Superior de Ingeniería Industrial de Barcelona

Department: Department of Materials Science and Metallurgy (CMEM)
City of entity: Barcelona, Catalonia, Spain
Subject language: Catalan

6 **Type of teaching:** Official teaching
Name of the course: Biomaterials
Type of programme: Engineering **Type of teaching:** In person theory
Type of subject: Core
University degree: Graduate in Biomedical Engineering
Course given: 2nd **Frequency of the activity:** 1
Start date: 13/01/2016
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 34
Entity: Universidad Pompeu Fabra **Type of entity:** University
Faculty, institute or centre: Escuela Superior Politécnica
Department: Department of Information and Communication Technologies (DTIC)
City of entity: Barcelona, Catalonia, Spain
Subject language: Spanish

7 **Type of teaching:** Official teaching
Name of the course: Biomechanics I
Type of programme: Engineering **Type of teaching:** In person theory
Type of subject: Core
University degree: Graduate in Biomedical Engineering
Course given: 1st **Frequency of the activity:** 1
Start date: 12/01/2016
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 18
Entity: Universidad Pompeu Fabra **Type of entity:** University
Faculty, institute or centre: Escuela Superior Politécnica
Department: Department of Information and Communication Technologies (DTIC)
City of entity: Barcelona, Catalonia, Spain
Subject language: Spanish

8 **Type of teaching:** Official teaching
Name of the course: Musculoskeletal Modelling
Type of programme: Engineering **Type of teaching:** In person theory
Type of subject: Optional
University degree: Graduate in Biomedical Engineering
Course given: 3rd **Frequency of the activity:** 1
Start date: 22/04/2015
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 36
Entity: Universidad Pompeu Fabra **Type of entity:** University
Faculty, institute or centre: Escuela Superior Politécnica
Department: Department of Information and Communication Technologies (DTIC)
City of entity: Barcelona, Catalonia, Spain
Subject language: English

9 **Type of teaching:** Official teaching
Name of the course: Biomechanics II
Type of programme: Engineering **Type of teaching:** In person theory
Type of subject: Core
University degree: Graduate in Biomedical Engineering
Course given: 2nd **Frequency of the activity:** 2
Start date: 22/09/2014
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 24
Entity: Universidad Pompeu Fabra **Type of entity:** University
Faculty, institute or centre: Escuela Superior Politécnica
Department: Department of Information and Communication Technologies (DTIC)
City of entity: Barcelona, Catalonia, Spain
Subject language: Spanish

Experience supervising doctoral thesis and/or final year projects

1 **Project title:** A Multi-Physics Simulation of Dynamic Loading of Intervertebral Discs Using Finite Element Methods
Type of project: End of course project
Entity: University of Rome Tor Vergata
City of entity: Rome, Italy
Student: Sarah Lydia Vizel
Obtained qualification: BSc in Engineering Science - Outstanding Cum Laude
Date of reading: 26/10/2015
Quality recognition: Yes **Date of award:** 26/10/2015

2 **Project title:** Link between intervertebral disc tissue composition and magnetic resonance image signals for in situ determination of parameter values in multiphysics organ modelling
Type of project: End of course project
Entity: Universitat de Barcelona **Type of entity:** University
City of entity: Barcelona, Catalonia, Spain
Student: Alexandre Bonet Font
Obtained qualification: Material Engineer - Very Good
Date of reading: 26/01/2015

3 **Project title:** Micro-fluidic device for endothelial cells seeding
Type of project: Minor thesis
Entity: Sapienza University of Rome **Type of entity:** University
City of entity: Roma, Italy
Student: Luca Liverani
Obtained qualification: MSc in Pharmacology
Date of reading: 07/08/2014

4 **Project title:** Multi-scale biomechanical study focused on transport phenomena in the intervertebral disc
Type of project: Doctoral thesis
Co-director of thesis: Damien Lacroix
Entity: Universitat Politècnica de Catalunya **Type of entity:** University
City of entity: Barcelona, Catalonia, Spain
Student: Andrea Malandrino
Obtained qualification: Doctor from the Universitat Politecnica de Catalunya - Outstanding Cum Laude

Identify key words: Connection of solid mechanics with other effects; Numeric methods, finite elements; Elastic materials; Homogenization; Means with microstructure; Optimization; Mechanical engineering
Date of reading: 26/07/2012
European doctorate: Yes **Date of recognition:** 28/07/2012
Quality recognition: Yes **Date of award:** 21/07/2014

5 **Project title:** Exploration numérique du rôle de la composition de la plaque cartilagineuse sur la déshydratation du disque intervertébral
Type of project: Minor thesis
Entity: Université Aix-Marseille **Type of entity:** University
City of entity: Marseille, France
Student: Baptiste Foata
Obtained qualification: MSc in Tissue and Implant Engineering - Good
Date of reading: 03/07/2014

6 **Project title:** Fluid-Structure Interaction in a Rabbit Artery
Type of project: End of course project
Entity: Imperial College London **Type of entity:** University
City of entity: London, United Kingdom
Student: Kwasi Afrifa
Obtained qualification: Engineer in Aeronautics
Date of reading: 17/06/2014

7 **Project title:** Electromechanical model of the myocardium
Type of project: Minor thesis
Entity: N.I. Lobachevsky State University of Nizhni Novgorod **Type of entity:** University
City of entity: Nizhni Novgorod, Russia
Student: Leonid Bovkun
Obtained qualification: MSc in Physics - Excellent
Date of reading: 17/06/2014

8 **Project title:** Characterization of the time- and strain-dependent mechanical behaviour of rabbit arteries in a bioreactor setup
Type of project: Minor thesis
Entity: Eindhoven University of Technology **Type of entity:** University
City of entity: Eindhoven, Holland
Student: Nicole van Gestel
Obtained qualification: Very Good
Date of reading: 14/03/2014

9 **Project title:** Anàlisi dinàmica inversa del moviment humà mitjançant el programari Opensim
Type of project: End of course project
Co-director of thesis: Josep Maria Font Llagunes
Entity: Universitat Politècnica de Catalunya **Type of entity:** University
City of entity: Barcelona, Catalonia, Spain
Student: Ernest Bosh Soldevila
Obtained qualification: Industrial Engineer - Outstanding
Identify key words: Numeric methods, finite elements; Elastic materials; Mechanical engineering
Date of reading: 11/12/2013
Quality recognition: Yes **Date of award:** 11/12/2013

10 **Project title:** Anàlisi multi-escala de les causes biomecàniques de la coxartrosi juvenil
Type of project: End of course project
Co-director of thesis: Josep Maria Font Llagunes
Entity: Universitat Politècnica de Catalunya **Type of entity:** University
City of entity: Barcelona, Catalonia, Spain
Student: Albert Peiret Gímenez
Obtained qualification: Industrial Engineer - Outstanding
Identify key words: Numeric methods, finite elements; Elastic materials; Mechanical engineering
Date of reading: 11/12/2013
Quality recognition: Yes **Date of award:** 11/12/2013

11 **Project title:** 3D Reconstruction of Fiber scaffolds from Two-Photon Confocal Images
Type of project: End of course project
Entity: NED University of Engineering and Technology **Type of entity:** University
City of entity: Karachi, Pakistan
Student: Arsalan Latif
Obtained qualification: Biomedical Engineer
Date of reading: 09/12/2013

12 **Project title:** Mechanistic development of patient-specific lumbar spine musculoskeletal models
Type of project: PhD Project
Entity: Universitat Politècnica de Catalunya **Type of entity:** University
City of entity: Barcelona, Catalonia, Spain
Student: Themis Toumanidou
Date of reading: 28/09/2012

13 **Project title:** Análisis de andamios en materiales compuestos para las diferenciación biomecánica de hueso
Type of project: End of course project
Co-director of thesis: Cécile Perrault
Entity: Universitat Politècnica de Catalunya **Type of entity:** University
City of entity: Barcelona, Catalonia, Spain
Student: Eduard Maurice Louis Fulchin
Obtained qualification: Material Engineer - Very Good
Date of reading: 10/02/2012

14 **Project title:** Geometry- and load-specific optimization of the collagen's fibre orientation in the lumbar spine's annulus fibrosus
Type of project: Minor thesis
Co-director of thesis: Damien Lacroix
Entity: École Polytechnique Fédérale de Lausanne **Type of entity:** University
City of entity: Lausanne, Switzerland
Student: Andreas Schmocker
Obtained qualification: MSc in Biomedical Engineering - Outstanding
Identify key words: Numeric methods, finite elements; Elastic materials; Means with microstructure; Optimization; Mechanical engineering
Date of reading: 22/01/2010
Quality recognition: Yes **Date of award:** 22/01/2010

Healthcare experience

Conferences, courses and seminars focused on medical care

1 **Type of event:** Conference
Goals of the event: XLII Congreso Nacional de la Sociedad Española de Reumatología (SER)
City of entity: Barcelona, Catalonia, Spain
Organising entity: Sociedad Española de Reumatología **Type of entity:** Asociación
Type of participation: Participatory - invited/keynote talk
Date of presentation: 21/05/2016
Modelización virtual. Una nueva manera de entender la espondilartrosis..

2 **Type of event:** Seminar
Goals of the event: Research Seminar
City of entity: Compiègne, France
Organising entity: Université de Technologie de Compiègne - LABEX MS2T
Type of participation: Participatory - invited/keynote talk
Date of presentation: 04/06/2014
Integration of biomechanical and biophysical in silico models to explore the complexity of musculoskeletal diseases over multiple scales.

3 **Type of event:** Seminar
Goals of the event: Research Seminar
City of entity: Barcelona, Catalonia, Spain
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City organizing entity: Barcelona, Catalonia, Spain
Type of participation: Participatory - invited/keynote talk
Date of presentation: 07/02/2014
Numerical explorations of cause-and-effect relationships in the functional regulation and diseases of the musculoskeletal system: a focus on the spine.

4 **Type of event:** Seminar
Goals of the event: Research seminars
City of entity: Barcelona, Catalonia, Spain
Organising entity: Universitat Politècnica de Catalunya **Type of entity:** University
City organizing entity: Barcelona, Catalonia, Spain
Type of participation: Participatory - invited/keynote talk
Language: English **Date of presentation:** 22/11/2013
Contributing to the 21st era of personalized medicine: in silico integration of biomechanical and biophysical models to explore musculoskeletal diseases.

5 **Type of event:** Conference
Goals of the event: 8th Combined Meeting of Orthopaedic Research Societies
City of entity: Venice, Italy
Organising entity: European Orthopaedic Research Society
City organizing entity: Barcelona, Catalonia, Spain
Type of participation: Participatory - invited/keynote talk
Language: English **Date of presentation:** 15/11/2013

Organ/tissue finite element modelling towards an integration of biomechanical and biophysical concepts in spine diseases.

6 **Type of event:** Conference
Goals of the event: I Congreso Internacional de Ciencias Básicas Biomédicas
City of entity: Cali, Colombia
Organising entity: Universidad Libre Cali **Type of entity:** University
City organizing entity: Barcelona, Catalonia, Spain
Type of participation: Participatory - invited/keynote talk
Language: English **Date of presentation:** 23/08/2013
Organ/tissue finite element modelling to integrate biomechanical and biophysical concepts in spine diseases.

7 **Type of event:** Conference
Goals of the event: I Congreso Internacional de Ciencias Básicas Biomédicas
City of entity: Cali, Colombia
Organising entity: Universidad Libre Cali **Type of entity:** University
City organizing entity: Barcelona, Catalonia, Spain
Type of participation: Participatory - invited/keynote talk
Language: English **Date of presentation:** 23/08/2013
Technology transfer in computational biomechanics: from concepts to clinics.

8 **Type of event:** Technology Transfer Meeting
City of entity: Girona, Catalonia, Spain
Organising entity: Fundació TicSalut **Type of entity:** Foundation
City organizing entity: Barcelona, Catalonia, Spain
Date of presentation: 23/05/2013
Organ/tissue modelling towards an integration of biomechanical and biophysical concepts in musculoskeletal tissue degeneration: A focus on the spine.

9 **Type of event:** Seminar
City of entity: Compiègne, France
Organising entity: Unité Mixte de Recherche Biomécanique et Bioingénierie, Université Technologique de Compiègne **Type of entity:** University Department
City organizing entity: Compiègne, France
Type of participation: Participatory - invited/keynote talk
Language: English **Date of presentation:** 22/03/2013
Organ/tissue finite element modelling towards an integration of biomechanical and biophysical concepts in musculoskeletal diseases.

10 **Type of event:** Technology Transfer Meeting
City of entity: Girona, Catalonia, Spain
Organising entity: Fundació TicSalut **Type of entity:** Foundation
City organizing entity: Barcelona, Catalonia, Spain
Date of presentation: 07/06/2012
The My SPINE project: Functional prognosis simulation of patient-specific spinal treatment for clinical use.

Other activities/achievements not included above

1 **Other relevant activities:** Principal Investigator of the research group Multiscale and Computational Biomechanics and Mechanobiology (MBIOMM), which obtained the Emerging Group distinction of the Generalitat de Catalunya (2014 SGR 1616)
Entity where project took place: AGENCIA PER A LA QUALITAT DEL SISTEMA UNIVERSITARI DE CATALUNYA
End date: 2016

2 **Other relevant activities:** Principal Investigator in the Spanish Networks of Excellence in Biomechanics (DPI2014-51763-REDT)
Entity where project took place: Ministerio de Economía y Competitividad **Type of entity:** Spanish Government
End date: 2014

3 **Other relevant activities:** Visiting Scholar Grant (ANR-11-IDEX-0004-02)
Entity where project took place: Laboratories of Excellence MS2T “Control of Technological Systems-of-Systems” **Type of entity:** University Centres and Structures and Associated Bodies
End date: 2014

4 **Other relevant activities:** Outstanding PhD thesis Award (Premis Extraordinaris)
Entity where project took place: Universitat Politècnica de Catalunya **Type of entity:** University
End date: 2011

5 **Other relevant activities:** Post-doctoral Marie Curie Reintegration Grant (SEVBIOM 249210)
Entity where project took place: European Commission
End date: 2011

6 **Other relevant activities:** Post-doctoral Intra-European Marie Curie Fellowship (MECNOR 518768)
Entity where project took place: European Commission
End date: 2009

7 **Other relevant activities:** Pre-doctoral FPU fellowship (AP2002-239)
Entity where project took place: MINISTERIO DE EDUCACION Y CIENCIA
End date: 2006

8 **Other relevant activities:** Advanced Research Accreditation (Associate Professor)
Entity where project took place: AGENCIA PER A LA QUALITAT DEL SISTEMA UNIVERSITARI DE CATALUNYA

9 **Other relevant activities:** Supervision of a total of 4 Postdocs / 3 PhD (Doctorate schools: Biomedical Engineering, Materials Science, and Mechanical Engineering) / 7 Master Students (Master programs: Biomedical Engineering, Materials Science)
Entity where project took place: Institute for Bioengineering of Catalonia / Universitat Pompeu Fabra **Type of entity:** University Centres and Structures and Associated Bodies

Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

1 **Name of the project:** Tissue in host engineering guided regeneration of arterial intimal layer (THE GRAIL)
Type of project: Basic research (including archaeological digs, etc)
Geographical area: European Union
Degree of contribution: Researcher
Entity where project took place: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City of entity: Barcelona, Catalonia, Spain
Name principal investigator (PI, Co-PI....): Josep Anton Planell Estany; Elisabeth Engel
Nº of researchers: 30
Funding entity or bodies:
European Commission
City funding entity: Brussels, Belgium

Type of participation: Coordinator biomechanics and Mechanobiology tasks
Name of the programme: FP7 HEALTH.2011.1.4-2
Code according to the funding entity: THE GRAIL 278557
Start-End date: 01/02/2012 - 31/01/2017
Participating entity/entities: CRIB (IT); CV (CH); DLC (IT); EXP (IT); IBEC (ES); TPNBT (ES); ULiv (UK); UMCU (NL); UVa (ES)
Total amount: 5.416.538
Sub-project amount: 898.960
Applicant's contribution: Responsible for the numerical and experimental tasks related to biomechanics and mechanobiology at IBEC

2 **Name of the project:** Biomechanical model of the femur for bone densitometry (BIODXA)
Type of project: Research and development, including transfer
Degree of contribution: Scientific coordinator
Entity where project took place: Universidad Pompeu Fabra
Type of entity: University
Name principal investigator (PI, Co-PI....): Ludovic Humbert; Miguel Angel Gonzalez Ballester
Nº of researchers: 5
Funding entity or bodies:
Ministerio de Economía y Competitividad
Type of entity: Spanish government
City funding entity: Madrid, Community of Madrid, Spain

Type of participation: Coordinator of the biomechanical modelling tasks at UPF
Name of the programme: Programa Estatal de I+D+i Orientada a los Retos de la Sociedad - Retos Investigación
Code according to the funding entity: Contract RTC- 2014-2740-1
Start-End date: 01/12/2014 - 30/11/2016
Participating entity/entities: Galgo Medical SL; Universidad Pompeu Fabra
Total amount: 97.824

3 **Name of the project:** Modelling and gait Analysis for Rehabilitation through Tai chi in OsteoArthritis: classification of gait analysis for prediction and prevention of the pathology (sMART-O)
Type of project: Basic research (including archaeological digs, etc)
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: Universidad Pompeu Fabra **Type of entity:** University
City of entity: Barcelona, Catalonia, Spain
Name principal investigator (PI, Co-PI....): Jérôme Noailly; Simone Tassani
Nº of researchers: 2
Funding entity or bodies:
AGENCIA DE GESTIO D'AJUTS UNIVERSITARIS I DE RECERCA
City funding entity: Spain

Type of participation: Co-ordinator
Name of the programme: Beatriz De Pinos (AGAUR-Marie Sklodowska Curie Co-fund)
Code according to the funding entity: BP-B 00096
Start-End date: 01/04/2014 - 31/03/2015
Total amount: 85,02

4 **Name of the project:** Functional prognosis simulation of patient-specific spinal treatment for clinical use (My SPINE)
Type of project: Research and development, including transfer **Geographical area:** European Union
Degree of contribution: Scientific coordinator
Entity where project took place: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City of entity: Barcelona, Catalonia, Spain
Name principal investigator (PI, Co-PI....): Jérôme Noailly
Nº of researchers: 9
Funding entity or bodies:
European Commission
City funding entity: Brussels, Belgium

Type of participation: Principal investigator
Name of the programme: FP7 ICT 2009.5.3
Code according to the funding entity: My SPINE 269909
Start-End date: 01/03/2011 - 31/08/2014
Participating entity/entities: Budai Egeszsegkozpont KFT; CETIR Centre Mèdic; CNRS - University of Technology of Compiegne; FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA; FUNDACIÓ BARCELONA MEDIA UNIVERSITAT POMPEU FABRA; Technische Universitaet Wien; Technische Universiteit Eindhoven; The University of Sheffield
Total amount: 3.038.639 **Sub-project amount:** 484.663
Applicant's contribution: Principal Investigator of the coordinating institution (IBEC), and Work Package leader

5 **Name of the project:** Estudio micromecánico por elementos finitos de la columna vertebral lumbar
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** National
Degree of contribution: Researcher
Entity where project took place: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City of entity: Barcelona, Catalonia, Spain
Nº of researchers: 4
Funding entity or bodies:
Ministerio de Ciencia e Innovación **Type of entity:** Spanish government

City funding entity: Madrid, Community of Madrid, Spain

Type of participation: Coordinator spine modelling tasks
Name of the programme: Acción Integrada
Start-End date: 01/02/2010 - 31/01/2012
Participating entity/entities: IBEC (ES); TUW (AUS)
Total amount: 12.000 **Sub-project amount:** 12.000
Applicant's contribution: Technical supervision of the scientific work reformed at IBEC

6 **Name of the project:** Mechanistic and Evolutive Development of Spine Biomechanical Modelling (SEVBIOM)
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** European Union
Degree of contribution: Researcher
Entity where project took place: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City of entity: Barcelona, Catalonia, Spain
Name principal investigator (PI, Co-PI....): Damien Lacroix; Jérôme Noailly
Nº of researchers: 2
Funding entity or bodies:
European Commission
City funding entity: Brussels, Belgium

Type of participation: Principal investigator
Name of the programme: FP7-PEOPLE-2009-RG
Code according to the funding entity: SEVBIOM PERG05-GA-2009-249210
Start-End date: 01/10/2009 - 30/09/2011
Total amount: 15.000
Applicant's contribution: Proposal Author and Project Researcher (personal grant)

7 **Name of the project:** Dynamic finite element modeling for tissue differentiation and long-term mechano-regulation processes (MECNOR)
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** European Union
Degree of contribution: Researcher
Entity where project took place: AO Research Institute (AO Foundation)
City of entity: Davos, Switzerland
Name principal investigator (PI, Co-PI....): Keita Ito; Jérôme Noailly
Nº of researchers: 2
Funding entity or bodies:
European Commission
City funding entity: Brussels, Belgium

Type of participation: Principal investigator
Name of the programme: FP6 MEIF-CT-2006
Code according to the funding entity: MECNOR 518768
Start-End date: 15/01/2007 - 14/01/2009
Total amount: 167.028
Dedication regime: Full time
Applicant's contribution: Proposal Author, and Project Researcher (Personal grant)

8 **Name of the project:** Model developments for in silico studies of the lumbar spine biomechanics (Beca FPU AP2002-239)
Type of project: Basic research (including archaeological digs, etc)
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Universitat Politècnica de Catalunya
Type of entity: University
City of entity: Barcelona, Catalonia, Spain
Name principal investigator (PI, Co-PI....): Josep Anton Planell Estany; Damien Lacroix; Jérôme Noailly
Nº of researchers: 3
Funding entity or bodies:
MINISTERIO DE EDUCACION Y CIENCIA
City funding entity: Spain

Type of participation: Principal investigator
Name of the programme: Formación de Profesorado Universitario (FPU)
Code according to the funding entity: AP2002-239
Start-End date: 01/01/2003 - 31/12/2006
Applicant's contribution: Proposal co-Author, and Project Researcher (Personal grant)

9 **Name of the project:** Novel Intervertebral Disc Prostheses (DISC)
Type of project: Basic research (including archaeological digs, etc)
Geographical area: European Union
Degree of contribution: Researcher
Entity where project took place: Universitat Politècnica de Catalunya
Type of entity: University
City of entity: Barcelona, Catalonia, Spain
Name principal investigator (PI, Co-PI....): Josep Anton Planell Estany
Nº of researchers: 18
Funding entity or bodies:
European Commission
City funding entity: Brussels, Belgium

Type of participation: Team member
Name of the programme: FP5-GROWTH
Code according to the funding entity: DISC GRD5-CT-2000-00267
Start-End date: 01/01/2001 - 30/06/2004
Total amount: 2.884.096

R&D non-competitive contracts, agreements or projects with public or private entities

1 **Name of the project:** Numerical models for the prediction of femur fracture risk (DENSI3D)
Type of project: Research and development, including transfer
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: Universidad Pompeu Fabra
Type of entity: University
Name principal investigator (PI, Co-PI....): Jérôme Noailly; Luís Miguel Del Rio Barquero
Nº of researchers: 4
Participating entity/entities: ERESA / CETIR Grupo Médico; Universidad Pompeu Fabra
Funding entity or bodies:
CETIR Centre Mèdic SL
Type of entity: Business
City funding entity: Barcelona, Catalonia, Spain

Start date: 05/10/2015 **Duration:** 9 months
Total amount: 36

2 **Name of the project:** Investigación de la biomecánica y mecanobiología de las fracturas de la meseta tibial mediante un modelo de elementos finitos (Extension)
Type of project: Research and development, including transfer
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: Universidad Pompeu Fabra **Type of entity:** University
Name principal investigator (PI, Co-PI....): Jérôme Noailly
Nº of researchers: 5
Participating entity/entities: HOSPITAL DE LA SANTA CREU I SANT PAU; Universidad Pompeu Fabra
Funding entity or bodies:
Private donation **Type of entity:** Associations and Groups

Start date: 01/03/2015 **Duration:** 2 months
Total amount: 7

3 **Name of the project:** Investigación de la biomecánica y mecanobiología de las fracturas de la meseta tibial mediante un modelo de elementos finitos
Type of project: Research and development, including transfer **Geographical area:** Contrato de colaboración inter-institucional
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
Name principal investigator (PI, Co-PI....): Jérôme Noailly; Pablo Gelber Ghertner; Joan Carles Monllau Garcia
Nº of researchers: 5
Participating entity/entities: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA; HOSPITAL DE LA SANTA CREU I SANT PAU
Funding entity or bodies:
INSTITUT DE RECERCA DE L'HOSPITAL DE LA SANTA CREU I SANT PAU
City funding entity: Spain

Start date: 15/03/2013 **Duration:** 1 year
Total amount: 34.500

4 **Name of the project:** La coxartrosi en l'adult jove: Estudi biomecànic
Type of project: Research and development, including transfer **Geographical area:** Contrato de colaboración inter-institucional
Degree of contribution: Scientific coordinator
Name principal investigator (PI, Co-PI....): Damien Lacroix; Ignasi Proubasta Renart
Nº of researchers: 5
Participating entity/entities: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA; HOSPITAL DE LA SANTA CREU I SANT PAU
Funding entity or bodies:
INSTITUT DE RECERCA DE L'HOSPITAL DE LA SANTA CREU I SANT PAU
City funding entity: Spain

Start date: 01/09/2011 **Duration:** 1 year - 10 months

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

1 Nerea Mangado; Mario Cerea; Nicolas Duchateau; Hans Martin Kjer; Sergio Vera; Hector Dejea Velardo; Pavel Mistrik; Rasmus R. Paulsen; Jens Fagertun; Jérôme Noailly; Gemma Piella; Miguel Ángel González Ballester. Automatic Model Generation Framework for Computational Simulation of Cochlear Implantation. Annals of Biomedical Engineering. In Press, 2016.

PMID: 26715210

Type of production: Scientific paper

Format: Journal

Impact source: ISI

Category: Science Edition - ENGINEERING, BIOMEDICAL

Impact index in year of publication: 3,195

Journal in the top 25%: Yes

2 Ion Carrera; Pablo Eduardo Gelber; Gaetan Chary; Miguel A. González-Ballester; Juan Carlos Monllau; Jérôme Noailly. Fixation of a split fracture of the lateral tibial plateau with a locking screw plate instead of cannulated screws would allow early weight bearing: a computational exploration. International Orthopaedics. In Press, 2016.

PMID: 26780714

Type of production: Scientific paper

Format: Journal

Impact source: ISI

Category: Science Edition - ORTHOPEDICS

Impact index in year of publication: 2,110

Journal in the top 25%: No

3 Carlos Ruiz Wills; Andrea Malandrino; Marc M van Rijsbergen; Damien Lacroix; Keita Ito; Jerome Noailly. Simulating the sensitivity of cell nutritive environment to composition changes within the intervertebral disc. Journal of the Mechanics and Physics of Solids. 90, pp. 108 - 123. 2016. Available on-line at: <http://dx.doi.org/10.1016/j.jmps.2016.02.003>.

Type of production: Scientific paper

Format: Journal

Corresponding author: Yes

Impact source: ISI

Category: Science Edition - ENGINEERING, MECHANICAL

Impact index in year of publication: 3.598

Journal in the top 25%: Yes

4 Simon Garcia; Raimon Sunyer; Andy Olivares; Jérôme Noailly; Javier Atencia; Xavier Trepat. Generation of stable orthogonal gradients of chemical concentration and substrate stiffness in a microfluidic device. Lab on a Chip. 15, pp. 2606 - 2614. 2015.

PMID: 25977997

Type of production: Scientific paper

Format: Journal

Impact source: ISI

Category: Science Edition - BIOCHEMICAL RESEARCH METHODS

Impact index in year of publication: 6,115

Journal in the top 25%: Yes

5 Themis Toumanidou; Jérôme Noailly. Musculoskeletal Modeling of the Lumbar Spine to Explore Functional Interactions between Back Muscle Loads and Intervertebral Disk Multiphysics. Frontiers in Bioengineering and Biotechnology. 3 - Article 111, pp. 1 - 13. 2015. Available on-line at: <http://journal.frontiersin.org/article/10.3389/fbioe.2015.00111>.

PMID: 26301218

Type of production: Scientific paper **Format:** Journal

6 Andrea Malandrino; José M. Pozo; Isaac Castro-Mateos; Alejandro F. Frangi; Marc M. van Rijsbergen; Keita Ito; Hans-Joachim Wilke; Tien Tuan Dao; Marie-Christine Ho Ba Tho; Jérôme Noailly. On the Relative Relevance of Subject-Specific Geometries and Degeneration-Specific Mechanical Properties for the Study of Cell Death in Human Intervertebral Disk Models. Frontiers in Bioengineering and Biotechnology. 3 - Article 5, pp. 1 - 15. 2015. Available on-line at: <http://www.frontiersin.org/Biomechanics/10.3389/fbioe.2015.00005/abstract>.

PMID: 25717471

Type of production: Scientific paper **Format:** Journal

7 Andrea Malandrino; Alicia R. Jackson; Jacques M. Huyghe; Jérôme Noailly. Poroelastic modeling of the intervertebral disc: A path toward integrated studies of tissue biophysics and organ degeneration. MRS Bulletin. 40, pp. 324 - 332. 2015.

DOI: 10.1557/mrs.2015.68

Type of production: Scientific paper **Format:** Journal

Impact source: ISI **Category:** Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY

Impact index in year of publication: 5,667 **Journal in the top 25%:** Yes

8 Antonio J Sánchez Egea; Màrius Valera; Juan Manuel Parraga Quiroga; Ignasi Proubasta; Jerôme Noailly; Damien Lacroix. Impact of hip anatomical variations on the cartilage stress: a finite element analysis towards the biomechanical exploration of the factors that may explain primary hip arthritis in morphologically normal subjects. Clinical Biomechanics. 29 - 4, pp. 444 - 450. Elsevier, 2014.

PMID: 24530154

Type of production: Scientific paper **Format:** Journal

Impact source: ISI **Category:** Science Edition - ENGINEERING, BIOMEDICAL

Impact index in year of publication: 1,970 **Journal in the top 25%:** No

9 Andrea Malandrino; Jérôme Noailly; Damien Lacroix. Numerical exploration of the combined effect of nutrient supply, tissue condition and deformation in the intervertebral disc. Journal of Biomechanics. 47, pp. 607 - 762. 2014.

PMID: 24612720

Type of production: Scientific paper **Format:** Journal

Impact source: ISI **Category:** Science Edition - ENGINEERING, BIOMEDICAL

Impact index in year of publication: 2,751 **Journal in the top 25%:** No

Source of citations: SCOPUS **Citations:** 5

10 Andrea Malandrino; Damien Lacroix; Christian Hellmich; Ito Keita; Stephen J Ferguson; Jérôme Noailly. The role of endplate poromechanical properties on the nutrient availability in the intervertebral disc. Osteoarthritis and Cartilage. 22 - 7, pp. 1053 - 1060. 2014.

PMID: 24857972

Type of production: Scientific paper **Format:** Journal

Impact source: ISI **Category:** Science Edition - ORTHOPEDICS

Impact index in year of publication: 4,165 **Journal in the top 25%:** Yes

Source of citations: SCOPUS **Citations:** 7

11 Carlos Ruiz Wills; Jérôme Noailly; Damien Lacroix. Material property discontinuities in intervertebral disc porohyperelastic finite element models generate numerical instabilities due to volumetric strain variations. Journal of the Mechanical Behavior of Biomedical Materials. 26, pp. 1 - 10. Elsevier, 2013. Available on-line at: <10.1016/j.jmbbm.2013.05.012>.
PMID: 23796430
Type of production: Scientific paper **Format:** Journal
Corresponding author: Yes
Impact source: ISI **Category:** Science Edition - ENGINEERING, BIOMEDICAL
Impact index in year of publication: 3,048 **Journal in the top 25%:** Yes
Source of citations: SCOPUS **Citations:** 2

12 Andrea Malandrino; Jérôme Noailly; Damien Lacroix. Regional annulus fibre orientations used as a tool for the calibration of lumbar intervertebral disc finite element models. Computer Methods in Biomechanics and Biomedical Engineering. 16, pp. 923 - 928. 2013. Available on-line at: <DOI: 10.1080/10255842.2011.644539>.
PMID: 22224724
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Science Edition - ENGINEERING, BIOMEDICAL
Impact index in year of publication: 1,393 **Journal in the top 25%:** No
Source of citations: SCOPUS **Citations:** 8

13 Andrea Malandrino; Andreas Fritsch; Olaf Lahayne; Karl Kropik; Heinz Redl; Jérôme Noailly; Damien Lacroix; Christian Hellmich. Anisotropic tissue elasticity in human lumbar vertebra, by means of a coupled ultrasound-micromechanics approach. Materials Letters. 78, pp. 154 - 158. 2012.
DOI: 10.1016/j.matlet.2012.03.052
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Science Edition - PHYSICS, APPLIED
Impact index in year of publication: 2,224 **Journal in the top 25%:** Yes
Source of citations: SCOPUS **Citations:** 10

14 Jérôme Noailly; Luigi Ambrosio; K Elisabeth Tanner; Josep A Planell; Damien Lacroix. In silico evaluation of a new composite disc substitute with a L3-L5 lumbar spine finite element model. European Spine Journal. 21, pp. S675 - S687. 2012.
PMID: 21380572
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Science Edition - ORTHOPEDICS
Impact index in year of publication: 2,133 **Journal in the top 25%:** No
Source of citations: SCOPUS **Citations:** 8

15 Fabio Galbusera; Hendrik Schmidt; Jérôme Noailly; Andrea Malandrino; Damien Lacroix; Hans-Joachim Wilke; Aboulfazl Shirazi-Adl. Comparison of four methods to simulate swelling in poroelastic finite element models of intervertebral discs. Journal of the Mechanical Behavior of Biomedical Materials. 4, pp. 1234 - 1241. 2011.
PMID: 21783132
Type of production: Scientific paper **Format:** Journal

Impact source: ISI
Category: Science Edition - ENGINEERING, BIOMEDICAL
Impact index in year of publication: 2,814
Journal in the top 25%: Yes
Source of citations: SCOPUS
Citations: 29

16 Jérôme Noailly; Josep A Planell; Damien Lacroix. On the collagen criss-cross angles in the annuli fibrosi of lumbar spine finite element models. Biomechanics and Modeling in Mechanobiology. 10, pp. 2013 - 219. 2011.
PMID: 20532944
Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - ENGINEERING, BIOMEDICAL
Impact index in year of publication: 3,192
Journal in the top 25%: Yes
Source of citations: SCOPUS
Citations: 15

17 Andrea Malandrino; Jérôme Noailly; Damien Lacroix. The effect of sustained compression on oxygen metabolic transport in the intervertebral disc decreases with degenerative changes. PLoS Computational Biology. 7 - e1002112, pp. 1 - 12. 2011. Available on-line at: <http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1002112>.
PMID: 21829341
Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - MATHEMATICAL & COMPUTATIONAL BIOLOGY
Impact index in year of publication: 5,215
Journal in the top 25%: Yes
Source of citations: SCOPUS
Citations: 28

18 Esther Potier; Jérôme Noailly; Keita Ito. Directing bone marrow-derived stromal cell function with mechanics. Journal of Biomechanics. 43, pp. 807 - 817. 2010.
PMID: 19962149
Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - ENGINEERING, BIOMEDICAL
Impact index in year of publication: 2,463
Journal in the top 25%: No
Source of citations: SCOPUS
Citations: 44

19 Esther Potier; Jérôme Noailly; Christoph M Sprecher; Keita Ito. Influencing biophysical properties of fibrin with buffer solutions. Journal of Materials Science. 45, pp. 2494 - 2503. 2010.
DOI: 10.1007/s10853-010-4221-1
Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - MATERIALS SCIENCE, MULTIDISCIPLINARY
Impact index in year of publication: 1,859
Journal in the top 25%: No
Source of citations: SCOPUS
Citations: 3

20 Jérôme Noailly; Hans van Oosterwyck; Wouter Wilson; Thomas M Quinn; Keita Ito. A poroviscoelastic description of fibrin gels. Journal of Biomechanics. 41, pp. 3265 - 3269. 2008.
PMID: 18930461
Type of production: Scientific paper
Format: Journal

Impact source: ISI
Category: Science Edition - ENGINEERING, BIOMEDICAL
Impact index in year of publication: 2,784
Journal in the top 25%: Yes
Source of citations: SCOPUS
Citations: 16

21 Jérôme Noailly; Hans-Joachim Wilke; Josep A Planell; Damien Lacroix. How does the geometry affect the internal biomechanics of a lumbar spine bi-segment finite element model? Consequences on the validation process. Journal of Biomechanics. 40, pp. 2414 - 2425. 2007.
PMID: 17257603
Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - ENGINEERING, BIOMEDICAL
Impact index in year of publication: 2,897
Journal in the top 25%: Yes
Source of citations: SCOPUS
Citations: 38

22 Damien Lacroix; Jérôme Noailly; Guillem Saló; Enric Càceres; Josep A Planell. The effect of bone graft geometry on spinal fusion vertebral stresses. Journal of Applied Biomaterials & Biomechanics. 4, pp. 135 - 142. 2006.
PMID: 20799199
Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - ENGINEERING, BIOMEDICAL
Impact index in year of publication: 0,944
Journal in the top 25%: No
Source of citations: SCOPUS
Citations: 3

23 Jérôme Noailly; Damien Lacroix; Josep A Planell. Finite Element Study of a Novel Intervertebral Disc Substitute. Spine. 30, pp. 2257 - 2264. 2005.
PMID: 16227887
Type of production: Scientific paper
Format: Journal
Impact source: ISI
Category: Science Edition - ORTHOPEDICS
Impact index in year of publication: 2,187
Journal in the top 25%: Yes
Source of citations: SCOPUS
Citations: 38

24 Jérôme Noailly; Andrea Malandrino; Fabio Galbusera. Computational modelling of spinal implants. Computational Modelling of Biomechanics and Biotribology in the Musculoskeletal System. Chap 15, pp. 447 - 484. Woodhead Publishing Ltd, 2014.
Type of production: Book chapter
Format: Book

25 Jérôme Noailly; Damien Lacroix. Finite element modelling of the spine. Biomaterials for spinal surgery. pp. 144 - 232. Woodhead Publishing Ltd, 2012.
Type of production: Book chapter
Format: Book
Source of citations: SCOPUS
Citations: 2

26 Andrea Malandrino; Damien Lacroix; Jérôme Noailly. Intervertebral disc cell death explained by metabolism-deformation couplings in a porohyperelastic finite element model. Poromechanics V. pp. 2193 - 2201. American Society of Civil Engineering (ASCE), 2013. Available on-line at: <http://dx.doi.org/10.1061/9780784412992.258>. ISBN 978-0-7844-1299-2
DOI: 10.1061/9780784412992.258

Type of production: Indexed Proceedings
Source of citations: SCOPUS
Format: Book
Citations: 2

Works submitted to national or international conferences

1 **Title of the work:** A computational systems biology approach to describe the response of nucleus pulposus cells to nutritional and mechanical cues
Name of the conference: V Reunión del Capítulo Español de la Sociedad Europea de Biomecánica
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Madrid, Community of Madrid, Spain
Date of event: 19/11/2015
End date: 20/11/2015
Organising entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB)
With external admission assessment committee: Yes
Justin J. Reagh; Jérôme Noailly.

2 **Title of the work:** Influence of inertial forces in multi-scale mechanics of the hip joint
Name of the conference: V Reunión del Capítulo Español de la Sociedad Europea de Biomecánica
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Madrid, Community of Madrid, Spain
Date of event: 19/11/2015
End date: 20/11/2015
Organising entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB)
With external admission assessment committee: Yes
Simone Tassani; Albert Peiret; Ernest Bosh; Gil Serrancoli; Jérôme Noailly; Josep Maria Font-Llagunes.

3 **Title of the work:** Understanding the role of the cartilage endplate in intervertebral disc degeneration
Name of the conference: V Reunión del Capítulo Español de la Sociedad Europea de Biomecánica
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Madrid, Community of Madrid, Spain
Date of event: 19/11/2015
End date: 20/11/2015
Organising entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB)
With external admission assessment committee: Yes
Carlos Ruiz Wills; Baptiste Foata; Jérôme Noailly.

4 **Title of the work:** Interpretation of intervertebral disc dynamic cultures through multi-scale system modelling
Name of the conference: VI International Conference on Computational Bioengineering (ICCB 2015)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Barcelona, Catalonia, Spain
Date of event: 14/09/2015
End date: 16/09/2015
Organising entity: International Center for Numerical Methods in Engineering (CIMNE)
With external admission assessment committee: Yes
Justin J. Reagh; Sarah Vizel; Carlos Ruiz Wills; Tony Di Blasi; Andrea Malandrino; Felix Loeser; Samantha C.W. Chan; Benjamin Gantenbein-Ritter; Jérôme Noailly.

5 **Title of the work:** Theoretical discrimination between intra- and extra-fibrillar water improves experimental correlations between intervertebral disc qMRI and composition
Name of the conference: VI International Conference on Computational Bioengineering (ICCB 2015)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Barcelona, Catalonia, Spain
Date of event: 14/09/2015
End date: 16/09/2015
Organising entity: International Center for Numerical Methods in Engineering (CIMNE)
With external admission assessment committee: Yes
Jérôme Noailly; Tien Tuan Dao; Marc M. van Rijsbergen Wills; Alex Bonet; Philippe Pouletaut; Fabrice Charleux; Keita Ito; Marie-Christine Ho Ba Tho.

6 **Title of the work:** A multi-scale tudy of the hip joint mechanics: influence of inertial forces
Name of the conference: 21st Congress of the European Society of Biomechanics (ESB 2015)
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Prague, Czech Republic
Date of event: 05/07/2015
End date: 08/07/2015
Organising entity: European Society of Biomechanics (ESB)
With external admission assessment committee: Yes
Simone Tassani; Albert Peiret; Ernest Bosh; Gil Serrancoli; Josep Maria Font-Llagunes; Jérôme Noailly.

7 **Title of the work:** Biomechanical approach to Tai-Chi. Relaxation and stability
Name of the conference: 21st Congress of the European Society of Biomechanics (ESB 2015)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Prague, Czech Republic
Date of event: 05/07/2015
End date: 08/07/2015
Organising entity: European Society of Biomechanics (ESB)
With external admission assessment committee: Yes
Simone Tassani; Josep Maria Font-Llagunes; Jérôme Noailly.

8 **Title of the work:** Exploring lumbar spine biomechanics and intervertebral disc biophysics through multiscale and multiphysics modelling
Name of the conference: 21st Congress of the European Society of Biomechanics (ESB 2015)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
City of event: Prague, Czech Republic
Date of event: 05/07/2015
End date: 08/07/2015
Organising entity: European Society of Biomechanics (ESB)
With external admission assessment committee: Yes
Jérôme Noailly.

9 **Title of the work:** Multi-scale simulation of intervertebral disc biophysics under bioreactor conditions by coupling finite element and agent-based models
Name of the conference: 21st Congress of the European Society of Biomechanics (ESB 2015)

Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Prague, Czech Republic
Date of event: 05/07/2015
End date: 08/07/2015
Organising entity: European Society of Biomechanics (ESB)
With external admission assessment committee: Yes
Justin J. Reagh; Sarah Vizel; Carlos Ruiz Wills; Tony Di Blasi; Andrea Malandrino; Felix Loeser; Samantha C.W. Chan; Benjamin Gantenbein-Ritter; Jérôme Noailly.

10 **Title of the work:** Simulating proteoglycan turnover and cell viability in the intervertebral disc: a numerical exploration of nutrition-induced changes along degeneration
Name of the conference: 21st Congress of the European Society of Biomechanics (ESB 2015)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Prague, Czech Republic
Date of event: 05/07/2015
End date: 08/07/2015
Organising entity: European Society of Biomechanics (ESB)
With external admission assessment committee: Yes
Carlos Ruiz Wills; Andrea Malandrino; Damien Lacroix; Jérôme Noailly.

11 **Title of the work:** Simulating the interactions between muscle function and disc multiphysics through a predictive lumbar spine FE model
Name of the conference: 21st Congress of the European Society of Biomechanics (ESB 2015)
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Prague, Czech Republic
Date of event: 05/07/2015
End date: 08/07/2015
Organising entity: European Society of Biomechanics (ESB)
With external admission assessment committee: Yes
Themis Toumanidou; Jérôme Noailly.

12 **Title of the work:** Simulating the multiphysics of the intervertebral disc and the likely implications of disc cell nutrition in disc degeneration
Name of the conference: Engineering Mechanics Institute Conference 2015 (EMI 2015)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
City of event: Stanford, United States of America
Date of event: 16/06/2015
End date: 19/06/2015
Organising entity: Engineering Mechanics Institute (EMI)
With external admission assessment committee: Yes
Jérôme Noailly; Carlos Ruiz Wills; Andrea Malandrino.

13 **Title of the work:** Would A Proximal Tibial Locked Plating System Or Cannulated Screws Allow Postoperative Weight Bearing On A Surgically Stabilized Schatzker I Tibial Plateau Fracture? An In Silico Pre-check
Name of the conference: 2015 Annual Meeting of the Orthopaedic Research Society (ORS 2015)
Type of event: Conference

Type of participation: 'Participatory - poster
City of event: Las Vegas, United States of America
Date of event: 28/03/2015
End date: 31/03/2015
Organising entity: Orthopaedic Research Society (ORS)
With external admission assessment committee: Yes
Gaetan Chary; Ion Carrera; Pablo E. Gelber; Joan Carles Monllau; Jérôme Noailly.

14 **Title of the work:** Numerical simulations towards the integration of extracellular matrix condition, mechanical cues, solute transport and cell viability in intervertebral disc degeneration
Name of the conference: XXXII Congreso Anual de la Sociedad Española de Ingeniería Biomédica (CASEIB 2014)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
City of event: Barcelona, Catalonia, Spain
Date of event: 26/11/2014
End date: 28/11/2014
Organising entity: Sociedad Española de Ingeniería Biomédica (SEIB)
With external admission assessment committee: Yes
Jérôme Noailly.

15 **Title of the work:** Simulating the interaction between muscle activation and condition-dependent intervertebral disc multiphysics in patients with low back pain
Name of the conference: XXXII Congreso Anual de la Sociedad Española de Ingeniería Biomédica (CASEIB 2014)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
City of event: Barcelona, Catalonia, Spain
Date of event: 26/11/2014
End date: 28/11/2014
Organising entity: Sociedad Española de Ingeniería Biomédica (SEIB)
With external admission assessment committee: Yes
Themis Toumanidou; Jérôme Noailly.

16 **Title of the work:** Effect of the cartilage endplate gradient of composition on the fluid exchange at the intervertebral disc - vertebra interface
Name of the conference: IV Reunión del Capítulo Nacional Español de la Sociedad Europea de Biomecánica
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Valencia, Valencian Community, Spain
Date of event: 20/11/2014
End date: 21/11/2014
Organising entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB)
With external admission assessment committee: Yes
Baptiste Foata; Carlos Ruiz Wills; Jérôme Noailly.

17 **Title of the work:** Simulating proteoglycan turnover and cell viability in the intervertebral disc: a numerical exploration of nutrition-induced changes along degeneration
Name of the conference: IV Reunión del Capítulo Nacional Español de la Sociedad Europea de Biomecánica
Type of event: Conference

Type of participation: Participatory - oral communication
City of event: Valencia, Valencian Community, Spain
Date of event: 20/11/2014
End date: 21/11/2014
Organising entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB)
With external admission assessment committee: Yes
Carlos Ruiz Wills; Andrea Malandrino; Damien Lacroix; Jérôme Noailly.

18 **Title of the work:** Simulating the interaction between muscle activation and condition-dependent intervertebral disc multiphysics in patients with low back pain
Name of the conference: IV Reunión del Capítulo Nacional Español de la Sociedad Europea de Biomecánica
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Valencia, Valencian Community, Spain
Date of event: 20/11/2014
End date: 21/11/2014
Organising entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB)
With external admission assessment committee: Yes
Themis Toumanidou; Jérôme Noailly.

19 **Title of the work:** Virtual exploration of early atherosclerosis using agent based model
Name of the conference: IV Reunión del Capítulo Nacional Español de la Sociedad Europea de Biomecánica
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Valencia, Valencian Community, Spain
Date of event: 20/11/2014
End date: 21/11/2014
Organising entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB)
With external admission assessment committee: Yes
Andy L. Olivares; Jérôme Noailly.

20 **Title of the work:** Agent-based modeling to explore the early stage of Atherosclerosis
Name of the conference: 7th annual IBEC Symposium
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Barcelona, Catalonia, Spain
Date of event: 29/09/2014
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
With external admission assessment committee: Yes
Andy L. Olivares; Jérôme Noailly.

21 **Title of the work:** Effect of the cartilage endplate gradient of composition on the fluid exchange at the intervertebral disc - vertebra interface
Name of the conference: 7th annual IBEC Symposium
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Barcelona, Catalonia, Spain
Date of event: 29/09/2014
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA

With external admission assessment committee: Yes
Baptiste Foata; Carlos Ruiz; Jérôme Noailly.

22 **Title of the work:** Ex-vivo Biomechanical Characterization of Rabbit artery
Name of the conference: 7th annual IBEC Symposium
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Barcelona, Catalonia, Spain
Date of event: 29/09/2014
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
With external admission assessment committee: Yes
Andy L. Olivares; Jérôme Noailly.

23 **Title of the work:** Intervertebral disc degeneration: How does proteoglycan loss affect the cell viability?
Name of the conference: 7th annual IBEC Symposium
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Barcelona, Catalonia, Spain
Date of event: 29/09/2014
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
With external admission assessment committee: Yes
Carlos Ruiz Wills; Andrea Malandrino; Damien Lacroix; Jérôme Noailly.

24 **Title of the work:** Multiscale analysis of the hip joint: translate mechanical information from inverse analyses of body motion into boundary loads for finite element calculations of organ/tissue biomechanics
Name of the conference: 7th annual IBEC Symposium
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Barcelona, Catalonia, Spain
Date of event: 29/09/2014
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
With external admission assessment committee: Yes
Albert Peiret; Ernest Bosh; Gil Serrancoli; Jérôme Noailly; Josep Maria Font-Llagunes.

25 **Title of the work:** Stabilization of a Schatzker I tibial plateau fracture through proximal tibial locked plating system or cannulated screws: a comparative numerical study
Name of the conference: 7th annual IBEC Symposium
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Barcelona, Catalonia, Spain
Date of event: 29/09/2014
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
With external admission assessment committee: Yes
Gaetan Chary; Ion Carrera; Pablo E. Gelber; Joan Carles Monllau; Jérôme Noailly.

26 **Title of the work:** The effect of disc degeneration in combination with muscle activity on the intradiscal pressures: a continuum approach using a L1-S1 patient-specific FE model for simulated standing
Name of the conference: 7th annual IBEC Symposium
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Barcelona, Catalonia, Spain

Date of event: 29/09/2014
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
With external admission assessment committee: Yes
Themis Toumanidou; Jérôme Noailly.

27 **Title of the work:** Atherosclerosis explored with an agent-based model
Name of the conference: Virtual Physiological Human Conference 2014
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Trondheim, Norway
Date of event: 09/09/2014
End date: 12/09/2014
Organising entity: Virtual Physiological Human Institute
With external admission assessment committee: Yes
Andy L. Olivares; Jérôme Noailly.

28 **Title of the work:** Simulating muscle activation in the lumbar spine while accounting for condition-dependent intervertebral disc multiphysics
Name of the conference: Virtual Physiological Human Conference 2014
Type of event: Conference
Type of participation: Participatory - Plenary session
City of event: Trondheim, Norway
Date of event: 09/09/2014
End date: 12/09/2014
Organising entity: Virtual Physiological Human Institute
With external admission assessment committee: Yes
Themis Toumanidou; Jérôme Noailly.

29 **Title of the work:** A composition-based intervertebral disc model to study the effects of extracellular matrix degenerative changes on nutrition
Name of the conference: 11th World Congress on Computational Mechanics (WCCM XI)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
City of event: Barcelona, Catalonia, Spain
Date of event: 20/07/2014
End date: 25/07/2014
Organising entity: European Community on Computational Methods in Applied Sciences (ECCOMAS) / international Association of Computational Mechanics (IACM)
With external admission assessment committee: Yes
Carlos Ruiz; Andrea Malandrino; Damien Lacroix; Keita Ito; Jérôme Noailly.

30 **Title of the work:** A multi-scale study of the hip joint mechanics using rigid-body inverse dynamics and finite elements analysis
Name of the conference: 11th World Congress on Computational Mechanics (WCCM XI)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Barcelona, Catalonia, Spain
Date of event: 20/07/2014
End date: 25/07/2014
Organising entity: European Community on Computational Methods in Applied Sciences (ECCOMAS) / international Association of Computational Mechanics (IACM)

With external admission assessment committee: Yes
Ernest Bosh; Gil Serrancoli; Jérôme Noailly; Josep Maria Font Llagunes.

31 **Title of the work:** In silico exploration of early stage atherosclerosis through stochastic modelling
Name of the conference: 11th World Congress on Computational Mechanics (WCCM XI)
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Barcelona, Catalonia, Spain
Date of event: 20/07/2014
End date: 25/07/2014
Organising entity: European Community on Computational Methods in Applied Sciences (ECCOMAS) / international Association of Computational Mechanics (IACM)
With external admission assessment committee: Yes
Andy L. Olivares; Jérôme Noailly.

32 **Title of the work:** Active muscle modelling in combination with intervertebral disc swelling in a L3-1 lumbar spine model captures the importance of night rest
Name of the conference: 7th World Congress of Biomechanics (WCB)
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Boston, United States of America
Date of event: 06/07/2014
End date: 11/07/2014
Organising entity: World Council of Biomechanics
With external admission assessment committee: Yes
Themis Toumanidou; Jérôme Noailly.

33 **Title of the work:** Agent-based modeling to simulate the early atheroma formation in hypercholesterolemia virtual patients with and without statin treatments
Name of the conference: 7th World Congress of Biomechanics (WCB)
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Boston, United States of America
Date of event: 06/07/2014
End date: 11/07/2014
Organising entity: World Council of Biomechanics
With external admission assessment committee: Yes
Andy L. Olivares; Andrea Malandrino; Jérôme Noailly.

34 **Title of the work:** Composition-based tissue modelling to assess the sensitivity of cell nutritive environment to extracellular matrix changes within the intervertebral disc
Name of the conference: 7th World Congress of Biomechanics (WCB)
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Boston, United States of America
Date of event: 06/07/2014
End date: 11/07/2014
Organising entity: World Council of Biomechanics
With external admission assessment committee: Yes
Carlos Ruiz Wills; Andrea Malandrino; Damien Lacroix; Keita Ito; Jérôme Noailly.

35 **Title of the work:** Constitutive modeling of the human spine in healthy and degenerated conditions: a focus on the intervertebral disc tissue
Name of the conference: 7th World Congress of Biomechanics (WCB)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
City of event: Boston, United States of America
Date of event: 06/07/2014
End date: 11/07/2014
Organising entity: World Council of Biomechanics
With external admission assessment committee: Yes
Andrea Malandrino; Jérôme Noailly.

36 **Title of the work:** Exploration of cause-and-effect relationships between extracellular matrix condition, mechanical cues, solute transport and cell viability in the intervertebral disc
Name of the conference: 7th World Congress of Biomechanics (WCB)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
City of event: Boston, United States of America
Date of event: 06/07/2014
End date: 11/07/2014
Organising entity: World Council of Biomechanics
With external admission assessment committee: Yes
Jérôme Noailly; Andrea Malandrino; Carlos Ruiz; Damien Lacroix.

37 **Title of the work:** Muscle model personalization and finite element exploration of the osteoligamentous spine, depending upon muscle activation in supine and standing position
Name of the conference: 7th World Congress of Biomechanics (WCB)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
City of event: Boston, United States of America
Date of event: 06/07/2014
End date: 11/07/2014
Organising entity: World Council of Biomechanics
With external admission assessment committee: Yes
Themis Toumanidou; Tien Tuan Dao; Khalil Ben Mansour; Luis Del Rio; Fabrice Charleux; Marie-Christine Ho Ba Tho; Jérôme Noailly.

38 **Title of the work:** A micromechanics-based damage model compatible with the intervertebral disc non-linear biphasic behavior
Name of the conference: 3rd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics (ESB)
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 24/10/2013
End date: 24/10/2013
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Andrea Malandrino; Damien Lacroix; Jérôme Noailly.

39 **Title of the work:** Can biochemical composition changes affect nutrition and cell viability in early stages of intervertebral disc degeneration?
Name of the conference: 3rd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics (ESB)
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 24/10/2013
End date: 24/10/2013
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Carlos Ruiz; Andrea Malandrino; Damien Lacroix; Keita Ito; Jérôme Noailly.

40 **Title of the work:** Explicit simulation of muscle activation in combination with intervertebral disc swelling reproduces in vivo intradiscal pressures in a L3-S1 lumbo-sacral spine model
Name of the conference: 3rd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics (ESB)
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 24/10/2013
End date: 24/10/2013
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Themis Toumanidou; Jérôme Noailly. Available on-line at: <http://www.ibecbarcelona.eu/events/index.php?option=com_content&Itemid=294&id=170&lang=en&layout=edit&view=article>.

41 **Title of the work:** Simulación a nivel celular de la aterosclerosis: Modelo basado en agentes
Name of the conference: 3rd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics (ESB)
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 24/10/2013
End date: 24/10/2013
Organising entity: FUNDACIO PRIVADA INSTITUT DE BIOENGINYERIA DE CATALUNYA
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Andy L Olivares; Jérôme Noailly.

42 **Title of the work:** Exploring the link between mechanical load and cell death in the intervertebral disc: a theoretical study of mechano-regulated hypermetabolism and metabolic transport
Name of the conference: 8th Combined Meeting of Orthopaedic Research Societies
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: San Servolo, Venice, Italy

Date of event: 13/10/2013
End date: 16/10/2013
Organising entity: European Orthopaedic Research Society (EORS) **Type of entity:** Associations and Groups
With external admission assessment committee: Yes
Andrea Malandrino; Damien Lacroix; Jérôme Noailly.

43 **Title of the work:** Calculating the variability of endplate permeability in the lumbar vertebra and influence on the intervertebral disc mechanobiology
Name of the conference: 19th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Patras, Peloponnisos, Greece
Date of event: 25/08/2013
End date: 28/08/2013
Organising entity: University of Patras **Type of entity:** University
City organizing entity: Patras, Peloponnisos, Greece
With external admission assessment committee: Yes
Andrea Malandrino; Damien Lacroix; Stephen Ferguson; Keita Ito; Christian Hellmich; Jérôme Noailly.

44 **Title of the work:** Lumbar muscle forces and Intradiscal pressure derived from external loading by using a muscle constitutive model
Name of the conference: 19th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Patras, Peloponnisos, Greece
Date of event: 25/08/2013
End date: 28/08/2013
Organising entity: University of Patras **Type of entity:** University
City organizing entity: Patras, Peloponnisos, Greece
With external admission assessment committee: Yes
Themis Toumanidou; Gerard Fortuny Anguera; Jérôme Noailly.

45 **Title of the work:** Subject-specific models to identify the biphasic properties of degenerated intervertebral discs
Name of the conference: 19th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Patras, Peloponnisos, Greece
Date of event: 25/08/2013
End date: 28/08/2013
Organising entity: University of Patras **Type of entity:** University
City organizing entity: Patras, Peloponnisos, Greece
With external admission assessment committee: Yes
Andrea Malandrino; Carlos Ruiz; David Volkheimer; Hans-Joachim Wilke; José María Pozo; Damien Lacroix; Jérôme Noailly.

46 **Title of the work:** Intervertebral disc cell death explained by metabolism-deformation couplings in a porohyperelastic finite element model
Name of the conference: 5th Biot Conference on Poromechanics
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Vienna, Austria
Date of event: 10/07/2013
End date: 12/07/2013
Organising entity: Vienna University of Technology
City organizing entity: Vienna, Austria
Publication in conference proceedings: Yes
With external admission assessment committee: Yes
Type of contribution: Book chapter
Andrea Malandrino; Damien Lacroix; Jérôme Noailly. En: Poromechanics V. pp. 2193 - 2201. American Society of Civil Engineers, Available on-line at: <http://dx.doi.org/10.1061/9780784412992.258>. ISBN 978-0-7844-1299-2

47 **Title of the work:** Assessment of a muscle constitutive model through the biomechanical analysis of a L3-L5 lumbar spine musculoskeletal model under upper-body inclination
Name of the conference: 11th International Symposium, Computer Methods in Biomechanics and Biomedical Engineering
Type of event: Symposium
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Salt Lake City, United States of America
Date of event: 03/04/2013
End date: 07/04/2013
Organising entity: University of Utah
Type of entity: University
City organizing entity: Salt Lake City, United States of America
With external admission assessment committee: Yes
Themis Toumanidou; Gerard Fortuny Anguera; Damien Lacroix; Jérôme Noailly.

48 **Title of the work:** In Silico determination of the vertebral bony endplate morphology and permeability and its relation to intervertebral disc mechanobiology
Name of the conference: 11th International Symposium, Computer Methods in Biomechanics and Biomedical Engineering
Type of event: Symposium
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Salt Lake City, United States of America
Date of event: 03/04/2013
End date: 07/04/2013
Organising entity: University of Utah
Type of entity: University
City organizing entity: Salt Lake City, United States of America
With external admission assessment committee: Yes
Andrea Malandrino; Damien Lacroix; Stephen J Ferguson; Keita Ito; Christian Hellmich; Jérôme Noailly.

49 **Title of the work:** A Hill-type hyperelastic lumbar spine muscle model
Name of the conference: 2nd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics (ESB)
Type of event: Workshop
Geographical area: National

Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 25/10/2012
End date: 25/10/2012
Organising entity: Universidad de Sevilla
Type of entity: University
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Themis Toumanidou; Gerard Fortuny Anguera; Damien Lacroix; Jérôme Noailly.

50 **Title of the work:** Estrategias para enfrentar inestabilidades en la velocidad de fluido en modelos porohiperelásticos para tejidos blandos: el ejemplo del disco intervertebral
Name of the conference: 2nd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics (ESB)
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 25/10/2012
End date: 25/10/2012
Organising entity: Universidad de Sevilla
Type of entity: University
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Carlos Ruiz; Jérôme Noailly; Damien Lacroix.

51 **Title of the work:** In silico experiments for the determination of the vertebral bony endplate permeability and its relation to bone morphology
Name of the conference: 2nd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics (ESB)
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 25/10/2012
End date: 25/10/2012
Organising entity: Universidad de Sevilla
Type of entity: University
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Andrea Malandrino; Damien Lacroix; Stephen Ferguson; Keita Ito; Christian Hellmich; Jérôme Noailly.

52 **Title of the work:** Technology transfer in computational biomechanics: from concept to clinics
Name of the conference: 2nd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics (ESB)
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 25/10/2012
End date: 25/10/2012
Organising entity: Universidad de Sevilla
Type of entity: University
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes

Jérôme Noailly.

53 **Title of the work:** A novel active lumbar spine muscle model
Name of the conference: Virtual Physiological Human (VPH) Conference 2012
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: London, United Kingdom
Date of event: 18/09/2012
End date: 20/09/2012
Organising entity: Virtual Physiological Human Network of Excellence (VPHNoE)
Type of entity: European Consortium
With external admission assessment committee: Yes
Themis Toumanidou; Gerard Fortuny Anguera; Damien Lacroix; Jérôme Noailly.

54 **Title of the work:** Mechanical effect on cell viability in healthy and degenerated intervertebral discs
Name of the conference: Virtual Physiological Human (VPH) Conference 2012
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: London, United Kingdom
Date of event: 18/09/2012
End date: 20/09/2012
Organising entity: Virtual Physiological Human Network of Excellence (VPHNoE)
Type of entity: European Consortium
With external admission assessment committee: Yes
Andrea Malandrino; Jérôme Noailly; Damien Lacroix.

55 **Title of the work:** Mesh convergence is affected by poroelasticity in multi-tissue intervertebral disc models
Name of the conference: Virtual Physiological Human (VPH) Conference 2012
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: London, United Kingdom
Date of event: 18/09/2012
End date: 20/09/2012
Organising entity: Virtual Physiological Human Network of Excellence (VPHNoE)
With external admission assessment committee: Yes
Carlos Ruiz; Jérôme Noailly; Damien Lacroix.

56 **Title of the work:** Simulation of the effect of Mechanics on cell viability during degeneration of the intervertebral disc
Name of the conference: 3rd Tissue Engineering and Regenerative Medicine (TERMIS) World Congress
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Vienna, Austria
Date of event: 05/09/2012
End date: 08/09/2012
Organising entity: Tissue Engineering & Regenerative Medicine International Society (TERMIS)
Publication in conference proceedings: Yes
With external admission assessment committee: Yes

Type of contribution: Scientific paper
Andrea Malandrino; Jérôme Noailly; Damien Lacroix. En: Journal of Tissue Engineering and Regenerative Medicine. 6, pp. 389.

57 **Title of the work:** A continuum model for the whole muscle
Name of the conference: 18th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Lisbon, Portugal
Date of event: 01/07/2012
End date: 04/07/2012
Organising entity: Instituto Superior Técnico (IST)
Type of entity: University
City organizing entity: Lisbon, Portugal
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Themis Toumanidou; Jérôme Noailly; Dolors Puigjaner; Gerard Fortuny. En: Journal of Biomechanics. 45, pp. S414.

58 **Title of the work:** Cartilage endplate composition controls the functional fluid transport in and out of the disc
Name of the conference: 18th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Lisbon, Portugal
Date of event: 01/07/2012
End date: 04/07/2012
Organising entity: Instituto Superior Técnico (IST)
Type of entity: University
City organizing entity: Lisbon, Portugal
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Jérôme Noailly; Damien Lacroix. En: Journal of Biomechanics. 45, pp. S610.

59 **Title of the work:** Hip anatomical variations as a possible onset of coxarthrosis in young patients
Name of the conference: 18th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Lisbon, Portugal
Date of event: 01/07/2012
End date: 04/07/2012
Organising entity: Instituto Superior Técnico (IST)
Type of entity: University
City organizing entity: Lisbon, Portugal
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Antonio J Sánchez; Jérôme Noailly; Màrius Valera; Ignasi Proubasta; Damien Lacroix. En: Journal of Biomechanics. 45, pp. S163.

60 **Title of the work:** Material discontinuities create fluid flow instabilities in intervertebral disc poroelastic finite element models
Name of the conference: 18th Congress of the European Society of Biomechanics (ESB)

Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Lisbon, Portugal
Date of event: 01/07/2012
End date: 04/07/2012
Organising entity: Instituto Superior Técnico (IST)
Type of entity: University
City organizing entity: Lisbon, Portugal
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Carlos Ruiz; Jérôme Noailly; Damien Lacroix. En: Journal of Biomechanics. 45, pp. S600.

61 **Title of the work:** Mechanical effect and cell viability within the intervertebral disc
Name of the conference: 18th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Lisbon, Portugal
Date of event: 01/07/2012
End date: 04/07/2012
Organising entity: Instituto Superior Técnico (IST)
Type of entity: University
City organizing entity: Lisbon, Portugal
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Andrea Malandrino; Jérôme Noailly; Damien Lacroix. En: Journal of Biomechanics. 45, pp. S605.

62 **Title of the work:** On the constitutive modelling of lumbar spine muscles
Name of the conference: 18th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Lisbon, Portugal
Date of event: 01/07/2012
End date: 04/07/2012
Organising entity: Instituto Superior Técnico (IST)
Type of entity: University
City organizing entity: Lisbon, Portugal
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Themis Toumanidou; Gerard Fortuny Anguera; Damien Lacroix; Jérôme Noailly. En: Journal of Biomechanics. 45, pp. S609.

63 **Title of the work:** Constitutive Modelling of the Lumbar Spine Musculature
Name of the conference: 10th International symposium on Computer Methods in Biomechanics and Biomedical Engineering
Type of event: Symposium
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Berlin, Germany
Date of event: 11/04/2012
End date: 14/04/2012
With external admission assessment committee: Yes

Themis Toumanidou; Gerard Fortuny Anguera; Damien Lacroix; Jérôme Noailly.

64 **Title of the work:** Material discontinuities create fluid flow instabilities in intervertebral disc poroelastic finite element models
Name of the conference: 10th International symposium on Computer Methods in Biomechanics and Biomedical Engineering
Type of event: Symposium
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Berlin, Germany
Date of event: 11/04/2012
End date: 14/04/2012
With external admission assessment committee: Yes
Carlos Ruiz; Jérôme Noailly; Damien Lacroix.

65 **Title of the work:** Mechanical effect on metabolic transport and cell viability in the intervertebral disc
Name of the conference: 10th International symposium on Computer Methods in Biomechanics and Biomedical Engineering
Type of event: Symposium
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Berlin, Germany
Date of event: 11/04/2012
End date: 14/04/2012
With external admission assessment committee: Yes
Andrea Malandrino; Jérôme Noailly; Damien Lacroix.

66 **Title of the work:** Numerical Simulations Relate The Functional Direction - Dependence Of Fluid Flow Through The Vertebral Cartilage Endplate With Tissue Composition Gradients
Name of the conference: 2012 Annual Meeting of the Orthopaedic Research Society (ORS)
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: San Francisco, United States of America
Date of event: 04/02/2012
End date: 07/02/2012
Organising entity: The Orthopaedic Research Society (ORS)
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix.

67 **Title of the work:** A mechano-transport computational model for the study of intervertebral disc degeneration
Name of the conference: 1st Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Zaragoza, Aragon, Spain
Date of event: 10/11/2011
Organising entity: Universidad de Zaragoza
Type of entity: University
City organizing entity: Zaragoza, Aragon, Spain

With external admission assessment committee: Yes
Andrea Malandrino; Jérôme Noailly; Damien Lacroix.

68 **Title of the work:** Estudio de convergencia de malla del disco intervertebral
Name of the conference: 1st Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics
Type of event: Workshop
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Zaragoza, Aragon, Spain
Date of event: 10/11/2011
Organising entity: Universidad de Zaragoza
Type of entity: University
City organizing entity: Zaragoza, Aragon, Spain
With external admission assessment committee: Yes
Carlos Ruiz; Jérôme Noailly; Damien Lacroix.

69 **Title of the work:** A micromacro evaluation of the vertebral bony endplate permeability based on computational fluid dynamics
Name of the conference: XXIIIrd Congress of the International Society of Biomechanics (ISB)
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Brussels, Belgium
Date of event: 03/07/2011
End date: 07/07/2011
Organising entity: Université Libre de Bruxelles
Type of entity: University
City organizing entity: Brussels, Belgium
With external admission assessment committee: Yes
Andrea Malandrino; Christian Hellmich; Heinz Redl; Jérôme Noailly; Damien Lacroix.

70 **Title of the work:** Direction-dependent fluid flow through the vertebral cartilage endplate: The likely influence of composition gradients
Name of the conference: XXIIIrd Congress of the International Society of Biomechanics (ISB)
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Brussels, Belgium
Date of event: 03/07/2011
End date: 07/07/2011
Organising entity: Université Libre de Bruxelles
Type of entity: University
City organizing entity: Brussels, Belgium
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix.

71 **Title of the work:** Biomechanically-based optimization of primary fiber organization in complex soft tissues
Name of the conference: 17th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Edinburgh, United Kingdom
Date of event: 05/07/2010
End date: 08/07/2010

Organising entity: University of Edinburgh **Type of entity:** University
City organizing entity: Edinburgh, United Kingdom
With external admission assessment committee: Yes
Andreas Schmocker; Jérôme Noailly; Damien Lacroix.

72 **Title of the work:** Collagen angle distribution in the annulus fibrosus: a particular parameter for disc stabilization and lumbar spine model improvement
Name of the conference: 17th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference **Geographical area:** European Union
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Edinburgh, United Kingdom
Date of event: 05/07/2010
End date: 08/07/2010
Organising entity: University of Edinburgh **Type of entity:** University
City organizing entity: Edinburgh, United Kingdom
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix.

73 **Title of the work:** Effect of loading regimes on the reactive diffusive transport of oxygen in a coupled 3D finite element model of the lumbar intervertebral disc
Name of the conference: 17th Congress of the European Society of Biomechanics (ESB)
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Edinburgh, United Kingdom
Date of event: 05/07/2010
End date: 08/07/2010
Organising entity: University of Edinburgh **Type of entity:** University
City organizing entity: Edinburgh, United Kingdom
With external admission assessment committee: Yes
Andrea Malandrino; Jérôme Noailly; Damien Lacroix.

74 **Title of the work:** 3D simulation of the effect of lumbar disc degeneration on oxygen levels under compression
Name of the conference: Tissue Engineering and Regenerative Medicine International Society (TERMIS) EU Meeting 2010
Type of event: Conference **Geographical area:** International
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Galway, Ireland
Date of event: 13/06/2010
End date: 17/06/2010
Organising entity: Network of Excellence for Functional Biomaterials (NFB) **Type of entity:** European Consortium
Publication in conference proceedings: Yes **With external admission assessment committee:** Yes
Type of contribution: Scientific paper
Andrea Malandrino; Jérôme Noailly; Damien Lacroix. En: Journal of Tissue Engineering and Regenerative Medicine. 6, pp. 389.

75 **Title of the work:** Regional annulus fibre orientations used as a tool for the calibration of lumbar intervertebral disc finite element models
Name of the conference: 9th International symposium on Computer Methods in Biomechanics and Biomedical Engineering
Type of event: Symposium
Geographical area: International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Valencia, Valencian Community, Spain
Date of event: 24/02/2010
End date: 27/02/2010
With external admission assessment committee: Yes
Andrea Malandrino Malandrino; Jérôme Noailly; Damien Lacroix.

76 **Title of the work:** Significance of the collagen criss-cross angle distributions in lumbar annuli fibrosi as revealed by finite element simulations
Name of the conference: 9th International symposium on Computer Methods in Biomechanics and Biomedical Engineering
Type of event: Symposium
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Valencia, Valencian Community, Spain
Date of event: 24/02/2010
End date: 27/02/2010
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix.

77 **Title of the work:** Can the Annulus Fibrosus Anisotropy Affect Predictions of Lumbar Spine Models?
Name of the conference: 55th Annual Meeting of the Orthopaedic Research Society (ORS)
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Las Vegas, United States of America
Date of event: 22/02/2009
End date: 25/02/2009
Organising entity: The Orthopaedic Research Society (ORS)
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Jérôme Noailly; Josep A Planell; Damien Lacroix.

78 **Title of the work:** Influencing biophysical properties of fibrin with calcium, chloride and Factor XIII
Name of the conference: 55th Annual Meeting of the Orthopaedic Research Society (ORS)
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Las Vegas, United States of America
Date of event: 22/02/2009
End date: 25/02/2009
Organising entity: The Orthopaedic Research Society (ORS)
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Esther Potier; Jérôme Noailly; Christoph M Sprecher; Keita Ito.

79 **Title of the work:** Effects of fibrin component compositions on fibrin structure and cell viability
Name of the conference: Tissue Engineering and Regenerative Medicine International Society (TERMIS) EU Meeting 2008
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Porto, Portugal
Date of event: 22/06/2008
End date: 26/06/2008
Organising entity: University of Minho
Type of entity: University
City organizing entity: Braga, Portugal
Publication in conference proceedings: Yes
With external admission assessment committee: Yes
Type of contribution: Scientific paper
Esther Potier; Jérôme Noailly; Christoph M Sprecher; Keita Ito. En: Tissue Engineering Part A. 14, pp. 843 - 844.

80 **Title of the work:** A Poroviscoelastic Description of Fibrin Gels for use in Tissue Engineering
Name of the conference: 54th Annual Meeting of the Orthopaedic Research Society (ORS)
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: San Francisco, United States of America
Date of event: 02/03/2008
End date: 05/03/2008
Organising entity: The Orthopaedic Research Society (ORS)
Type of entity: Associations and Groups
With external admission assessment committee: Yes
Jérôme Noailly; Hans van Oosterwyck; Keita Ito.

81 **Title of the work:** Poroviscoelastic description of fibrin gels
Name of the conference: 2007 Summer Workshop of the European Society of Biomechanics
Type of event: Workshop
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Dublin, Ireland
Date of event: 26/08/2007
End date: 28/08/2007
Organising entity: Trinity College Dublin
Type of entity: University
City organizing entity: Dublin, Ireland
With external admission assessment committee: Yes
Jérôme Noailly; Hans van Oosterwyck; Wouter Wilson; Keita Ito.

82 **Title of the work:** Interaction of a novel intervertebral disc substitute with the lumbar spine tissue biomechanics – A finite element study
Name of the conference: 5th World Congress of Biomechanics
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Munich, Germany
Date of event: 29/07/2006
End date: 04/08/2006

With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix; Josep A Planell; Elisabeth Tanner; Luigi Ambrosio. En: Journal of Biomechanics. 39, pp. S263.

83 **Title of the work:** Study of the interaction between geometry and mechanical behaviour of a lumbar spine model – Consequence on the validation
Name of the conference: 5th World Congress of Biomechanics
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Munich, Germany
Date of event: 29/07/2006
End date: 04/08/2006
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix; Josep A Planell; Hendrik Schmidt; Frank Heuer; Hans-Joachim Wilke. En: Journal of Biomechanics. 39, pp. S455.

84 **Title of the work:** Development of a L3-L5 bi-segment lumbar spine finite element model: influence of geometry on the model biomechanics and implications on the validation process
Name of the conference: 7th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering
Type of event: Symposium
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Antibes, France
Date of event: 22/03/2006
End date: 25/03/2006
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix; Josep A Planell; Hendrik Schmidt; Frank Heuer; Hans-Joachim Wilke.

85 **Title of the work:** Effect of changes of collagen orientation in the lumbar spine intervertebral discs
Name of the conference: ESB 2004 Conference
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: 'S-Hertogenbosh, Holland
Date of event: 04/07/2004
End date: 07/07/2004
Organising entity: Eindhoven University of Technology
Type of entity: University
City organizing entity: Eindhoven, Holland
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix; Josep A Planell.

86 **Title of the work:** Papel biomecánico de las fibras de colágeno en la anisotropía funcional del disco intervertebral
Name of the conference: IV Jornadas de Recerca en Enginyeria Biomèdica JEBC'04
Type of event: Workshop
Geographical area: Regional
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Barcelona, Catalonia, Spain
Date of event: 08/06/2004

End date: 10/06/2004
Organising entity: Universitat Politècnica de Catalunya
Type of entity: University
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix; Josep A Planell.

87 **Title of the work:** Estudio por elementos finitos de un nuevo disco sintético para la sustitución de discos intervertebrales
Name of the conference: Métodos Computacionais em Engenharia
Type of event: Conference
Geographical area: Iberian
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Lisbon, Portugal
Date of event: 31/05/2004
End date: 02/06/2004
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix; Josep A Planell.

88 **Title of the work:** Stress analysis in the lumbar spine: mechanical role of the internal components
Name of the conference: 1st International Congress on Computational Bioengineering
Type of event: Conference
Geographical area: International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Zaragoza, Aragon, Spain
Date of event: 24/09/2003
End date: 26/09/2003
Organising entity: Universidad de Zaragoza
Type of entity: University
City organizing entity: Zaragoza, Aragon, Spain
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix; Josep A Planell.

89 **Title of the work:** The mechanical significance of the lumbar spine components – A finite element stress analysis
Name of the conference: 2003 Summer Bioengineering Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Key Biscayne, United States of America
Date of event: 25/06/2003
End date: 29/06/2003
Organising entity: American Society of Mechanical Engineering
Type of entity: Associations and Groups
With external admission assessment committee: Yes

90 **Title of the work:** Análisis de las transferencias de carga en el raquis lumbar: un estudio por elementos finitos
Name of the conference: Terceres Jornadas de Recerca en Enginyeria Biomèdica
Type of event: Workshop
Geographical area: Regional
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Vic, Catalonia, Spain

Date of event: 13/06/2002
End date: 14/06/2002
Organising entity: Universitat Politècnica de Catalunya
Type of entity: University
City organizing entity: Barcelona, Catalonia, Spain
With external admission assessment committee: Yes
Jérôme Noailly; Damien Lacroix; Josep A Planell.

R&D management and participation in scientific committees

Scientific, technical and/or assessment committees

1 **Committee title:** Executive board (President from 2013 to 2014)
Geographical area: National
Affiliation entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB)
Type of entity: Associations and Groups
Start-End date: 10/11/2011 - 20/11/2015

2 **Committee title:** Institutional Representation (IBEC)
Geographical area: Non EU International
Affiliation entity: Virtual Physiological Human Institute (VPHI)
Type of entity: Associations and Groups
Start-End date: 2012 - 2014

3 **Committee title:** Review Panel
Geographical area: National
Affiliation entity: German Research Foundation
Type of entity: State agency
City affiliation entity: Germany
Start-End date: 2012 - 2013

4 **Committee title:** Award Review Panel
Affiliation entity: European Society of Biomechanics (ESB)
Type of entity: Associations and Groups
Start-End date: 2012 - 2012

5 **Committee title:** Review Panel
Geographical area: National
Affiliation entity: Fundação para a Ciência e Tecnologia
Type of entity: State agency
City affiliation entity: Portugal
Start-End date: 2012 - 2012

6 **Committee title:** Review Panel
Geographical area: Non EU International
Affiliation entity: AO Spine Research
Type of entity: Foundation
Start-End date: 2010 - 2012

7 **Committee title:** Review Panel
Geographical area: National
Affiliation entity: Netherlands Organisation for Scientific Research
Type of entity: State agency
City affiliation entity: Holland
Start-End date: 2010 - 2010

8 **Committee title:** Frontiers Editorial Board (Review Editor)
Affiliation entity: Frontiers in Bioengineering and Biotechnology
Type of entity: Business
Start date: 27/04/2015

9 **Committee title:** Student Committee (Co-chair)
Affiliation entity: Virtual Physiological Human Institute (VPHI)
Type of entity: Associations and Groups
Start date: 16/03/2015

10 **Committee title:** Review Panel
Affiliation entity: Agencia Nacional de Evaluación y Prospectiva
Type of entity: State agency
Start date: 2014

11 **Committee title:** PhD evaluation commitees
Geographical area: Non EU International
Affiliation entity: Universitat Politècnica de Catalunya, Université Claude Bernard Lyon 1, Universidad de Sevilla, Universidad de Barcelona, Universidad de Zaragoza, Politecnico di Milano, Universidad del Valle
Type of entity: University
Start date: 2012

Organization of R&D activities

1 **Title of the activity:** 23rd Congress of the European Society of Biomechanics (ESB 2017)
Type of activity: Scientific congress
City of event: Sevilla, Andalusia, Spain
Convening entity: European Society of Biomechanics (ESB)
Type of entity: Associations and Groups
Type of participation: Organiser
Start-End date: 02/07/2017 - 05/07/2017

2 **Title of the activity:** Mini Symposium "Computational Mechanics and Systems Biology in Mechanobiology" at the 12th World Congress on Computational Mechanics (WCCM XII)
Type of activity: Scientific Congress
Geographical area: Non EU International
Convening entity: Korean Society of Mechanical Engineers - Korean Society for Computational Mechanics
Type of entity: Associations and Groups
City convening entity: Seoul, Republic of Korea
Start-End date: 24/07/2016 - 29/07/2016

3 **Title of the activity:** Barcelona VPH Summer School 2016
Type of activity: Education
City of event: Barcelona, Catalonia, Spain
Convening entity: Universitat Pompeu Fabra, Virtual Physiological Human Institute
Type of participation: Organiser
Start-End date: 30/05/2016 - 03/06/2016

4 **Title of the activity:** Symposium “Multiphysics and Biophysical Phenomena in Soft Tissue Modelling” at the IV International Conference on Computational Bioengineering (ICCB 2015)
Type of activity: Scientific Congress
City of event: Barcelona, Catalonia, Spain
Convening entity: International Center for Numerical Methods in Engineering (CIMNE) **Type of entity:** University Centres and Structures and Associated Bodies
Type of participation: Organiser
Start-End date: 14/09/2014 - 16/09/2015

5 **Title of the activity:** Special Topic “Modelling multi-physics and complex phenomena in soft tissues: from tissue regulation to tissue description” at the 7th World Congress of Biomechanics (WCB 2014)
Type of activity: Scientific Congress
City of event: Boston, United States of America
Convening entity: World Council of Biomechanics **Type of entity:** Associations and Groups
Type of participation: Organiser
Start-End date: 06/07/2014 - 11/07/2014

6 **Title of the activity:** Symposium “Spine Biomechanics” at the 7th World Congress of Biomechanics (WCB 2014)
Type of activity: Scientific Congress
City of event: Boston, United States of America
Convening entity: World Council of Biomechanics **Type of entity:** Associations and Groups
Type of participation: Organiser
Start-End date: 06/07/2014 - 11/07/2014

7 **Title of the activity:** 3rd Annual Meeting of the Spanish National Chapter of the European Society of Biomechanics
Type of activity: Education - Scientific meeting **Geographical area:** National
City of event: Barcelona, Catalonia, Spain
Convening entity: Spanish National Chapter of the European Society of Biomechanics (CAPESB) **Type of entity:** Associations and Groups
City convening entity: Barcelona, Catalonia, Spain
Type of participation: Organiser
Start-End date: 23/10/2013 - 24/10/2013

8 **Title of the activity:** Mini-symposium "Soft tissue modelling in bioengineering: from poroelasticity to tissue biophysics" at the 5th Biot Conference on Poromechanics (BIOT 2013)
Type of activity: Scientific Congress
Convening entity: American Society of Civil Engineering (ASCE) **Type of entity:** Associations and Groups
City convening entity: Vienna, Austria
Type of participation: Organiser
Start-End date: 10/07/2013 - 12/07/2013

9 **Title of the activity:** Course about the use of Open source software for finite element analyses in biomechanics (special focus on Salome-Meca)
Type of activity: Education
City of event: Barcelona, Catalonia, Spain
Convening entity: Universitat Rovira i Virgili **Type of entity:** University
Type of participation: Organiser
Start-End date: 02/01/2012 - 29/02/2012

10 **Title of the activity:** 17th conference of the European Society for Biomaterials
Type of activity: Scientific congress **Geographical area:** Internacional
City of event: Barcelona, Spain
Convening entity: European Society of Biomaterials **Type of entity:** Associations and Groups
City convening entity: Barcelona, Catalonia, Spain
Type of participation: Organiser
Start-End date: 2001 - 2002

Other achievements

Stays in public or private R&D centres

1 **Entity:** Université Technologique de Compiègne (UTC) **Type of entity:** University
Faculty, institute or centre: LABEX MS2T Control of Technological Systems of Systems
City of entity: Compiègne, France
Start-End date: 07/04/2014 - 08/08/2014 **Duration:** 4 months
Funding entity: Agence Nationale pour la Recherche
Goals of the stay: Contracted
Provable tasks: Exploration of the complex relations between cartilage multiphysics and quantitative Magnetic Resonnance Image signals

2 **Entity:** Eindhoven University of Technology **Type of entity:** University
Faculty, institute or centre: Biomedical Engineering Department (BME)
City of entity: Eindhoven, Holland
Start-End date: 01/03/2008 - 14/01/2009
Goals of the stay: Guest
Provable tasks: Computational mechanobiology developments for the study of fibrin scaffolds through finite element modelling

3 **Entity:** AO Research Institute (AO Foundation) **Type of entity:** Foundation
City of entity: Davos, Switzerland
Start-End date: 15/01/2007 - 28/02/2008
Funding entity: European Commission
Goals of the stay: Contracted
Provable tasks: Characterization, optimization, and finite element modelling of fibrin gels for the 3D culture of bone marrow stromal cells

4 **Entity:** Ulm University **Type of entity:** University
Faculty, institute or centre: Institute of Orthopaedic Research and Biomechanics (UFB)
City of entity: Ulm, Germany

Start-End date: 15/09/2004 - 15/12/2004
Goals of the stay: Doctorate
Provable tasks: Experimental validation of lumbar spine finite element models